"Step after step the ladder is ascended."—George Herbert, *Jacula Prudentum*.
Agriculture is the most healthful, most useful, and most noble employment of man."—Washington

THE

TROPICAL AGRICULTURIST:

(ESTABLISHED 1881.)

A MONTHLY RECORD OF INFORMATION FOR PLANTERS

OF

TEA, CACAO, COFFEE, PALMS, RUBBER, CINCHONA, SUGAR, FIBRES, COTTON, TOBACCO, SPICES, CAMPHOR, RICE,

AND OTHER PRODUCTS SUITED FOR CULTIVATION IN THE TROPICS:

Circulating in India, Ceylon, Burma, Straits, Java, Sumatra, Borneo, Northern Australia, Queensland, Fiji, Mauritius, Natal, East and West Africa, West Indies, South and Central America, California, Southern States, and throughout Great Britain.

EDITED BY

J. FERGUSON,

Of the "Ceylon Observer," "Ceylon Handbook and Directory," "Pioneers of the Planting Enterprise," Planting Manuals, "Ceylon in 1903" (Illustrated), &c.

"It is both the duty and interest of every owner and cultivator of the soil to study the best means of rendering that soil subservient to his own and the general wants of the community; and he, who introduces, beneficially, a new and useful *Seed, Plant or Shrub* into his district, is a blessing and an honour to his country."—Sir J. Sinclair.

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TO OUR READERS.

In closing the Twenty-second Volume of the "**Tropical Agriculturist,**" we would as usual direct attention to the large amount of useful information afforded and to the great variety of topics treated in the several numbers. From month to month, we have endeavoured to embody in these pages the latest results of practical experience and scientific teaching in all that concerns tropical agriculture; and our ambition has been to make this periodical not only indispensable to the planter, but of service to business-men and capitalists, never forgetting that agriculture trenches upon every department of human knowledge, beside being the basis of personal and communal wealth.

While directing our attention chiefly to the products prominently mentioned on our title-page, we have always taken care to notice minor industries likely to fit in with sub-tropical conditions; and our readers have an ample guarantee in the index pages before them, that, in the future, no pains will be spared to bring together all available information both from the West and East, the same being examined in the light of the teachings of common sense as well as of prolonged tropical experience in this, the leading Crown and Planting Colony of the British Empire.

Special attention has, for a few years back, been given to the introduction and extension in Ceylon, the Straits, Burmah, &c., of an industry in rubber-yielding trees (more especially in the planting of Para and Castilloa trees), and much literature on the subject will be found throughout our pages; also on cacao in Central America and the West Indies as well as in Ceylon; to "Spices" of various kinds (nutmegs, camphor, &c.); to palms, especially "coconuts" in different districts; to coffee and allied products in Brazil, Mexico. Costa Rica, East Java, Nyassaland, British Central Africa; Liberian Coffee in Sumatra, Java, the Straits Settlements; and to other new developments in palms and tobacco planting, &c, in the Malayan Peninsula, Sumatra and North Borneo, as well as in this Island.

The Tea-planting Industry has sprung into so much importance in India (South as well as North) and Ceylon, as also in Java, that a considerable amount of space is naturally given to this great staple; and with reference to all Companies' Reports, to Sales and Prices, as well as to hints for economising, we think it will be admitted by impartial jndges that the *Tropical Agriculturist* should be filed, for the convenience of planters, in every Tea Factory in this Island, in India and in Java.

A full and accurate Index affords the means of ready reference to every subject treated in this, the Twenty-second Volume, which we now place in our subscribers' hands, in the full confidence that it will be received with an amount of approval, at least equal to that which has been so kindly extended to its predecessors.

To show how fully other Products besides Tea are treated in this volume, we may mention the number of entries under several headings as follows:—Coffee (including Liberian) 35; Cacao 40; Indiarubber 160; many besides to Gutta Percha; to Coconuts and other Palms, Rice and other Grain, Cinchona, Camphor, Cloves, Fibres, Tobacco, Fruits and Miscellaneous Products over 1,000. In the 22 volumes, the references to Rubber, Cacao and Coffee number many thousands, as also to Coconuts and other Palms.

A "Topical Index" to the twenty-two volumes is now in active course of preparation, and we trust to publish it before the close of the present year.

We are convinced that no more suitable or useful addition can be made to a Planting Company's Library or gift to a tropical planter or agriculturist, whether he be about to enter on his career, or with many years of experience behind him, than the twenty-two volumes of our periodical which we have now made available. They are full of information bearing on every department and relating to nearly every product within the scope of sub-tropical industries.

In conclusion, we have to tender our thanks to readers and contributors, and our wish that all friends many continue to write instructively and to read with approval; for then, indeed, must the "**Tropical Agriculturist**" continue to do well.

COLOMBO, CEYLON; 15TH JULY, 1903.

NOTICE.

THE interest and responsibility of Mr. DONALD WILLIAM FERGUSON of 20, Beech House Road, Croydon, in the "*Ceylon Observer*" and connected publications, and in our firm, ceased on the 30th June last.

A. M. & J. FERGUSON.

Colombo, 11th July, 1903.

MR. RONALD HADDON FERGUSON, B.A., has been admitted a Partner in our Firm as from the 1st instant.

A. M. & J. FERGUSON.

Colombo, 11th July, 1093.

[With reference to the above notice, we may mention that Mr. IVOR ETHERINGTON, with experience gained as Assistant Editor on "*The Farmer and Gardener*" in England, will henceforward take charge of the *Tropical Agriculturist*, and many improvements are contemplated during the coming year. One of Mr. Etherington's first duties will be to prepare the much-required "Topical Index" to the series of 22 volumes, so that the really valuable information in each set, can be made readily accessible. The Prizes offered for Essays based on the matter in the current volume, will, we trust, quicken interest in the "*T. A.*" and increase the number of its readers; and Advertisers should make a note of this.—A. M. & J. F.]

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For cultivators of New Products, it is invaluable, telling us so much that is doing in other countries with the results of their work in Rubber, Fibres, Tobacco, Cotton, Camphor and other Spices, &c.—"Planter."

A gentleman resident in the Central Province, who has as good opportunities of knowing what is of benefit to Planters as anyone we know, sent us the following explicit testimony to the value of the "*T.A.*"—

"Since its commencement, I have regularly seen and perused the *Tropical Agriculturist*. There can be but one opinion that its scope and object are highly important, and that it supplies a distinct desideratum, which it is to the interest of every estate proprietor, to have available in the bungalow for the use of his *locum tenens*, or superintendent. As a magazine it provides varied and instructive fresh literature at intervals; deprived, as most in Ceylon are, of easy access to libraries; and as years go by it will growingly become 'The Ceylon Encyclopædia' with reference to agricultural operations. Viewing estate property as practically a permanent investment to any proprietor, the trifling charge of R12 per annum—a rupee a month—is certainly of no account, provided the separate numbers are kept and bound together yearly as a book of reference for the benefit of the manager and his successors. In that light, as the property of an estate to be handed over just as much as its office furniture, few proprietors would probably refuse to authorise its being taken and filed regularly (if the periodical was brought under their notice), more especially as on looking over the most recent volume one cannot fail to see how much valuable information on 'Tea' has been collated. In the belief that 'Tea' has restored prosperity to Ceylon, and that plantation property is a good investment for capitalists, such should not omit the office and connected equipment so advisable on all 'pucka' estates, a part of which should be the *Tropical Agriculturist*. I find I have gone on writing, but, as I am getting the numbers for the past year ready to be bound, the volume is before me."

THE VALUE OF THE "*T.A.*" to CEYLON ESTATE OWNERS.—A planting correspondent wrote some time ago:—"I think proprietors should supply every tea estate with the *T.A.* The information in it with regard to everything in connection with tea, &c. is invaluable; it would pay its value over and over again. Owners of estates should not leave it to hard-up superintendents to take it in."

A CORRESPONDENT WRITES:—"I venture to say the volumes of the *Tropical Agriculturist* will be at a premium a few years hence; it is a book which is bound to rise in value as time rolls on, and subscribers will probably, if they so choose, be able to sell at a handsome profit, besides having had the benefit of using the information in the meantime."

FROM A PROPRIETOR:—"I wonder how many planters know what they lose in not subscribing to your wonderful publication? The cost is absolutely nothing, compared to the convenience of having in a bound book all that is interesting and necessary in the literature of their calling. Information culled from a thousand sources, price lists of all produce sold locally, and home advertisements not seen elsewhere, and a hundred other things necessary for them to see and to know. The *T.A.* is, in fact, a convenient file of useful information daily arising and permanently preserved."

SIR W. T. THISLETON DYER, F.R.S., F.L.S., C.M.G., OF KEW GARDENS:—"Sir Joseph Hooker and myself always look out for the successive numbers of the *T.A.* with eagerness, and I keep a file in my office for reference. It is impossible to speak too highly of the utility of such a publication and of the way it is managed."

SIR GEORGE KING, LATE OF THE CALCUTTA GOVERNMENT MUSEUM: "I know your *Tropical Agriculturist* well, having carefully secured every number since the beginning. You have succeeded in making it a wonderfully useful magazine of information for planters."

SURGEON-MAJOR BIDIE, F.L.S., OF THE GOVERNMENT CENTRAL MUSEUM, MADRAS:—I find the *Tropical Agriculturist* a most interesting and useful publication. It finds a place on the table of our Public Library and is much prized."

The TROPICAL AGRICULTURIST

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FURTHER OBSERVATIONS ON HELOPELTIS.

Circular and Agricultural Journal of the Royal Botanic Gardens, Ceylon, June, 1902.

AT the request of the Kelani Valley Branch of the Ceylon Planters' Association, I visited that district in March last and spent nearly a fortnight on an estate in Yatiyantota, where I had a favourable opportunity of studying the habits of the Helopeltis insect and its effect upon the tea plant.

My investigations on this occasion has shown me that much more work is necessary before an adequate knowledge of the pest can be acquired. I find that the breeding habits of the insect vary at different times of the year, and will necessitate different modes of treatment. Before a complete scheme of treatment can be offered, it will be necessary to have more accurate observations of the insect throughout the year, and from different elevations and localies. At the end of the present paper I have suggested a few ways in which those interested in the matter could materially assist my work.

I now append the results of my investigations and experiments.

Having previously, on several occasions seen the pest at the height of its activity, I endeavoured to time my present visit to enable me to study the insect at the period of its least activity.

There has been a general idea that Helopeltis completely disappears at certain periods. Opinion of local observers varies on this point. Some Superintendents insist that the disappearance is complete; while others maintain that living specimens of the insect may be found, by careful searching, at any time. My own observations lead me to favour the latter supposition. There is no doubt, however, that there are usually two periods of comparative inactivity: the first, from the middle of March to the middle of June; the second during the months of September, October, and November. These periods vary both in duration and intensity. In 1901 reports from an estate near Dehiowita showed very little decrease of activity during the above-mentioned periods. In other years affected fields have apparently enjoyed periods of complete freedom; though it is almost certain that some of the insects must remain upon the bushes, possibly in a partially dormant condition. The conditions (climatic or other) that govern the periodicity of attack have not yet been properly determined. Rainfall does not appear to be an important factor, as the two periods of greatest activity coincide, the one with a season of comparative drought (January, March), the other with a time of heavy rains (July, August). Wind has been suggested as a cause for the decrease of the pest, but I find that strong wind prevails only at one of these periods.

At the time of my present visit the pest was evidently on the decline, *pro tem*, but the fields showed signs of recent severe attack.

My first experiment was to try the effect of a powerful acetylene gas light. An apparatus supplied by Mr. E. B. Creasy, fitted with a burner of 50 candle power, was used for the purpose. The lamp was set up in a hollow where there was ample evidence of recent attack, and where specimens of the insects were being daily captured by hand. A dark still night was chosen, and all conditions were in favour of the experiment. The burner of the lamp projected from the centre of a basin filled with kerosine and water. Insects attracted by the light fell into the basin and were held and killed by the floating film of oil. The lamp was lit at 6.30 p.m., about half an hour after sunset, and remained burning until daylight next morning, when the surface of the liquid was found to be covered with a floating mass of miscellaneous insects. The work of sorting out and examining the catch occupied the whole of the

next day. There were representatives of nearly every family of insects :—Moths (*Lepidoptera*); Caddis-flies (*Trichoptera*); Beetles (*Coleoptera*); Earwigs (*Forficularia*; Flies (*Diptera*); Parasitic Wasps (*Hymenoptera*); Termites (*Neuroptera*); Bugs (*Hemiptera*), both acquatic and terrestrial, including many species of *Capsidae*, a group to which the Helopeltis insect belongs, but not a single example of Helopeltis proper. I had not been sanguine of complete success, but the failure to capture even a single specimen of the enemy was a surprise and a disappointment. It seems evident that the Helopeltis insect is not responsive to attraction by light, though another trial must be made at a time when the pest is in full activity.

I am reserving experiments with a different kind of trap, something on the plan of the hopper-dozers used in America, for trial when the pest is in full activity. I have hopes that by the use of such an apparatus the insects may be captured much more effectually and economically than by hand.

As mentioned above, at the time of my visit the pest had been declining in activity for some weeks. The bushes bore evidence of an earlier severe attack on the mature leaves; but young flush was beginning to come up freely, with only occasional signs of recent injury. An exhaustive examination of many bushes was made to ascertain whether eggs were still being deposited, and in what positions. For this purpose marked bushes were cut across, as in light pruning, and the prunings brought to the bungalow and examined— shoot by shoot, leaf by leaf, and bud by bud—in such a manner that not a single egg could escape detection. The result proved that very few eggs were being deposited at the time, and that a large proportion of those eggs have been deposited in such a position that they could have been untouched by plucking to the initial leaf. Some of the bushes examined had been so badly attacked (previously) that the shoots were small and brush-like, but others had a sufficient amount of new growth to form a possible nidus for the eggs. The larger number of the eggs found were empty. In the following figures only such eggs are reckoned as were judged (by their positions) to have been deposited within the previous month. The average works out at 7·66 groups (the eggs are laid in groups of two or three) per bush examined. Of these, 42 per cent. were above the initial leaf, while the remaining 58 per cent. were in such situations that close plucking would not have touched them. Besides the normal position in the succulent shoots, eggs were found embedded at the base of the unopened axillary leaf bud, and in the thickened base of the midrib of the leaf itself. The flower buds were carefully examined, but no eggs found in them.

The paucity of recently deposited eggs was the more remarkable when it was found that the insects that were being captured at the same time, by the "poochie podians," contained in their bodies a large number of fully-formed eggs than I had previously found in insects examined during the period of greater activity. The day's catch of one of these podians was critically examined. It contained twenty-one female Helopeltis insects and twenty-six males. Dissection of the males showed eggs ranging in number from seven to twenty, and giving an average of 12·25 per insect. My previous record had been eight eggs per insect.

Ten gravid females were confined in glass vessels and supplied with fresh tea shoots. They fed freely, but died on the second day. Examinations of the shoots showed that only one insect had deposited a single group of eggs during the period of captivity.

I can only surmise, from these facts, that this period of inactivity is marked by the retention of the eggs in the bodies of the female insects, to be deposited at some future time when conditions may be more favourable for breeding. How long they may be retained in this manner will be a subject for further investigation.

To test the vitality of eggs in prunings left on the ground, young shoots containing recently deposited eggs were placed in a cardboard box and allowed to dry up. None of these eggs hatched out. On another occasion, some eggs in which the embryo was more fully developed, produced larvæ after the shoot had become dry. I am of opinion, however, that little danger need be apprehended from the hatching of eggs from pruned branches. Such larvæ would find no young shoots upon which to feed, and would die of starvation.

The practical immunity of the indigenous varieties of tea remains established. A few cases of partial attack have been reported, but in all such cases it appears that it has been "shuck" trees, or patches of trees on poor soil, that have been affected. This might be expected, for an indigenious plant, growing under unfavourable conditions, would lose its characteristic free growth and free flow of sap, which is believed to account for its immunity. At the same time it is quite conceivable that the pest may gradually adapt itself to the conditions found in indigenous tea, if allowed the opportunity. Helopeltis insects, confined with shoots of indigenous tea only, will feed freely on them, but such unnatural conditions do not afford any sure guide to the probable conduct of the insects in the field. (When speaking of "Indigenous Tea," I refer both to the Indian varieties and to Singlo-indigenous, *i.e.*, the direct progeny of Indian plants grown in Ceylon.)

Although Helopeltis does not usually attack recently pruned tea, I have records of the return of the pest, in force, after the third tipping.

Search was made for other host-plants of the pest. I was informed that a certain shrub (afterwards found to be *Mussœnda frondosa*), growing amongst the tea, was sometimes punctured, but I did not see any such punctured plants myself. Examination of the jungle, on the edge of affected fields, failed to produce any reliable signs of the pest. Some spotted leaves of *Dalbergia championii* were observed, but these spots proved to be due to a fungous disease. I have since received leaves of a species of *Dillenia* (native name "Decapura") that have undoubtedly been punctured by some sucking insect, and the symptoms are very much those of Helopeltis attack. No eggs of the insects were, however, found in the specimens.

Helopeltis is extending its range in Ceylon. It formerly confined its ravages (as regards the tea plant) to estates situated in the low-country, *e.g.*, Kelani Valley, Kalutara, Udagama, Morawak Korale. I have recently investigated an undoubted case in the neighbourhood of Nawalapitiya, at an elevation of about 2,000 feet, and I hear of other affected estates in the same district. The pest promises to be as virulent here as at lower elevations. The same conditions were observed here as obtained in the Kelani Valley at the same season, viz., a marked paucity of egg-laying, with an exceptionally large number of eggs in the bodies of the female insects. Nine females were dissected, resulting in an average of 13·22 eggs per insect. There was no difficulty in finding recent signs of attack, and insects could be captured in considerable numbers, but I was informed that the pest had been on the decline since the commencement of March.

I have received the following particulars of the habits of Helopeltis in the Morawak Korale district. January to March is usually very dry and hot. Helopeltis has been very severe during those months. Heavy plumps of rain commence in the middle of March, when the flush outgrow the attack and shows little or no signs of injury. Another bad attack commences in June and lasts into August, when strong south-west winds appear to check the pest. I am informed that on one estate Helopeltis was very severe last year, but had not re-appeared in 1902. No reason could be suggested for this disappearance. It is noticeable here, as in the Kelani Valley, that the first period of activity occurs in the dry hot season; while the recrudescence is coincident with continuous S. W. rains.

In the R. B. G, Circular No. 21 (on Helopeltis) I stated that we were without data of the number of moults undergone by the insect during its development, or of the time required for it to reach maturity. I have not yet been able to determine these points for our Ceylonese Helopeltis (*H. antonii*) on tea. But Dr. L. Zehntner of Java has supplied particulars for the insect that feeds on cacao in that country. Dr. Zehntner speaks of it as *H. antonii*, but the Java insect has usually been described as a distinct species (*H. bradyi*). The duration of the different stages is given as six days for the egg stage, followed by five moults at intervals of two days each. The number of moults may prove to be the same in the case of our Ceylonese insect, but the duration of the several stages will probably be affected by different climate and food. For instance, I have repeatedly found that the egg stage of our tea Helopeltis occupies just ten days.

CONCLUSIONS AND SUGGESTIONS.

My recent investigations show me that, at this spring period of inactivity, the formerly advocated system of plucking to the initial leaf will have little or no effect in checking the pest. A similar condition may possibly obtain during the autumn period. It is most important that the egg-laying habit of the insect (*i.e.*, the quantity of eggs being laid, and the position in which they are deposited) should be accurately determined for every month in the year. It may then be possible to formulate some logical scheme of plucking to suit the varying habits of the insect. For the present, I must recommend the abandonment of close plucking. There is no doubt that that system tends to produce a brush-like formation of small shoots particularly suited to the tastes of the Helopeltis. A free succulent growth should be encouraged. Just as anything that tends to reduce the vitality of the "Indigenous" variety lays it open to attack, so any extra vitality in the hybrid or China "jats," producing a character approaching that of the indigenous plant, will incline to make them distasteful to the pest.

At the same time nothing should be allowed to nterfere with the campaign against the insects themselves. The more carefully and thoroughly this work is carried on, the less will be the loss of crop. The average loss through Helopeltis has been estimated at 200 lb. per acre. Putting the profit on that tea at 12 cents a lb., this means a loss of Rs. 24 per acre. This figure would cover, several times over, the cost of systematically catching the insects. The collection of the insects is even more important during the period of partial inactivity, for, as I have shown above, at such times the females contain the maximum number of eggs.

The more I see of the habits of Helopeltis on our tea estates, the more convinced I am that the work of checking this and other insect pests would be very greatly facilitated by breaking up the area into blocks of from 10 to 20 acres, divided from each other by narrow but compact belts of other trees. The insect does not fly high; its flight is weak, and, when on the wing, it is carried from place to place more by the wind than by its own wing power. I have frequently noticed the effect of an ordinary wind-belt in limiting the spread of the pest. It would be possible to fight the pest in such isolated blocks one by one, with some assurance that they would not be immediately re-infected from neighbouring fields. Such a screen would almost certainly prevent the incursion of the pest into fields of indigenous tea. It would be necessary that there should be some thick undergrowth to complete the screen. In districts suitable for them, economic trees and plants might be employed for the belts. For the larger trees, Para rubber, Coconut, Nutmeg, or Kola-nut suggest themselves. For the undergrowth, Croton Oil, Annatto, Castor Oil, or Tapioca might be used. Or the screens might consist of trees and plants, the clippings of which would be suitable for green manure, such as Albizzia moluccana, or "Dadap" (Erythrina), with Crotalaria as an undergrowth. The tea plant itself, allowed to run up, would form a good undergrowth, and might be used for seed production. Tea, grown in this manner, is little—if at all—affected by Helopeltis, which is dependent upon the constant supply of flush, occurring only on pruned bushes. But some other plant would be preferable.

To enable me to complete my investigations on the breeding seasons of the insect, and the position in which the eggs are laid at different times of the year, fresh (if possible, living) specimens of the insects, and the tops of a certain number of bushes, from selected estates, should be sent to me at regular intervals—say on the 15th of each month—for examination. I would suggest that four estates should be selected from different localities, and that the prunings of two bushes from each of these estates should be sent in regularly on the specified dates. Bushes that show the most recent signs of injury should be chosen. If the pest appears to have gone into retirement, bushes from the most lately attacked fields should be selected. The whole top of the bush should be cut off, as in pruning to a level, the prunings from each bush collected and tied up separately in sacking or jute hessian (slightly damped), and despatched by first train to "The Entomologist," R. B. Gardens, Peradeniya. It is important that the specimens should arrive in as fresh condition as possible. At the same time living specimens of the insects (about fifty from each estate), packed in tea sample boxes, should be posted to the same address.

E. ERNEST GREEN,

Government Entomologist.

Peradeniya, May 20, 1902.

DESICCATED COCONUT—AND OIL.

SEYCHELLES, 9TH JUNE, 1902.

(*The Editor, "Tropical Agriculturist," Colombo.*)

SIR,—I am writing to ask if you, or any of your readers can give me information as to the process of dessicated coconut manufacture? What machinery is necessary and its probable cost? What would be the lowest number of coconuts dealt with per day to make it a paying concern at prices now ruling in

Ceylon? Can the manufacture of oil be carried on at the same time and in the same building as the desiccating process? I should be much obliged if you could give answers to the above questions.

I am, yours truly,

VANILLA.

[We would advise "Vanilla" to address one of our Machinery houses, say Messrs. Walker, Sons & Co., Ltd., The Colombo Commercial Co., Ltd., Colombo, as for the requisites in machinery required for desiccated coconut and the oil.—ED. *T.A.*]

FRUIT, SUGAR, TOBACCO, &c. IN JAMAICA.

From a paper read before the Society of arts by Mr. H. T. THOMAS, twenty-five years resident in Jamaica, we quote:—

The products of Jamaica are as numerous and varied as are its climate and degrees of temperature at various altitudes. Its soil is, in most districts, of wonderful fertility; and of it one may truly say that it has only to be tickled with a hoe to make it laugh with a harvest. A great number of those products now rot uselessly on the ground, and still await the touch of capital and enterprise to convert them into sources of wealth. *Oranges*, golden and luscious, grow wild. Only within the last six or seven years, since their value as an article of export has begun to be more and more realised, has any attempt been made at systematic cultivation, and improvement by budding and other processes. The sour *Seville oranges*, of whose rind the most delicious marmalade is made, literally wither on the trees or rot on the ground by millions year by year. The same is true in an even higher degree of the *guava*, the fruit from which the well-known luscious jelly is prepared. In some districts the tree is positively a noxious weed, and has to be cut down and cleared away by the acres to make room for cultivation of other products.

As a matter of fact, in spite of these circumstances, orange marmalade, manufactured in England or Scotland, and imported into Jamaica, can be purchased at a less price than the manufacture of the home-made article costs; and the same would no doubt be the case with guava jelly, if the latter fruit could be procured at home, as oranges are, from other sources. The cause of this apparent anomaly lies in free trade, which has the effect of making the sugar necessary for these manufactures a more expensive article in Jamaica, where the sugar itself is made, than it is at home. And this brings us by a natural process to the discussion of *sugar* itself, and its concomitant, *rum*, which were once the staple of the island, but have now fallen on such evil times, owing entirely to the operations of the free trade principal, as to constitute jointly only 18 per cent of the total value of the exports. The decay of this industry cannot, I think, be more forcibly illustrated than by the statement that, whereas at the beginning of the 19th century there were upwards of 800 sugar estates in cultivation, there are to-day no more than 121. The famous rum of Jamaica, which is a house hold word, has been so largely superseded, even in the island itself, by whiskey, that it is now little more than a recollection and a name. There is, however, a particular description of rum which is only manufactured on certain estates in one district of the island, and which, although utterly unfit for human consumption in its natural condition, is much prized in the German market, and is eagerly bought up at prices which appear enormous when compared with those given for the ordinary kinds.

The place once occupied by sugar in the trade of Jamaica has now been completely usurped by fruit: first the *banana*, and then, a long way after, the *orange* and the *pineapple*. In the year 1875 the first load of bananas was taken away from Jamaica to the United States in a small schooner by a Yankee skipper. In 1879 the total value of the fruit exported from Jamaica was estimated at £40,000, while in the returns for 1899-1900 it is set down at £314,000. These bare figures describe the growth of the fruit trade more eloquently than any words possibly can do. And this trade is entirely the offspring of American enterprise. The Yankee skipper above-mentioned is now the head of the Jamaica branch of the gigantic concern known as the United Fruit Company, whose headquarters are at Boston, Mass., with offices in New York, Philadelphia, Baltimore, and numerous other places in the States, in Central America, and in the West Indies; notably, since the termination of the Spanish-American War, in Cuba and Porto Rico. They own hundreds of thousands of acres of land in Jamaica, employ thousands of labourers, and use thousands of head of horses, mules, and cattle. They contribute thousands of pounds to the Inland Revenue and the Customs of Jamaica, over and above what they spend in wages, &c. Besides shipping their own fruit, they purchase millions of bunches from other growers, and in the busy season, which last from April to July, they despatch from twelve to fourteen steamers a week laden with fruit. They have laid down tramways, and strung telephone wires round half the island. They have converted the town of Port Antonio from a fishing village into a thriving, bustling, business centre. They have built a fine hotel there, on one of the loveliest spots in the whole island, and they fill it every winter with hundreds of tourists brought down from the States in their own steamers, whose money circulates in the island to the common benefit. They have prevented the eastern and north-eastern districts of the island, where the sugar industry fell into decay more rapidly than in any other part of it, from relapsing into the condition of a primeval African wilderness. In short, if there is one man in the world to whom the grateful inhabitants of Jamaica should erect an imperishable monument, that man is the Yankee skipper who took away that load of bananas in 1875.

The Americans are more a nation of fruit-eaters than the English; and it is to this fact, and to their recognition of the actual food value of the banana, that the continued increase of the demand for it is due. It is becoming a common article of diet among the working classes; and we hope to see the day before long when its value in this respect will be equally recognised in the mother country.

In this direction a determined and laudable effort was begun last year by a man who has been aptly described as a "Napoleon of commerce." He is now Sir Alfred Lewis Jones, K.C.M.G., the head of the firm of Elder Dempster & Co. He has built a small fleet of four steamers which ply direct between the port of Bristol and Kingston, Jamaica, making the voyage in twelve to thirteen days. By the terms of his contract, he is bound for a period of five years, to purchase in the land a minimum of 20,000 bunches of bananas every fortnight for sale in the United Kingdom. I well remember the interest and anxiety with which the

arrival of the "Post Morant," the pioneer vessel of the fleet, was awaited througout the island in February last, and the crowds which thronged the wharves to watch her progress up the harbour when her approach was signalled. It was felt that the links which bound the ancient British colony to the mother country, neglected and almost rusted through, were now being forged afresh, and that a new era was about to dawn. And I remember how eagerly the telegram was longed for which should announce the arrival of the ship at Bristol, and the condition of her cargo; and what a wave of relief and rejoicing swept through the island when news of the best was flashed across the wires. Since then the venture has made steady progress, and the fruit trade between Jamaica and England may be regarded as being established on a firm basis. Experience and resolution have corrected the faults and overcome the drawbacks inseparable from the initial stages of such an experiment, and the tide is steadily flowing, never again, let us hope, to ebb.

Not content with exploiting the fruit trade, Sir Alfred Jones has insisted on the advantages of Jamaica as a health and a winter resort— with which I shall deal later on—and has leased from the Government the two principal hotels of the island, placing them under such management that the tourists and invalids whom he conveys thither in his steamers may enjoy to as great a degree as possible the comforts to which they are accustomed at home.

The first-class return fare is only £32, and the voyage—in itself a pleasure and a substantial benefit to those in weak health—lasts but from twelve to thirteen days each way.

The principal disadvantage attending the cultivation of the banana is the danger of destruction by gales of wind that would not affect any other description of cultivation. Added to this is the careful handling which the fruit requires to prevent its being rejected by the buyers on account of bruises. On the other hand the profits are enormous and may be calculated at not less than from £9 to £10 per acre per annum. Thus damages by storm or flood can always be amply recouped within twelve months, the period which elapses between the planting of the sucker and the reaping of the mature fruit.

An excellent, nutritious, and easily digestible flower is made from the green fruit; and the development of this branch of the industry only awaits the discovery of some process by which it will be possible to produce the flour so cheaply as to enable it to compete with wheaten flour. When that shall have become an accomplished fact, millions of bunches which are now unmarketable and are thrown away, or given as food for pigs and other stock, will be turned to use aud profit.

Pineapples are now receiving great attention in Jamaica. Certain kinds of them bear transport better than any other description of frnit with which I am acquainted. Some fellow-passengers of mine brought over several in May last, simply stowed underneath the berths in the cabin, and on our arrival at Bristol, they looked as if they had been gathered the previous day.

The Jamaica orange is second to none in flavour and juiciness, especially the kind which grows—practically quite wild – in the parish of Manchester. Readers of Mr. Froude's "Bow of Ulysses," will remember his almost rapturous description of the Mandeville orange. The great bulk of this fruit is now shipped to the United States; and as already stated, it is being systematically cultivated. Experts who have been drivon out of the state of Florida—Jamaica's chief rival in the American orange market—by repeated frosts, have migrated to Jamaica and turned their attention to the cultivation and packing of the fruit there. This product is also receiving its due share of attention at the hands of Sir Alfred Jones; and I have been greatly gratified by seeing in the fruiterers' shops in Bedford, Jamaica oranges which in appearance and flavour leave nothing whatever to be desired.

The cultivation of *cocoa* has very largely incroased of late years. It is now planted, almost as a matter of course, in all the banana fields, where the bananas afford the young plants the shade which is indispensable to them for the first year of their existence. The same soil suits both, and the one cultivation does not interfere with the other in the slightest degree. At the same time the art of curing the cocoa is much better understood than was previously the case, and the Jamaica product is now steadily bridging the great gulf in price that not long since lay between it and the celebrated Trinidad cocoa.

Coffee has shared the fate of most other products, and suffered disastrously in competition with other producing centres of vast extent which are being opened up year by year; but the delicate Blue Monutain coffee, which is grown at high altitudes among the monntains, still maintains its reputation for unrivalled flavour, and has not been affected by competition in the same manner as the lower grades.

I am unable to assign any reason for the fact that the excellence of the Jamaica *tobacco* is not more widely known in the United Kingdom. It is a fact that as good a cigar, of local manufacture, can be purchased in Jamaica for twopence, as would cost at least sixpence in London. The manufactures of the island snpply it entirely with cigars, and to a great extent, with cigarettes, manufactnred almost exclnsively from native-grown tobacco, only the outer leaf or "wrapper" being imported; but it does not appear that any attempt has been made to establish export trade on a large scale. The tobacco trade has hitherto been exclusively in the hands of Cubans, who, driven from their own country by constant rebellions and Spanish oppression, have settled in Jamaica, in considerable nnmbers, most of them becoming naturalised as British subjects. Bnt this industry is now receiving the attention it deserves at the hands of a gentleman who brings to bear upon it not only wealth, bnt position and infinence. He is the Hon. Evelyn Ellis, uncle of the present Lord Howard de Walden, and a large land owner in the western part of the island. He has there established a tobacco plantation which is already the largest, under the control of any one man, in the world. Factories have been erected on the spot, and cigars and cigarettes are been turned out in large quantities. Thore is also a chemical laboratory in which highly skilled experts experiment with numcrous other products that now run to waste. There is not the least doubt that Mr Ellis's exertions will be of incalculable benefit to the island, especially if he takes up the mater of an export trade in cigars to the mother country. He it was who entirely revolntionsed the breeding of cattle for draft purposes in the island by importing stock from India to his magnificent properties of Jamaica, which, crossed with the native breed, make the most ideal draft oxen that can be desired. His herds now practically supply the

whole island, and his annual sale is a great event among the sugar planters in the western districts.

Another industry which has only very recently sprung into existence, and in the future of which I have great faith, is the cultivation of *rice*. Rice is very largely in use as an article of food among the negroes, and there are thousands of acres of swampy land, utterly useless for any other purpose, which might be profitably turned into ricefields. I myself witnessed the first experiment which was made in the vicinity of the town of Falmouth, on the north side of the island, and can testify both to its success as a commercial venture, and the improvement to the town effected by it from a sanitary and an aesthetic point of view.

CASSAVA POISONING.

Amongst the important food plants cultivated in the West Indies is the 'Cassava' or 'Manioc' *Manihot utilissima*, a member of the Spurge Order, or *Euphorbiaceae*), grown for the sake of the store of starch contained in its long, thick roots. Two kinds of cassava are commonly recognised, the 'bitter' and the 'sweet,' and sometimes considered to be two distinct species of plants. Bitter and sweet cassava are put to separate uses. From the bitter variety, after grating and careful expression of the milky juice, a flour is obtained from which thin cassava cakes are made. It is also the source of 'farine' and the tapioca of commerce. The raw juice cooked and concentrated is known as casareep. The sweet cassava is more commonly eaten, as a vegetable, after boiling or roasting. Bitter cassava in the fresh condition is well known to be harmful and experiments have been made which prove the extremely poisonous character of its milky juice. The poisonous constituent of the raw juice is prussic acid, or hydrocyanic acid, easily recognizable by what is known as the 'smell of bitter almonds. Prussic acid is fortunately a poison which it is comparatively easy to get rid of completely. It is only necessary to ensure that the substance containing it shall be thoroughly heated, and all the prussic acid present is destroyed and the substance rendered perfectly harmless.

As already said, bitter cassava is universally regarded as a poisonous substance. With regared to sweet cassava, on the other hand, opinions vary and even in a standard book of reference on Chemistry it is stated that 'the milky juice in the sweet variety is innocuous, whilst that in the bitter is highly poisonous.'

Deaths from eating improperly prepared sweet cassava occur from time to time in the West Indies, principally amongst badly-fed or neglected children. In order to prevent, if possible, the recurrence of such accidents, it is desirable that the actual facts should be published and made widely known in the hope that teachers and others may be able to put children on their guard against the danger of eating sweet cassava unless care has been taken in its preparation.

As long ago as 1877, Professor Francis, then Government Chemist at Trinidad, stated, as the results of experiments that sweet cassava root contained considerable quantities of prussic acid. His work has recently been repeated and extended by his successor Professor P. Carmody (*Annual Report of the Government Analyst, Trinidad*, 1901, p. 15). From their investigations it appears that sweet cassava not only contains the poisonous prussic acid, but contains nearly as much as bitter cassava, and that by mere chemical analysis it would be impossible to distinguish between the two. Professor Carmody was able to show that whilst in bitter cassava the prussic acid is distributed more or less uniformly throughout the tissues of the root, in the sweet cassava it is located chiefly in the skin and outer portion of the rind. It follows that in order to prepare sweet cassava so that it may be a safe food for human beings the following precautions should be taken:—

(1) Carefully scrape off the skin and outer portion of the rind, whereby the greater portion of the poison will be removed.

(2) Thoroughly heat the remainder by boiling or otherwise, so as to destroy and drive off any remaining prussic acid.

Thus prepared sweet cassava is a thoroughly wholesome article of food, as the experience of many who eat it regularly is sufficient to prove.

One other word of warning is necessary. Professor Carmody has indicated that although all the prussic acid originally present in the root may be got rid of, it is possible that a small further quantity may be formed later by changes dependent on the addition of water. Cassava which has been cooked and then kept for some time may still be a dangerous substance, and should not be eaten. The rules to be followed in preparing and eating sweet cassava are thus:—(1) Scrape the root. (2) Cook it well, so as to heat it throughout. (3) Eat cassava only after it has been freshly cooked.—*West Indies Agricultural News*

COMPOSITION OF THE BREAD FRUIT.

The following analysis of the bread fruit is recorded in the *Experiment Station Record*, Vol. xii, p. 1076:—

Water..	46·21	per cent.
Protein	2·34	„ „
Fat	0·40	„ „
Starch	41·42	„ „
Crude Fibre...	4·20	„ „
Ash	1·78	„ „
Undetermined	3·65	„ „

In comparison with the sweet potato and yam (which agree very closely with one another in their chemical composition) the bread fruit contains 25 to 30 per cent. less water, about 25 per cent. more starch and a distinctly higher proportion of protein or nitrogenous matter. Expressed in other words, whilst one pound weight of sweet potato or yam contains about twelve ounces of water and two ounces of starch, one pound of bread fruit contains about six and a half ounces of starch and only seven of water. Although superior as a food stuff so far as actual chemical composition is concerned, the presence of over four per cent. of fibrous matter in the bread fruit is a point in which it compares unfavourably with the sweet potato and yam.—*Agricultural News.*

RUBBER OUTPUT OF THE AMAZON VALLEY.—The United States Consul at Para reports that at the close of 1901, the receipts of rubber at Para were nearly 30 per cent. greater than ever before at that season. Business was good in 1900, exchange low, and credits easy. The labourers and middlemen indulged in many luxuries. The end of the season found the crisis at hand, exchange rising rapidly, the gatherers deeply in debt, and the price of rubber reduced 20 per cent. Now they are making a desperate effort to pay off this indebtedness and make a fresh start. They are getting a large proportion off their food from the streams and forests by hunting and fishing; they are purchasing only absolute necessities; and are working overtime to increase the crop and liquidate their bills. It was reported in December that there were on the way down the river, from the upper tributaries of the Amazon, about 700 tons more rubber than had ever before been shipped from that section in one season, and that there were at least 200 tons more to follow. About 30 small steamers and launches left Para and Manaos for the Acre, Jurua, Purus, and Beni rivers, and were due to return to Para in February. Altogether, adds the Consul, there is reason to believe that this season's rubber crop will exceed that of last year by a very considerable margin.—*Imperial Institute Journal.*

THE PURCHASE OF ARTIFICIAL MANURE.

The following is the first portion of a paper which appeared in the *Journal of the Board of Agriculture* for March 1902:—

There are three substances, and only three, that are valued in artificial manures, namely, nitrogen, phosphates, and potash. According, therefore, to the greater or less quantity of one or other of these substances the value of the manure will rise or fall. Some manures contain only one of these substances —for instance, nitrate of soda and sulphate of ammonia contain only nitrogen; super-phosphate, precipitated phosphate, and basic slag contain only phosphate; and kainit, sulphate of potash, and muriate of potash contain only potash—while other manures hold two substances of value, as in the case of bones, which furnish both nitrogen and phosphates, or saltpetre (very seldom used, however, as a manure), which supplies both nitrogen and potash. Only one class of so-called artificial manure, namely, Peruvian or other similar guano, contains an important amount of all three substances.

NITROGEN.

In price lists nitrogen is frequently expressed as ammonia. The relationship between the two substances is, however, a very simple one, and need occasion no difficulty or uncertainty: 17 lb. of ammonia always contain exactly 14 lb. of nitrogen, or what is the same thing from the farmers's point of view, 14 lb. of nitrogen are the equivalent of 17 lb. of ammonia. If, therefore, a sample of, say 'corn manure' is offered as containing 4 5 per cent. of ammonia, this is the same as saying that it contains 3·7 per cent. of nitrogen. Sometimes, though not often, the figure is made to look more attractive by being stated as sulphate of ammonia; but this also need cause no difficulty, if it be remembered that 66 lb. of this substance are equivalent to no more than 14 lb. of nitrogen and 17 lb. of ammonia. If, therefore, we take the above example, the figures mean one and the same thing, whether they are stated as 3·7 per cent. of nitrogen, or 4.5 per cent. of ammonia, or 17·4 per cent of sulphate of ammonia. But a manure merchant who failed to effect many sales for a fertilizer of ever so high-sounding a name on a statement of 1 per cent. of nitrogen 1·2 per cent of ammonia might be more successful with a certain class of buyer if he entered the nitrogen as equal to 4·7 per cent. of sulphate of ammonia, and yet the figures all represent the same fact. Under the fertilizers and Feeding Stuffs Act, 1893, the invoice must contain the minimum guarantee of nitrogen, stated as such.

PHOSPHATES.

Phospbates or phoshhate of lime may also be entered in an analysis or price list in several ways, but as a rule this ingredient is either stated as above or as phosphoric acid. In an invoice, however, the statement must be made as soluble or insoluble phosphates, as the case may be.

The relationship between phosphates or phosphate of lime, whether soluble or insoluble, and phosphoric acid is quite as simple as that between nitrogen and ammonia: 142 lb. of phosphoric acid always form 310 lb. of phosphate of lime, so that to convert the former into the latter one may multiply by 2·2 which, though giving an answer slightly above the truth, is quite accurate enough for all ordinary purposes.

If, therefore, the analysis of a manure is returned as 12 per cent. of phosphoric acid, it is equivalent to saying that it contains fully 26 per cent. of phosphates. Similarly 30 per cent. of phosphates is equal to nearly 14 per cent. of phosphoric acid.

POTASH.

Potash usually exists in manures in the two forms of sulphate of potash and muriate or chloride of potash. It takes 94·2 lb. of pure potash to form 174 2 lb of sulphate of potash, whereas the same amount of potash will form only 149·2 lb. of the muriate or chloride. In the former case, therefore, to convert potash into terms of sulphate of potash we multiply by 1·85, whereas in the latter case we multiply by 1·58. If, therefore, an analysis of, say, kainit is stated as 12·5 per cent. potash, that is equivalent to say that it holds over 23 per cent. of sulphate of potash: while muriate of potash guaranteed to contain 56 8 per cent. of potash is of about 90 per cent. purity.

Just as a buyer may sometimes be led into purchasing a manure through its nitrogen being expressed as sulphate of ammonia, so may the contents of potash be made to look more attractive by being stated as sulphate of potash. In an invoice, however, the potash must be stated as such.

The rules for approximately converting the various terms into their equivalents may be thus summarised:—

- To convert Nitrogen into terms of Ammonia multiply by 1·2.
- To convert Nitrogen into terms of Sulphate of Ammonia multiply by 4·7.
- To convert Phosphoric Acid into terms of Phosphates multiply by 2·2.
- To convert Potash into terms of Sulphoric of Potash multiply by 1·85.
- To convert Potash into terms of Muriate of Potash multiply by 1·58.

Nitrogen and phosphates, and, to a less extent, potash, vary in effectiveness, and therefore, in value, according to their source or origin. Nitrogen is never so effective as when in the form of nitrate of soda. [See 'Note added' Ed.] It is not quite so active, and for some purposes not so valuable, when in the form of sulphate of ammonia, though under certain circumstances this somewhat slower action may be regarded as an advantage. Nitrogen in what is called the organic form is in its least active condition, though here again the rapidity and effectiveness of action vary greatly. Nitrogen is in the organic form in blood meal, fish meal, bones, shoddy, etc., and yet, as a source of plant food, blood meal is more active than these other substances. It is claimed as an advantage for slow-acting manures that they last longer, which is true; but one applies manures not to last, but to act. It is only where it is convenient to apply manure at somewhat long intervals, as in the treatment of orchards, that the more inert manures are worthy of much consideration.

As regards phosphatic manures, it may be said that while soluble phosphates are all alike active, there is considerable difference in the value of insoluble phosphates. The insoluble phosphate of bone meal, for instance, is less effective, and for most purposes less valuable, than the insoluble phosphate of basic slag, precipitated phosphate, or even dissolved bones. Some of the insoluble phosphate of the last manure has once been soluble, and has 'reverted,' and such phosphate is not much less effective than soluble phosphate. But raw bones as a manure have been longer known to British farmers than other forms of phosphate, and for this reason their price has kept relatively high.

[NOTE ADDED.]

With regard to the statements above relative to the superiority of nitrate of soda, as a source of nitrogen, to sulphate of ammonia, it must be remembered that the conditions which obtain in temperate regions are referred to. Experiments in Barbados have shown that sulphate of ammonia produces better results in sugar-cane cultivation than nitrate of soda. Sulphate of ammonia is changed by nitrification in the soil, into nitrate of calcium. Nitrification is very active in tropical soils, and this fact, together with the liability to loss by leaching in the case of nitrate of soda, may explain the superiority of sulphate of ammonia in certain tropical lands.—*Agricultural News.*

"THRIPS" ON CACAO IN GUADELOUPE.

Through the courtesy of Mr. Louis H. Ayme, United States Consul at Guadeloupe, a copy has been received of a translation of a report by M. Aug. Elot on the occurrence of 'thrips' on cacao in that island. This pest was the subject of an article, with figures of the young and mature insect, in the *West Indian Bulletin*, Vol. II, pp. 175-190, where its occurrence in Grenada, St. Vincent, St. Lucia and Dominica was noted, with a comprehensive description of its habits and distribution in Grenada.

M. Elot's report deals evidently with the same insect and, whilst showing that it has extended its range to Guadeloupe, describes an attack closely similar to that observed in some parts of Granada during 1900. In his summary, M. Elot says that the pest is pretty widely distributed among the cacao plantations of Guadeloupe; that the damage is sometimes insignificant, sometimes very great, according to the environment; that the best way of protection against the disease is found in seeking favourable conditions for the culture and in giving the plantations every care compatible with such culture, and then if, in spite of these, damage is caused by the insects the remedy is to be sought in spraying the trees affected with kerosene emulsion.

The attacks of 'thrips' in Guadeloupe are similar to those elsewhere, the amount of the damage being large or small according to circumstances. Evidently M. Elot's experience fully confirms the view that whilst careful treatment of the trees will do much to lessen or avert the attacks of the pest, the ultimate reliance must be placed in spraying. The question of spraying was very fully dealt with in the article on thrips referred to above, and whilst kerosene emulsion was recommended especially for spraying pods, rosin and other washes were suggested for general treatment. The insect can probably be regarded as a pest of cacao, always ready to become troublesome and cause damage whenever the conditions are favourable, either from drought or from neglect and wrong treatment of the trees.

Whether the pest will eventually become so destructive as to need extensive treatment on a large scale is doubtful, but cacao planters in Grenada, St. Vincent, St. Lucia, Dominica and Guadeloupe will need to be on their guard for signs of injury and use the spraying machine to check the increase of the insect whenever it becomes destructively abundant.

M. Elot's report states that the insect had been sent by him to Prof. Giard at Paris, who has named it *Physopus rubrocincta*. It was previously regarded here as belonging to the genus *Heliothrips*. Mr. Pergande of the U. S. Department of Agriculture, to whom the insect was referred for determination was of opinion that it constituted a new genus allied to *Heliothrips*.

Specimens of the insect were also sent to Mr. E. E. Green, who had previously recorded the occurrence of a thrips on cacao in Ceylon. In a letter of September 16, 1901, he states :—'I beg to acknowledge receipt of your specimens of the "Grenada thrips" This insect appears to be closely allied to the thrips affecting cacao in Ceylon. The larva and nymph of our Ceylonese insect are also distinguished by a transverse crimson band, which appears to be a striking feature in the early stages of the Grenada thrips.'

The geographical distribution, as known at present, is Grenada, St. Vincent, St. Lucia, Dominica, Guadeloupe and possibly Ceylon. It is not improbable that the insect will be found to occur in other parts of the West Indies and South America.—*West Indian Bulletin*.

FORESTRY IN INDIA.

[Yearly Forest Report, Madras, 1899-1900.]

SEVERE CRITICISM: WANTING TO KNOW ABOUT EUCALYPTS.

I have searched in this report, amidst the dreary waste of undiscussed and undigested figures, for information regarding the interesting growth of Australian trees on the Nilgiris. Eucalyptus I find referred to as if it were one tree, not a class of trees. Your readers are probably aware that there are about 150 species of Eucalypts with climatic requirements ranging from the tropics to that of the temperate zone. There are two or three species which flourish in Java: and Roxburgh refers to a Eucalyptus Moluccana, which was cultivated for some years in the Calcutta Botanic Gardens. These species flourish under the equator. Going polewards we find the last of this most remarkable genus of timber trees in a climate hardly differing from Devonshire in England—a little more snow in winter, and a little higher insolation. Nine tenths of the species of Eucalypts are worthless for timber purposes. A few, such as the W. Australian Jarrah and Karrie, the S. Australian sugar gum and Leucoxylon gum, and the E. Australian iron-barks, tallow-wood, and E. resinifera, together with E. rostrata of the dry interior, afford some of the most useful timber trees for out-door use, and whenever great strength is required. As I remember the Nilgiris (Now alas! nineteen years ago) only the least valuable kinds were grown there, but these were marvellous as regards celerity and vigour of growth. Since then a railway has been made to the Nilgiris, and this White-man's oasis thoroughly opened up. In Ceylon and many other countries the steel sleepers (which should never have been put down) are being replaced by hard wood, Eucalypt sleepers from Australia. One naturally, therefore, turns to the Madras report to see what is being done to grow these valuable Eucalypt timbers in the temperate climate of the Nilgiri plateau which is seemingly so well suited to them' The information afforded in the Madras Forest Report is miserably meagre. Thus we read that some Eucalypts have been planted in the plains of the North Arcot district which had failed, as might be expected. Some seedlings in nurseries on the Shevaroys were 2 inches high. "The trees of the different species of Eucalyptus in the Nilgiris were, on the whole, doing well." Surely the Madras Forest Department might do more, or tell us more of what was doing than this. Is it that its work is paralysed by the unfortunate system of dual control and divided responsibility?

The Madras Board of Revenue describe this meagre report "as a full and interesitng one." No doubt it is full to the brim of figures. One is tempted to enquire what purpose is gained by printing *50 pages of figures and bald statements*. Would it not be better to place these in the archives of the Board of Revenue, and furnish to the Government of India, and to the public, an intelligible digest, thus following the course pursued in other large industrial concerns run on a business footing?—(D. E. H.) Cape Town, 6th September, 1901.—*Indian Forester*.

CULTIVATION OF TOBACCO UNDER TENTS.—We are informed that the cultivation of tobacco under tents is now being experimented with in Connecticut. The experiments were made originally at the State Agricultural Station, as well as by private individuals, in the effect to raise wrapper-leaf tobacco of the Sumatran type in fields completely covered and closed in all round with thin cheesecloth. The result is declared to be perfectly satisfactory. If memory serves us aright, the experiment was tried some thirty-five years since at a place called Broxbourne, on the G.E.R., but only on a small scale, and was attended with a fair amount of success; netting of small mesh was used as a covering to the "pens"—*Gardeners' Chronicle*.

ANNUAL REVIEW OF THE RUBBER MARKET FOR THE YEAR 1901.

KRAMRISCH AND COMPANY., LIVERPOOL AND LONDON.

During 1901 the Rubber Market has not been characterized by heavy or exceptional fluctuations; it was again not a particularly satisfactory one for holders and importers of the leading grades, and although trade remained exceedingly active throughout the year, the values of all grades of Rubber at the close are less than a year ago, and Fine Para shows a further recession of 3d per lb, and other grades in proportion. The bulk of the stocks of Mediums has gradually been exhausted, although it must be admitted that the prices realised were exceptionally low and showed an enormous loss to the importers or holders and even the more recent imports were disposed of at prices which, not alone showed no profit, but in most instances the prices realised show a considerable loss. The imports of important Medium grades have fallen off considerably, and as the enquiry has increased for same we do not anticipate a further appreciable decline in values, as one ought certainly to advocate the encouragement of a substantial increase in the imports.

As regards the quality of Para Rubber, considerable grievance was again caused by the want of care in the proper selection of these grades, especially from the Island districts, and this has led to numerous disputes amongst contracting parties. Trade in Great Britain and with leading Continental Rubber works was fairly good and the stocks of raw material at the factories is not large, and in spite of the fact that deliveries have been exceptionally heavy the reported consumption of Fine Para exceeds that of previous years. The American market showed the position there not to be so strong except for the first few months, but generally speaking the Rubber trade has been busy and the only important speculative stocks are held by one leading American house, whose position at the close of the year was considered very precarious. Visible supply now of Para and Peruvian is 4,618 tons against 4.100 tons last year. This includes America with a stock of 2,005 tons against 1,200 tons last year.

Should the demand for Para Rubber continue good, the statistical position at the end of 1901 is certainly a very healthy one. The total for the year's crop (from July 1st to December 31st) amount to 13,680 tons, this means an increase of 2,400 tons, while against this the total increase of the visible supply gives us only about 480 tons, thus about 1,920 more tons have gone into consumption, this despite the fact that it is well known that the "invisible" supply is exceptionally small. Although grave financial difficulties were experienced by many holders of Rubber, the position of the Rubber market is fairly sound, and with constantly increasing consumption, Rubber must be considered very reasonable at present quotations.

PARA KINDS.—At the beginning of the year we had to record a brisk enquiry to Para grades, and business on a large scale resulted, but, owing to continued "bear" operations, prices quickly exhibited an important recession, and while Hard Fine PARA was quoted at the beginning of January at 3s 10½d, Soft at 3s 9d, NEGROHEADS, Scrappy at 2s 9½d, ISLAND at 2s 1¾d, CAMETAS at 2s 4d, PERUVIAN Ball at 2s 7½d, and Slab at 2s 2d, prices declined rapidly during the latter portion of the first month, and sales for forward delivery at a market decline were done on a large scale, with the result that prices for PARA grades receded about 3d per lb. by the end of the first three months. In America, Fine PARA was then sold as low as 3s 6d, Scrappies 2s 6½d, ISLAND 1s 11d, Ball 2s 4d, and Slab 1s 11d per lb. We then began to receive the first advices from Para of probable shorts receipts, and some important buyers partly relying upon these reports bought large quantities, thereby causing considerable briskness; this improvement was actively maintained for a few weeks, and as high as 3s 10d to 3s 11d was paid for Fine during the middle of April. Other sorts were 2d to 3d per lb. dearer. Soon afterwards, however, the market again showed signs of weakness, the demand being somewhat dragging, and in July Hard Fine was quoted at 3s 8d, Soft 3s 6d, but a temporary reaction in August resulted in quotations again reaching 3s 10d to 3s 9d. We have then had irregular declines of 2d per lb, and in November Hard Fino was as low as 3s 5¾d, Soft 3s 3½d, the lowest of the year. Additional cable advices from Para of probable shorts receipts during the end of the year and the early months of 1902 brought about some recovery on less pressure to sell, and with very large deliveries and moderate receipts we close the year firmly with quotations of Hard Fine at 3s 6¾d and Soft at 3s 5¾d. NEGROHEADS continue to remain very scarce, Scrappy being quoted at 2s 9d, ISLAND (of which the greater portion is being shipped to America) 2s 1½d, CAMETAS 2s 2d, Ball 2s 6d and Slab 2s 0½d. The total amount of Rubber imported from Brazil shows a further increase of 3,200 tons and the total quantity exported from the State of Amazonas, including PERUVIAN via Iquitos and Manaos, is 4,000 tons against 3.100 tons. The PERUVIAN Fine imported has we think been better as a whole, but owing to the Rubber having arrived in most cases uncut and unselected before shipment new rules had to be adopted in order to provide for this altered mode of shipping this Rubber. The PERUVIAN Ball imported has not been up to the expected quality, and at the end of the year the standard of fair average quality was considered lower, although some nice clean Hard Balls when received did realise fairly good, and in some cases exceptional prices. The Slab continues to be of good serviceable quality, and the consumption of it is certainly spreading. BOLIVIAN kinds have been very fair, but the imports were not as large as last year. MOLLENDO again showed a remarkable improvement in quality, and consequently sold exceedingly well. From VENEZUELA via Orinoco the supply was less than last year and the quality not very attractive.

Imports of CEARA Scrap are smaller, but of these grades only the best qualities could be sold easily, others are dragging. Of MANICOBA kinds we received less, but quality was good, and prices realised were satisfactory. PERNAMBUCO and ASSAREE qualities have somewhat improved, but owing to the general decline of the Rubber market, the values of these classes receded considerably. There were not very important arrivals of good MANGABERIA, and although the stocks are considerably going down and available supplies very small, the prices realised for ordinary quality show an enormous falling off in price. The imports of MATTOGROSSO, in sympathy with PARA, showed similar fluctuations, although transactions were only spasmodic. CENTRAL AMERICA has again been conspicuous by a further considerable decline in its export of Rubber, probably owing to the continued political unrest existing in those parts, and the only Rubber reaching us comes from the COLUMBIA districts, but the quantities were very insignificant. The EQUATOR and GUAYAQUIL kinds sold readily, and the prices at the end of the year are only about a 1d lower than they were a year ago. Of course this refers to good qualities only. Inferiors and mixed kinds are much cheaper. The imports from HONDURAS, MEXICO and PANAMA were likewise very small.

AFRICANS.—As expected at the close of the previous year, the increase in imports of these descriptions was not only not maintained but showed a considerable and serious falling off, and we estimate the difference of imports from Africa to be about 2,000 tons below that of last year.

With the exception of silght spurts in April and again in August (in sympathy with Fine PARA,) the year 1901 has been characterised by an uninterrupted decline in AFRICAN Rubber, the only exception being

First SIERRA LEONE Niggers which are actually rather dearer than a year ago, while all other descriptions show a decline varying from 1d to as much as 6d per lb.

From ANGOLA we received 250 tons less, made up in shipments from BENGUELA of 1,250 tons, as against 1,500 tons in 1900. LOANDA 730 tons, against 678 tons (besides 200 Thimbles). Quality has been hardly so good. The CONGO has slightly increased, but the quality has seriously declined; about 5,300 tons, against 5,000 tons in 1900. The average price shows a very considerable fall because so much was of poor quality. The supply from SIERRA LEONE and FRENCH GUINEA has again fallen off, partly owing to the prohibition by the French authority of the exportation of dirty, wet, and inferior Rubber from CONAKRY. The quality being thus reliable has caused consumers to look on this kind with favor, and their appreciation is reflected in the price which is unusually high compared with other Rubbers, both AFRICAN and BRAZILIAN.

Quite an extraordinary decline in supply of GOLD COAST, ACCRA, LAGOS, &c. and only moderate from CAMEROONS, SIERRA LEONE, GABOON, &c. and small of SENEGAL. Prices of nice Hard only about 2d lower, but Soft common and Lagos fully 4d decline for the year. We no longer quote STRIPS and BISCUITS, the pressing of LUMP Rubbers being practically abandoned. Liverpool imports of WEST AFRICAN, 4,200 tons, against 5,140 tons in 1900 and 5,600 tons in 1899.

The CONGO FREE STATE has again increased its exports to Antwerp, but other kinds of African have gone there in reduced quantities, so that the total Antwerp imports show little change.

During January, AFRICAN Rubber met with a disappointing demand at rather easier prices. February and March were very dull and prices declined for most sorts, closing with lower values all round. In April, fairly good trade was done at rather better prices, closing however somewhat quieter. A moderately large business was done in May at irregular prices. Good SIERRA LEONE sorts were then well in demand, showing however little, if any, change in price, whilst Lump descriptions were ½d to 1d per lb lower. During June and July, African Rubbers met with a moderate to poor demand at generally lower rates, and only a comparatively small trade was dône at barely steady prices. The demand was better in August, especially for parcels of good quality which arrived from Sierra Leone. This position of the market was not maintained, and we see a constant falling off in the demand, which remained disappointing with only small business passing at generally lower rates, until the end of November, when quite a steady trade was done at generally unaltered and in some instances slightly increased prices. The demand continued to improve during December for all the better grades, and rather higher rates were paid all round.

EAST COAST OF AFRICA, (ZANZIBAR, &c.).—The supplies of these descriptions have continued to gradually fall off, and to this must be ascribed the fact that at the close Red hard Rubber is only 1d per lb lower, but White and Common Ball Rubber declined about 4d per lb. LAMU BALL (MOMBASSA): The arrivals were not important although the quality was fair and good clean Rubber sold fairly well, prices, however, showing a decline of 2d for the year. NYASSALAND sent us some very good Rubber, but the consignments were small, and when they reached the market were brought up readily at fair to full prices. MADAGASCAR supplies were again on the decrease, and have only been about half of what they were last year, and values were consequently well maintained.

Imports from CEYLON were again insignificant, but whatever small quantity reached this market it proved very attractive, as the quality and condition continued to be excellent, and many buyers were anxious to secure even the small arrivals, owing to the specially clean condition of this Rubber. We confidently expect that if larger imports could be arranged a great circle of consumers would come in and pay full prices for these grades, especially if the quality be kept up. It would be advisable to encourage the planters and others interested in this product in giving particular attention to this most valuable Rubber. High prices were realised, and 3s 9¾d was recently paid for Fine and 2s 4d for the Negroheads. It is, of course, known that this Rubber should practically be of the same kind as the one coming from the State of Amazones, being grown from Para seed.

RANGOON and PENANG has also been in much reduced supply. Of the later description we practically received no further shipments this year, but in spite of this, all the old stocks held were most difficult of sale, and what was disposed of showed an enormous decline, and thus Rubber that was quoted at 3s 2d a little more than a year ago sold at about 2s 2d to 2s 5d per lb. according to quality. If good quality of these descriptions could be imported to sell at present rates, it is certainly worth encouraging, as with scarceness of good red Mozambique Ball, the demand for these Red Penang kinds would again grow gradually.

Small quantitities of ASSAM were shipped, but the quality was very poor and sandy, and consequently did not meet with any requirement or interest.

BORNEO.—Of this Rubber the supplies have not been excessive, but in sympathy with the general tendency of the market prices declined. These grades are still held for higher prices, and with a continuance of the lower quotations all round we must also look for much reduced values in these grades before one will be able to effect larger sales. PONTIANAK: Supplies were about the same as those of last year and sold readily, prices showing very little change at the close of the year.

Rubber from the FRENCH COCHIN CHINA and from LOWER CHINA have continued to sell well, the quality and condition of nearly all arrivals were satisfactory, and the small trade done must have been profitable to the importers.

JAVA Rubber and NEW GUINEA have been very scarce, but generally speaking these qualities were not in great demand, and quotations were only nominal.

BALATA.—We had reduced arrivals of these descriptions, and all the imports of these grades have met with a good demand, although at one time Block BALATA was as low as 1s 7d. The year closes with buyers at 2s and sellers at 2s 1d. Nearly the whole of the stock in first and second hand has been cleared off and gone into consumption, and all new arrivals are selling very readily at full prices. SHEET BALATA.—Owing to the increased consumption the prices have also gradually gone up, and the market closes with buyers at 2s 7d, showing 4d per lb advance for the year.

GUTTA-PERCHA.—The year opened with a very poor demand, and the market continued weak throughout almost the whole of the year. It was only during November that, owing to larger contracts for cables being placed, extensive buying orders appeared on the market, thus increasing values of GUTTA-PERCHA, and since then a fairly large business has been done. There seems to be every prospect of a continued good market, with fair prices being paid for good and desirable qualities of GUTTA-PERCHA.

THE "TAPPING OF RUBBER TREES."

The "Journal d'Agriculture Tropicale" (II., 1902, 99) contains an interesting contribution from the pen of M. Henri Lecomte to the question of the tapping of the rubber trees.

As I have repeatedly pointed out in these pages this important operation is at present carried out much in the same happy-go-luck style so characteristic of the crude rubber industry. But it is quite obvious that the manner in which the incisions are applied to the trunk of the rubber tree must be of

considerable importance as regards the yield of rubber milk obtained. In other words, the application of the incisions should be based upon a knowledge or the anatomical structures, at least of the laticiferous tissue of the various trees.

On the example of Landolphia Hendelotti, M. Lecomte illustrated this point. This is a creeper which furnishes the bulk of the rubber of the tropical regions of French North Africa. On producing a cross section through one of the branches of this plant, it may at once be seen that the laticiferous tissue is situate in that part of the bark which is nearest to the wood. It is therefore quite necessary to penetrate into the wood with the incisions.

The laticiferous vessels of this Landolphia run in comparatively straight vertical lines along the bark, and they are, to a moderate degree, only ramified and anastomosed (inter-communicating). From this it follows at once, that longitudinal incisions, however extensive, must prove very ineffective, the number of vessels thereby opened being very small indeed. On the other hand, it will easily be recognised that horizontal incisions lay open the maximum number of vessels which may be reached by any single incision, and thus must produce the greatest possible yield of latex. Of course, there is the objection to horizontal incisions that they do not lend themselves so readily to the collection of the latex by the simplest means. This difficulty is, however, easily avoided by producing these incisions at an obliquity just sufficient to induce the flow of the exuding latex towards a channel common common to a number of such incisions.

There is another important advantage in these transversal incisions which is worth calling attention to. In consequence of the constant increase in bulk of the ligneous core which is surrounded by the bark, the latter is under very considerable tension, and exerts a corresponing pressure upon the whole of the tissues. This tension of the bark, which exists in every tree, can easily be demonstrated by cutting an annular band from the bark of some tree, and then trying to place it again into poison, when it will be found impossible to make the ends of this band meet.

It is exactly this tension which causes the flow of the latex from the laticiferous vessels in which it is held by capillary action. Now it is perfectly clear that vertical incisions, apart from laying open very few laticiferous vessels, must in a large degree have the effect of relieving that tension with the result that capillary attraction maintains the upper hand, and we obtain only a feeble flow of latex. From these various points we arrive thus at the conclusion that horizontal, or transversal encisions are the most rational. Nevertheless, it should be borne in mind that by making such incisions indiscriminately all over the trunk of a tree the latter would very soon become worthless for tapping purposes. Each transversal incisions severs of course the connection between a large number of laticiferous vessels, which, when the incision has again healed up remain separated, so that if these incisions are made in an unsystematic manner they very rapidly result in dividing the whole of the laticiferous area of the bark into a number of disconnected sections, each of which is capable of a very restricted yield of latex only,—*India-Rubber and Gutta-Percha Trades' Journal.*

PREPARATION OF COMMERCIAL PAPAIN.

It is well known that the milk obtainable especially from the fruit, of the papaw tree (*Carica Papaya*,) possesses the property of rendering meat tender and in fact of partially digesting it. In recent years this property has been utilized by evaporating the milk into a dry powder known as 'papain.' There is a moderate demand for this substance and where the papaw tree is abundant it might be advantageous to prepare it. The following account of preparing crude or commercial papain has been contributed by the Hon'ble Francis Watts, F.I.C., F.C.S.:—

The preparation of crude papain is a comparatively easy matter, provided that attention is paid to certain matters of detail.

COLLECTING THE MILK.

The juice, or milk, which forms the starting-point is procured by making a scratch or shallow incision in the skin of the fruit of the papaw while in a green condition. It is desirable to employ a bone or wooden knife, like a paper-knife, for the purpose. The milky fluid rapidly exudes and may be caught in a cup held beneath the fruit. After a time the flow diminishes and the liquid coagulates in the neighbourhood of the incision, this is carefully removed by means of the bone or wooden knife and placed in the cup with the milk already collected.

The fruit is not removed from the tree and is may be subjected to the oparation of tapping several times at intervals of two or three days. It is essential that no iron knife, or iron utensils, should be brought into contact with the milk. Wood or bone should be employed, and the milk should be collected in earthenware basins or cups, or in glass vessels, and not in tins, which are sure to blacken it.

After collecting the juice soon becomes coagulated and then should be in the form of a snow-white curd, possessing a somewhat pungent, but not putrid smell. It speedily decomposes if not rapidly dried, and, when decomposing, emits a most unpleasant odour. It is necessary then that drying should be effected as speedily as possible. When considerable quantities are being prepared, the collection of the juice or milk should be undertaken in the early morning and the drying should begin before midday. This ensures that by evening the material is in a sufficiently dry condition to keep without deterioration until the following morning when the drying can be completed.

DRYING THE MILK.

The drying may be effected in several ways. In dry, hot weather the coagulated milk may be placed in thin layers on sheets of glass and exposed to the sun. This, however, is rarely satisfactory on a large scale, and it is best to adopt some form of drying apparatus. Drying is well effected by spreading the coagulated milk on drying frames made by stretching brown linen on light wooden frames, somewhat like those used for framing school slates: these may be of any suitable size to fit the drying apparatus employed.

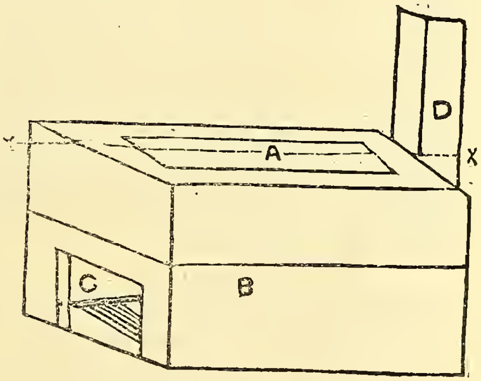

Fig. 1. Elevation.

A small American fruit drier will answer very well, or a drying-stove (Fig. 1) may be constructed by building, in brick, a chamber about 3ft. high, 3ft wide and 6ft. long, these domensions can be changed in accordance with the amount of material to be dealt

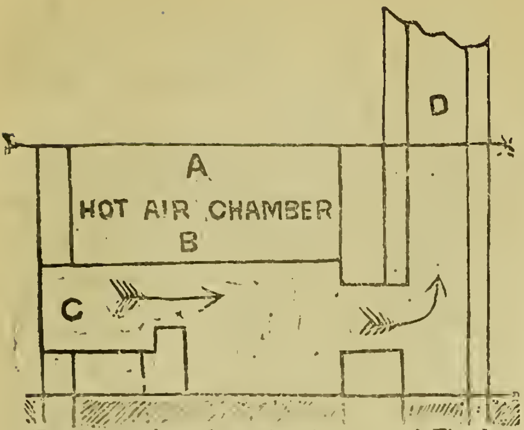

FIG. 2. Section along the line x. x. of Fig. 1.
FIGS. 1 AND 2. DRYING STOVE, FOR THE PREPARATION OF PAPAIN.

(A). Opening, across which the drying trays are supported. (B). Iron plate, (C). Fire Grate. (D). Chimney, with). This is open at the top. About a foot from the top the chamber is divided horizontally into two compartments by a sheet of iron, (B.) and below this division a small fire grate (C,) is constructed; at the opposite end from the grate a chimney (D). is placed to lead the smoke from the lower compartment. (Fig. 2.) In order to obtain an even heat in the upper compartment it is well to spread a layer of sand, one or two inches thick, over the iron plates. The frames carrying the coagulated milk are placed on the top of the chamber, so as to form a lid or cover to the opening (A.) when heat from the iron plate drives off the moisture at a low temperature.

It is important that the temperature at which drying is effected shall be as low as possible. Any over-heating destroys the active principle, so that a carelessly prepared product may be useless. In practice, the temperature is kept as low as is consistent with getting the substance dried before decomposition sets in: if this can be done without the temperature of the tray being raised above 100 deg. Fahrenheit so much the better.

As the substance becomes dry it shrinks considerably in bulk. The contents of several trays may now be emptied into one and the drying continued. The trays emptied are ready to receive another day's supply of fresh material.

Drying must be continued until the substance is crisp and in such a condition that it can be reduced to a fine powder without any difficulty being experienced from stickiness. The dried material should be ground to a fine powder when the resulting product should be a white or cream coloured powder with a characteristic, but not putrid, smell. The power should be packed in tins or bottles, and carefully preserved from contact with the air. Grinding is easily effected in a mill of the type commonly employed for grinding coffee: when grinding it is desirable to have the papain slightly warmed

CULTIVATION OF PEPPER IN THE BOMBAY PRESIDENCY.

A further account of Manures used in Spice Gardens.

BY J. MOLLISON, ESQ., M.R.A.C. DEPUTY DIRECTOR OF AGRICULTURE, POONA.

[The Survey Commissioner and Director, Land Records and Agriculture, Bombay, having furnished this office with a copy of Mr. Mollison's report No. 547, dated the 7th October, 1900, (on the above-mentioned subject) the following extract from it is given as a supplement to the *Agricultural Ledger* No. 3 of 1900. The additional information will be found to include enumeration of those trees, the leaves of which are commonly used for leaf manure, as well as the chemical analysis of the different kinds of leaves, manures, and soils by Dr. Leather, Assistant Agricultural Chemist to the Government of India. The information thus furnished may be found of interest as a contribution to the large question of GREEN MANURING.] *Ed.*

The more common trees in *beta* lands and in protected forest, which are specially useful to the cultivators, for manure purposes, are referred to in short detail below:—

Kaval or Kavla (*K.*)* (Careya arborea, *Roxb.*)—Leaves big, fleshy, soon rot as green manure, and considered specially good for leaf mould. Trees abundant in *beta* lands.

Honne (*K.*) (Pterocarpus Marsupium, *Roxb.*)—Leaves are rather small and are not considered particularly good for leaf-mould.

Jambe (*K.*) (Xylia dolabriformis, *Benth.*) Used more as a covering for the leaf-mould manure as light branch wood than for leaf-mould. They do not decay quickly.

Hirda (*M.*), *Alale* (*K.*) (Terminalia Chebula, *Retz.*)—The best leaves of all for green leaf-mould, and are supposed to kill insects and grubs. Leaves small and do not rot very quickly. They are eaten as fodder by cattle.

Kanagal (*K.*) Dillenia pentagyna, *Roxb.*)—Leaves are good for leaf-mould. They are very large and fleshy and decay very quickly. Flowers, buds and fruit eaten. Berries eaten greedily by deer and other animals.

Honal (*K.*) (Terminalia paniculata, *Roth.*)—Considered nearly as good as *matti* for leaf-mould. Leaves not large and do not decay particularly quickly.

Matti (*K.*) (Terminalia tomentosa, *Bedd.*)—Leaves and branches considered excellent for leaf-mould, the former large and easily collected. Leaves used as cattle fodder.

Nerlu (*K.*) *or Jambul* (*M.*) (Eugenia Jambolana, *Linn.*—Used to a considerable extent for a leaf-mould or for branch wood, used as a covering over leaf-manure.

Bite (*K.*) (Dalbergia latifolia, *Roxb.*—Blackwood. Reserved as a valuable timber tree.

Nelli (*K.*) (Phyllanthus Emblica, *Linn.*)—Branches also used as protective covering for young cardamom seedlings. Fruit and leaves good fodder.

Surhonne (*K.*) (Calophyllum tomentosum, *Wight.*)—Sirpoon tree. Evergreen. Found in *Kans*, not in *beta* lands or protected forest.

Kari Muttala (*K.*) (Ougeinia dalbergioides, *Benth.*)—Leaves used for fodder.

2. It will be noticed that the unreserved trees which are reported to give the most useful leaves and branches for garden requirements have no great value as timber trees.

3. A Kanara gardener requires that the leaves for green manure shall be within his reach so he pollards and lops. Afterwards the foliage (it is cut every second year) is within easy reach and for a number of years a large amount of both foliage and light-branchwood is produced. In course of time the tree dies prematurely by exhaustion or ill-health induced by bad usage. The pollarding practised unquestionably shortens the life of trees. It will also diminish their full value when dead, because they have spent their substance in producing by unnatural treatment leaves and small branches instead of natural growth. But the result justifies the means because small branches and leaves are specially required by the gardeners. And if young trees of suitable varieties are so protected that they replace old decayed trees, and if pollarding is prohibited until young trees attain certain dimensions as proposed by the Committee in the draft rules, then I think the interests of Government will be fully safeguarded, and the requirements of the gardens fully maintained. I saw numerous instances of well-managed *beta* lands.

* (K) indicates that the name is Kanarese, (M) that it is Malayalam.

I saw also instances of ruthless destruction with the surface hurnt to encourage grass, and no forest undergrowth to speak of, but side by side with these badly managed *beta* lands there was even greater destruction in protected forest for which the people at large, and not the garden owners alone, were responsible.

It is suggested in the papers that the full requirements of the garden occupants could be met if they gathered dead leaves and grass in enclosed forest to supplement the supplies of green leaves and twigs got from assigned *beta*. It is also urged that the dead leaves and grass would not be less valuable for manure than green leaves and twigs. I cannot support these views. Leaves, as they become perfected, dry up and become fibrous and a good deal of the plant food, both mineral and organic which they contained when green and growing, passes from them and is utilized in increasing the size of the stem or branches and in perfecting the fruit. There can he no question at all, therefore, as regards the superiority for manurial purposes of the green leaves of a particular tree over the dead leaves from the same tree. The dead leaves fall, moreover, at a particular season and have to be collected at that particular season; otherwise they soon become incorporated with the soil and disappear. If put in deep pits they would in the course of a year decompose into what is known as a leaf-mould by gardeners. This materal would, in my opinion, have inferior manurial value to the manure now used. I am convinced that such would he the case from the results of analyses hy the Agricultural Chemist to the Government of India of the various descriptions of green leaves and small twigs ordinarily used. I sent him the leaves and twigs of eight different varieties of trees, being such as are considered hest for leaf-manure. The analyses are appended below:—

	Moisture	Dry matter	Organic matter	Mineral matter	Silica	Potash (K_2O)	Phosphoric acid (P_2O_5)	Nitrogen
Carya arborea.	80·66	19·34	18·00	1·34	·08	·43	·086	·31
Bassia latifolia.	78·95	21·05	19·60	1·45	·10	·43	·087	·43
Pterocarpus Marsupium.	78·77	21·23	19·58	1·65	·12	·53	·095	·45
Xylia dolabriformis.	73·31	26·69	25·24	1·45	·11	·44	·08	·62
Terminalia Chebula.	77·77	22·23	20·90	1·33	·04	·30	·078	·40
Dillenia pentagyna.	87·06	12·94	11·68	1·26	·08	·41	·070	·24
Terminalia paniculata.	75·06	24·94	23·42	1·52	·12	·40	·100	·42
Terminalia tomentosa.	81·86	18·14	16·74	1·40	·07	·44	·080	·34

5. The leaves and twigs contained from 73 per cent to 87 per cent. of water. But even in this succulent condition the percentage of nitrogen and potash (the two most important elements of plant food) were equal to ahout half the quantities usually found in well preserved farmyard manure. The air-dried material of these leaves and twigs would he considerably richer in nitrogen and potash than air-dried well-preserved cattle manure. The leaves and twigs are all deficient in phosporic acid. The contention of the gardeners that certain leaves are better manurially than others is not supported by the analyses. *Hirda* leaves are considered locally very superior for leaf-manure, also those of *matti* and *honne*. But the analyses show that other varieties are superior to these for manure purposes. On the other hand, it is fair to state that the leaves of *hirda*, *matti* and *honne* are considered specially valuable, because the manure produced from them destroys insects and grubs which would be harmful to the plants in the garden. These leaves and in fact nearly all the leaves used hy the gardeners have astringent properties, and it is, I think, certain that vegetable matter containing astringent resins or volatile oil would be obnoxious to insects and therefore insects or grubs which might be harmful to the plants of the garden would not harbour in such material. Dry leaves, unless collected soon after they have fallen, undoubtedly harbour insect life, and this is one serious objection to their use as manure. I was hopeful that the Agricultural Chemist would he able to state definitely how far the various leaves and twigs submitted for analyses differed in astringent properties. He was, however, unable to investigate this point. I took no samples of dead leaves, because at the time of my visit to Kanara (April) it was impossible to collect samples which could be identified as belonging to any of the particular trees from which green leaves are usually taken. In fact dead leaves had mostly disappeared hy that time. I believe they mostly fall in December-January, and could not, except in trifling quantity, be collected during the monsoon when green leaves and twigs are ordinarily collected as manure.

6. Dr. Leather's analyses clearly indicate that manure of good quality can he made from the green leaves and twigs ordinarily used. The system of trampling the leaves under the feet of cattle, so that the urine and solid excreta are absorhed would improve the quality of the manure particularly if the cattle are fed partily on cake as is sometimes the case. The storage of manure in deep pits formed in soil and subsoil, which is very retentive, can hardly he improved upon excepting that the extremely heavy rainfall of the district must keep the unprotected pits excessively wet during the monsoon, and probably valuable manurial ingredients are washed out of the manure at this season.

7. The Kanara system is to apply manure every second year.

8. I submitted to the Agricultural Chemist to the Government of India four samples of manures. Each sample is sufficiently described in the tabulated statement below:—

	Monsoon green leaf manure. Sample taken from roots of trees to which it was applied in February 1899.	Green leaf-manure as applied to Betel palms, February 1899. Sample taken in April 1899.	Dry leaf-manure made from dead leaves used as litter under cattle fed on grass, etc.	Manure made from green leaves collected in the rains and used as litter under cattle.
Moisture ...	55·07	58·05	56·90	59·72
Dry matter ...	44·93	41·95	43·10	40·28
Organic matter ...	23·44	28·74	25·42	26·48
Mineral matter ...	21·48	13·21	17·68	13·80
Sand ...	14·69	7·80	11·43	7·47
Potash (K_2O) ..	·16	·41	·43	·17
Phosphoric acid (P_2O_5) ...	·14	·18	·12	·17
Nitrogen ...	·51	·51	·55	·75

It is difficult to nnderstand the deficiency of potash in the 4th sample. The nitrogen and phosphoric acid are probably about average for this kind of manure. Samples No. 1 and 2 were originally of similar class to sample No. 4. They were, I imagine superor in quality orginally to No. 4. No. 1 sample (taken in handfuls from many trees) is by no means exhausted 14 months after application, and it may be inferred from this that the gardeners' methods of application and of proteoting tho manure from surface wash and heavy rainfall by a covering of branoh-wood and leaves are successful in practice. From personal observation, I can say that the branch-wood, a full year after being first put on, is sufficient to break the force of heavy downpours of rain, and when first put on or afterwards allows tho rainfall to percolate through the manuro to feed the plants. It is suggested in the papers by one officer that the gardeners should use the leaf-sheaths of tho *supari* palm (Aroca Catechu, *Linn*,,) leaves as a protection for the manuro instead of the branch-wood now used. The leaf-sheaths are all required for another purpose in the garden economy, and in any case the manure does not (as Mr. Davidson points out) need a water-proof. It needs protection and needs also to soak up the rainfall, as it falls in a fair and reasonable way.

9. No, 2 sample was taken in the same way as No. 1 in handfuls from above the roots of many trees. The samples were taken two months after application. No. 2 contains less sand than No. 1 for obvious reasons, and probably its original manurial elements had been since application utilized to considerable extent, as the trees and plants were in active growth. The garden soil and the manure were quite moist, and there had been rather abnormal heavy rainfall some little timo before the samples were taken. These are conditions which would help the plants to utilize the manurial ingredients quickly. The sample No. 3 from dry leaves used as litter under cattle is quite as good as might be expected. It has about half the manurial value of good cattle dung manure. The owner considered it was poor stuff. The high percentage of sand is noticeable.

10. There is no doubt that the present system of manuring in the Kanara Gardens is successful in practice, provided the gardeners are allowed to use in sufficient quantity the kinds of forest produce which they prefer. The system of manuring is expensive, even though the materials are got free, and the destruction caused to forest growth is enormous. Under the circumstances, it would, I think, be most advisable to test by experiment whether available concentrated manures, such as castor cake or safflower cake, could take tho place of a portion of the manure now used. These cakes can be imported from Dharwar at reasonable rates into tho district. Castor cake is less valuable manurially than safflower cake, and is dearer. In tho Gardens of Bassein, with heavy rainfall in light soil, castor cake is successfully used. It is obnoxious to insect life, and if used in the Kanara gardens there would probably be less damage done by grubs and borers, which certainly do considerable damage to the garden plants and trees now.

11. I append hereto analyses by Dr. Leather of samples of four descriptions of soils which are sufficiently described in the appended tabular statement;—

	Kagadali earth, *e.e.*, the earth excavated from embankments and carried in head-loads to renew the garden soil of old-established garden when renewal is required.	Earth from rice beds near a thriving spice garden and similarly situated to the garden and presumably capable of being converted into garden.	Soil from old-established gardens.	Soil from new extension of an old garden.
Lime (CaO) total	·11	·09	·15	·19
Magnesia (MgO) total	·30	·30	·29	·38
Alkalies total	1·07	·31	..	..
Potash total	·154	·071	·110	·27
Potash (K_2O) available	·003	·008	·004	·005
Phosphoric acid (P_2O_5) total	·086	·04	·073	·074
Phosphoric acid available	·001	·0017	·0005	·0015
Nitrogen total	·014	·20	·09	·18
Nitrio acid (as Nitrates)	·0009	*Nil.*	*Nil.*	·003

12. Dr. Leather says the samples are all deficient in lime phosphoric acid and more or less so in available potash. I should, as a matter of fact, class them as agriculturally poor, but in my extended notes regarding tho garden cultivation I remarked that it does not matter much whether the garden soil is naturally fertile or not, because the yield of the orops is mostly affeoted by the quality and quantity of manure given. As regards the soil it must be of such consistence that it withstands the denuding effect of flood water and be so retentive of moisture that little or no irrigation is required in the fair season. All the samples submitted to Dr. Leathor possessed these desirable qualities. It has already been shown that the leaves and twigs used by the cultivators are rich in potash and also in nitrogen, in which the soils are decidedly deficient. It has also been shown that the trampling of the leaves under cattle and the absorption of the excreta particularly, if the cattle are partially fed on cake, improves the resultant manure in phosphates. Dr. Leather has not separately estimated the amount of lime in the manures, but he shows that the soils are dificient in this important ingredient. I have already stated that the *matti* tree when burnt leaves and ash rich in lime, or, according to local opinion, it yields *chunam*. The cultivators are specially anxious to be allowed to take the leaves and twigs of this tree. If the manure applied to the trees in the Kanara gardens was mixed, as in common Agricultural practice, freely with the soil, then the soil in old-established gardens would probably be richer in manurial ingredients than new soil.

13. I conclude from a study of Dr. Leather's analysis that the system of manuring, as practised in the gardens of Kanara, is as right in theory and practice as it well can be, provided tho manure as it accumulates in the pits is subjected in the least possible degree to the wasteful wash of the heavy Kanara rainfall,—*Agricultural Ledger*.

PLANT BREEDING.

We learn from tho March number of the *Journal of the Board of Agriculture* that the United States Department of Agriculture have recently issued a Bulletin, by Professor W. M. Hays, on plant-breeding, which contains a good account of the *technique* of the subject, and some stimulating suggestions. "Many look to the production of improved varieties

of cultivated plants as a sure way of increasing the yield and quality, and already results have been achieved sufficiently remarkable to encourage much hope for the future. One of the most striking instances is furnished by the Sugar-Beet, which in Germany, in 1836, contained only five per cent. of sugar, and now furnishes not much less than fifteen per cent. During the same time the gross yield of roots per acre has increased by about fifty per cent., so that the output of sugar per acre is now over four times as great as seventy years ago, a result for which careful breeding is chiefly accountable.

In this and other countries much has been accomplished in the matter of plant improvement, but much undoubtedly remains to be done. It is work that makes no exceptional demands on capital or skill, as is proved by the fact that many of our best varieties of plants, especially vegetables, flowers, and fruits, have been raised by amateurs, in not a few cases by cottagers. It is, however, work that requires much perseverance, and at certain seasons much attention; though the demands that it makes on time necessarily depends upon the extent to which it is carried on. For its successful performance it requires inteligent observation, a knowledge of the gardener's or farmer's requirements, delicate manipulation, and accurate recording, rather than strenuous exertions.

Two main lines are usually pursued to produce a new and improved variety of crop-plant. One method of producer, which has been successfully adopted by some of the best known workers, is to make a careful examination of the individual plants in crops cultivated in the ordinary way, and from these to make a selection of those that are distinguished by superior merits Such superiority may take the form of yield, capacity to tiller, a high percentage of starch as in Barley and Potatoes, or of sugar as in the case of Turnips, Swedes, and Mangolds), capacity to ripen early, to resist disease, &c. But whatever may be the object selected, it must be kept steadily in view, and all individual in the progeny that fall short of the character that may have been set up must be carefully eliminated. By intelligently pursuing such a system of selection during a series of years, a distinct type or variety will be produced.

The other method commonly pursued begins by artificially crossing two individuals whose superior qualities it may be desirable to unite in a single variety. The seeds that result from such a cross are shown, and it is generally found that the resultant plants are extremely mixed in character. Many are inferior to either of the parents, others occupy an intermediate position, while a few may be superior to both. It is the latter only that are reserved for subsequent cultivation, and from their progeny also many individuals must be eliminated. In the course of time, however, the percentage of inferior individuals becomes smaller and smaller, until, at last, the variety comes true to type.

In the main, these two systems of improvement are the same. The plants selected in the first case may be natural crosses, while in the second they are artificial crosses, but the improvement is, in both cases, completed by selection. The larger the number of plants selected or of crosses effected, the greater are the chances of a really valuable new variety being found and for this reason it is desirable to work with large numbers, though, of course, one may be fortunate in producing a valuable variety even when the work is being carried on but on a very small scale.

In sowing pedigree seeds, the soil should as a rule be of good quality, so that the resulting plants may have the opportunity to produce the maximum yield. But it is of even greater importance to arrange matters so that each individual plant is placed in possession of precisely the same conditions of growth. Only in this way can we be sure that the appearance of superior qualities in the progeny is due to something inherent in the plant itself, and not to the specially favourable character of the situation where it has been grown.

Farmers have generally given more attention to the breeding of animals than of plants, but just because less has been done in the latter field, more probably remains to be accomplished. It is surprising how quickly a single plant multiplies, if the conditions be made as favourable as possible. The Late Mr. Shirreff gives an instance from his own experience. In the spring of 1819 he found a specially vigorous wheat plant in a field on his farm in East Lothian, and he resolved to propagate it. He therefore removed the plants in its neighbourhood, and gave it a dressing of manure, the result being that, notwithstanding some damage by hares, he harvested from this single plant 63 ears, containing 2,473 grains. In the following autumn these grains were dibbled in wide rows in a suitable piece of ground, and in the two succeeding seasons the produce was sown broadcast. The result was that the fourth harvest from the original plant yielded 42 quarters of seed, which was subsequently placed on the market under the name of Mungoswells Wheat."—*Gardeners' Chronicle.*

CENTRAL AMERICAN RUBBER.

It is generally considered that Central American rubber is the product of *Castilloa elastica* Cervantes, described and figured in the *West Indian Bulletin*, Vol. II, pp. 101-3. The tree has a variety of local names the most important of which are 'Hule' or 'Ule' and 'Caucho.' Distinct from this plant is *Castilloa Tunu*, Hemsley (*Hooker's Icones Plantarum*, plate 2561), a tree also found in Central America and sometimes confused with the true Central American rubber tree which it closely resembles in general appearance. In an article which appeared in the *Beihefte zum Tropenpflanzer* for July 1901, Mr. Th. F. Koschny, a planter of long experience in Costa Rica, distinguishes the following varieties of 'Hule' trees:

Castilloa elastica;

'Hule blanco'	White rubber tree.
'Hule negro'	Black rubber tree.
'Hule colorado'... ...	Red rubber tree.

Castilloa Tunu:

'Hule tunu'	'Gutta percha.'

The names of the three so-called varieties are given from the colour of the bark of the tree. 'Hule Blanco' is described as the only one worth cultivation, giving thick and abundant latex. The tree is not shade loving, being seldom found in forests, and not easily injured by tapping. 'Hule negro' gives a watery latex, and that of 'Hule colorado' whilst good, is scanty.

Mr. Koschny suggests that 'Hule colorado' may have been introduced into Java and Ceylon, and be the reason for the comparatively small returns given by Central American rubber trees in those islands. This point was touched upon by Dr. Morris in his Cantor Lectures on the 'Plants yielding Commercial India Rubber' to the Society of Arts in 1898, 'The plants distributed from Kew and now under cultivation in various tropical Colonies would be more correctly termed, according to their place of origin, Darien "Castilloa" or Darien "Caucho" trees. This would distinguish them from the Ule trees of Mexico, British Honduras, and Nicaragua, and indicate their history. It is Possible that there is no great difference, if any, in the quality of the rubber yielded by these trees, but so far no one has undertaken a comparative investigation of the produce.'

The Ceylon plant has been considered as possibly belonging to the species *Castilloa Markhamiana*, Markham, (Circular No 11, Botanic Gardens Ceylon). On the other hand in the *Kew Bulletin*, for Sept, 1901, Mr. W. B. Hemsley states that *Castilloa Markhamiana* is not distinguishable from *Castilloa elastica*

Careful comparison at Kew between typical specimens of the rubber tree from British Hondura,

Mexico, and Darien, so far, has failed to reveal any differences sufficient to warrant the recognition of definite varieties. Mr. Koschny's varieties have not yet been established botanically. Specimens have been sent by him to Prof. Warburg of Berlin, an authority on this group of plants, and their determination will be awaited with interest.

It is important meanwhile to draw attention to the fact that probably more than one variety may be cultivated under the name of 'Central American rubber tree,' and intending growers should be careful to secure seeds or plants from reliable sources.—*West Indian Bulletin.*

THE PRINCIPAL VEGETABLE PRODUCTS OF THE HAWAIIAN ISLANDS.

As everyone in the horticultural world knows, Sugar is the staple industry, and is largely cultivated throughout the Islands. It was cultivated in very small quantities before 1876, when a treaty of commercial reciprocity with the United States came into effect. Under the provisions of this treaty an era of unexpected prosperity set in, and the production of Sugar, as well as Rice, increased more than was ever anticipated. Large barren tracts of land were brought into cultivation by extensive irrigation, some of the ditches being 40 miles in length, carried through dense woods, tunnelled through rock, and spanning wide canons. The Ewa Plantation, near Honolulu, is one of the largest and finest in the Islands. About 90,000 acres are taken up with the various plantations, with a yearly yield of about 225,000 tons of sugar. It requires an average of eighteen months for a crop to mature, the ordinary yield being 3½ tons to the acre; yet on specially rich alluvial soil, it is sometimes as great as 9 tons to the acre

Next in importance comes Rice. Its culture is principally carried on by the Chinese, and in the San Francisco market it grades with the best coming from China. The ground is ploughed and well harrowed, the field is then submerged, the water being allowed to stand until the crop ripens, when it is drawn off. The method of cultivating is crude and primitive. The Chinaman sows the seed thickly in a small field; when the plants are about 6 inches high, they are pulled up and taken to the field for planting, where they are set out in the mud by hand in rows about 8 inches apart. When matured the water is drawn off to allow the straw to ripen. The crop is then cut with the sickle. No threshing machines are used by the Chinese Rice grower, but the grain is separated from the chaff by being beaten out with the hoofs of horses or Chinese cattle, as in ancient times.

Coffee is cultivated, but not to a large extent, although Hawaiian, or Kora, Coffee takes a high place among the best Coffees of the world; the trees are grown anywhere, from the sea-level up to 3,800 feet above the sea. One of the greatest difficulties to contend with is insect blight, which is greatly kept in check by peculiar parasites, and ladybirds that have been introduced for each kind of insect. The cultivation of Tea is carried on with good results, the best quality of leaf being obtained on the higher elevations. The high price of labour prevents its more extensive cultivation.

Hemp has been experimented with, and pronounced by experts to be of a good, strong description. The expense of cultivation is trifling, and the yield per acre is about 13½ tons. Ramie, or vegetable silk, grows luxuriantly, but the industry is not developed, owing to the want of suitable machinery.

The soil and climate of Hawaii cannot be excelled for the production of tropical and sub-tropical fruits, and their introduction has added largely to the prosperity of the islands, especially so in the case of semi-tropical fruits, such as the Alligator-pear Banana, Lime (Citrus Limetta), Orange, and Lemon. The Alligator-pear grows to a large size, and the fruit is of a superior quality. The flesh is of butter consistency, with a nutty flavour, and it makes a delicious dressing for salads; the largest of these heads is about 6 inches long, and weighs upwards of 3 lb. The Mango grows in great profusion, and several varieties are used for making chutney, the best varieties having been imported from India and Jamaica. It is an evergreen with small, glossy leaves; and a gum which exudes from the trunk of the tree is used in medicine. It bears fruit several months of the year, and it is not unusual to find trees with fruits on one side and blossoms on the other.

Coconuts grow all along the sea-shore, or any spot where nothing else will grow; but they are now very little cultivated. The Sapodilla, Soursop, Pommelo, Cherimoya, Custard-Apple, Papaw, Citron, Water-Melon, Granadilla, Pomegranate, and Tamarind are some of the desirable exotic fruits that do well in the islands. Vegetables of all descriptions are raised throughout the year, and Water and Cantaloupe Melons are superior to those grown in most countries. Pineapples grow wild on all the islands; there are some twenty-five varieties taking their names from the localities whence they are obtained. Near Pearl City, some eight miles from Honolulu, a plantation of an excellent variety exists. The average weight of the fruits is 8 lb., although the fruits of some varieties have been known to reach a weight of 17 lb. The Pineapple season is from the middle of the month of May to the middle of August.

Bananas are raised in great quantities and shipped to the west coast of the United States, the cost of cultivation being very small. Along the mountain ranges are trees and Vines in luxuriant growth, forests of a magnificent species of tree, whose wood has beautiful markings, and capable of taking a high polish, equalling the finest walnut and mahogany; this is the Koa-tree. The islands at one time were very rich in Sandal-wood, but when the natives found it would be a great source of income to them, they cut down the old trees in a very short space of time, and sold them to dealers in the United States, and neglected to plant young trees for a future supply.

Not the least important vegetable product is Taro. It consists of two kinds—the upland, which grows on the hillsides in dry ground, and the lowland, or more important staple, which is propagated like Rice, under water. Long irrigating ditches are required in preparing the bed. The ground is levelled off and enclosed by a wall impervious to water. The floor of the patch is made as rich as possible, and the top is cut from the ripe roots and set out in hillocks placed several feet apart. The water is let in, and allowed to remain until the crop is mature, i.e., in about twelve months, the only labour required being to keep the soil clear of weeds, and provide a depth of about 6 ins. of running water. Taro can be planted at any season, and a ripe crop obtained. The root is oblong, the largest being about 1 foot in length, and from 3 to 4 inches in diameter. The root is baked by the natives, who make from it what they call *poi*, the baked root being pounded till it forms a paste, which is thinned by adding water, and afterwards allowed to ferment. As a food it is most nutritious.

Another important plant much used by the natives is the Ti; it has also a large, oblong root, and the leaves are of a shining green tint. The Ti-leaves were at one time woven together, and formed a short cloak, which the natives sometimes wore. The root, after baking, is sweet and pleasant to the taste. It is also used to make an intoxicating drink, by bruising the roots with a stone, and steeping in water until it ferments.

Besides the plants mentioned, there are many beautiful flowering and foliage plants, among which Codiæums (Crotons) are worthy of special mention. All the varieties grow in great luxuriance, and show exceedingly rich leaf-colouring. Round the College grounds, in the suburbs of Honolulu is a hedge of a night-blooming Cereus (Cereus nycticalus), which is a magnificent sight when in flower, the blossoms ranging from 2 to 3 feet in circumference, *Donald McIntyre Moanalua, Honolulu.—Gardeners' Chronicle.*

POINTS FOR PRACTICAL PATRIOTS [IN JAMAICA: HOW MANY APPLY TO CEYLON?]

If you want to help on the finances of the island in a practical manner, adopt the following hints; and if everybody did so a few years would see the circulation of perhaps double the amount of cash among the people, for there would be a half less sent out of the country for things we can and do produce easily ourselves.

Use country corn, when available, even if it is a 6d. a bushel dearer than imported corn; it would soon get cheaper.

Use Jamaica "red peas" and black-eye peas even though they are 6d. a quart, and the American can be got at 4½d.; our own are fresher and sweeter.

Use Coconut Oil in all cases where you use Cotton Seed or any other salad oils at present.

Use Cassava Starch and stop buying imported corn or potato starch.

When you go to buy Arrowroot, be sure to ask if it is Jamaica-grown,—you will soon get the home product if you want it.

Make your own Preserves and use less sugar, as they usually are too cloying: or buy the Jamaica Preserves when you can. If they are often asked for they will get cheaper.

Use Jamaica-made Soaps which are again available; the factories employ local labour, pay taxes, and buy coconuts and other local products to make the soap of.

Patronise the local dairy when you want milk—it is better than condensed milk and the more that is asked for the cheaper it will ultimately be got for,—quick returns encourage small profits.

Fresh pork and beef are in all ways better than the barrelled salt-junk which may be horse or dog for all you know.

Use more honey, it is the most healthful of all sweet stuffs, and can be employed in the household in a score of ways more than at present.

50 ACRES OF LAND AT 1s. PER ANNUM.

IN THE NEW HEBRIDES.

The 100,000 acres at the New Hebrides which Messrs. Burns, Philp, and Co. have placed at the disposal of the Commonwealth Government for the purpose of encouraging British settlement is to be leased to intending settlers at 1s. per annum for each 50 acres or part thereof, with a provision for sale to the occupants under conditions prescribed by the Commonwealth Department of External Affairs. Between 50 and 60 men, representing with their families between 200 and 300 souls, are expected to go down by the "Mambare" from Sydney on June 1.—*—Sydney Mail*, April 12.

COLOMBIAN CASSAVA.

A FAMINE PLANT.

Under the above heading we several months ago offered some observations on an interesting series of letters that had passed between the India Office and Mr Robert Thomson on a subject of great importance to Jamaica and her sister West India colonies. The primary object of the correspondence, however, on the part of Mr Thomson, was to suggest to the Government of India the introduction into that country of some of the more important varieties of cassava under cultivation in Colombia and other South American countries with a view to mitigating the calamitous effects of the ever-recurring famines that inflict such severe suffering and distress on extensive provinces of our Indian Empire. One of the distinguishing and—so far as their introduction into India is concerned—most valuable properties of the Colombian varieties of cassava is what may be termed their constitutional flexibility—their independence of climatic and other vicissitudes. Rice, the principal article of food in India, requires for its cultivation a rainfall of at least 36 inches, and an Indian province requires an average fall of at least 50 or 60 inches to grow rice as a staple crop.

We are glad to know that Mr Thomson's correspondence has borne fruit and that the Director of Land Records and Agriculture, Bombay, has decided to commence the cultivation of Colombian cassava on the Government farms. Mr Thomson has just received a letter from the Director acknowledging, with many thanks, the receipt of a case containing some twenty-three varieties of cassava from Colombia, and mentioning that the stems or cuttings had arrived in good condition. This information furnishes pleasing verification of what we said months ago to the effect that the stems, if carefully handled, would retain their remarkable vitality for several months after being cut. The cuttings, we may mention, were brought from Columbia—having been obtained from sections of the country a thousand miles apart—by Mr Thomson's son—Mr Kay Thomson—who in consequence of the insurrection then in progress took several weeks to reach the coast from the mountainous interior. Notwithstanding this delay and the time taken in conveying the cuttings from Jamaica to Bombay, the Colombian varieties reached their destination in good condition and the Director of Land Records and Agriculture promises to let Mr Thompson know the result of their propagation in due course.

Our readers will be pleased to learn that the nursery, formed in August last with the cuttings brought from Colombia by his son, has proved a signal success, and that thousands upon thousands of cuttings are now available. In addition to the several acres of the ordinary varieties of cassava which have been planted at May Field on the Hope Road in the neighbourhood of King's House, Mr Thomson purposes planting the new varieties on an experimental scale with a view to determine the relative merit of the several varieties. From Mr Thomson's interesting report on his visit to Florida we gather that Cassava cultivation promises to be the staple industry of that enterprising peninsula. It is a noteworthy circumstance that Florida is indebted to Jamaica for this important industry. About three years ago an American tourist in Jamaica, Mr Perkins, was struck with the value of cassava as a starch-yielding plant. On his return to Florida he organised a company and erected a great factory which Mr Thomson visited at the end of June. We learn from his report that a thousand acres of cassava are planted in the vicinity, hundreds of acres being cultivated by gentlemen connected with the factory. Within sixty miles of the factory the managers purchase the tubers delivered at railway stations at five dollars per ton, and the culture is extending rapidly. Not only is cassava the cheapest known source of starch, but it is said to be the cheapest and best ration for feeding and fattening farm stock. From the report of the Professor at the Florida Agricultural Experiment Station, Mr Thomson makes the following extract:—

"With all the facts procurable, and with the experience not only of myself, but many practical farmers to support the opinion, I have reached the conclusion that, all things considered, cassava comes nearer furnishing the Florida farmer with a more universally profitable crop than any other which he can grow on equally large areas. It can be utilized in more ways, can be sold in more different forms, can be more cheaply converted into staple and finished products and can be produced for a smaller part of its selling price, than any other crop."

In a future issue we shall show how practicable as well as desirable it is to establish a great cassava in-

dustry in Jamaica. Some of the Colombian varieties are doubtless well adapted to the soil and climate of Jamaica, and the establishment of a new industry is a matter of no small importance to Jamaica and the sister West India colonies. But, as we remarked on a former occasion, the introduction into India of a new, adaptable article of food is of vital importance to the inhabitants of the Eastern Indies, inasmuch as it marks the initiation of an enterprise which will, we trust, be pregnant with benefit and blessings to millions of our fellow-subjects in the East Indies.—*Jamaica Daily Telegraph.*

EXPERIMENTING IN GREEN TEA MANUFACTURE.

[BY AN OLD PLANTER.]

The great reduction in the cost of equipment and construction of cold storage chambers that has recently taken place, and the certainty of still further cheapening down, should enable those planters who have a desire for manufacturing teas resembling the Japan greens to turn them out with some chance of succeeding in the competition, though it must be remembered that Japans are roasted by direct heat, not baked as ours are, and though we have been found fault with for recommending a return to something approaching the old-fashioned firing, in vogue before introduction of the sirocco, we still hold to the idea that our engineers could, if they devoted attention to the subject, devise an apparatus for roasting, in which economy in fuel with retention of the aromatic properties in the leaf could be combined. On many estates this promises to be a season of experiments, but we earnestly trust that these will be limited to dealing with small quantities, as, though we have been assured that unfermented tea (as it is called) is stated to have been successfully manufactured in both hill and low country in Ceylon—an assertion, however, since rather discounted by Mr Galt—it would be most unwise to plump for a thoroughly radical change in dealing with the whole crop, there being four instances of the disastrous effects of so doing between 1862, the era of the sand tables, and 1880, when the sirocco first commenced to replace the *pucca dholes*. We entered fully into the effects of keeping rolled leaf in a state of suspended animation (if that term is permissible) a year ago, pointing out that the cooling down of rolled leaf permitted the evaporation of tannin, while, though teas so treated were lacking in strength to a very infinitesimal degree, the flavor was improved, and now that the object is to force Indian tea into consumption on its own merits alone, the "retention" of tannin, hitherto needed for salting weak China, is no longer requisite. Reliable information published last year from our Consuls in Russia showed that large as the importations of Indian and Ceylon teas were, they were quite unfitted alone for the *Samovar*, and though we know nothing definite as to the importation overland of Chinas into Russia we may infer that our teas are merely used for blending with the weaker Congous through the large and increasing quantities taken would lead to the idea that our weaker teas were gradually coming into vogue for the stewing process, unmixed. Haggenback, who has so recently made the great haul of Ukraine horses in S.E. Russia, states that, in one of the inns the first water poured on the tea in the *samovar* after stewing for an hour, was drawn off, decanted into jars and set aside to fortify the second brew as it weakened. Such a proceeding, from what other travellers tell us, would produce a liquor suited to the Russian taste, and account for the growing demand, but our opinion is that this demand would greatly expand did we supply a tea that could be used without resort to the practice, and such a one can be turned out by cooling down and slow firing. Both operations, moreover, would give whiter tips which Continental dealers desire; in fact, we should, aim at turning out a more delicate liquoring leaf, though at the expense of strength. That such will entail considerable alteration in the present methods of manufacture must be admitted, but in this, as in all other cases, the public are dictators, and obey them we must. Toning down the raspiness of our teas should occupy first attention, which, as we have shown, can easily be accomplished by evaporating the surplus tannin in the cooling chambers. Adoption of the "basket" firing, as practised in Japan and China, presents, we admit, some difficulty in the way of lighting upon some fuel as inodorous as charcoal; but, as we have now a qualified chemist at command, there ought not to be much difficulty in that, and until he has settled the point, one must adhere to the Sirocco for drying off: surely our engineers can hit upon a furnace that would radiate heat, at the same time securing the leaf from contamination by the fumes. The cooling chamber, according to our experiments, should be kept at a temperature of 40° as, if allowed to go below this, the tannin, volatile as it is, would cease to evaporate, while above 40° there would be the risk of fermentation setting in. The method of obtaining the gray color and white tips is by alternately cooling and heating. That the manufacture of what the American market demands will entail the outlay of money goes without saying, and although the Canadian and Northern States dealers pass eulogiums on Ceylon "greens," it seems to us that the price they are willing to give hardly justifies the entertainment of their recommendations. [?] Should we succeed in ousting Japan and China, securing the 70 million pounds, the uphill fight to do so will be a long and costly one, hardly justifying our entering on it at even the top price for the best greens, *viz.*, 42 cents per lb. While urging the manufacture of green or gray tea, on the experimental scale, we must not ignore that we are still really overproducing, and that our 30 million pounds of reduction of output has dwindled to something less than a third of that; whether from disloyalty or miscalculation, it is needless to enquire. We still earnestly advise further restriction in output, for though the latest news from the districts is a doleful record of ripped flushes from hail, these early violent north-westers are invariably followed by favorable meteorological conditions, and if abstinence is not observed, we may again be tempted to glut the markets, just as we were hounded on to do by the London riggers in 1900. We can always increase our outturn in normal seasons after the rains have set in, and as the stocks in London warehouses are some 15 millions in excess of last year, and in Melbourne half a million with an unknown quantity locked up on the Continent, it would be as well if some arrangements could be come to by which output could be restricted to 140 millions at the outside. Unfortunately we

notice that a large number of concerns have estimated for an increase over last year's production, which, if attained, cannot but lead to lower prices, while what Ceylon contemplates doing we have not the least reliable information about.—*Indian Planters' Gazette*, May 3.

THE CULTIVATION OF COCOA IN AFRICA.

At present the little Portuguese Island of St. Thomé is the great source of production of African Cocoa, but from maps of the Island showing the area under cultivation, as well as from reports, the area suitable for cultivation is pretty well taken up, and anyone wishing to buy an estate cannot but be struck at the very high prices asked; but in Fernando Po to the North of St. Thomé and the little Ile du Prince between the two, Cocoa is receiving great attention, and shows signs of becoming an important industry, the climate being suitable, and though at present, owing to the absence of means of transit in the centre, the cultivations are mostly along the coast, it is hoped, especially in Fernando Po, that the interior will soon be opened up, and offer facilities for the carriage of produce down to the coast.

Taking the Islands off the East Coast next, the Seychelles islands are slowly but surely pushing ahead, though the quantity they supply is never likely to be very important; in the French Island of "La Réunion" the cultivation has gone back, for whilst in 1884 the total crop amounted to 4,000 kilos, in 1889-1900 it was evidently too small to attract the attention of statisticians, and local chocolate makers complained that they were unable to obtain sufficient Raw Cocoa to satisfy their trade. As Cocoa was well-known in the Island in 1827 it cannot be that the climate is unsuitable.

Cocoa from time to time is also received from Mauritius, but up to now it seems that the cultivation of sugar has engrossed the attention of cultivators, and so Cocoa has had to take a seat in the rear.

It is Madagascar that may in the future become a very large source of supply, (and together with the German Cameroons deserves careful attention) and if it had not been for the (Madagascar) War there is little doubt that it would have been a much more important centre than it is at present. Originally the seeds came from La Réunion, and in 1883 it was calculated that about 6,000 trees were planted, all near the coast, and then came the war so that 1888 (five years later) still found them with only 15,000 trees; but since then I have heard that more than 20 estates have been planted. The climate of this island, however, shows some signs of confining the area suitable for cultivation, the rainfall being too uncertain in the North and South, and too small on the Western side (the one nearest to the Continent of Africa), so that it seems as though the East Coast and the centre are alone suitable for Cocoa; but then the Island is very large, so there should be plenty of room in the centre. The district round Tamatave seems to be the best district, all the year round.

To go now to the mainland, Cocoa is being planted in French Guinea, the Gold Coast, the Ivory Coast and round Calabar but it is badly prepared and at present, I believe, is in the hands of natives who sell it to Europeans to properly dry, if not to cure as well. Reports agree that all these places are suitable for the growing of Cocoa, and considering the absence of skill, attention, &c., the results up to now have been satisfactory.

In the *Belgian Congo* where Cocoa was not introduced until 1884 and not really planted until 1887-88, it was estimated by Mons. Wauters that in 1898 there were 125,000 trees in cultivation. The natives seem to be also growing it under the direction of their chiefs. In the *French Congo*, although it was not started until 1887, Cocoa seems to have made more progress than in the Belgian centre, and is reported to be now in general cultivation throughout the Colony, and has given on the whole satisfactory results. The total shipments from the Colony in 1898 are put down to be 3,800 bags, of which about one-third went to France, and the balance, the estate belonging to a Dutch firm, to Holland.

Now we come to the German Colony of the Cameroons whose cocoa, I believe, is shipped entirely to Hamburg; if so the following receipts of this growth in Hamburg will give some idea of the extent to which the industry has grown since 1892:—

In 1892 the Cameroon returns say the Colony shipped ... 900 bags
In 1895 the Cameroon returns say the Colony shipped ... 2 640 ,,

In 1807	1898	1899	1900
5,400	6,745	9,047	9,833

—bags were received in Hamburg from the Colony. And to the end of February, the figures compared as follows:—

1898	1899	1900	1901
2,046	1,842	2,053	4,041

bags received in Hamburg from the Colony, showing a regular and substantial increase.

After St. Thomé therefore the Cameroons are expected to be the most important supplier although the very optimistic idea as to returns, when the district was first planted between 1886 and 1890, were rudely disappointed. Before 1886 only a few trees were in existence, and those had been planted by the natives. The cocoa has come from a good stock originally, the seeds having been brought at great cost from Trinidad, Venezuela, Ceylon and St. Thomé. At present most of the plantations are near the coast, or along the river banks in the Western and South Western districts, and there is an abundance of land equally suitable for cultivation, once the trouble of transit has been overcome.

The Germans, it seems, pay great attention to the outward appearance of the bean, and the "break" has been sacrificed for the appearance outside; excessive fermentation, which all African cocoa seems to require, rather spoils the shell, as well as the rounded appearance, but owing to the complaints

from German cocoa manufacturers, it is hoped, buyers will attend more to the "break" than the appearance, and by paying a higher price for a good breaking sample wean the planters from spoiling the inside for the outside. At one time it was maintained that it was impossible to rid the St. Thomé bean of its bitterness, but the experts I sent samples to in the West Indies all said that, given about twice as much sweating, the cocoa would come all right, and certainly of late we have had some piles showing a marked improvement in the break.

H. HAMEL SMITH.

CEYLON TEA IN RUSSIA

AND WHAT A REDUCTION IN THE DUTY WOULD MEAN.

With reference to the tea deputation in London to Prince Stcherbatchoff, presenting the importance of bringing about a reduction in the Russian tea duty, which received some prominence in our issue of last evening, we thought the opinions of local Russian firms on the subject would be of exceptional interest. We have, therefore, made enquiries, with the following results :—One firm which does not desire its name mentioned, says :—

"We have read the articles in your paper on Ceylon and Indian tea, and tea duties in Russia. Our opinion is that, should the duty be reduced, the consumption of tea in Russia would be very largely increased. Cheapest kinds of tea are sold in European Russia at about the equivalent of R1 70 per Russian lb. (36 English pounds-40 Russian), and a substantial reduction in the duty would mean that these kinds of tea would find their way even to the poorest classes in Russia, who cannot now afford to indulge in the luxury of tea-drinking, and the present consumers of tea would probably buy more tea at the cheaper prices, or would take the same quantity as before but of a better class of tea.

"As regards the paragraph about a deputation to Prince Stcherbatchoff, we do not think it will have much influence on our Government, as they must have their own important reasons for not having reduced the duty on tea before this."

Mr. W. P. Ampenoff today favours us with the following statement:—"I am inclined to think that a reduction of Duty in Tea will probably lead to a increased consumption of Tea in Russia, but I doubt the Duty will be reduced by the Russian Government as it is not quite evident whether the increase of import will be in proportion to the loss to Government in Duty, if reduced.'

TROPICAL PRODUCTS IN THE FEDERATED MALAY STATES.

From the report by Mr. A. Berrington, Commissioner of Lands and Mines, F.M.S., on the lands, mines and surveys of the Federated Malay States for the year 1901, which has just been issued as a supplement to the Negri Sembilan Government *Gazette*, we quote the following review of their agriculture for the year:—

The reports of the Collectors only refer to the progress of agriculture incidentally, in connection with the alienation of new land, and no doubt it is more a matter for Administration reports than for Land Office reports. Still, I may notice a few matters of interest in this connection.

PADI.—In Krian, where the cultivation of sugar and padi has been long established on a considerable scale, there has been a disastrous failure of the padi crop, though happily it does not seem to have affected the rent collections. Owing, as the Collector says, to the supineness of the penghulus, in neglecting to see that the transplanting was done at the proper time, the first nurseries were almost entirely ruined, and by the time that second nurseries were ready, and their contents transplanted, heavy rains came to retard the development of the young plants, which were then attacked by a wire worm and the greater part of the crop was spoilt. As a result, the export of padi from Krian, which in 1900 was valued at $538,404, was in 1901 worth no more than $190,533. In several other districts, however, the padi crop has been a fine one. In Kuala Kangsar, where it has been particularly good, I have heard the result attributed mainly to the influence of the penghulus, who understood what ought to be done, and took care that it was carried out.

SUGAR.—Sugar cultivation in Krian produced an export of the value of $1,480,168, as against $1,315,974 in 1900. At the large estate at Sungei Gedong in the Matang district, where over 1,100 persons are employed, the crop is estimated to produce 55,300 pikuls of sugar.

PINANGS.—From Selama it is reported that 10,630 pikuls of pinangs were exported in the course of the year.

COCONUTS.—In Lower Perak, Kuala Selangor and Kuala Langat there has been a considerable demand for land for coconut plantations, but there are also many complaints of the damage done by beetles and by rats. Mr. Hale, the Collector and Registrar of Titles in Kuala Lumpur, thinks that unless rigorous measures are taken it will soon be hopeless to attempt to grow coconuts within five miles of the centre of Kuala Lumpur, owing to the number of heaps of stable and other refuse in which the beetle (Oryctes rhinoceros) is allowed to breed undisturbed.

TAPIOCA.—In Negri Sembilan, where tapioca has been largely grown for years, a considerable area of fresh land was alienated during 1901 for that cultivation, with a condition requiring the planter to introduce some "permanent" form of cultivation (*e.g.*, getah rambong or coconuts) *pari passu* with the planting of the tapioca.

GAMBIER AND PEPPER.—The price of both gambier and pepper has risen, and some fresh land has been alienated for their cultivation.

COFFEE AND RUBBER.—The prospects of coffee have, unhappily, not improved materially, and a great deal of land planted with that product has been abandoned. Many estates, however, have been kept going, and may be expected to do well in the future with the help of the para rubber which is now growing up between the rows of coffee.

TOBACCO.—In Ulu Langat tobacco is grown on small scale by Javanese settlers.

CEYLON TEA ON THE CONTINENT OF EUROPE.

In our opinion, no fuller nor more satisfactory Report has as yet been published from a Ceylon Tea Agent—or Planters' Commissioner—than that supplied for 1901, regarding the Continent of Europe, by Mr. J. H. Renton, and which we publish on page 25. It discloses a wonderful amount and variety of work, and, considering the small sum allotted to the Commissioner, we think he has done wonders. He certainly has not spared himself, nor adopted any one rough and ready course of getting rid of the Ceylon grant with a minimum of trouble to himself; but in encouraging "demonstrations" and a variety of modes of advertising, and of making known the virtues of Ceylon tea, Mr. Renton has been very wise and active in his campaign. In respect of Russia, the Report was framed before the disappointment respecting the St. Petersburg Exhibition was known, and it is very curious to see the suggestion that, as the regular course of trade should not be interfered with, a bonus should be offered (from the Cess money, we suppose) to all importers (or exporters) of Ceylon tea. We do not know if this will be approved of by Russian tea merchants, even if the "Thirty Committee" had the money available to make a grant or bonus worthy of acceptance. But it will certainly be a striking fact in the history of our tea trade development if the export of our staple to Russia should run up, year by year, within a comparatively brief period, to 32 million lbs. without any further call on the Cess Fund.

IN THE WORLD'S IVORY MART.

Billiards are impossible without billiard balls and billiard balls, we may inform him, are equally impossible without the ivory sales. Ivory is one of those commodities that are most intimately bound up with the "romance of trade." There lies the ivory on the merchant's counter, but who shall say how it was originally acquired—what dark dealings went on in the swamps and silences of Africa before it found its way to the trader's possession? About two years ago saw the most curious as well as abundant shipment of ivory from Africa that has been known for many years. It was the time of the Benin expedition, and the natives ransacked the country for ivory with which to seize this unique opportunity of trading. Even the heathen temples yielded up their treasures, for some of the ivory shipped was in the form of idols, And on several of the tusks there was the mark of human blood. The shipments reach the London docks at all times of the year but they are stored up carefully until the time of the sales, which occur four times yearly. Then they are sorted out and arranged in lots on the floor of one of the extensive warehouses attached to the docks. The actual sales occur

AT THE COMMERCIAL SALE ROOMS IN MINCING-LANE,

but for several previous days the ivory is on view to the trade; the scene during these inspection days is not unlike an Academy private view Dotted about the warehouses stand the representatives of various firms, notebook and catalogue in hand, marking off the most attractive lots and discussing the merits of the display.—This week's sales are considered small as ivory sales go: but, nevertheless, the sale value of the stock is roughly estimated at £40,000. The best ivory is what is known as the "soft teeth," which comes chiefly from East Africa, and particularly from Zanzibar, the West Coast supplying the bulk of the other kind—the "hard teeth." Good Zanzibar ivory is very valuable, and in proof thereof it may be mentioned that the record price recently fetched by a tusk of this ivory was £350. The specimen thus purchased was acquired by the British Museum.

MAMMOTH IVORY.

Very little is imported nowadays from India and Ceylon; but a fair supply comes from Siberia. The latter kind is thousands of years old, being the tusks of the ancient mammoths dug up out of the ice. Their size is often tremendous. Our illustration represents two mammoth tusks on view this year, worth probably about £150; they are the finest ever seen at the dock. Mammoth ivory is of inferior quality, however, deteriorating sometimes to £2 per hundred-weight.

160-LB TOOTH.

The best ivory—that from which billiard balls are made—is priced at about £89 per hundredweight. "Bangle ivory" is also quite a recognised trade term, for the teeth used to make the bangles worn by Indian high-caste women. The average weight of the "teeth" is 80 lb, but of course specimens vary tremendously. An enormous "tooth," weighing no less than 160 lb, has been on view at the dock. A curious thing in this connection is the evidence of disease—corresponding almost with our own toothache—sometimes discovered in the tusks, which are frequently hollowed out far beyond the average extent by these ravages. When we consider what agonies of pain a small human tooth is capable of inflicting, we ought not to grudge the ready tear for the elephant afflicted with several yards of toothache. The cure for neuralgia must be in great request in the elephant world. And it would probably not soothe the sufferer to know that his diseased tusk is worth some £16 per hundredweight less than that of the animal whose molars are in good condition.—*Morning Leader*, April 21.

RUBBER FOREST IN THE SOUDAN.

Lord Cromer, in a recent report to the Foreign Office, states that considerable quantities of rubber trees are reported in many of the districts of the province of Bahr-el-Ghazal. Mr. Broun, the Director of Woods and Forests, has been despatched to report on the possibilities of re-opening the india-rubber trade of the Bahr-el-Ghazal, which in former days was one of the principal sources of revenue in that district. It is also hoped, in the near future, to develop the rubber forests in South-western Kordofan, which, from all accounts, are of great importance.—*Globe*, April 25,

MORE ABOUT PEARLS AND PEARL OYSTERS.

THE MANUFACTURE OF PEARLS.

(From "SCIENCE JOTTINGS.") BY DR. ANDREW WILSON *in* THE "ILLUSTRATED LONDON NEWS, April 19.)

Among the curiosities of natural history science may be regarded the manufacture of pearls. In contradistinction to the case of the diamond, pearls appear before us as the work of living animals. The diamond is the product of cosmical heat, and possibly

dates from the days when the earth was young, and when its carbon became crystallised under the action of fervent heat. For, as most of my readers may know, the diamond simply represents crystalline carbon. It has near relations, chemically speaking, in blacklead and charcoal. Chemical science, recognising this fact, has attempted to produce diamonds from a carbon basis. In this imitation of nature I believe they have proved successful; only the diamonds, built up as it were from their carbon parentage, are so small that, commercially speaking, they are of no account. Till chemistry can imitate on a bigger scale than is possible today the work of the inner fires of the globe, it is hardly possible to conceive of the diamond being successfully imitated by the laboratory product.

The ruby and the sapphire also represent mineral products which possess a geological significance. But it is entirely different in the case of the pearl. There we have to deal with the manufacture of an animal form, which of course belongs to the molluscan or shellfish type of life. If we examine an oyster-shell we find it to be lined with a beautifully delicate layer known as nacre or mother-of-pearl. In the well-known "ear-shells" this layer assumes great thickness and by refracting the light from its ridges gives us a typical play of colour and of iridescent hues. Every mollusc in fact shows mother-of-pearl as the lining layer of the shell, although as may well be understood there are infinite variations in respect of the quality, delicacy, and therefore commercial value of this substance. In many shells it is coarse, as to others it is of fine texture and special colour. It is in the latter case that it gives origin to the pearls of great price.

The typical pearl-producing mollusc is, of course, the pearl oyster concerning the welfare of which an English Commission is at present busily inquiring in Ceylon. The Scottish pearl mussel was also celebrated in its day. I use the past tense here because the goose that laid the golden eggs was daily killed in this case as in so many others through the mussels being fished to extinction in the rivers of the North. These shellfish, as the typical pearl-producers, present us therefore with an illustration of the animal manufacture of a precious product. Certain interesting circumstances connected with pearl-production have of late been ventilated by Dr H L Jameson in the course of a paper read by him before the Zoological Society of London. What Dr Jameson has to tell us of the manner in which pearls are produced in a certain species of mussel serves to throw light on the possible manner in which they are manufactured by other shellfish.

Each oyster or other shellfish is enclosed in a kind of skin to which naturalists give the name of the "mantle." It is this membrane which at once envelops and encloses the body of the animal and of course lines the shell. The mantle is the source of the mother-of-pearl which is deposited by it in the shell and naturally it is to the mantle that we also look for formation of pearls. Long ago it was known that each pearl was formed round some solid particle or other which had gained admittance to the shell. It was as if the irritation of the particle induced the mantle to secrete around it layers of the mother-of-pearl substance by way of rendering the foreign body harmless. In the case of the pearl-producing molluscs the real jewel was thus formed while in others the "Pearls" were of course valueless. The Chinese have been accustomed to introduce into the shells of big molluscs little metal images, which become coated over with the pearl secretion and are thus rendered presumably more attractive. So that scientists assert that the pearl is really in one sense an abnormal thing, in that it represents the physiological resentment of the shellfish against a particle which has no business to be where it is.

Dr Jameson's discovery in this light is of a singularly interesting nature. For he tells us that the nucleus or particle, around which a pearl is formed in most cases, is the larva or young form of a certain parasite which has found its way into the shell. The parasite is a fluke, and is therefore allied in its nature to the animals of that name which we find familiarly infesting the liver of the sheep and the ox. The flukes whose youthful forms gain access to the shells of the molluscs are found as unbidden guests in the eider duck and in the Scoter duck. The life history of the parasites, as far as we know it, shows us that on escaping from the egg the young forms seek the water. Then they require to pass into the body of another animal than that in which they become mature in order to undergo the preliminary stages of their development. In the case of the sheep-fluke, we know that it passes the days of its youth in the body of the water-snail; and so in the case of the flukes Dr Jameson describes we may suppose their young select the mussels as their temporary hosts.

It is when the young fluke in the shell comes to grief, and its body degenerates into a limy speck, that it forms the nucleus of the pearl; but occasionally it will bore its way out of the pearl and thus leave the latter presumably imperfect. Dr Jameson has succeeded in infecting mussels artificially by keeping them in an aquarium. He also suggests that the real pearls of the oyster similarly originate from the young of the parasites which lodge within the shellfish. If infection of the pearl oyster could be rendered possible and swarms of parasites could be liberated in an oyster-bed doubtless the artificial production of the precious stones would become a feature of commerce. But it seems to me that, just as the diamond is only carbon after all, so our beautiful pearls parallel its case by owing their origin to the work of a low form of parasitic life.

THE TEA TRADE WITH PERSIA.

In your issue of the 1st instant, under the above heading, appears an extract from an official communication from Meshed, suggesting that the Indian Tea Association should, for a time, turn their attention towards the Bombay Agents of Persian firms, who might be won over to the advantage of buying tea at some place nearer the producing tea gardens than Bombay, and of the land route as against the sea route. As an old resident of Teheran, I have watched with interest the various proposals made and the action taken by the Indian Tea Association in the matter. The Nushki-Seistan route is being boomed to an extent which it certainly does not deserve, for what reason I am at a loss to understand. Those interested in the tea trade with Persia, should, in my opinion, use their utmost endeavours to popularise Indian tea in such parts of Persia as are already to an extent supplied with Indian tea, and where British influence is in the ascendant; they should not commence operations in such parts of the country as are solely under Russia's influence, and where necessarily the markets have already been captured by Russia to a certain extent. First assault and capture the outer works, before trying to take the enemy's stronghold. It is not much use trying to win over the Bombay Agents of Persian firms, where, no doubt, vested interests would be at stake. The best plan by far would be to send out an agent with a supply of tea to travel through the country to be exploited, and to cultivate the already established taste for such teas. When this is accomplished, the Bombay Agents would of necessity be obliged to buy such teas to meet the demand which would arise.

The towns in Persia I would advocate an agent visiting are Bushire, Shiraz, Kerman, Ispahan, Yezd Teheran, Kermanshah and Hamadan—all great commercial centres. The less said the better about

such a fatuous idea as the land route being so much superior in every respect to the sea route. During my stay in Persia this matter was never once referred to by my Persian friends and acquaintances, some of whom were keenly interested in the tea trade; this supposed superiority must be put down as one of the ingenious but fallacious arguments of the boomers of the Nushki-Seistan route. In the official communication already referred to, mention is made of every man considering his cup of tea a necessity rather than a luxury. This is not literally correct, as the Persians do not drink tea in the same manner as we do. At many street corners of every town in Persia, there are restaurants or shops for the sale of drinks, where a customer can also obtain a smoke from the *kalian*. Usually music of a sort is also provided, the musician being only too glad to perform in return for a drink and a smoke. In each of these restaurants there are one or more brass samovars (Russian urns) continually on the bubble. A small quantity of tea is placed in a China teapot, which is filled with boiling water from the samovar, and then placed aside to brew. On a customer calling for tea, it is poured out from the teapot in a small vase-shaped glass, which holds about 2oz, a piece of loaf sugar is added, and the glass and a small spoon are placed on a china saucer and handed to the customer. Persians do not add milk. To show special honor to a customer, the lump of loaf sugar should project out of the tea like an iceberg. The Persian likes his tea sweet.

Should any enterprising individual or firm be contemplating a campaign with the object of establishing a tea business in Persia, I should be only too happy to place my knowledge and services at their disposal, as the country and people are to me most interesting.—TEHERANI, Sambalpur, C. P., in the *Statesman*.—*Indian Gardening and Planting*, May 8.

THE LIFE-HISTORY OF HELOPELTIS THEIVORA.

NOTE ON A DISPUTED POINT.

(*By Harold H. Mann B. Sc.*)

As is well-known, *Helopeltis theivora*, the "Tea Bug of Assam" as it was called by Mr Wood-Mason, the "Mosquito Blight" as it is generally termed—is the most alarming pest which has yet appeared on tea cultivated in India. It causes the more disquietude as it tends to increase as years go by,—fluctuating according to season, but generally increasing, and invading new areas. During 1901 which was a particularly bad year in almost all districts subject to the pest, a very moderate estimate gives seven lakhs of rupees as the nett loss to the Indian Tea Industry from this cause alone.

Though we have a knowledge, thanks to Peal, Wood Mason, Dudgeon, Watt, and Green, of the general life-history of the insect from the egg to the adult stage yet there remain several points which have been very obscure. Of these the most important is the question as to what becomes of the insect during the time when it apparently disappears from the tea bush. So complete is this disappearance, as a rule, that most planters living in affected districts in North-East India have hardly ever seen a single insect during January, February and March. Mr Dudgeon has suggested that it hibernates in the ground but offers no evidence for his position, and declares frankly that he had not been able to verify his conjecture. It has also been supposed that hibernation takes place in water and swamps, but again, not a scrap of evidence in favor of the view exists, and the same may be said of the very general idea among tea planters that in the cold weather the *Helopeltis* goes on to various jungle trees.

With a view of acquiring information on this point I have spent considerable time in January, February and March of the present year in two of the districts most affected by the pest—the Darjeeling Terai and Cachar—at a period, that is when the insect was supposed to be hibernating. As a result I have come to conclusions of which the following is a summary:—

The *Helopeltis theivora* can be found on the tea bush in every stage of development during every period of the year. The cold weather kills off the bulk of the mature insects and practically all the larvæ, but at all times sufficient remain to carry on the pest to the next season, and in addition the bushes are full of eggs. These latter were found not only in the usual position on the young shoots but also at a much lower part of the bush than has previously been noticed, embedded in the usual fashion in the midrib of the large mature leaves. The larvæ were found on 11th January in small numbers on unpruned and sheltered bushes, then forming about 2½ per cent of the total number of insects caught. By 12th February, however, a very different proportion of adults and larvæ was obtained, and now instead of 2½ per cent the larvæ formed 80 per cent of the total catch. This proportion was approximately kept up during several weeks from that date. The difficulty in obtaining evidence of their presence at this time is due to their attacking almost entirely the slightly shaded young leaves, the surface growth being rarely attacked in the early part of the year.

The insect could, further, not be found on any jungle plant at this time. Though jungle of very miscellaneous character was systematically searched both by myself and by the children who are regularly catching the insect, not a single one was discovered in any form.

It appears, therefore, evident that there is, from present knowledge, no need to assume a hibernating stage at all for *Helopeltis theivora*, and that the insects remain and can be found in every stage of growth, from the egg to the mature female full of eggs, at all times of the year. Whether the egg found low down in the bush, as described above, can be considered as a special hibernating egg, I can hardly say, but there certainly was no difference in structure or in method of deposition from that usual during the regular season. Inasmuch, then, as there is absolutely *no* evidence of the cold weather being passed by the insect in the soil, in water, or on other trees, and furthermore, as careful observation can always detect the insects and their eggs on tea bushes in affected districts, there is no need to imagine any hibernation stage at all in India, and beyond a certain retardation in development, due to the reduced temperature, the reproduction of the insect may be considered to take place in a similar manner throughout the year, and to be carried out on the tea bush itself during the whole period.

These observations have a very practical interest, and may lead to a sound method of attempting to deal with the pest, and experiments in this direction are now in progress. HAROLD H MANN.
—*Indian Gardening and Planting*, May 8.

VANILLA CULTURE IN BENGAL.

We have in previous issues referred to the experimental cultivation of the *Vanilla planifolia* in the gardens of the Agri-Horticultural Society of India. It may interest our readers to know that the Vanilla plants are making most vigorous growth, and have fully established themselves on the stakes. The manner of growing the plant on a commercial basis was fully described by us just

a year ago (*vide* issue of 9th May 1901, page 330). All the older vines are laden with pods of fine size and substance, many of the pods being over nine inches long already, and have another four months yet to grow in.—*Indian Gardening and Planting*, May 8.

THE RUSSIAN TEA MARKET DESCRIBED.

BY A RUSSIAN TEA MERCHANT.

Mr. T. C. Tchokoff, the Acting Russian Vice-Consul's address to the "Thirty Committee" last week, was to the following effect, Mr Tchokoff clearly setting forth his views under three heads :—

1 The favourable condition just now for buying tea on the Chinese market.

2 The under-fermenting of Ceylon teas intended for the Russian market.

3 The demand at present in Russia for low-grown tea.

4 The necessity of the one-pound draft to be allowed as done in London.

5 The improving of tea chests for shipment.

6 The means of advertising Ceylon tea in Russia.

MOMENT FAVOURABLE FOR BUYING IN RUSSIA.

Let me now look into the above-mentioned questions.

1 Talking of the favourable condition just now for buying tea in China, the tea market for Russia, you are, of course, Gentlemen, all of you aware, that at the present moment the cost of silver is about 20 per cent lower than it was a year ago. Take the average price of China tea paid by Russian buyers last year—it was about 20 taels per picul, which at the present low exchange would be 30 cents per pound on the local market.

Now I have information by wire from Hankow that they expect a very large crop this year and I don't see any reason why the average price in China should be higher this year than last year. The average I paid here last year for Ceylon tea was 42 cts. per pound and, reckoning with the present condition of the local market, I don't think that my average will be lower this year; thus I shall have to pay twopence more for Ceylon tea than for China tea, always considering the exchange and the lower price of silver. If I mention this, Gentlemen, I do it to show you how keen I expect the competition to be in Russia between China and Ceylon teas this year, and how every effort must be made to maintain the Ceylon tea at the place it has already attained on the Russian market.

CEASE UNDER-FERMENTATION OF CEYLON TEA FOR RUSSIA.

2. One of the measures to this effect I should think would be to stop the under-fermenting of Ceylon tea intended for the Russian market. We want the Ceylon tea for blending with China tea and therefore we require all its primitive vigour, especially so as teas in China are, owing to the low prices, manufactured very weak. Adapting Ceylon tea to so-called Russian taste by making it, through underfermenting, more like China tea is, in my opinion a decided mistake, as pure Ceylon tea is, up to the present date, sold in Russia in very small quantities.

RUSSIAN DEMAND FOR LOW-GROWN TEAS.

3. At the present moment the demand in Russia is mostly for cheap grades and, therefore, the low-grown teas if well fermented, when they are very appropriate for blending, ought to be more energetically pushed on the local market than has been done.

NECESSITY OF THE ONE-POUND DRAFT.

4. In my opinion it will have to be done sooner or later, that a draft of one pound per package should be allowed, which I am quite sure will be greatly appreciated in Russia. We must all of us not forget that every buyer in London has not only this privilege but also a three months' credit, which considerably acilitates business.

IMPROVED CHESTS WANTED.

5. Don't you think, Gentlemen, that the chests, in which the tea is packed and shipped, might be improved upon ? I often do not buy tea from estates, where the packing, to my knowledge, is unsatisfactory. As to the means of advertising Ceylon tea on our Russian market, I don't think that any special activity on the part of the agents would be of any great use.

THE TEA BUSINESS IN RUSSIA

is practically in the hands of a few leading firms in Moscow and St. Petersburg who have a full insight into the qualities of Ceylon tea and who at present buy it on the London and local markets, selling it themselves to smaller firms. To try to enter into direct communication with these smaller, would-be buyers, through agents or with consumers even, by establishing tea kiosks etcetera, is not only, in my opinion, a perfectly useless and hopeless spending of money, but is sure to lead to displeasure on the part of the principal firms, the buyers of Ceylon tea, and in that case they are sure to look for other markets to get their tea from, for instance from India.

THE LEAF.

One more point, Gentlemen, I should like to draw your attention to, and that is the leaf; a small, carefully rolled up leaf is especially appreciated on the Russian market.

PLANTING NOTES

GREEN TEA.—Our contemporary's omniscience as to the best green teas for the American market, although no reports of the prices fetched by the new makes have been announced yet, is vastly amusing. We shall be interested to note the attitude it will take up when and if substantial eye-openers come to hand. Meanwhile green tea producers in Ceylon, who we were very glad to see had made nearly 750,000 lb. in four months this year, will doubtless better appreciate the *I.P.G.'s* most practical article by an "old planter" (reproduced elsewhere) better than half a column or a column of semi-second-hand editorials, such as appear in the local "Times" of last night.

THE HEMP TRADE.—A circular has been issued to the members of this trade drawing their attention to an act recently passed in the United States, entitled "Act temporarily to provide Revenue for the Philippines and other purposes." Under this Act (Section 11) the present export duty of $7·50 gold per ton is abolished in the case of hemp shipped direct to the United States, the effect being tantamount to the imposition of a discriminating tax on all hemp shipped from the Philippines to the United Kingdom and other parts of the world. The circular points out that "the grave importance of this matter to the rope-making industry of the country will be obvious. The fact of our manufacturers having to pay about 30s per ton more for hemp than their competitors in the United States constitutes a serious menace to the trade, especially as there would appear to be nothing to prevent the present export duty being doubled or trebled, should the United States Government think fit." It is suggested that it is in the interests of the trade that a memorandum on the subject should be submitted to the Foreign Office.—London *Times*, Apri 7.

THE CEYLON COMMISSIONER FOR EUROPE

EPORT FOR 1901.

I do not suppose it will be considered necessary that I should recount in my report for last year the impressions I have received, the information I have obtained, and the details of the methods adopted in the various countries which I have visited, to introduce and push Ceylon tea. All these details have been given in the numerous letters I have written from time to time to the Chairman of the Committee. I shall therefore give only as brief a summary as possible of the work done.

Travelling.—In the early part of the year I visited the West and South of Germany, Austria-Hungary, Northern Italy, South and West of France, and Paris. In the Spring I went to Saxony, and Central Germany; in the Summer to Northern Germany, Sweden, Norway, and Denmark: in the Autumn Switzerland, Paris, and a few towns in the North of France, and in the Winter to St. Petersburg and Moscow.

Mode of Operations.—I have presumed that the object of my mission is (1) to make Ceylon Tea known on the Continent, that is, to let the Public on the Continent know that Ceylon produces tea in large quantities, that Ceylon Tea is superior in every way to China, and any other tea; (2) to get the Public to taste the tea, and to show the Public how the tea should be prepared. With these ends in view I have confined my work entirely to the Trade. I have not been successful in France and Germany in inducing the oldest and largest first-hand Importing Houses to interest themselves sufficiently in Ceylon Tea to push it with their retail clients, or make a speciality of it. However, one Bremen Commission House has interested itself very considerably in the article. The reason of the abstinence of the large firms is obvious. They have an established trade in China Tea, and see no reason why they should act as missionaries in introducing a new article to their clients, especially when the profits on the new article are smaller than on the old. However, all the tea-importing firms in France, Germany, and Scandinavia import our Tea now, and I know of only two exceptions, one firm in France and one in Sweden, which refuse to have anything to do with it. I have worked mainly with the smaller importing firms, the dealers in the inland towns, the agents of London firms, and of Continental firms established in Ceylon. I have acquiesced in these firms carrying on the propaganda in the way in which they consider they will be most successful. No retail firm has received any support with the exception of one in Vienna, one in Florence, one in Naples, but these firms have for some years drawn their supplies of tea direct from Colombo. I have paid for no general advertising, and none has been done.

Germany.—Work in Germany has been carried on by three more or less different methods:

(1) By the help of a Bremen importing firm, which has endeavoured through their clients to establish depôts for the retail sale of Ceylon Tea.

(2) By subsidies to other dealers in the inland towns, who in their turn have carried on the campaign by newspaper advertisements on behalf of their clients, or by distribution of advertising material, post cards, circulars, leaflets, etc., and free samples of tea.

(3) By distribution of the pamphlet "Tea Cultivation in Ceylon" and other circulars to all the Trade and numerous Hotels.

As regards the first method, the firm in question has tried to induce its clients in Germany, Austria, and Scandinavia to take up and push our tea. So far they have established only three agencies in Germany, one with its centre in the Rhine Provinces, one in Breslau, one in Holstein. The first-named is a large coffee-distributing firm with 700 branches all over Germany; it possesses therefore special facilities for distributing the article. But in addition to these special agencies, this Bremen firm has induced several of their clients in Cologne, Baden, Strasburg, Leipsic, and Frankfort—who had never hitherto imported Ceylon Tea—to pass orders for and stock it. It has imported in 1901, 120,000 lbs. Ceylon Tea against 20,000 lbs. in 1900, but part of this increased import has been for Austria and Scandinavia.

From their appendixes A. C. D. & C. it will be seen that their clients had up to the end of the year (1901) established in Germany 756, in Austria 600, in Denmark 180, and in Switzerland 20 depôts for the sale of Ceylon Tea. The expenditure by these agencies in Germany has been confined entirely to illustrated circulars, and window placards. This scheme was discussed and formulated early in 1901, but it was only in the last three months of the year that the bulk of the circulars and placards were issued. I hope for good results but they will not be apparent for months yet. As I write, I hear that several new agencies have been started, and it is anticipated that at the end of 1902 all the Provinces in Germany will be assigned to agents.

2. In addition to these I have continued grants to the three firms who, induced by their Ceylon connections, have already been at work for some years pushing our tea. One of these is in the neighbourhood of Frankfurt, and draws its supplies of tea from the only estates which are owned by Germans in Ceylon; the second is in Stuttgart, and the third in Munich. They have all carried on a very active Propaganda, the Frankfurt people mainly, on the lines of distributing their circulars as a supplement of various special monthlies and weeklies. The papers they have chosen are some illustrated papers, and special papers for the Army, Navy, doctors, clergymen, railway employees, etc. In this way they have distributed 600,000 of their special circulars, and 100,000 of various other publications, and they have advertised in some 24 different newspapers. Their denunciation of China tea in their leading pamphlet is perhaps a little too forcible. Our object is not to make tea drinkers disgusted with tea generally.

Our Stuttgart and Munich friends have worked by means of newspaper advertisements, circulars, leaflets, photos, calendars, with views of Ceylon, and advertisements in special Ladies' Magazines and periodicals. They have also inserted one or two leading articles in a couple of newspapers. Stuttgart is able to report an increase of sales in 1901 over 1900 of 12,300 lbs., Munich of 800.

In addition to these three firms I have been successful in getting other three firms, one in Frankfurt, one in Berlin, and one in Konigsberg, to interest themselves in our tea. The Frankfurt and Berlin people have advertised it freely, and have brought out special labels for pure Ceylon tea in packets. The Konigsberg people have increased the proportion of Ceylon largely in their blends, none of which is now without a mixture of Cey-

on. All the three houses quote it at various prices on their Circulars and Price Lists. The Frankfurt House, which is one of the oldest tea Houses in Germany, will, I am glad to think, push Ceylon tea vigorously. Their import in 1901 exceeded that of 1900 by 10,600 lbs.

The third method of work in Germany has been the distribution of the Illustrated Pamphlets "Tea Cultivated in Ceylon." In 1900 the principal tea firm in Bremen advised me that, in their opinion, the very best way to introduce Ceylon tea was to get a series of articles published in the German Press, and that these articles should appear in all the Ladies' and Girls' papers, and in the Medical and Scientific journals, and be written from a semi-scientific point of view. I have had many interviews with this firm and some correspondence, but have not yet found someone to write an article of this description. In the meantime another gentleman has used the information I supplied him with, and published the pamphlet known as "Tea Cultivation in Ceylon." Up to date it has been distributed in Germany to 1,422 Hotels, 981 tea and colonial produce dealers 112 Sanatoriums, and 1,100 newspapers. I have seen notices of the brochure by 48 of these newspapers; some have devoted an article to it, others only a notice of a dozen lines. Four illustrated papers, with a circulation of half a million, have reproduced the pamphlet in its entirety, giving some of the illustrations. All these notices in the daily papers, and the reproductions in the illustrated papers, have been given gratis, and have therefore cost us nothing.

In Germany I have so far not been able to do anything by way of demonstration. I still have to find the proper parties to undertake this work. I am convinced we must get a wholesale or importing firm to interest itself in the undertaking before making a commencement. I am sorry the arrangements made for Stuttgart fell through at the last moment. I am in hopes we shall in a short time see Ceylon tea rooms in half a dozen of the principal German towns.

The Colombo export returns show an excess in 1901 of direct exports to Germany of 183,387 lbs. over 1900. Part of the exports to Germany is no doubt for transit to Scandinavia and Switzerland. The Colombo returns also give an excess of exports to Holland and Belgium of 11,868 lbs. The bulk of the imports into Holland and Belgium are for Southern Germany and Switzerland, the water transit by canal from Rotterdam and Antwerp being the cheapest way for goods to Basel, Baden, Wurtemberg and Hessen.

The German Custom Returns for 1901 give an increased import in Ceylon Tea over 1900 of 89,300 kilos, say 196,460 lbs., in Indian Tea of 43,200 kilos, say 95,040 lbs., and from Great Britain of 124,300 kilos. I think we may safely assume that quite one-third of the supply drawn from Great Britain is Ceylon tea, so the increase in Germany of Ceylon tea for 1901 may be calculated at close on 270,000 lbs.

Appendix "A", prepared for the information of the Committee, shows that the total expenditure in Germany by the various agencies engaged in pushing Ceylon tea has amounted to 39,261 Marks, 94 Pfennige, to which I have contributed 14,779 Marks. 90 Pfennige, and out of this latter sum 1,500 Marks have been paid in consideration of expenditure undertaken in 1899 and 1900. The actual contribution for 1901 is 13,279 Marks, 90 Pfennige.

France. Work in France in 1901—may be divided into two classes: (1) General advertising and trade propaganda. (2) Demonstration.

The former has been carried on by six different firms, and the bulk of the Propaganda has been done by the two houses which interested themselves so largely in 1900, in Ceylon tea, both during and after the Exposition. These two agencies have conducted a vigorous campaign in Paris, and have advertised largely in the newspapers and magazines such as the Mode Pratique, Lectures pour tous, Le Matin, Figaro, Echo de Paris, Femina, Le Journal, Bottin, Revue de Paris, Le Gourmet, etc., in all some 20 papers and periodicals have been used for general advertisement. But the bulk of their expenditure on general Propaganda has been in their outlays for, and grants to, grocers, supplying them with window signs, placards, free samples, etc., and in Menu Cards to Hotels and Restaurants. The third firm, which runs a large tea room in Paris, has issued cards, circulars, and leaflets, and continues to see only Ceylon tea in cup in their Tea Rooms. The fourth house confines itself entirely to grocers in Paris, and has given them leaflets and small presents of perfumery and other articles in return for all orders for Ceylon tea. The fifth agency, a Paris importing house, has confined its work entirely to the provinces and has issued special circulars to all its clients, has distributed 2,000 placards to grocers, and given 500 kilos in free samples of tea. This firm has also canvassed all the regiments in France by circulars. The sixth, a small firm in Marseilles, has confined itself to distribution of leaflets and copies of Mr. Bamber's pamphlet in French.

But in addition to the above very important work carried on by the trade through the trade mainly, another, *demonstration*, viz., the presentations to the public of Ceylon tea in cup properly made, has formed a special feature of last year's work. One firm opened in April a first-class tea room, beautifully furnished and well equipped, and went to the expense of obtaining Sinhalese boys from Ceylon as waiters. This room in the Rue Caumartin has been crowded during the autumn and winter months, and is one of the best advertisements we could possibly have. The same firm had a very large room nicely decorated and furnished at the Exhibition of L'Enfance a travers les ages, held at the Petit Palais in the spring. This room was well attended. This firm also had a bar and show at the Tuilleries Exhibition for one week. Another firm has been instrumental in starting a small and unpretentious, but useful little tea room on the south side of the Seine. We have therefore now four tea rooms in Paris selling only pure Ceylon Tea in cup. In addition to the Paris work, the last-named firm has started a demonstration round in the Provinces. We recognise that it would hardly pay as yet to run tea rooms in the Provincial towns, but with a view to let the inhabitants taste tea, properly made tea in cup has been distributed free of charge in the afternoons in those grocers' premises, who were willing to give space for this purpose. Twenty-two towns have been visited by the demonstrator, and up to the end of last year demonstrations have been given in 16 of those towns for 78 days, 16,483 cups of tea have been served, 9,200 visitors have bought dry tea, and the Paris firm has secured 56 new grocers as clients for their teas. The demonstrations have been well advertised in the local papers of each town, large posters have been displayed in the grocers' windows, and 529,350 copies of printed matter and leaflets have been distributed. This work has been very

hard and arduous, and I wish the demonstrator could have had more help. We ought in fact to have had two men, not one. This work is now being continued in the East of France. The opinion of the grocers in whose establishments the demonstrations have been held, is that no better advertisement of Ceylon tea could have been given, and although they admit that the sale of tea is very small, they all seem now prepared to push Ceylon tea in their sales in preference to China. A very great deal of money has been spent by our friends in France on the campaign last year, though my contribution has been proportionately much less than in the ther countries. A sum of 84,409 francs and 02 centimes have been spent on general Propaganda and demonstration, to which I have contributed 21,896 francs 11 centimes. On the installation and equipment of three tea rooms 64,926 franes 05 centimes has been spent, to which I have contributed 5,500 franes for advertising purposes. In France those who have taken up Ceylon tea have certainly shown their interest in the article by the way in which they have found funds for advertising the tea. With the exception of 3,510 francs, no travelling expenses have been included in the sum of 84,409·02 francs. All the six houses aetively engaged in the Propaganda report an increase in their sales varying from 5 to 40%. Returns of 7½% in tea on amount of tea imported. has been made to fifteen firms, who have imported Ceylon tea into France during 1901. I fear the withdrawal of any return in 1902 will eheck the imports of Ceylon tea in France for the current year. Many of the above Firms, though unwilling to push Ceylon tea, have no doubt been tempted to take it up on aecount of the return, and use it for mixing purposes. I should have liked to have a given a 3 or 4% return this year.

The only figures as yet available for 1901 are those for the direct exports from Colombo to France, and these show a falling-off of 8,934 lbs. and I fear that the imports from London for 1901 will show a larger reduction, as there can be no doubt that towards the close of 1900 heavy importations were made in order to obtain the full benefit of the large return made in that year.

The French returns for 1901 will not be available till the autumn, but those for 1900 are disappointing. They are as follows:—

Country of Export	1899	1900
England	168146 kilos.	197952 kilos.
Belgium	1465 ,,	2152 ,,
British India	124698 ,,	144002 ,,
China	523064 ,,	591001 ,,
Other Countries	21422 ,,	27288 ,,
Indo-China	46015 ,,	130275 ,,
Other Colonies	116 ,,	656 ,,
	884926 ,,	1093326 ,,

According to the above return the increase in *all* tea from England was 29,806 kilos or say 65,573 lbs. whereas the London brokers' returns give the increase in Exports from the United Kingdom in 1900 as 49,244 lbs. for Ceylon, and as 38,537 lbs. for Indian, or an increase in export of British-grown teas alone of 87,597 lbs., the figures being:

Export to France	1889	1900
Ceylon	83867 lbs.	133111 lbs.
Indian	50537 ,,	88890 ,,

I have not got the figures for the direct exports from India, but from Ceylon they were as follows:—

in 1899	1900
98952 lbs.	326800 lbs.

or an increase of 227,848 lbs. The increase as per the French figures from all British India, which I presume includes Ceylon, is only 19,904 kilos, say 43,788 lbs. Even if we deduct one-third of the increase in Export from Ceylon, say 76,000 lbs. as being in Bond, or on the water, there still should remain an inercase of over 150,000 lbs. from Ceylon alone for 1900 over 1899. I therefore fear the French figures are not altogether reliable so far as country of Export is concerned. The increase in the imports from Annam is very great, over 184,000 lbs. and I believe that for 1901 the increase exceeds 250,000 lbs. I do not believe the acreage in bearing under tea in Annam is capable of giving this large Export. One of the Importers has admitted to me he has received a lot of stuff which was not tea at all, and I know that the quality has been so bad that three or four of the biggest importers vow they will import no more. I cannot help thinking, however, that teas have been brought to Tonquin from other parts of China, and exported as Annam to enable them to secure the benefit of the much lower duty on French Colonial products.

Belgium.—In Belgium very little has been done. Two dealers have begun to advertise our tea through their clients and are able to show an increase in imports of 12,100 lbs. over 1900. They have spent 2,000 francs against a subsidy of £30, say 750 francs. When the war in South Afriea is over, I think Holland offers a very fair field for Ceylon tea, as its consumption of tea per head of the population is the next largest in Europe to that of Great Britain.

Austria.—Work in the Austrian Empire has been carried on through 5 agencies. Three of these firms have their centres in Vienna, one in Trieste, and one in Basle. I have granted support to four out of the five. The Trieste firm received no subsidy. This firm being a Commission House took no direct part in propaganda work or advertising, but they have interested themseves in our tea by importing and selling it, and financing the dealers when necessary. Two of the Vienna firms have been connected with Colombo for some time, the principal one being directly interested in a Colombo House. This firm commenced the importation of tea into Austria a couple of years prior to 1901.

In addition to the grant for 1901, I have given them a grant in consideration of the work and outlay incurred by them in 1899 and 1900. I have no doubt that it is mainly due to their extensive advertising that others have come forward and taken an interest in this article. The other firms, being already in the tea trade, have perhaps obtained more successes in the way of increase of imports and number of depôts for sale of the tea, and thus have reaped the benefits of the more extensive advertising done by our Colombo friends. This firm has advertised in 44 different newspapers and periodicals, has issued 20,000 special cicurlars, put up 2,000 posters, put up special posters in the railway stations, has a standing advertisement in the Volks Theatre, etc. It has been suecessful in securing four members of the Imperial family as regular clients and has distributed 25 copies of Cave's "Golden Tips" to leading and influential personages in Vienna. In addition to its generel propaganda amongst the trade and public, it made a most attractive show at the Food and Agricultural Products Exhibition held at Karlsbad in August and September, and obtained the gold medal for its tea; 45 lbs. of tea in oz. packets were distributed free to the visitors.

The second firm is that of an old-established retailer, who has the sole agency for many food specialities. He has for many years drawn a very small supply from Colombo direct, and was very anxious to enter on a more vigorous campaign and push the sale of the tea. He has not only advertised in some 20 newspapers, but has issued leaflets with deliveries of his other articles, has issued Post cards with advertisements of Ceylon tea, and been successful in getting special articles on the advantages derived from drinking Ceylon tea inserted in the Press. He has also circulated Mr. Bamber's pamphlets.

The third firm, being an Austrian tea importing firm, has confined itself entirely to grocers, has advertised on behalf of these grocers in 73 papers in the Empire, has established 600 depôts for sale of Ceylon tea throughout the Empire, the tea being put up in 2 oz., 1/4 and 1/2 lb. packets, and sold under a special brand of their own, and has issued 66,300 circulars and 1,350 placards to their clients for distribution.

The fourth firm working from Basel has done little direct newspaper advertising, but has granted its clients small sums for that purpose. It has furnished the restaurants with note blocks for their bills, the back of which contains an advertisement of Ceylon tea: it has given Menu Cards to the Hotels, and has supplied the shops with signs, cards and leaflets for distribution among their customers. It has also distributed a large amount of tea free, as samples. The expenditure in Austria in 1901 has amounted to £1,703-19-8, to which I have contributed £1,032-9-2 No mention is made in the London brokers' returns of the Export from the United Kingdom to Austria. From Ceylon the figures are 50,958 lbs. in 1901 against 24,633 in 1900. The increase is so far satisfactory. The Austrian Customs returns give the figures as 52,200 kilos in 1901 from India and Ceylon as against 41,700 kilos in 1900, or an increase of 25,300 lbs. in last year. From Great Britain the total import in 1901 was 25,300 kilos as against 21,200 in 1900. I think we may assume that the bulk of what was imported from Great Britain was British-grown tea. But even assuming it was all Indian and Ceylon, the total importation from these countries is only 78,500 kilos out of a total 1,023,800 kilos. So we have in Austria some very heavy work before us, to even displace the bulk of China tea, as British grown teas do not form as yet one-tenth part of the whole import. I regret to see that total imports into Austria for 1901 show a falling-off of 41,5 0 kilos, as the total import for 19 0 was 1,065,20 kilos. I am glad therefore to see that the reduction has not taken place in the quantity imported from Great Britain, or India and Ceylon.

There is a very fashionable tea room at the Hotel Bristol in Vienna, the proprietor drawing his supply of Ceylon tea from London. In the Spring we shall have a small demonstration at a Charity Bazaar under Imperial Patronage in Vienna, and I hear special Ceylon tea rooms may be started in Vienna and Buda-Pesth in the coming Autumn.

SCANDINAVIA.

Work in Scandinavia has been carried on in Sweden and Norway by three firms in Stockholm, who for the past two or three years have interested themselves in the article at the instance of their Ceylon friends; in Christiania by the same firm who received support from me last year, and in Denmark by a new firm who took up the article for the first time in 1901. The oldest and largest Swedish firm have been at work for some years now, and they, with their branch House in Christiania, have advertised on the largest scale. The lines on which our friends in Sweden and Norway work are varied; while one firm has confined itself mainly to newspaper advertisements and posters, and the third (the largest) to work amongst grocers, supplying them with tins and canisters, signs and advertising material in the shape of leaflets, and pamphlets for their clients. All these agencies practically keep and sell only Ceylon tea.

In Copenhagen a new firm have taken up the pushing of pure Ceylon tea under a special brand of their own. They have advertised in 73 different papers and issued 63,600 circulars and established 180 depôts for the sale of Ceylon tea.

I notice that the direct exports to Sweden from Colombo in 1901 show a decrease of 6,196 lbs. I presume the export to Denmark is included in that under Sweden. Although the direct exports may show this falling-off, I feel certain a very much larger quantity of Ceylon Tea has been imported from London. One firm alone has drawn 10,000 lbs. from London in 1901 in excess of its 1900 supply from the same place, while another has taken nearly 10,000 lbs. more from Germany in excess of 1900.

From appendix "D" it will be seen that the total expenditure on advertising and propaganda in Scandinavia has been £944-10 1, to which I have contributed £289-3-3.

Afternoon coffee is not a Scandinavian custom, and I fear afternoon tea rooms would not be a success in these countries. But I think an effort might be made to introduce the sale of Tea in the Russian fashion per glass, as tea made very weak and sold per glass at a low rate in the winter ought to popularise the beverage amongst the masses in these Northern Countries.

Switzerland and Italy.—In Switzerland the extensive advertising and efficient work undertaken in 1900 by a Basel firm has caused all the other tea dealers to bestir themselves, and not only those who have hitherto made Ceylon tea a speciality, but also others have been compelled to take up Ceylon tea and at any rate stock it. Not less than seven firms have been willing to advertise it, and I have given assistance to six out of the seven. Our friends of 1900 have continued their work with the grocers in the smaller towns, and have given them help to advertise the teas; they have also continued the campaign with the Hotels and Restaurants. They made special demonstrations at the International Shooting Contest, "Tire Federal", held at Lucerne, and at the Cantonal Exhibitions held at Vevey and Basel, and have aided in the establishment of a Ceylon tea room at Lausanne. Another firm has made Ceylon tea a speciality for the first time by selling a pure Ceylon tea in packets under their own Brand. They have issued some 60,000 special circulars, advertised on behalf of their grocers for 6 months in the local papers, and given their clients 600 placards.

The third firm, an old established Swiss firm, has also taken up Ceylon tea as a speciality for the first time. Their work is entirely confined to grocers. They have distributed 20,000 circulars, advertised in 25 different newspapers on behalf of their clients, and established 50 depôts in 20 places.

The fourth is represented by a gentleman who has for some years sold Ceylon tea. Many years ago he

lived in Ceylon for six months, and although his business is small, he takes a great interest in the article.

The principal partner in the fifth firm is a gentleman who from his position, wealth, and influence can give us a great deal of help: As a large Export Merchant he does a large trade with Ceylon. His sale of our tea is entirely retail, and he has issued a large number of circulars and distributed a quantity of Bamber's pamphlets.

The sixth firm may be said to be the pioneer of Ceylon tea in Switzerland, their present manager having been resident in Ceylon as a planter for many years: they keep Indian and China to prevent their clients going elsewhere for those sorts, but by far the bulk of their trade is all Ceylon. In addition to their customary propaganda by circulars and price lists, the feature of their work last year was special lectures on Ceylon tea delivered by the manager in 13 towns in Switzerland. These lectures have been illustrated by magic lantern views; free samples of tea, and tea in cup have been distributed at them.

The seventh, a London firm, has established a tea room in St. Moritz. Full particulars of the undertaking and vouchers for the expenditure have not reached me as yet. In Italy, this same London firm received a small advance to commence work through a firm of colonial produce brokers in Genoa, but no particulars of the expenditure have as yet come in. At the instance of a Colombo export firm small grants were made to firms in Naples and Florence. Their expenditure has only just begun, and has been confined to a view advertisements in papers and tramcars. One of the Basel firms has entered Italy and has commenced work with the Hotels and Restaurants in Nothern Italy. This house is able to report an import of 8,734 lbs. into Italy against nil in the previous year. Only four out of the seven firms working in Switzerland have furnished me with particulars of their imports for 1901. I see that their total increase over 1900 amounts to 20,963 lbs. The expenditnre in Switzerland in Italy amounts to £1,054-4-2, to which I have contributed £476-1-9. But in return for this year's grant, one firm has still to spend £160 in Switzerland, and another should render accounts for £150 to be spent in Italy.

Russia. I only visited this country in order to make the necessary preparations for the Ceylon tea room at the Exhibition to be held during the summer at St. Petersburg. I took the opportunity to visit Moscow, and while there I called on all the principal importers. The unanimous opinion of the Russian houses was that our tea was doing very well in Russia, and required no outside help to stimulate the expansion of its consumption. Messrs. Rogivue & Co. think otherwise. My stay in Russia was not long enough to enable me to advise or say in what way any further propaganda on behalf of Ceylon tea should be made. That the great mass of the people know nothing about Ceylon and its tea is certain. I think special Ceylon tea rooms in Moscow, St. Petersburg and three or four of the largest towns would do good, and help to popularise our tea. But I should be very careful not to offend the susceptibilities of the trade. If, however, anything special is to be done in Russia, it will have to be on a very large scale and be continued for some years. I am inclined to think that a rebate or return of 1 or 2% to the Importers would probably have more immediate results than any other method. Tea in Russia is drunk so weak that one might almost call it hot water flavored with tea, lime juice and sugar. It is, however, a most palatable and agreeable beverage at all times, especially in the cold winter months. Our object is not so much, as in the other countries of Europe, to get the inhabitants accustomed to the taste of our tea, but to show the Russians that in the long run it is much the cheapest, because a little of it goes further. Although Russia imports about 108 million lbs. of tea, the consumption per head of their population is only 0·82 lbs., therefore the cheaper the article can be given to the public, the greater the chance of an increase in consumption. There is not only no chance of obtaining an equalisition of the duty on sea-borne as against overland tea, but I see statements in the English newspapers to the effect that from this year, in order to bring freight to the Siberian Railway, the duty will be abolished on all teas entering Russia by the Siberian frontier. In the meantime the Russian Importers advise me they would buy more of our teas if, 1st. the net weight of the packages ran more evenly. I have great complaints on this head. They insist they are always coming to grief with their clients over the difference between the Invoice and actual weights. 2nd. If quality were always uniform. Complaints have come from the interior as to difference in quality, not only in one line of tea, but in single packages of one line. Single chests supposed to contain Pekoe, for instance, have been found to contain dust and coir yarn. 3rd. If Colombo prices were more on a par with London. They cannot understand why the London market is always cheaper than Colombo. They would buy more in Colombo if the prices were equal, as the idea of buying in London does not commend itself to some importers. I venture no opinion as to whether the London market is cheaper or dearer. I merely pass on the opinion of the Russian dealers. They are all unanimous in thinking there is a future for Ceylon tea in Russia, provided the quality be maintained. The expenditure of £270 in Russia has been solely in disbursements for the tea room at the exhibition.

Spain.—I mention this country simply to note the fact that the Colombo export returns show a falling-off of 17,480 lbs. in the export to this country in 1901 as compared with 1900. I think it will be found that the reason for this is that the bulk of the export in 1900 was for the Army and Navy Contractor in Gibraltar, and that supplies, hitherto drawn direct, have in 1901 been obtained from London, the excessive and irregular freight from Colombo to Gibraltar rendering it unprofitable to continue to obtain direct shipments.

Conclusion.—In conclusion I would like to express my, opinion that with one single exception in Switzerland and Italy, I am convinced I have received very full value, both in work and money, for the grants I have made. I feel certain the funds have been well and economically spent. What the result will be it is impossible to say. I do not believe we shall ever—at least not in the time of this generation—see France, Germany and Austria tea-drinking countries to the same extent as Great Britain, but by quietly pegging away, I think we shall in course of time oust China tea in all the three countries, and in Germany and Scandinavia I hope we shall do more. My correspondents in France, Austria and Germany are most hopeful, and notwithstanding the fact that, owing to the general trade depres-

sion and the very mild winter, the tea trade in Austria and Germany was bad last year, yet they think there is a decided future for Ceylon tea, provided quality be maintained, and if possible improved. I reserve my opinion as to what should be done in Russia till after the Exhibition is over, but I do not advocate the spending of any large sum to make a "splash" either in one or in all the other countries. The expenditure should be confined to induce the trade to push the article, and to demonstrations, and we should keep steadily and quickly at the work for some years. It must not be forgotten that, owing to the enormous increase in the world's coffee production, coffee has become very cheap. Coffee growers are doing what they can to find new outlets for their produce. Brazil has sent a delegate to Europe to see what can be done to develope the trade, and special efforts are being made to induce the Russians to drink more coffee.

I want to take this opportunity to acknowledge gratefully the kindness, help, and information given to me by Mr. Bennett of the British Embassy in Vienna, by Mr. Austin Lee of the British Embassy in Paris, and by the British Consuls in Stockholm, Christiania, Copenhagen and Stettin.

(Signed) J. H. RENTON.

Hamburg, 10th March, 1902.

(Letter from the Ceylon Commissioner in Europe to Chairman, P. A.)

TEA IN ANNAM.

Buckeburg, 16th March, 1902.

Dear Mr. Kingsford,—Since forwarding my report I have received through the kindness of the British Embassy in Paris the following communication from the French authorities as per translation herewith.

"According to information received from the Administration in Indo-China the figures given, viz.: 71½ hectares as representing the extent of acreage under tea in Annam, must not be considered correct. It is difficult to estimate the acreage exactly, but it is for all that sufficiently large to explain the production announced in the statistics (Note:—about 450 acres). In the Province alone of Bhin Binh there are 147 hectares and generally the cultivation of tea in Annam is developing rapidly. The local customs watches the exports to France with the greatest care, and grants no certificates of origin (of growth) without having obtained all information as to the exact source of the teas intended for export." My supposition that other teas from China were being exported as Annam teas is therefore wrong, but I think excusable, when according to the official figures the total acreage under tea in Annam was given as 71½ hectares. If my report is published, this letter should be published as well.—Yours sincerely,

(Signed) J. H. Renton.

A. C. Kingsford, Esq., Rookwood.

OVER PRODUCTION.

It is wonderful in how many directions the evils of "Overproduction" are realized! We have just received the "semi-annual report," April 1902, of Messrs. Schimmel & Co. of Miltitz, near Leipsic and of London and New York, dealing with "Essential Oils," and this is what we read in regard to "Eucalyptus Oil":—"The trade in this product suffers from excessive overproduction, which, in spite of every warning, is carried on unflinchingly at the two principal sources of supply—Australia and Algiers—and which will lead to unpleasant consequences, if the production is not soon carried on in a more rational way." It cannot be very easy—however desirable—to bring producers, situated so far apart as Algeria and Australia, into line or to get them to combine to reduce their output of a product which depends so largely on epidemics of "influenza" to secure a profitable market. Still more surprising is the case of the French "wine crop" as we learn from a copy kindly sent us of a very able and interesting Report by Mr. Consul-General Hertslet on the District of Havre for 1901, and lately published. It seems that last year the yield of the French vineyards was much above the average. But so far from this being a subject for congratulation, the Consul-General declares that the excessive production has proved to be a source of disastrous losses to the wine-growers and from them has reacted with bad results on the whole trade of France. Here is the explanation as given in the Report before us:—

Consumption of wine, as a result of low prices and the removal of octroi duties, has undoubtedly increased, but it still falls far short of the immense production of the past two seasons. Stocks have accumulated, and as the poorer qualities, of which there was an unusually large production during the past year, will not stand keeping, prices have fallen to such a low figure as to yield the grower in many cases practically nothing. In view of the enormous extent of the wine industry in this country, the crisis has had far-reaching effects on the trade of the whole of France, and has contributed to a large extent to the general feeling of uneasiness and depression, even at places so far removed from the wine-growing districts as Havre and the ports of Northern France.

The tea planters of Ceylon and India have, therefore, many to sympathise with them in different countries, in their experience of the evils of over-production; for, to get a further illustration we have only to go to Mr. Hertslet's next paragraph dealing with "coffee," the trade in which with Havre had reached an unprecedented figure last year The Brazil coffee crop of 1901 2 is now known, to be by far the largest on record; but nevertheless speculation became active on unfavourable reports of the prospect of the succeeding crop coming to hand, and prices advanced considerably out of such speculations. At the same time, the stock of coffee in Havre was (in January) expected very shortly to reach a total of 3 million bags,—which is by far the largest quantity ever accumulated in one port and is as

large as the stocks held in the whole of the United States! It seems that the Brazilian crop of 1900 1 equalled 10½ million bags; 1901 2 is estimated to be at least 14½ millions; but 1902-3 is expected to fall to 8½ millions We should be inclined to doubt the latter figure; but taking the total for three years at 33 millions, and knowing that the world's consumption of Brazil coffee does not exceed 9 million bags a year—we see that there is the prospect of overproduction this year to the extent of 7 million bags, and without much chance of working this off next year except at ruinously low prices and, perhaps, an attempt to drive coffee into consumption at the expense of tea. It is clear that so long as coffee is abundant and cheap—"over-produced," in fact, more than tea—there is less hope of getting the fragrant leaf into increased consumption in "coffee countries" such as the United States, France and some parts of Germany and Austria. But there must come a great reaction in Brazil from the enormous outturn of this year. The ordinary planters there, many of them burdened by debt, cannot continue to produce coffee at a loss, and it is believed that already many are turning their attention to food products consumed in the country. The sooner the world's production of coffee is brought within the limits of consumption, the better will it be for an extended and extending demand for tea.

TEA AND COFFEE PUBLICATIONS.

We have received from Messrs. Henry T. Coates & Co., publishers of Philadelphia, three uniformly bound books written by Mr. Joseph M. Walsh, entitled respectively—'Coffee: its History, Classification and Description'; 'Tea: its History and Mystery'; and 'Tea Blending as a Fine Art.' We know that Mr. Walsh has had some of our Ceylon books: but they cannot have been of recent date; for his information in regard to Ceylon is absurdly out of date and he is strong about "the presumption and audacity of India and Ceylon tea-growers and dealers" in regard to the superiority of their teas. The following extract condemns his little book on "tea" as quite unreliable:—

The relative positions of China, India and Ceylon teas in England at the present writing being

Kind		Consumption, Pounds.
India (estimated)	...	105,000,000
China ...	...	50 000,000
Ceylon ...	...	35,000,000
Total	...	180,000,000

The same is true of the "coffee" compilation; for, Ceylon, we are told exports about 80 millions lb. We only wish she did. Mr. Walsh has yet to learn that tea has taken the place here of coffee. No doubt in regard to Brazil, Mr. Walsh is more reliable. His work on tea-blending has a good deal of useful information; but here again is an amusing paragraph;—

"CEYLON TEAS—Are comparatively new Teas to commerce, and are known to trade as Matagalas, Mandulsumas, Rakuwanas, Kanda-loyas, Kandapole and Soocanduris, but as with India Teas they are chiefly converted into silver and golden Pekoe, Congous, Souchongs and Pekoe-Souchongs. Their leaf, liquor and flavour like their India prototypes varies greatly in style and quality, according to the elevation at which they are grown, their uniformity also varying from year to year as in the India districts."

THE FOREIGN TEA TRADE OF CHINA IN 1901.

REPORT BY THE STATISTICAL SECRETARY.

The report of Mr F E Taylor, the Statistical Secretary of the Chinese Imperial Maritime Customs, upon the trade of China for 1901, with an abstract of statistics, has been issued from the Statistical Department of the Customs. Mr Taylor writes on tea exports:—The tariff export duties are in most cases very light, and tea is the only staple on which the duty is unreasonable. There was again a falling off in the export of the black tea, which only amounted to 665,499 piculs, the lowest on record. The crop was short, owing to heavy rains in April, but the quality was fairly up to the average. Green tea fell to 189,430 piculs, the supply having been shorter than for many years, and the quality was, on the whole, rather below the average. Russia is taking more India and Ceylon tea each year, and Foochow teas have now lost the markets in Canada and Australia. The export duty and *likin* raise the cost of low grade teas sometimes as much as 40 per cent., and while this continues there is no hope of checking a continuous decline in the trade. There was a further decrease in the export of black brick tea to 244,565 piculs—half what it was five years ago; but it is explained that Siberia is overstocked, and the new regulation that the heavy import duty must be paid immediately on arrival has checked importations until existing stocks are exhausted. Green brick tea rose from 31,334 to 48,957 piculs.

EXPORT OF TEA

The following are the figures for the two years:—

	1901.		1900.	
		Hk. Tls.		*Hk. Tls.*
Tea ...	1,157,993	18,512,826	1,384,324	25,444,801.

—*L. and C. Express*, May 2.

DESTRUCTION OF VALUABLE TIMBER IN SIAM.

"WHAT A FINE COUNTRY FOR TEA."

The destruction of valuable timber still continues on the mountains throughout the Northern districts. There is really no excuse for this. The mountain tribes could as well leave valuable trees standing, if they were so instructed; it would not interfere with the necessary amount of clearing to make their gardens. By the way, what a fine country for tea! There is abundance of water, and the hills are covered with splendid soil. The native tea gardens here are a success.

The annual destruction of young teak trees by forest fires is another matter worth attending to. Even the trees that live through it are injured so that their future value is decreased considerably. In fact a lot of the standing teak is worthless as timber, being crooked, hollow, short and stunted. There are large tracts of country going to waste that are exactly suited to teak growing, for this is the natural home of teak. All the valuable teak has been cut in the tracts above-mentioned. Nothing is left now but scrub stuff and other waste, with the fires every year destroying the seedlings that spring up of their own accord. No doubt the Forest Department is doing good: but it is poor policy to neglect all that territory draining into the Mekawng. Let me say here that in Muang Pan district, I am told, there are no restrictions placed upon the cutting of teak for use in housebuilding. This is very different from the unjust regulations in some places that hinder a man from using teak sticks that he cut in the olden time, squared and dragged. These can be left to burn or be stolen but the rightful owners cannot use them.—*Bangkok Times*, April 26.

PLANTING NOTES.

THE BURMA RUBY MINES.—The ruby mines of Burma are now worked by electricity, obtained from a mountain stream some three miles off. Finds of copper fish-hooks and other implements in the ground point to the present site of the mines and civil station having been a large lake in pre-historic times.—*Statesman.*

ARTOCARPUS HIRSUTA.—This fine forest tree has been introduced into the Agri-Horticultural Society's Gardens at Madras, from seeds supplied by Mr Ferguson, Director of the State Gardens, Travancore. It is a native of the Western Ghats, where it grows up to an elevation of four thousand feet. It yields a valuable timber, the trunk of a well-grown tree sometimes reaching a height of 150 feet, straight and clear. It yields the "angili" wood of commerce; while the concentrated juice forms a tough, light-brown wax, used in cementing broken earthenware and stoneware. It bears a fruit the size of an orange, containing a pulpy substance much in favour with natives.—*Indian Gardening and Planting*, April 17.

PLANTERS—are being repeatedly advised not to place all their eggs in one basket. The following is what Andrew Carnegie has to say on the subject of concentration:—"Don't put all your eggs in one basket" is all wrong. I tell you "Put all your eggs in the one basket and then watch that basket." It is easy to watch and carry the one basket. It is trying to carry too many baskets that breaks most eggs in this country. He who carries three baskets must put one on his head, which is apt to tumble and trip him up. It took me some time to learn, but I did learn that the supremely great managers, such as you have these days, never do any work themselves worth speaking about. Their point is to make others work while they think. I applied this lesson in after life, so that business with me has never been a care. My young partners did the work and I did the laughing, and I commend to all the thought that there is very little success where there is little laughter."—*Indian Planters' Gazette*, May 31.

AGRICULTURAL EDUCATION.—The Agricultural Education now in practice (though still very limited to what it ought to be), we hope will prevent visitors of the future being "instructed" in the products of the island as is being done at present, and of which the following is a sample: —A lady, who has been in Jamaica all her days, explained to a visitor, that "this is a Nutmeg, its covering is the Mace, *its stem is Cloves and the bark of the tree is Cinnamon.*" Truly a wonderful combination of spices.—*Jamaica Journal.*

ANTS AND ORANGE TREES.—According to the "Implement Age" of Philadelphia the orange tree has an enemy in Cuba in a large ant more than half-an inch long, having an enormous head provided before the mouth with powerful pincers, with which they despoil of leaves in one night the largest orange tree. The ants live in the sub-soil. They make large holes and very long galleries—sometimes 100 yards long. The method employed to kill them is to introduce an iron pipe, to which a large bellows is connected, into a hole made in the place where the ants enter the ground. Sulphurous smoke and gases are then blown through the pipe by means of the bellows, and the ants are destroyed.—*Globe*, May 10.

COCOA AND CACAO.—The latest illustration of the confusion arising from the use of similar spelling for the name of the palm and the fruit of the Chocolate plant, is afforded by the *German Export Review*. A recent number contains an excellent paper on "The Manufacture of Chocolate" with a series of very interesting illustrations, so far as the machinery, &c. go; but there is also the inevitable "Cocoa Plantation."; and instead of this being a grove of *Theobroma Cacao*, it is simply "a Coconut Palm Garden"! Now if all and sundry would only drop the "a" out of "Cocoanut" giving the *Cocos nucifera* palm the proper short name of "Coconut" for its fruit, we should soon find people understanding that "Cocoa" (as well as "Cacao" and "Chocolate") referred to the fruit of a different tree; and the confusion would erelong cease to exist.

THE DROUGHT IN AUSTRALIA.—Says the Melbourne *Leader*:—

As will be seen from our district correspondents letters, the present prospects are by no means as favorable as could be desired, owing to the continued spell of dry weather. The acceptable fall of rain with which the autumn opened gave hopes of a good season, but that rain wanted following up with more within a moderate interval. In the northern, as well as other districts, the grain sown has only had moisture enough to sprout it, and now the dry weather is so shrivelling the young plants that in many cases it is feared that resowing will be necessary. The drought is also much against the work of getting in the fodder crops, and those that have been sown are awaiting the rain, while the grass is also suffering. Even should rain now come the grass cannot do so well as at an earlier period, owing to the soil having parted with its summer warmth, and the time of the frosts approaching. A thorough soaking of the soil would, however, now be of the utmost value throughout Victoria, and to a greater degree all over Riverina, where the situation is becoming particularly serious.

A MAP OF PRECIOUS STONES,

By H. L. Holmes.

A map of France cut from the rarest jasper, flashing with costly jewels, and resplendent in gold and other precious metals! Truly a Royal gift worthy of both giver and recipient: from the Imperial Czar of All the Russias to the great Republican nation, his friend and ally. It is doubtful if the Czar could have chosen a gift more likely to prove acceptable to France and her people. An immortal map, which moth and rust can never destroy, appears to be a symbol of a nation that will live for ever. That the Royal giver had something of the sort in his mind when he selected his present is not for a moment doubted by the appreciative people whom the Czar thus honoured. It was when feeling between the two countries was warmest and most brotherly that the Royal Nicholas presented his unique gift. During the exposition of 1900 this map of jewels and gold was the centre of attraction so far as French visitors were concerned. For foreigners it possessed features that lovers of art and of the curious could not resist. Rarely, whilst the magnificent gift was on public view, was it not surrounded by a crowd which was always full of admiration and interest, and frequently of enthusiasm. Even now adorning, as it does, a selected position in the Louvre, it still attracts a great deal of attention owing to the circumstances surrounding its presentation as well as its magnificence of design and artistic finish. Besides it is claimed that there is nothing in the wide world like it: as a map it is unique. The French nation is proud of it. Even the usually taciturn officials who guard the priceless treasures of the Louvre wax, eloquent and discursive when courteously asked for a short account concerning it. This wonderful map was not produced without infinite pains. Thousands of Russian workmen and artists had a hand in the manipulation of its varied components. It was designed with the personal approval of the Czar, by the distinguished Russian engineer, De Mostovinko, who also superintended its production and completion. It was put together at the Imperial factory of Ekaterinburg. Months were occupied in the process. It was finished with as much care and correctness as the importance of its destination demanded. So pleased was the Czar with his map of precious stones that he warmly eulogised its designer and presented him with a decoration.

Perhaps the most interesting feature about this wonderful map is that every precious stone and jewel included in its production came from the Imperial mines in the Ural Mountains. Several of the stones are only found in those mines, and are appropriated by the Czar. Some of them are never found at all in commerce.

The map measures forty inches along each side and is framed in slate-coloured jasper. The sea is represented by a pale marble, and the portions of foreign countries necessarily included—England, Germany, Italy and Spain—are in dark grey. The whole is enclosed within a magnificently designed, heavy walnut case, elaborately carved and standing about eight feet in height. The formation of the various departments (or countries), as well as the surrounding seas and countries, is as perfect as that found in Governmental maps. The whole of France is shown entirely in polished jasper, and it will be found that each department (or county) has been cut from jasper of a different colour, the whole blending without the slightest offence to the artistic eye. The mines were ransacked in all directions for the necessary material to ensure this effect. The large number of counties thus represented will give the reader some idea of the enormous labour bestowed by the Czar's workpeople on this portion of the undertaking. The jasper used is all of the most beautifully veined that human eye has gazed upon. The polishing is perfect, the cutting of such piece must leave entailed the greatest care, so artfully are the joinings of the various departments concealed, so exquisitely do the lines meet. One hundred and six of the more important towns are given: the names in letters of pure gold, the towns represented by costly jewels. Paris is represented by a ruby of immense size and value, and it must cause commotion amongst those connoisseurs who make a pilgrimage to the Lanvre for the purpose of gazing upon this magnificent collection of precious stones. Havre boasts a beautiful emerald under its golden name, Rouen is represented by a sapphire, Lille by a phenacite (a rare variety of rock-crystal), Rheims by a chrysolite, Lyons by a tourmaline, Nantes by a beryl, Bordeaux by an aquamarine, Marseilles by an emarald, Nice by a garnet, Cherbourg by an alexandrite (a variety of chrysoberyl found in the Ural Mountains, and which looks green by day and reddish-blue by lamplight), and Toulon by a chrysoberyl,

Twenty-one other towns are represented by amethysts, thirty-five by tourmalines, and thirty-eight by quartz-crystals.

It can be easily imagined that a map whose towns were represented by precious stones should have something equally fine to mark the country's rivers. And the expectations will not be vain. All the river shown in this extraordinary map are represented in platinum sunk in the jasper. To effect this the courses of the rivers had first to be cut in the stone and the platinum laid in and polished. The whole effect is very beautiful indeed.

'And a pretty penny it must have cost!" the business-like Briton mentally exclaims. That the map cost a very large amount indeed is obvious. But the exact sum which came out of the Czar's exchequer to 'pay the piper' has never, of course, been made public property; nor is it likely that the information will ever be known in a general way. Estimates by experts on this point vary very greatly, ranging from £16,000 to £80,000. A well-known Parisian jeweller has explained the reason. All the stones and jewels came from the Imperial mines, and practically the only expense was the cutting, polishing and putting together. The stones only found in those mines (and appropriated by the Czar), never being found in commerce, consequently have no quoted value.

'In fact,' said the eminent jeweller referred to, 'it is probable that the map did not cost the Czar more than £16,000, if as much; but if a millionaire came to my shop and ordered one like it, I should have to charge him three or four times as much—if, indeed, I could make it at all.'

However, no matter whether the Czar expended £10,000 or 100 000 in its production, this map of France, with its precious stones and gold, is regarded by Russia's ally as one of its most priceless treasures.—*Strand Magazine* for May.

COLOURED GREEN TEA.

THE EDITOR, "INDIAN GARDENING AND PLANTING."

SIR,—If I am correct in inferring from your article and Mr Drummond Deane's letter in your issue of the 1st instant—"Coloured and Uncoloured Green Teas"—that a *true Green* tea, *not only* in "liquor," "infusion" and "flavour," but in *actual colour of "leaf" too*, is only produced by *artificial* means—or "facing" —I would point out that this is a mistake, as a very handsome "blue-green leaf" can be, and is, produced by *entirely natural, i.e., not artificially coloured* means; but, as Mr. Drummond Deane suggests, at an enhanced cost in "Panning." T.

—*Indian Gardening*, May 22.

THE BOTANY OF CEYLON.

25 PER CENT NEW SPECIES IN ONE HAUL.

We learn from a good source that the expedition to Hinidoon kanda, Sabaragamuwa, made last November by Mr Herbert Wright, the Scientific Assistant, Peradeniya, has proved most valuable. As we then stated, the primary object was that of determining our indigenous gutta-percha and ebony trees, but, in addition, a representative collection of all the plants growing on this hill was made. It has since transpired that the collection of plants forwarded to Dr. Levier, the Continental Cryptogamist, have proved to contain no less than 25 per cent of species new to science. This is interesting as pointing out what still remains to be done, though such renowned botanists as Gardiner, Thwaites and Trimen previously worked in the same district. The investigation of local floras should now become more important. Two of the new species have been named after the discoverer, Mr. Herbert Wright; viz.:—(1) Sematophyllum *Wrightii* and (2) Syrrhopodon *Wrightii*.

PRODUCE AND PLANTING.

Mr Ernest Tye gives some interesting figures relating to the area of

TEA UNDER CULTIVATION

in India and Ceylon at recent periods, together with the crops produced, based on official records. In 1890 there were 344,800 acres under cultivation in India and 250,000 acres in Ceylon, India producing 112 million lb of tea, and Ceylon 47 million lb, the total crop being 159 million. In 1895, with a cultivation in India of 415,700 acres and in Ceylon of 305,009 acres, the respective crops were 143 and 98 million lb, total 241 million lb. In 1900 the cultivation was in India 522,000, and in Ceylon 384,000 acres, producing 197 and 148 million lb of tea respectively, or a total of 345 million lb. The average annual increase in the Indian crop for the last ten years has been 8½ million lb, and in that of Ceylon 10 million lb. The home consumption for British-grown tea for the last calendar year—1901—was 238¾ million lb; the consumption in foreign markets and ship stores 95¾ million lb, making together 334½ million lb.

The crop of

FORMOSA TEA

is reported by the British Consul to have been last year of good average quality, and the foreign firms engaged in the traffic on the whole had a prosperous year. For many years Amoy was practically the sole market for the Formosa tea. This state of things has now changed. A discriminating duty of 60c per picul (133 1-31 lb.), the legality of which is disputed by the British merchants, exists in favour of the Kobé route, which is sometimes quicker for shipments by mail steamers to points on the Pacific Coast. Shipments by this route amounted this year to 70,000 half-chests, against 38,000 in 1900. But so long as freights across the Pacific are maintained at double the Suez Canal rate to New York, the bulk of the tea must go by the latter route, for which Amoy is the more convenient and better depot. In the year under review 75 per cent. of total shipments went *via* Suez. The Japanese Government are doing all in their power to divert the trade from Amoy to Kobé, and, if they can do so without protest, will no doubt increase the differential duty above alluded to.—*H and C Mail*, May 16.

AGRICULTURE IN THE PHILIPINES.

In a recent article on the Warfare of Commerce, we dwelt on some information, forecasting American ambition in connection with the newly acquired Archipelago, as set forth in its Philippine section by the *San Francisco Bulletin*. Our cousins across the Atlantic are too shrewd a race not to appreciate fully the value of their recent acquisition; and the Commission entrusted with the task, has reported at length on every subject connected with the administration of the Islands and their social, religious and industrial development. Under the heads of religion, education, laws, municipal Government, taxation, mining, forestry, agriculture, &c., we find practical and suggestive comments and recommendations, which are bound to bear fruit; and as we glance at these, the reflection is forced on us,—How much better if the capital, enterprise and energy of their new masters be turned to these channels, which can profit the Filipinos as well as the Americans very largely, instead of being devoted to devising huge monopolies for the enrichment of those already rich at the expense of the masses even in respect of the necessaries of life. Wiser counsels, however, may soon prevail, when the attitude of the Governments of the United States, as well as of the United Kingdom, is realised, towards the Trusts and Combinations which in their grasping selfishness, threaten to involve great States in serious complications; and when the Philippine Islands are reduced to a more loyal acceptance of the change of rulers, it may be that they will attract all they need in capital and energy for their progress in prosperity. And we shall not be wholly disinterested spectators: for while our own industries may be more or less affected by the development of similar ones in the Philippines, we shall also, doubtless, be able to learn not a little from what is being attempted and accomplished there, perhaps by methods differing from those with which we have long been familiar.

In Agriculture, probably, more than in any branch of industry, will this island be touched by what goes on in the Philippines —to learn as well as to teach, to put forth fresh efforts, as well as to reap the fruits of what has been sown. Hitherto,

the chief exports of the Philippines have been sugar, valued at 2½ million sterling thirteen years ago, hemp (£1,600,000) and tobacco (£500,000). We always understood that in coconuts the islands would be formidable competitors of ours; but we have not been able to trace any special mention of the palm industry in the pages which have come into our hands. On the subject of Agriculture, we read

The Philippine Islands are fundamentally an agricultural country. So much has already been said, and said truly, as to the great productivity of the soil and the diversity of climate within the archipelago that this subject may here be passed over. The methods of cultivation at present employed are of the crudest. Modern agricultural implements are practically unkown, Artificial fertilization of the soil is almost unheard of, and, as a rule, land is not deemed worth cultivation unless it will continue to produce crops indefinitely without enrichment.

There is a wide field for the introduction of new fruits, fodder grasses, grains, rubber and gutta producing trees. Grapes, strawberries, raspberries, blackberries, figs and walnuts have already been planted in Benguet, and are growing well. Tea has also been introduced with encouraging results.

Much of the agricultural land of the Philippines is admirably adapted to cultivation by steam plows and harrows. The water buffalo, which has suffered most heavily from rinderpest, has always been at best a slow and unsatisfactory draft animal. The American mule, on the other hand, thrives here.

And again

That the agricultural resources of the Philippine Islands are immense goes without saying. A country containing a vast area of fertile and undeveloped virgin soil where for years agriculture has been neglected and retarded by the constant state of war and insurrection that has existed for many years past; where no attempt has been made by the indolent natives to produce more than was needed for immediate consumption, and where modern implements and machinery and agricultural methods have been heretofore entirely unknown, the Philippine Islands stand today ready to receive the influx of capital, the farmer, and up-to-date implements and methods with which to develop its extensive resources: and this development will surely take place just as soon as the Government will make its policy, such that the settler and homesteader will have equal chance with the capitalist and moneyed syndicate and the public lands of the islands are thrown open to settlement.

Copra, tobacco. hemp and sugar are well-known exports, while the cultivation of rice has been so neglected that at the present time there is not enough of this product grown to supply the local market. Sugar, while being produced in large quantities, is grown and harvested with such lack of skill, and the syrup extracted by such antiquated methods that the output of simply the area now under cultivation could be increased 50 per cent or more by the introduction of intelligent cane culture together with modern machinery and appliances. The rubber and coffee trees and also many other minor branches of agriculture can be profitably engaged in and yield large returns.

But the Filipino is by no means inclined to work, and the labour difficulty is one that the investor must reckon with. And on this point the deliverance is more plain-spoken than encouraging :—

The greatest obstacle that confronts the investor in the Philippines is the labor question. It seems to be the general impression in the States that labor in the Philippine is "dirt cheap," a laborer being able to live on but a few cents a day and working for an extremely low wage. However, experience with the native laborer will soon destroy the illusion of cheapness. The price of an article alone does not determine cheapness—it depends upon what you get for your money. The average Filipino does not want to work; does not see the use of work, and is not going to work unless compelled to do so by pressing necessity. They can be divided into two classes; those who only work when necessity demands, and those who never work. They are much like the American Indian in the belief that women were made to work rather than men. The women are employed extensively in the cigar and cigarette factories and are good workers; they also occupy the markets in selling small products, and usually contribute the greater part of the support of the family.

The average day laborer receives a wage of from $8 to $12 gold per month, but a gang of twenty natives working together hardly accomplish as much as two or three good American workmen would do in a given space of time. They have no conception of the value of time or necessity. A large portion of their time is consumed in lighting and smoking cigarettes and in conversation with each other and a little work now and then just to fill in the time. Neither have they any idea of independent action, and must be told and shown every detail of what they are to do, and even then they seldom do it right the first time.

As to reliability, it is something entirely foreign to the Filipino. If he is told to do a thing he must be watched until it is completed or it will never be done. His veracity cannot be depended upon under any circumstances, as his last resort is the truth, and then only to be used in case of emergency.

Between "fiestas," church holidays and the indisposition of the "hombre" himself, twenty days' work in a month is a good average, and after each pay day or two he will have enough money on hand to tide him over for two or three weeks while he takes a vacation and visits his relatives.

Since writing the above review, the news has come to hand of President Roosevelt hinting at a restoration of independence to the Philippines later on. That prospect would be likely to discourage investment, unless such safeguards were taken as might ensure due protection for foreign capital; but in any case a guarantee of this kind most be one of the conditions.

OPENING OF THE EXPERIMENTAL STATION AT GANGAROOWA, PERADENIYA.

In the article on the history of the Botanic Gardens with which this volume opened, it was

mentioned on page 12 that the chief desideratum for a complete modern organisation of the Department was the opening of an experiment station or garden, where experiments could be tried on a large scale with staple products or with new products not yet staples. This station is now opened, the Government having purchased at the beginning of this year the almost historical estate of Gangaroowa, lying on the side of the river opposite to the Botanic Gardens. The estate is of 550 acres, and of approximately horse-shoe shape, forming the opposite bank of the Mahaweli-ganga up to the sky line all round the north, east, and west sides of the Botanic Gardens, while on the east side between the river and the hill there are about 200 acres of nearly level land with good soil. Visitors to the gardens will remember that many of the most beautiful views are obtained at places where the river curves, and that their beauty is due to the banks of the river itself and to the wooded hills behind. All these hills are included in the new experiment station, and are to be worked as forest reserves, so that there will be no interference with the scenic beauty of the neighbourhood. The experimental plots of economic plants will be laid out on the lower and more level land of the estate, which at present is mainly cultivated with cacao, pepper, coconuts, grass, arecas, and croton.

The estate is of historic interest in two ways. Round the bungalow enclosure may be seen the remains of the earthworks of the former Portuguese fort, the scene of a great defeat and slaughter of one of the armies which invaded Kandy. About 1824 the estate was opened in coffee, indigo, sugar, &c., by the then Governor, Sir Edward Barnes, who was one of the very first pioneers in the planting enterprise, which soon afterwards spread so rapidly over the central districts of the Island.—*Mr. Willis's Annals.*

THE NEW BRANCH GARDEN AT NUWARA ELIYA.

The Government having decided to open a small branch garden for experiments with cultivation of useful and ornamental plants in the peculiar soil of Nuwara Eliya, a small site of about 5 acres has been set apart for the purpose in the new park, and is now being brought into cultivation. It will be worked like the Badulla garden, as a branch of Hakgala. The land lies at an elevation of about 6,200 feet, and is at present mainly patana with scattered Rhododendrons and a small piece of swamp.—*Ibid.*

THE NEW RESTHOUSE AT PERADENIYA.

The building, mentioned on page 21 of the present volume as in progress, was opened to the public on 10 h March, and is very convenient for visitors to, and workers in, the gardens. It lies about 200 yards from the principal entrance to the Botanic Gardens, contains dining and sitting-rooms and four large bedrooms, and is fully furnished with all necessaries. Visitors working in the Peradeniya laboratories have a prior claim to some of the rooms, for which a charge of R1 per day is made. Meals are supplied according to arrangements to be made with the resthouse-keeper.—*Ibid.*

INDIA-RUBBER PLANTING.

It is becoming increasingly evident that for cultivation, at any rate in Central America and the adjacent territories, Castilloa elastica is much the most satisfactory tree for a variety of reasons. These are its rapid growth, its modest requirements as to quality of soil, its early maturity, its fine, smooth and branch-free trunk, and its large yield of latex.

It is true that, regarding the latter, the evidence available is so far contradictory to a degree, the annual yield of a full-grown tree being variously stated as amounting to from one to twelve pounds or more per annum. Thus we find Dr. Morris (The Colony of British Honduras, London, 1883) stating that the yield of a large tree of Castilloa two feet in diameter is about 16 lb of rubber when first cut, and that such trees at the end of eight or ten years may be reckoned to produce an annual yield of at least seven or eight pounds of rubber. But according to Senor Horta (Diplomatic and Consular Reports, No. 2,354 1899), an experienced planter, one pound per annum may be considered a fair average yield. This is in agreement with a recent statement made by the René Guerin (Journal d'Agriculture Tropical, 1902, p. 73), but all these data are opposed to Dr Warburg's assertion (Les Plantes à Caoutchou, trans. by Vilbouchevitch, Paris, 1902) that trees grown in favourable sites will produce an annual yield of 2·4 lb.

To reconcile such widely divergent statements made on the one part by planters of undoubted experience, on the other part by equally experienced botanists, is very difficult indeed. No doubt, to some extent, the explanation of this very wide discrepancy is to be found in the fact that the above data refer to trees grown in different districts, on different soils, and at different elevations from the coast. It is well known that all rubber trees are very sensitive in this respect, and Castilloa not the least so. That conditions of this description exert a very important influence upon the yield is further evidenced by the fact that the conditions under which the Castilloa should be planted are just as differently stated. One authority strongly advocates its planting as a shade tree for cocoa and coffee, while another equally strongly deprecates this practice as utterly mistaken, insisting upon these trees themselves being grown in the shadow of other trees. Nor do we find any closer agreement between the methods adopted for tapping the trees, horizontal cuts, vertical cuts, V-cuts, or pricking being recommended. Each of these methods appears to have its adherents in different localities. The only point of agreement in this respect seems to be that circular cuts round the whole circumference of the tree unfailingly result in its destruction.

Equally diversified are the methods proposed for the coagulation of the latex when obtained. We find Biffen's centrifugal method strongly recommended, whilst others seem to consider the spontaneous coagulation of the latex on the trunk of the trees perfectly satisfactory, but the majority of writers appear to favour the coagulation of the latex by means of decoctions of various plants.

One begins to understand the causes and nature of the keen disappointments not unfrequently resulting from rubber-planting ventures in the past in running the gamut of these contradictory statements, and it is perfectly evident that, while the ultimate success of rubber planting on the large scale cannot reasonably be doubted, the whole subject is one requiring much more careful specialised study than it has so far received.—*India Rubber Trades' Journal,* May 12.

HOW TO TAKE QUININE IN MALARIA.

Major Ronald Ross, in the ninth edition of his book on "Malarial Fever" (2s 6d, Liverpool University Press), gives some useful notes on taking quinine. He explains that, as quinine is wanted in the blood, and not in the stomach, the best form is to take it dissolved by means of acid. The next best form is that of the powder shaken up in water. Quinine pills, tablet forms, or capsules takes longer before it is absorbed into the blood, and, if pills or tablets are used, they should

be previously immersed in water for a few minutes so as to disintegrate them. The bitter taste of suspended or dissolved quinine can be corrected by taking one or two mouthfuls of food immediately after the medicine. Just before meals, especially before breakfast, is the best time for quinine, and its presence in the blood should be announced by a ringing in the ears within half an hour. Details of the doses needed in malarial fever are given—for a first attack 10 gr. of quinine should be given about every twelve hours for a week, which may be increased to 15 or 20 gr. In cases of vomiting it may be necessary to reduce the dose, and it is often useful to administer a saline purgative with the first dose of quinine. If a person has once become infected with malarial fever, he must continue to take quinine regularly for at least three or four months, so as to ensure extermination of the parasites, otherwise relapses are sure to occur.—*Chemist and Druggist*, May 17.

TROUT OVA.

It will be interesting to our readers to learn that of the first consignment of 20,000 brown trout ova, which arrived a few months ago from the Wyresdale hatcheries about 12,000 were hatched out successfully. At a Committee meeting of the Fishing Club recently held, it was decided to distribute the fry out to the different streams as follows—and which has since been done:—

Belihul Oya	500
Ambewella	1,000
Horton Plains	3,000
Nuwara Eliya Streams ...	1,500
Barrack Plains	300
Maskeliya..	500
Mr. R Jackson, for Sita Eliya ...	200

The other fry are at present in the stew pond. Of the first consignment of 20,000 rainbow trout ova from the Earl of Denbigh's hatcheries only 2,500 are reported to have hatched out and within the last fortnight these have begun to die to the extent of 40 to 50 a day. Of the second consignment of 20,000 rainbow ova also from the Earl of Denbigh's hatcheries 50 fry only hatched out. There were also 5,000 brown trout ova sent out as a present. Of these only 200 are said to have hatched. The fry of this consignment and also that of the first consignment of brown trout ova are also dying daily but in smaller numbers.—*Cor.*

VACCINATING OYSTER TO PRODUCE PEARLS.

Pearls are found to be due to the presence of a larva, which is an intestinal parasite of the eider duck, and has also been found in the scoter or black duck. The larva, parasitic in the mussel, is found to arise as a tailless creature, which enters the tissues under the skin of the mussel, and becomes surrounded with a sac similar in character to the outer shell-secreting skin of the mantle. If the intruder dies in the sac, it becomes calcified and forms the nucleus of a pearl, the pearl arising, like the shell itself, from the line of the cell wall The parasite sometimes migrates out of the sac, in which case the nucleus of the pearl is inconspicuous. The complicated life-history of the parasite, and absence of organs of locomotion suffice, in the opinion of the *British Medical Journal*, to account for the hitherto inexplicable distribution of pearl-bearing mussels. By experiment it has been found that pearls are caused by similar parasites in some of the pearl oysters; and it is believed that artificial infection of pearl oysters could be effected in a manner similar to that which has been found successful in the case of the common mussel.—*Bombay Gazette*, June 3.

SOUTH AMERICAN RUBBER INTEREST

(From *India Rubber World*, May 1,)

Arrivals of rubber at Manaos during the first three months of 1902, from the different rivers in the state of Amazonas, were as follows:—

Purus	kilos	4,424,837
Jarua		1,840,747
Solimoes		729,446
Madeira		1,010,482
Various streams ...		239,290
Total ...	kilos	8,244,803
Total, same months, 1901 ...		6,991,286
Total, same months, 1900 ...		7,779,985

A correspondent at Manaos wrote recently that many persons there were hoping for an advance in prices, and were for that reason holding back rubber. Business was depressed, and the large houses were not disposed to sell goods except on strictly cash terms. The inspector of the treasury, Colonel Felippe Minhos, and Dr Portirio Nogueiro, secretary to the governor, had gone to the United States to try to negotiate a loan of $1,000,000, in return for which, it was rumoured, the lender would have very desirable concessions in respect to export duties on rubber. A law had been introduced in the congress at Manaos to substitute a fixed duty of two or three milreis per kilo for the existing *ad valorem* rate of 22 per cent

The *South American Journal* (London, April 12) contained advices from Para, stating:—"A most important move in the rubber business is about to be made by a Peruvian. named Spinoza, who arrived here a few days ago from Iquitos, bringing with him 70 workmen who understand working Caucho." The idea appears to be that, on account of the exhaustion of extensive Caucho fields in Peru, increased attention is being given to Caucho in Brazil, where the preparation of the gum is not understood, while the Peruvians are expert in it. It is reported to be probable that on the Tocantina and other large rivers in the state of Para "large quantities of Caucho will be found, and now that a commencement is about to be made, the result will probably be an immense increase in the production of Caucho in the next few years."

ESSENTIAL OILS. OF INTEREST TO CEYLON.

(From Semi-Annual Report of Schimmel & Co. (Fritzsche Brothers) Miltitz near Leipzig, London and New York.—April 1902.)

CAMPHOR OIL.

It is, of course, well-known that the production of camphor in Formosa has been monopolised

by the Japanese Government, and that the monopoly for this kind of camphor has been transferred to an English firm. But the production of camphor in Japan remained as before in the hands of private firms, and it was only natural that the value of the article could not always be kept at the level of the prices fixed by the monopolists but occasionally moved backwards.

Under these conditions the Japanese Government was compelled to consider the question of also monopolising the camphor production of Japan. A bill to that effect has been brought before Parliament but, we are informed, has not been passed.

The Formosa Government will probably sooner or later take over the whole of the Japanese camphor and work it jointly with the Formosa camphor, so that the production of both countries will be under one single control. It remains to be seen whether the further exploitation in such case will also be granted to a private firm. Only when the whole world's production of camphor is controlled by one hand will it be possible to keep up the value.

CINNAMON OIL, CEYLON.

In the course of the last few months the prices of fine Ceylon cinnamon chips have suffered a decline, which enabled us already in January to reduce our quotation of the well-known fine sweet and heavy oil. They have never before been so low as at this moment.

CITRONELLA OIL (CEYLON).

The fluctuations, which the value of this important article has undergone during the last six months, are so trifling that they may be left out of account. The sensational reports, which regularly make their appearance at certain periods, that at the low quotations the distillation no longer pays; and is slowly becoming extinct, are refuted by the fact that the export again shows an increase as compared with that of the previous year. There can be little doubt that, with a selling price of about 2/- per kilo, the manufacture of citronella oil is not very remunerative, more particularly as the present state of the knowledge of the article renders the profitable adulteration of the oil, which used to be the order of the day, an extremely difficult matter. At the same time, the unfair trading in this article has not yet been completely done away with, for samples are constantly being submitted for our opinion, which do not answer the conditions specified by us. In view of the unexampled cutting which prevails in citronella oil, the greatest care is required in purchasing.

We have obtained extraordinary results with the Java citronella oil specially distilled for us. This product shows clearly what can be obtained by rational, expert cultivation and distillation of the crude material, for the species of plant used in Java is the same as in Ceylon. And yet what a vast difference between these two oils!

It affords us great pleasure to be able to present to our readers on the next page a picture showing part of the plantation on which this oil is produced. In the foreground is seen a field planted with citronella grass. The building on the left contains the apparatus used for distilling the oil. In view of the interminable trouble and care caused by undertakings of this character in such far-off countries, it is sincerely hoped that the excellent product may constantly increase in favour, and may meet with the appreciation to which it is justly entitled, so that the manufacture may be continued on a large scale. If produced on a small scale, the expenses are proportionately too high.

We shall be pleased to supply samples.

CLOVE OIL.

According to the official reports from the German Consulate at Zanzibar, the clove harvest extends over the whole year, commencing in the beginning of July and lasting until the end of June. This report states further:—From 1st July, 1900 to 30th June 1901, 250,000 frazileh have been brought to the market. An average crop was formerly estimated at 375,000 frazileh, but should now, no doubt, be taken at a lower figure, as the trees have been neglected through lack of labour. The prospects of the 1901-1902 harvest are said to be good; it is hoped that the yield wi l be 400,000 frazileh, or 14,000,000 lb.

The export was:—

	lb.	Value in Rupees.
in 1898 ..	10,856,566	2,155,956
„ 1899 ..	16,593,340	2,958,487
„ 1900 ...	11,788,095	2,372,227

It was divided as follows:

	1898	1899	1900
		Quantities in lb.	
Europe ..	4,138,086	8,028,780	5,235,388
America ...	729,960	648,970	719,600
Asia ...	5,912,800	7,599,517	5,769,293
Africa ...	75,720	316,073	63,814
		Value in Rupees	
Europe ..	797,375	1,394,217	1,031,952
America ..	149,402	110,108	150,079
Asia ...	1,194,032	1,397,837	1,177,754
Africa ...	15,147	56,425	12,442

The export to America was exclusively to New York; that to Asia, to Bombay, of which perhaps a part has been re-shipped to Europe.

The export to the various European ports was made up as follows:—

	1899	1900	1899	1900
	lbs.		Rupees	
Rotterdam ..	4,473,240	2,674,160	786,212	537,810
London ..	1,432,475	1,404,968	254,852	274,520
Hamburg ..	1,249,850	715,260	204,267	122,912
Marseilles ..	292,215	217,000	51,229	49,800

To Rotterdam's share should be added 84,000 lb. value 18,000 Rupees, shipped to that port via Amsterdam.

Clove stems were exported:

	Quantities in lbs.			Value in Rupees.		
	1898	1899	1900	1898	1899	1900
To Europe:—						
	534,640	3,605,245	1,743,426	24,055	104,351	70,453
To Asia:—						
	305,561	216,483	220,447	14,845	6,748	11,621
To America:—						
	336,875	555,940	98,000	19,657	31,708	7,700

Whilst in the previous year the export to America was more than double that to Asia, the former has now become quite unimportant. It is shipped to New York and Bombay. In Europe, Hamburg takes the first place:

	1898	1899	1900
		Quantities in lbs.	
Hamburg ..	456,890	2,980,110	1,478,226
London ...	74,900	370335	83,160
Marseilles ..	38,850	179,900	28,000

But in clove stems also Rotterdam enters strongly into competition. The import amounted in 1900 already to 112,000 lb, to which should still be added 42,000 lb from Amsterdam.

The reports emanating from Holland are in some respects in direct contradiction to the official consular reports; in others their calculations, or rather estimates, anticipate events in such a fantastic manner as to astonish every thoughtful reader. In the statistics of one of these reports, dated January of this year, the estimates made include not only the yield of the harvest 1902 to 1903 (*i.e.* commencing in July 1902 and ending in June 1903), estimated at 3,000,000 kilos, but also the consumption from 1st September 1902 to 31st August

1903 (5,400,000 kilos) and even the stock in September-October 1903 (2,420,000 kilos)! And as the stocks on 1st January 1902, at all the principal markets, amounted in the aggregate to 137,000 bales or 8,220,000 kilos, the anticipated reduction of the stocks by September-October 1903, by 5,800,000 kilos, is used as an argument for an increase in the prices of cloves!

MUTILATED SEEDLINGS.

"Knowledge" has an intresting account of the behaviour of seedlings when mutilated by the removal of the plumules. "Seedlings of various plants were experimented on, including some of the garden radish. On removing the plumule soon after the plants were above the ground, it was observed first that the cotyledons assumed a much deeper green than usual; then the petioles developed extraordinarily, becoming three inches long, while the cotyledons attained a breadth of an inch and a half and nearly double the thickness of those of a normal plant. It was also observed that they were raised at an angle of about 45° instead of being approximately horizontal. A microscopic examination showed that the greater thickness of the cotyledons was due to the increased size of the cells and not to a multiplication of the layers. The roots developed to nearly the ordinary market size. In seedlings of the common sunflower, treated in the same manner, a remarkable elongation of the hypocotyl was noticed, this becoming twice as long as in the unmutilated plants."—*Knowledge* for May.

WEST INDIAN SWEET POTATOES.

Owing to the possibility of profitable cultivation of sweet potatoes, considerable attention has been given to the potato crop by the Imperial Department of Agriculture for the West Indies, and a great deal of experimental work has been carried on. Experiments were made in Antigua with a view to determining the best varieties for cultivation. Fifteen varieties were planted and the crop from each weighed; the yield varied from ·6 to 4·4 tons, the varieties 'Eliza,' 'T.1,' and 'T.2,' giving the largest crops. A full report of these experiments will be found in the *Report on certain Economic Experiments in connection with the Botanic station, Antigua, 1900-1901.* In Barbados alone starches, grains, and meals, which are food-stuffs similar in compositon to sweet potatoes, are imported to the value of £95,000 per annum, so that, if the potato crop could be preserved for consumption during the year, it could be used instead of this imported food. Sweet potatoes will not keep without some desiccating treatment in the West Indies, the conditions for their preservation being storage in dry air at about 50 deg. to 60 deg. Fahrenheit. In Japan they are preserved by cutting them into slices and drying the latter in the sun. Many tons of potato meal were made by Mr Spooner, of Antigua, who prepared it by slicing the potatoes in a chaff-cutter, and drying the slices in the sun while spread out on wire netting, the drying being complete in about eight hours.

One ton of potatoes by this method yields 910 lb of meal, at a cost of about £4 10s 0d per ton of meal.

Dr. Voelcker, who analysed the product, found it had the following composition:—

Moisture ...	... 11·99	per cent.
Nitrogenous matter	... 5·12	do
Oil.	... 1·19	do
Sugar	... 9·90	do
Starch and carbohydrates...	67·01	do
Woody fibre ...	... 1·89	do
Mineral matter...	... 2·90	do

As regard the keeping qualities of the meal, some of it was stored in tins for twelve months, and was then found to be perfectly good.

A large portion of the sweet potato crop is at present used for making spirit, which is shipped to Portugal and used for fortifying wines.—*Home paper*.

PLANTING NOTES.

WHITE ANTS AND COCONUTS.—Writing to us from Pemba, Zanzibar, Mr. Theodore Burtt of the "Friends' Mission" says:—"In regard to the destruction of young coconuts, by white ants, some time ago I tried watering them with sea water. This had a most beneficial effect, but, of course, it can only be done when the plants are near the shore. The ants do not trouble to eat the husks, they eat out the central shoot of the growing palm and then it dies."

RUBBER PLANTING.—The various plantation companies organised in the United States for operations in Mexico, with rubber as the principal or an important feature, appear, says *the India Rubber World*, May 1st, on the whole to have made steady progress during the past year. No company which has once made a definite beginning has withdrawn from the field, while new companies are being organised all the while. Much preliminary development work has been done, a considerable amount of rubber has been planted, and a great number of rubber nurseries are in existence or are being planned for the coming season. The managers of the several companies appear to feel encouraged as to the result of their work thus far, and there has been developed nowhere any reason for fear that, in the end, rubber cannot be cultivated profitably under right conditions and right management, even if some of the many eneterprises, under weigh should result in failure.

THE CRY OF "COARSE PLUCKING."—We hope this cry is not going to be overdone at home, because we see in it one of the levers used by the dealers there to work a reduction in the price of tea. Favourable weather for flushing has just now made planters in many districts very busy, and from many quarters we hear of a rush of leaf. Stores, as a Pussellawa resident wrote a day or two back, are "chock-a-block," and it is incorrect and unfair to attribute rushes of crop, which run up the poundage figures, to a return by planters to coarse plucking. Local "Times."

FOR A NEW PRODUCT.—Application to Government for a grant of land.—We learn that a visitor, Mr. Ervert, who has been in the island some months, has applied to Government for a large block of land in the North-Central Province, on favourable terms, for the cultivation of new products, viz. aloes and hemp. The Government has asked for particulars and in the meanwhile the applicant is prospecting for a suitable block of land for the cultivation of the fibre plants. Mr. H P C Armitage, Assistant Conservator of Forests, it is said, has been asked to lend the prospector any assistance that might be required. The land applied for is in the North-West portion of the Province, which has a fine soil suitable for aloe cultivation. Nothing has yet been settled, the matter being only in an initiatory stage, and the Government has not yet received particulars from the prospector.

RUBBER IN CUBA.—Writing in *The Independent* on "The Future of Cuba," the president elect of that republic, Senor Tomas Estrada Palma, says : "As for rubber, there are some Caoutchouc trees growing in Cuba, chiefly on soil that has no other use. But in the province of Havana Cubans are already establishing nurseries of young trees, and the people are buying them extensively."—*The India Rubber World*, May 1.

TOBACCO-GROWING UNDER TENTS.—It is stated by the "Implement Age," of Philadelphia that growing tobacco under tents is now being carried on in Connecticut. Experiments were made in 1900 and 1901 by the State agricultural station and by individual growers in the effort to raise wrapper-leaf tobacco of the Sumatra type in fields completely covered and closed in on all sides with thin cheese cloth. The results were so gratifying that it seems likely the methods of tobacco culture in that State will be revolutionised.—*Globe*, May 10.

QUEENSLAND COFFEE SEED.—Mr H McLeod Playfair, of Mudigere, has received a parcel of coffee seed from Cairns, North Queensland, and appears to have avoided the risk of introducing leaf-disease. Seeds put down in January have yielded exceptionally sturdy and healthy plants, and as the seed is offered for sale a good number of coffee-planters will probably desire to make a trial of it. We have writtten so often about the desirability of introducing new and healthy strains that we have really nothing fresh to say on the subject. Our own belief is that, if care be exercised in the selection, the introduction of such strains provides a check upon disease instead of helping to spread it.—*Planting Opinion*, May 31.

TWO MORE TEA COMPANIES.—The Hunasgiriya Company has fallen on evil days and unless there is an improvement in prices, or a full maintenance of the better rates now being realised, it may be necessary to circumscribe the area under tea and concentrate attention on the very best fields. In the olden days, Hunasgiriya was quite a show-place under coffee; but much was taken out of the soil in those years.—The Eastern Produce and Estates Company has had a striking career since it took over the affairs of the old Ceylon Company, Limited, and the full report of the annual meeting which we publish elsewhere makes interesting reading. Commencing with a burden of no less than £193.000 in Debentures, by good careful management and the profits from tea in the early days, this debt has been reduced to £72,500 and the whole capital of the Company is now only equal to £30 a cultivated acre, without counting valuable property in mills, &c. in Colombo. The Directors thoroughly believe in fine plucking and are going to adhere to it. The Company makes a profit —apart from attention to its own estates—through its engineering and agency work; and having plantations at all elevations and in a great variety of districts, the shareholders must be content with a fair average price for its tea and not expect the prices appertaining to the high estates of a Company that has no medium nor low country properties. Mr, R. A. Cameron, Mr. Norman Grieve and the other Directors may well be satisfied with the outcome of their labours, following on the good work done by their staff in Ceylon.

THE PRODUCTION OF CACAO IN AFRICA.—A West Indian merchant writes to *The Times* to say that in a few years' time Africa seems likely to prove a formidable rival to South America and the West Indies as a producer and exporter of cacao and those interested in the West Indian possessions of the United Kingdom and anxious to see the island more prosperous will do well to watch how the cultivation of cacao is being pushed on with satisfactory results throughout the continent of Africa. This year the German colony of the Cameroons, hopes to ship three thousand bags of cacao, to be increased, it is estimated, to ten thousand bags in 1906. Our correspondent adds:—'Mr McClounie, head of the scientific department of British Central Africa, reports the successful shipments from Kew and receipts at Lomba of 210 plants which had been planted out and were doing well. Lagos is also going in for cacao, and one of her planters is now travelling in the West Indies to see how the estates are managed in Trinidad and Grenada.' He also says that the little Portuguese island of St. Thomè has greatly increased its export of cacao in ten years, the shipments in 1891 being under four thousand tons, whilst last year very nearly sixteen thousand tons of cacao were exported.—*Agricultural News*, April 25.

METALLURGY AND ENGINEERING.—The tenth "James Forrest" lecture was delivered on Wednesday night at a special meeting of the Institution of Civil Engineers by Sir William Roberts-Austen, whose subject was the 'Relation between Metallurgy and Engineering.' As to the use of cast iron and malleable iron, he said it was admitted that the necessity for pumping water out of mines was the main factor in the evolution of the steam engine, and in turn the development of British metallurgy of iron and steel dated from the time when Watt's steam engine enabled air readily to be pumped into the blast furnace employed for the production of cast iron. More than half of last century had elapsed before the age of steel began, and towards the end of that century great attention was devoted to considerations connected with the molecular structure and properties of steel. When metallurgists gave engineers mild steel they provided a cinder-free solid solution of iron and carbon. All subsequent advance had been due to the recognition of this fact, and to the study of the properties of metallic solid solutions. Sir John Hawkshaw in his presidential address to the Institution delivered in 1862, said that if the strength of iron could be doubted the advantages might be equal to the discovery of a new metal more valuable than iron had ever been. This was exactly what metallurgists had done with regard to steel by suitable thermal treatment and by suitable additions of comparatively rare metals. The lecturer next explained the nature of solid solutions, and dwelt on the importance of allotropic modifications of iron. Some very beautiful experiments were shown in evidence of the possibility of the past molecular history of a mass of steel being traced by microscopic examination of the solid metal, which might even reveal by its structure the vibrations to which it had been subjected. Finally, in regard to the efforts metallurgists were making to study the influence of rare metals on iron and other metals, the reducing power of aluminium on metallic oxides was exhibited, very high temperatures of 3,000 deg. C and over being produced. A vote of thanks to the lecturer was proposed by the president, Mr C Hawksley, and seconded by Sir Frederick Bramwell.—London *Times*, April 25.

TAHITI VANILIA.

In the May number of *Chambers' Journal*, Mr A McFarlane of Moorea, Society Islands, contributes an interesting article on vanilla-growing in Tahiti, after reading which one is tempted to sigh for the life of a vanilla-planter. Tahiti, he says, has the finest tropical climate in the world—no hurricanes, no malaria or fevers —and a friendly race of natives to live among. A man with three or four acres of vanilla has a competence ; with ten or more he is rich, and for one who likes to "potter" around among flowers there is no life more attractive, says Mr McFarlane. So much has been written about vanilla planting and curing that Mr McFarlane's article necessarily traverses old ground, but he gives several interesting facts in describing the methods employed in the South Sea Islands. Although Tahiti is one of the largest vanilla-producing countries, yielding annually nearly one hundred tons of pods, the product is the worst vanilla that reaches the European market. This is mainly due to the native planter who does not give the necessary attention to the curing, which is the most important work. There is no secret about the method of curing, although some pretend that there is. It consists in alternate exposures to the sun, always under dark-coloured blankets, and sweating in the house in light tins or boxes. The average price of Tahiti vanilla is six shillings per pound, and as Mr McFarlane, who is a cultivator and curer of vanilla, estimates that it costs two shilling per pound to grow and cure, a good margin of profit is left for the grower. Most vanilla-planters suffer from small itching blisters on the hands, resembling "prickly heat," which is brought about by the constant handling of the beans, Mr McFarlane has found a specific in his own case, and that is a mixture of equal parts of carbolic acid, glycerine and rosewater, rubbed on the hand—rather strong in carbolic, we think; perhaps he means carbolic lotion.—*Chemist and Druggist*, May 17.

INDIAN TEA ASSOCIATION,

Calcutta, 20th May 1902.

THE GREEN TEA BOUNTY, 1902.—With their letter of 2nd May, the London Committee forwarded copies of correspondence which had passed between the Baraoora (Sylhet) Tea Co. Ld. and themselves on the subject of the Green Tea Bounty for the ensuing season. The correspondence explained the circumstances which had led the London Committee to accept the proposal of the Baraoora Company to make 200,000 lb this year and to allow from 25 to 30 per cent of the amount to be sold on the Continental markets. The correspondence had been placed before the Green Tea Sub-Committee for consideration, in connection with the preparation of the circular for issue to the members of the Association, detailing the conditions under which the bounty would be payable during the ensuing season.

Recorded letter of 14th May, from the Secretary of the Liners' Conference, Calcutta, acknowledging receipt of the Committee's letter on the subject of the establishment of communications with the

BLACK SEA

ports with the view of fostering the Indian Tea trade with Russia. It was stated that the matter was being placed before the various owners and that it was hoped that some arrangement would be arrived at whereby the Indian Tea Trade with Russia might be helped.

Considered, a Memorandum by Mr.

HAROLD MANN,

Scientific officer of the Association, reviewing the position since the institution of the Scientific Department two years ago, and suggesting for consideration in view of the fact that his agreement would expire in another twelve months, certain proposals for future procedure in the event of a continuance of his engagement being decided upon. Mr Mann drew attention to the many problems connected with tea culture and manufacture, awaiting full investigation, and dwelt upon the practical impossibility of his being able to deal with them satisfactorily, single-handed. His first suggestion, therefore, was that an Assistant should be engaged from England, who should be capable of taking up more especially the manufacturing problems and working them out under Mr Mann's supervision. Another important advantage to be kept in view was that by the engagement of such an assistant the continuance of operations would he assured, in case of a breakdown in health of either Officer. Mr Mann's proposals also embraced the establishment of a central laboratory, the engagement of a trained Babu to work out analyses of soils, etc., and the provision of a small experimental station in the Tea Districts where observations could be made of the properties and results of various fertilising agents, such as phosphates. Altogether, Mr Mann estimated the increased cost of the establishment of the complete scheme at R12,000 per annum. Accompanying the Memorandum was a Note by the Chairman dealing with the financial aspect of the proposals. The Association, he pointed out, was at present contributing about R5,000 a year towards the present expenditure, which amounted to about R15,000 per annum, but it could not find more without trenching on its reserves. The question thus arose as to how the extra R12,000 required was to be found.

The papers had been previously circulated, and a lengthy discussion now ensued as to the practicability of the scheme. The consensus of opinion was in favour of carrying on the investigations, as much good had undoubtedly resulted from Mr Mann's work hitherto. It was finally decided in the first place to publish Mr Mann's scheme with a covering circular letter to the various local Associations and to the London Committee, stating that the Committee were generally in favour of the views therein expressed, provided that funds could be found to carry out the proposals. The financial position of the Association was to be pointed out and the local Associations asked for an expression of their views, particularly as to their willingness to increase their subscriptions to the Scientific Investigation Fund. Reference to the Governments of India, Bengal and Assam, which would be necessary ultimately, was to be deferred pending an expression of opinion from the representatives of the Industry.

It was decided, after discussion, to forward a copy of the statement to Messrs Andrew Yule & Co., the Commissioners for the Indian

TEA MARKETS EXPANSION

Commission, and to inform them that the Managing Agents, Messrs. Kilburn & Co., would be ready to assist as far as possible any efforts which might be made to stop refuse tea going into consumption.

The Secretary reported that the new signatures to the Compulsory

TEA CESS

Memorial brought the area up to 412,236 acres, or approximately 79 per cent of the total area under tea cultivation. The area reported on 23rd April amounted to 409,006 acres.

THE BANANA.

A fruit that has never yet come properly into its own is the banana. Such, at least, is the opinion of vegetarians, not a few of whom justify the faith that is in them by living altogether on banana products; and even less heroic martyrs are beginning to think that the banana will prove the most persuasive weapon of conversion in the vegetarian armoury. Already there has appeared in the Midlands an enthusiast, just fresh from South America, with an unheard-of collection of banana recipes; and if all goes well with the propaganda, we may expect to be taking within a few years for breakfast plain bananas, banana pancakes, banana muffins, and banana coffee; for lunch, banana fritters, banana bread, banana biscuits, and banana cake; and for dinner, banana wafers, banana figs, and a small cup of banana coffee. Apropos of bananas, there is a costers' club in a quiet street off the Edgware-road which was formerly devoted to innocent recreation. But the spirit of utilitarianism has prevailed over the desire for social enjoyment, and the premises have now become a forcing-house for West Indian bananas. The bananas are consigned direct to the club, thus saving the middlemen's profits, and every room is filled with great bunches of the fruit, ripening under gentle heat for the public palate. The members of the club can select their own bunches and pay for them as they sell them, so that an initial capital is not required. On a good day, with a cartload of these bananas, a coster can clear a nett profit of—but perhaps it will be more discreet to keep the figures dark. The coster's, like all other callings, already suffers from overcrowding.—*Daily Chronicle*, May 16.

VANILLA GROWING.

BY A M'FARLANE, OF MOOREA, SOCIETY ISLANDS.

I have been for years a cultivator and curer of vanilla.

The white planter in the tropics, after he has been for some years subjected to the enervating effects of the climate, becomes averse to anything in the shape of labour more than is absolutely necessary for conducting whatever particular avocation his may be. So that the residents of a Northern clime have to depend upon the kind services of the 'globe-trotters' for their information upon the various cultures; and, owing partly to the short time which they are enabled to devote to acquiring information, and often-to misleading statements made by planters intentionally, sometimes this information is very incorrect. This stricture, however, does not refer to the article by Mr Cater, and I must compliment him upon the care which he has evidently displayed in his study of the vanilla. He has, however, made a few mistakes; and I thought it might perhaps interest your readers, were I to correct them and also describe the methods employed by us here in the South Sea Islands.

Although Tahiti is one of the largest vanilla-producing countries, ranking second or third, annually yielding nearly one hundred tons of the dried product, ours is nearly the worst vanilla that reaches the European markets, commanding only about half the price which is paid for vanilla produced in Reunion or Seychelles, or one-quarter of that paid for the best Mexican. However, to offset this advantage, we have the advantage of the finest tropical climate in the world—no hurricanes (Tahiti being outside of the 'hurricane belt,' which only reaches the Raratonga or Cook Islands, six hundred miles to the west), no malaria or fevers, no poisonous serpent, and but few noxious insects—and have a gentle, friendly race of natives to live among.

We have here in cultivation two varieties of vanilla: *V. planifolia*, grown only in very limited quantities, as, owing to the tendency of the bean to split when nearing maturity upon the vine, and afterwards during the process of curing, it does not appeal to the native grower, and the variety in common cultivation, which is that known in Mexico as *pompona*. Both varieties were originally brought here from Mexico. *V. planifolia* produces the true vanilla, while *pompona* yields what is known in Mexico as *vanillon* and in the London market as *vanillos*. *V. pompona*, although yielding such an inferior quality of fruit, has advantages which endear it to the Tahitian. The bean does not split; it can be cured by simply exposing it to the sun, not requiring to be dipped in hot water or subjected to a process of baking, as do the others; and it always gives two and sometimes three or four crops of flowers during the year, while *planifolia* gives but one and that of short duration.

Most of the Tahiti vanilla is planted so as to climb upon the guava, which is about the worst tree that could possibly be obtained for the purpose as; the bark constantly peeling off causes the tendrils of the vanilla to lose their hold with it, and the vines have to be hung over any convenient branch to keep them from falling to the ground. The guava is an imported tree, but it has taken possession of large tracts of land; and to make a vanilla plantation requires the minimum of labour, usually only the cutting out of a few guavas where they may be growing too thickly, and the planting of vanilla-vines at the roots of the remaining ones. Upon hillsides where the *purao* (a species of Broussonetia) grows, the vanilla is at home. In fact, it is a mistake to plant it upon level land, as, although the vine revels in moisture, the roots are very impatient of water lying stagnant about them. The *purao* is, however, a rapid-growing tree, and considerable labour is required in pruning in order to keep it within bounds and prevent it from overshading the vanilla, too much shade being even worse than too little.

The best situation for a vanilla plantation is on a hillside, perferably in a valley, not too near the sea; and the best system of planting, for one who can afford to wait, is to clear off all the trees which may be growing upon it, and to plant at regular intervals young trees or posts, of varieties which will grow from cuttings. In my experience the best is a small tree known locally as *pini*, a species of Bauhinia, and which will grow in two years to a height of from twelve to fifteen feet. The usual distance apart for the posts is six by eight feet. When these posts are in place, the vines are planted as Mr Cater says; only that we usually use cuttings of ten or twelve feet in length. When cuttings of this length are used a crop of beans is secured nine months or a year sooner than when short lengths are planted. We reckon on a small crop of cured beans eighteen months after planting, and a full crop in two years and a half.

The flowers, which last but one day, open about 7 a.m. and close about 3 p.m., and have to be pollinated by hand during that time—that is, all those which open upon one day must be pollinated the same day. We use small, pointed sticks for this purpose; the pollen, which is a small compact mass, being transferred more rapidly by these than by any other method that has been tried. A very expert worker can pollinate three thousand flowers in one day, but most are satisfied with from fifteen hundred to two thousand.

About nine months after the flowers appear, the beans become mature. This stage is known by their changing in colour from a dark to a light-yellowish green, or by their becoming brown at the lower or flower end, when they must be picked and taken to the house to undergo the process of curing, which should occupy about three months. They can be cured in a shorter time, but always at a sacrifice of quality. This is the most important work of the vanilla-planter and entails constant care, as a few days' neglect may spoil the whole crop. This, I think, partly explains why Tahiti vanilla has such a bad name in the markets of the world. Most of the native planters cure their own crop, but they will not give the necessary attention to this work. There is no secret about the method of curing, although some pretend that there is. It consist in alternate exposures to the sun, always un-

der dark-coloured blankets, and sweating in the house in tight tins or boxes. Experience is the only teacher as to when the bean has arrived at the proper stage of dryness.

I have to differ from Mr Carter regarding a few of his statements. For one thing, the vanilla is essentially a terrestrial orchid, and derives a large part of its sustenance from the soil. In proof of this, in any old, neglected plantations plants may be found which have been uprooted or broken off. When this happens, the part of the vine which is left at once takes on a sickly yellow hue and sends down long roots—I have seen some of these over thirty feet long—which on reaching the soil take root, and the vine at once recovers. The small tendrils do not feed upon the trees to which they cling, these being simply used as anchors for the vine. This refers to live trees; when the tendrils come upon a decayed branch, or when the tree upon which the vanilla is trained dies, they then change their character, becoming elongated and entering into the decayed places as proper roots, and evidently feed upon it.

In his estimate of the possible crop and probable profit I cannot agree with Mr Carter. First, an estimate of four beans to a vine is ridiculously small. If a vine has only one bunch of flowers, that ought to give from eight to twenty flowers—we usually have eight to ten beans to a bunch; but it is a very poor vine which does not give in the year over ten bunches of flowers. However, to be safely within the mark, let us say that each vine averages five bunches of flowers, giving six beans to the bunch, or thirty beans to the vine. This will give three thousand beans to the hundred vines. Taking these at a hundred and fifty beans to the pound, the usual average, we have twenty pounds as the crop. This at our average price of six shillings gives six pounds sterling, or at the price mentioned by him—twenty shillings—twenty pounds. Where he is wrong is in the weight. One thousand beans—and they must be the best—will weigh fifty pounds, but only when they are green; and in the process of curing they lose at least three-quarters of their weight. Figures, however, are sometimes misleading, and I cannot do better than give as an example the result from a small plantation in which I am interested. A careful account of the expenditure and receipt has been kept. At the end of three years and a half from the time of planting the vines we have paid back all that has been expended upon them, and have a small balance in hand. A man here with three or four acres of vanilla has a competence; with ten or more he is rich; and for one who likes to potter around among flowers in the temperature of a greenhouse I cannot imagine a life more attractive.

By the way, although the fruit of the vanilla is in no sense a bean, it is invariably called by that name.

Our vanilla is one of the most speculative crops, rivalling hops in that respect. I have known it to sell for two shillings a pound—that was ten years ago and it has never gone below four shillings since and again for sixteen shillings. The average price, however, is six shillings; and, as we estimate that it costs two shillings per pound to grow and cure, a fair margin of profit is left for the grower.

I will conclude with a little information for brother-planters. Vanilla possesses two irritant poisons, which, like some other vegetable poisons, act differently upon different individuals. To a few they are innocuous. The juice of the vine, or even the rain or dew from off the leaves, produces in some an itching sensation somewhat resembling 'prickly heat.' The dry or partially dry beans produce small blisters on the hands of some of those constantly handling them, and in extreme cases sores upon the arms and body, which all itch incessantly. I have suffered slightly for years from these, and have only lately found what seems to be a cure; in my case it has proved a specific. This is carbolic acid. I use a mixture of equal parts of carbolic acid, glycerine, and rose-water, rubbed on upon going to bed. I have tried the same remedy upon a number of natives, and have cured them all. Washing with Calvert's 20 per cent carbolic soap. after handling the beans, act as a preventive.—*Chambers' Journal*, May 1

INDIAN TEA ASSOCIATION.

BOUNTY ON GREEN TEAS.

CALCUTTA, May 31, 1902.

The following arrangements, regarding the payment of bounty on the manufacture of Green teas, have been decided upon for the current season.

(*a*) That the bounty will be paid on 400,000 lb. as against 200,000 lb. last year.

(*b*) That the bounty will be the same as last year, viz., 1½ annas per lb.

Of the total quantity of 400,000 lb. on which the bounty will be paid the Baraoora (Sylhet) Tea Company, Limited, have offered to make one-half, and this offer has been accepted by the London Committee. There remains, therefore, 200,000 lb. upon which the bounty will be paid to other gardens. The object of the London Committee in accepting the offer of the Baraoora Company is to ensure that a larger quantity of green tea shall be made, as it was somewhat disappointing to find that the bounty was earned upon only 72,703 lb. last year.

2. CLASS OF TEA TO BE MANUFACTURED.—Enquiries have been made of the recipients of last year's bounty, which was given on green tea of the Gunpowder, Hyson and Young Hyson varieties, as well as upon green Pekoe and Pekoe Souchong kinds similar to the Ceylon type. The consensus of opinion is that unfaced greens of the China type are preferred, as they come into competition at once with the class of tea with which the consumer is already acquainted. But the fact that Ceylon exported to America last year upwards of one million pounds of green tea and is continuing to manufacture for America affords evidence that there is a market there for both classes, and therefore no restrictions will be placed upon the class of tea to be manufactured.

3. The bounty will be paid subject to the following rules :—

(*a*) The General Committee propose to leave the decision, as to what may be suitable for the American and other green tea markets, largely to the discretion of those who make the tea, and do not require that experimental samples should be submitted for their approval before the tea is made.

(*b*) They reserve the right, however, to defer payment of the bounty in any case where after examination of samples drawn under clause (*d*) they think the tea is likely to be found unsuitable, unti production of a certificate showing its *bona fide* sale at a price not under the equivalent of three annas per lb. in Calcutta for any separate grade in the invoice.

(*c*) The Committee, while they do not require the previous submission of samples, nevertheless recommend those who intend to make tea in consideration of the bounty to submit samples to them for the examination and report of experts. The leaf to be used for the manufacture of green tea should not be coarser than that ordinarily plucked for black tea manufacture.

(*d*) When teas upon which the bounty is claimed have arrived at port of shipment, samples should be drawn and sent to the Committee; and on approval of these, and on proof of sale or shipment, the bounty will be paid.

(*e*) There is no objection to the teas being sold on the Calcutta market if the producer so desires.

(*f*) It is proposed to pay the bounty only to those gardens which have subscribed in 1901 to the American and Foreign Market Fund, or to the Indian Tea Markets Expansion Fund.

4 I am directed to ask those who intend to make green teas to inform me of their intention as soon as possible, stating the quantity they intend making. It will be understood, however, that such an intimation will impose no obligation either on the garden to make the tea, or on the Committee to pay the bounty, should the latter not become payable—either under clause (*b*) or clause (*d*)—before the amount now allotted has been exhausted.

THE CONSUMPTION OF TEA.

(*From the second number of a Board of Trade memorandum.*)

TEA.

The first thing that strikes one in glancing at these tables is the enormous extent to which the tea industry is dependent upon the United Kingdom, and in particular how vital this market is to the tea industries of India and Ceylon. The tea that John Bull and his family drinks is mostly and increasingly grown under the protection of the Union Jack. We take a smaller quantity relatively every year from China. To put the matter in a nutshell, the total consumption of tea in the United Kingdom exceeds that of all the other European countries and the United States put together. During the seventeen years from 1884 to 1900 it has risen from 175 million lb to 250 millions, an increase of 43 per cent. To go into further detail, it may be added that every person in Great Britain and Ireland, counting each centenarian and baby in arms, the upper tenth and "the submerged tenth," consumes annually over 6 lb of tea, an increase of 1 lb in sixteen years.

Of a total world's production of about 600 million lb in 1900, nearly half was taken by this country, while of the actual Indian export great Britain absorbed seven-eighths and of the Ceylon export three-quarters, comparatively little being re-exported. This peculiarly British preference for tea as against coffee extends also to the purely British colonies, but not to the kindred nation of the United States.

The taste for tea can scarcely be said tobe based upon climatic conditions, since it is prevalent in the dry, hot countries of Australasia, in Canada, with its severe cold and brief spells of heat, and in the United Kingdom with its mild and moist arrangement of weather The Australians, in fact, consume more tea per head than any other nation in the world, the average being as high as 10 lb per capita in Western Australia for 1900, whereas in the United Kingdom it was 6·10lb per head. That the consumption of this country not only increases with the natural growth of the population, but increases also per capita, the average having steadily advanced, with the exception of a single year, from under 5lbper head in 1889 to 6·17lb last year, while the total consumption in the same period has risen from 185 million lb to 255 million lb. So great has been the expansion in tea production in India and Ceylon that even this enlarging market is not sufficient to cope therewith, and it is consequently reassuring to find the demand for tea slowly developing in other countries. Russia is pre-eminently a tea drinker, but the people there are so poor that the consumption per head after years of expansion was in 1901 under 1 lb per head. Germany and France which are coffee-consuming countries, show a tea consumption of only 0·13 lb and 0·05 lb per head respectively. France makes practically no progress as a tea consumer, but in Germany the beverage appears to be slowly gaining ground, while in Holland the consumption has gradually advanced to 1·48 lb per head in 1900. The United States—an enormous potential market for tea—has so far exhibited no really satisfactory expansion. Last year the consumption per head, after a gradual advance since the drop caused by the imposition of the 10 cents duty in 1897, was only 1·14 lb per head. Still the fact that consumption has gradually advanced since the duty of 5d per lb was imposed, though only to the extent of 0·21 lb per head in four years, is encouraging so far as it goes, but the progress made is almost painfully slow. Unfortunately the increase in tea consumption exhibited by America and some European countries does not necessarily mean exclusively in Indian tea. Russia still satisfied herself mainly with China tea imported over the Asiatic frontier, Holland takes 50 per cent of her tea from Java, while in the United States more than half the tea consumed is from China, and of the balance about two-fifths come from Japan.

The prospect of increasing the American demand is for our Indian and Ceylon planters if they wish to secure a hold upon that great market, to adapt the preparation of their tea to the tastes of the inhabitants. The victory of Indian and Ceylon over China tea is pretty well complete so far as the market in Great Britain is concerned, but elsewhere there is much to be done, and there is plenty of scope for the propaganda in favour of British tea, which is now being very actively supported.

China, though she has sadly fallen from her high estate, is still the largest tea producer, supplying not only a percentage of what we require, but keeping her customers in Russia and in Holland —which favours Java also—and the United States. China's decline is, nevertheless remarkable, and apparently is almost entirely due to the falling-off of imports to this country.

In the period 1884-86 the amount of tea exported from China averaged 282,000,000 lb. whilst in the period 1898-1900 it averaged 202,000,000 lb., a decrease of 28 per cent.

Meanwhile the exports of tea from the three other producing countries—British India, Ceylon and Japan—have been constantly increasing of late years; in the case of British India the exports have doubled in thirteen years, whilst in the case of Ceylon the export, which is now nearly 150,000,000 lb., was in 1884 only 2,000,000 lb.

Though tea does not seem to vary much in cost to the consumer. its wholesale price is changing, and the tendency is in favour of the consumer. In 1884 the value of the tea landed in this country averaged 11¾d. per lb.; in 1900 it averaged about 8½d. The landing value of the tea imported from different countries was British India in 1884, 14·12d.; in 1900, 8·71d. Ceylon, 17·26d. per lb. in 1884; in 1900, 8·59d. China in 1884 averaged 10·59d.; 1900, 7·85d. In the period 1884-1900 the export value per lb. of Indian tea has dropped 38 per cent., of Ceylon tea 50 per cent., and of China tea 29 per cent. No wonder that our planters are anxious to find fresh markets.

COFFEE.

In respect of coffee we have the converse of the position as compared with tea, for Great Britain and her colonies are the smallest consumers of the former, just as they are the largest tea-drinkers. British coffee is a terrible production and it is not popular, though it is used slightly more today that it was. How do we compare with the rest of the world in this respect? The three countries where the consumption per head is the largest are Holland (with an annual normal consumption of from 15 to 17 lb. per head), Belgium, and the United States. In Belgium the annual consumption per head may be put at about 8½ lb. and in the United States somewhat higher, probably over 9 lb. After these countries come

Germany, France, and Austria-Hungary in the order named. These all are the countries whose total consumption exceeds 50,000,000 lb. The United Kingdom falls far below this level with a consumption of only about 2·3 lb. per head of population. As regards total consumption (as disinct from consumption per capita) the United States stands pre-eminent, the quantity of coffee there consumed being nearly as great as that of all the other countries mentioned put together, In Germany the total consumption, though less than half that of the United States, is nearly twice as great as that of France, which takes the second place in Europe as a coffee consuming country.

The consumption of coffee per head is for Australia 0·58 lb and for Canada 1 lb, and the tendency towards an increased demand is very slight. As regards sources of production, it is estimated that in 1900, out of a total export by the chief producing countries of 1,813 million lb, 1,179 million lb came from Brazil, the next largest producers being, in the order named, the Dutch East Indies, Central America, and the West Indies, but the shipments of the most prolific of these secondary countries were under 150 million lb. Curiously enough the direct imports of coffee into this country from Brazil are comparatively small, notwithstanding that we re export more of the berry than we import. "The very small quantity of coffee that comes to this country from Brazil," says the report, "is worthy, however, of special remark, and even though the greater part of the quantity that comes from the United States be Brazilian, yet the total imports from the two countries are only about one-fifth of the whole." In view of the enormous preponderance of Brazil as a producer this fact is rather remarkable. On the other hand the United States, which is by far the largest coffee market in the world, obtains three-fourths of its supplies from Brazil, and as it imports nearly as much as all the other countries put together, its influence in the coffee market is, of course, pre-eminent.—*H and C Mail*, May 23.

CEYLON TEA COMPANIES IN 1901.

("THE FINANCIAL TIMES.")

Most of the Ceylon tea companies have now published their reports for the past year, and the results shown are, as a rule, not particularly brilliant, though in view of the conditions prevailing they are no worse, and perhaps somewhat better, than might reasonably have been expected. There was, however, one favourable feature in a generally disappointing year in the shape of a small reduction in the total output, and, although this was mainly the consequence of a poorer crop, it was also in some slight measure due to intentional limitation of production, and to the increased attention paid to the finer classes of tea. The prices realised in the early part of last year were extremely low, but towards the end of the selling season a distinct improvement set in, more especially for the commoner descriptions. It may be noted that the finer kinds of tea suffered relatively more in price than the cheaper sorts, partly because the quality was not so good as before, but mainly owing to the demand being concentrated more upon the low-priced qualities. That tendency may possibly have been assisted a little by the higher duty, but the increased impost is now scarcely a factor in the situation, and the trade has pretty well adjusted itself to the altered circumstances. It is natural that with such adverse influences to contend against the companies should, as a rule, show a diminution in profits; but we may once more point out that those concerns have emerged best from the ordeal which have strengthened their position by making substantial appropriations to reserves in good years. A bird's-eye view of the main results achieved by the leading companies may be obtained from the following table:—

Company.	Nett Profit.		Appropriations for Reserve and Depreciation.		Dividend.	
	1900	1901	1900	1901	1900	1901
	£	£	£	£	p.c.	p.c.
Alliance ...	4,660	4,870	1,000	1,000	7	6
Ceylon Tea Plantations...	41,010	37,199	10,000	5,000	15	15
Dimbula Valley	*11,306	13,501	*1,380	2,500	*10	8
Eastern Produce and Estates ...	15,790	16,839	†nil	†nil	3½	3
General Ceylon Tea Estates...	713	3,717	2,000	2,000	nil	nil
Nuwara Eliya..	18,263	11,893	2,963	2,000	7	6
Standard Tea ...	2,148	8,960	2,800	nil	15	15
Scottish Ceylon	5,318	4,154	638	429	10	8
Yatiyantota ...	6,753	5,962	1,000	1,000	4	2½

It will be observed that the Ceylon Tea Plantations has been able to maintain its dividend at the high rate of 15 per cent, but in order to do so it has been obliged to greatly reduce its appropriations to reserve. As regards this reserve, which stands in the balance-sheet at £100,000, it may be mentioned that nearly the whole of it has been invested either in the coconut plantations or in the development of the tea gardens. However, notwithstanding the smallness of the actual liquid reserve, the company may be said to be in a fairly sound financial position. It is unfortunate, however, that the coconut plantation, from which so much was expected, should still barely more than pay its way; nevertheless, the outlook in this respect is stated to be now favourable, so that in a year or two's time the company should be able to obtain a fair revenue from this source.

Another company which has maintained its dividend of 15 per cent, in spite of a considerable reduction in net profits, is the Standard Tea. It may, indeed, be doubted, in view of the lower price obtained for the company's teas, whether it was altogether sound policy to make such a large distribution this time, especially as it involved the abandonment of any appropriation for reserve or depreciation. Still, the company is reputed to possess very fine estates, which have been largely improved of recent years, and it is to be hoped that it will be able before long to get back to the higher price level of former years. The Nuwara Eliya has adopted a more prudent course, in face of a marked decline in profits, and has reduced its dividend by 1 per cent, but even to pay 6 per cent it has been obliged to draw on the balance forward. In this case also we may hope that, being a fine tea producer, with gardens at a high elevation, it may experience better luck

* Nine months' working.
† £7,500 of Debentures with bonus redeemed each year.

during the current year, The Dimbula valley, which we may note has altered its financial period so as to coincide with the calendar year, has done fairly well, and is to be congratulated upon being able to put aside a portion of its profits, although at the expense of a reduction in the dividend. This is the only company of those under review whose shares are quoted on the Stock Exchange, and consequently a little more general interest attaches to it than to the others. The Scottish Ceylon, though reducing its dividend, records fairly satisfactory results, considering the conditions obtaining, but public interest in this company's shares is comparatively small and dealings are few. The Alliance is yet another company which has been obliged to cut down its divided, but has nevertheless got through the year fairly well. In view, however, of the considerable amount of debentures it carries, and of the fact that it has no reserve fund, it can scarcely be said to occupy as strong a financial position as some of its neighbours. The Yatiyantota is notable as being a producer of low-grade tea at a very cheap cost, but the better prices ruling for this class of tea at the end of the season hardly compensated for the very unsatisfactory quotations obtained earlier. At the current range of values the company should be able to improve its position. The General Ceylon Tea Estates has come in for much adverse criticism owing to the general feeling that it was brought out at the top of the boom. We are glad to see therefore that, thanks to drastic alterations in the management, its report shows a considerable improvement, and it seems possible that there may be some future for the preference shareholders, whatever may be thought of the prospects of the ordinary. A slight reduction in dividend is likewise shown by the Eastern Produce and Estates, but the company has still been able to find £7,875 for the usual liquidation of the debentures, whereby it every year improves its financial position. A favourable feature of this company is the fact that it possesses a remunerative agency business, the profits from which, as stated by the chairman at the last meeting, are more than sufficient to defray the entire expenses of the London administration.

It is a truism to repeat that the future prosperity of the tea industry is bound up with the establishment of rational relations between supply and demand. In respect of over-production we are afraid the best that can be said is that we are a little nearer the end of the tunnel than we were a year ago. Some slight improvement in this respect was certainly shown last year, but we have still to face the prospect of the current and the following year's production being in excess of the demand. We believe, however, we are correct in saying that the extensions of gardens have now been brought practically to a standstill; and, further, it appears to be generally admitted that there has been some very considerable abandonment of less remunerative areas, and this goes far to compensate for the opening up of new grounds. The planting community, we are credibly informed, are doing their utmost to limit the quantity in favour of the quality of production, and, although we are not amongst those who believe that very much can be attained by artificial means, the effort deserves every recognition, and is decidedly in the right direction. The bright spot on the horizon is the opening up of fresh markets, which there is reason to expect will be prosecuted more vigorously than ever. The Ceylon Government has authorised an increase in the forced "cess" imposed on the planters to defray the expenses of the propaganda abroad, while a very influential petition is being presented to the Viceroy of India with the object of inducing the Indian Government to impose a similar "cess" on the planters there. If this movement be successful the future energetic cultivation of foreign markets will be assured. As regards the value of tea shares, the past season has naturally had the effect of greatly depressing prices, the few exceptions only serving to accentuate the general decline. It is probable, however, that in many cases the price has been forced down unduly, as the result of small sales upon a narrow market. Even now we are not prepared to advise people to rush into the market, but at the existing level as presented in the quotations supplied to us from week to week by the Indian Tea Share Exchange, it is quite worth watching. In particular some of the cheaper preference shares, which have been depressed in an undue degree as compared with the ordinary issue of the same companies, merit attention, since they hold out the hope of a considerable improvement in capital value sooner or later. We have not included any Indian tea companies' results in the present review, as, although the season in India coincides with that in Ceylon, only one or two reports owing to the greater distance to be traversed, are so far to hand. In a short time, however, sufficient information will be available to enable a fair appreciation to be made of the results of the year's operations in the great tea gardens of the Dependency.—*Home and Colonial Mail*, May 23.

THE BIGGEST IVORY MARKET IN THE WORLD.

Some day when Mr. Pierpont Morgan is less busy than he appears to be at present he may turn his attention to an "ivory trust." If he does so he will find the biggest ivory market in the world at the London Docks, where the quarterly sales of ivory average over £100,000; 70,000 elephants are slaughtered every year to keep up this supply. Eastern Siberia exports a vast quantity of fossil ivory, chiefly to the Continent, where it is more highly valued than it is in this country. African ivory commands a higher figure than any other description of ivory on the market. The biggest price ever paid for a pair of tusks was £188; they came from Uganda. The average price for ivory in this country rules from £30 to £40 per cwt. A great deal of ivory used to come here from India, but the Indian wild elephant is now getting very scarce and of late years India has actually imported ivory.—*Tatler*, May 21.

PRODUCE AND PLANTING.

The *Journal d'Agriculture Tropicale* for April gave a report by the Dutch Consul at Warsaw which dealt with particulars relating to the

COMPRESSED TEA TRADE.

According to this report more than 53,000,000 kilogs (a kilog is equal to 2·21b) of tea are annually imported by

RUSSIA,

of which 34,400,000 kilogs consist of brick tea, 18,000,000 kilogs of black tea, 975,000 kilogs of tablets and 280,000 kilogs of green tea. A small quantity of yellow tea is also consumed, which however is too insignificant to be taken into consideration. Green tea is rarely found in Russian households and the great majority of Russians have never tasted it. Tea in tablets is manufactured with tea leaves of inferior quality. They are 130 millimetres long (a millimetre is ·03937 inches), 40 wide and 20 thick, and each tablet is divided into eight sections. The tablet weighs ¼ lb (Russia) and is enclosed in paper bearing the name of the manufacturer. For packing purposes tin-lined cases, each containing 126 Russian lb, are used. The retail price at Moscow is 1 rouble 10 copecks per Russian lb (about 2s 7d per English lb). All the tablets used at Warsaw bear the name of a firm at Hankow. Brick tea is also manufactured at Hankow. There are two qualities : the first quality measuring 227 millimetres, long by 160 wide and 11 thick, and weighing ½ kilog. each. Bricks of the second quality measure 287 by 183 by 22 millimetres, with an average weight of 1,160 kilog. These bricks are packed in wooden cases holding from 216 to 240lb (Russian). The retail price at Warsaw is 70 copecks per Russian lb (about 1s 8d per English lb) for the first quality, and 60 copecks (1s 5d) for the second quality.—*H. and C. Mail*, May 23.

BRAZILIAN RUBBER TRADE.

In his report of 13th January, the U S Consul at Para says with regard to rubber shipments from the Amazon Valley for 1901 :—" The shipments from Para for 1901 show a steady increase over the business of 1900, the total gain being 3,255 tons of which the increase to Europe was 500 tons and to the United States 2,755 tons. In other words Europe took 14,254 tons of rubber from the Amazon in 1900, and the United States 12,621 tons during the same time ; but during 1901, Europe took but 14,755 tons and the United States took 15,376 tons. Another significant feature shown by these statistics is the enormous growth of the rubber trade at Manaos, amounting to almost 100 per cent. During the year 1900. there were shipped from Manaos a total of 8,012 tons of rubber, and 18,467 tons from Para. During the year just closed, however, Manaos shipped 15,469 tons and Para but 13,639 tons. This change was caused by the passage of a law in January, 1900, enacting that thereafter all rubber extracted in the State of Amazonas, and all other products of that State, should be shipped direct from Manaos. A large portion of this rubber had formerly been sent to Para. Another feature of these statistics is the large increase in shipments from Iquitos. During the year 1900. Iquitos shipped 920 tons of rubber direct, and in 1901, 1,391 tons, a gain of more than 50 per cent. Next year will probably witness a still greater gain and within a few years the Upper Amazon and its affluents may produce as much rubber as the lower river.

EXPORTS FROM PARA AND MANAOS IN 1901.

	Europe. Tons.	U. States. Tons.	Total. Tons.
Para ..	14,755	15,376	30,131
Manaos ..	7,336	8,133	15,469
Total ..		..	.. 45,600

—*India Rubber Trades' Journal*, ay 12.

COFFEE IN GERMAN EAST AFRICA.

The boards of the German colonial companies have clubbed together to send out an expedition to experiment with coffee planting in German East Africa.—*Planting Opinion*, June 7.

CEYLON DIVIDENDS.

It is interesting to have the following full resumè of the Dividends of Ceylon Tea Companies for 1901 from the May report of Messrs. Lloyd, Matheson and Carritt of Leadenhall Street :—

Alliance Tea Company pays a final of 3 p.c., making 6 p.c. for year,
Augusta Tea Estates Company pays preference, but no ordinary dividend.
Balmoral Company pays final of 6 p. c. free of tax, making 11 p.c. for year.
Bandarapolla Company pays 6 p.c. free of income tax.
Burnside Tea Company pays no dividend.
Ceylon Tea Plantations pays a final of 8 p.c., making 15 p.c. for year, free of tax.
Dimbula Valley pays a final of 4 p.c., making 8 p.c. for year.
Eastern Produce Company pays 1¾ p.c. making 3 p.c. for year on ords.
Ederapolla Company pays 5 p.c. free of tax.
Galaha Tea Company pays 3 p.c. on ords.
General Ceylon Tea pays no dividend.
Highland Company pays final of 2 p.c., making 4 p.c. for year, free of tax.
Imperial Ceylon pays 3 p.c. free of income tax.
Kelani Valley pays no dividend.
Lindoola Company pays a final of 1½ p.c., making 4 p.c. for year, free of tax.
Nahalma Company pays no dividend.
Nuwara Eliya Estates Company pays a final of 3 p.c., making 6 p.c. for year, free of tax.
Panawal Tea Company pays 3 p.c. on ords., free of tax.
Poonagalla Company pays no dividend.
Ragalla Company pays 4½ p.c. on ords., free of tax.
Sunnygama Company pays preference dividends of 6 p.c. up to end of 1901.
Standard Tea Company pays 10 p.c., making 15 p.c. for year.
South Wanarajah Company pays 5 p.c. on ords. free of tax.
Tyspane Tea Company pays final of 4 p.c., making 6 p.c. for year, free of tax.
Vellikellie Tea Company pays final of 2 p.c. making 5 p.c. for year, free of tax.
Yatiyautota Tea Company pays 2½ p.c. on ords., free of tax.

PLUMBAGO.

Messrs. Chapman, Anthony & Co., of 43, Gt. Tower Street, have furnished the following notes on the plumbago trade to our contemporary. There has been a sensational rise in the market from the low level reached a few months ago and those who had the courage of their convictions and bought in then have since reaped a golden harvest :—

The market during the past week has shown signs of considerable activity and we have put through several contracts in lump, chip and dust at current rates asked by shippers. Our sales have been fairly evenly distributed between the Continent and America. As we go to post, we make the tone of the market rather duller probably owing to the fact that buyers have supplied their immediate requirements. A considerable quantity of plumbago has changed hands on spot in London, as parcels which are being offered here now on estate account are being sold at prices which are considerably less than the Colombo market is asking today for the same quality.

For all good qualities of plumbago the demand seems to be on the increase, but for poorer kinds and for flying dust the supply is greater than the demand. There is some pressure to sell the latter, several parcels being offered at 5s delivered in London which is the equivalent of 4s 6d c.i.f.

HOW GEMS ARE SEARCHED FOR.

The following extracts from "Gold, Gems and Pearls in Ceylon and Southern India" (Messrs. A. M. and J. Ferguson) are of special interest, in connection with H.E. the Lieut.-Governor's visit to a Gempit near Ratnapura :—

There are two ways in which gems are searched for—one in beds of streams, and the other by sinking pits on land, generally on the borders of streams, in which previously search had been made and found to contain the gravel. At Weralupa both plans are now pursued—in the stream which runs through it, and on the meadow lands on its banks, the first discoverer of the deep-seated bed of gravel having been an enterprising resident of Ratnapura. A correct description of these modes of gemming in water and on land (as the phrases run) may not be wholly without interest. In water gemmings the implements and appliances used are few and simple, consisting of a few mamoties (called "Menik Udaloo") stout, of an oblong square form, double the size of the ordinary ones, and concave on the handle surface, having a long pole called a *rita*, of greater or less length according to the depth of the gravel, fixed to it for a handle ; a few crow-bars to break through any impediment that may be found in the way of getting at the "illan" ; a long iron sounding-rod called *Illankoora*, and a close wicker-basket called "*Menikwattia*," made of the prepared split bamboo-reed (bata). This wicker-basket is an admirable contrivance for the purpose it serves: it is basin-shaped but more conical and about two feet in diameter, with a strong rim of rattan. A dry season of the year being selected, generally between December and March, when the water in the streams is low and sluggish, the gem-men commence operations by putting away the sand in the spot selected, sounding with the sounding rod from time to time to see whether the gravel is at an accessible depth. In this part of the business the ordinary coolies assist, but not after the gravel has been exposed—when only

THE INITIATED GEM-MEN

work. In the way of getting at the gravel, sometimes the impediments of the trunks of trees and blocks of rocks are found, but almost invariably a sort of crust called "catooa," has to be got through. The illan commonly lie just under this catooa or crust which presents different appearances at different places, though at times it is entirely absent. It is seldom of greater thickness than a few inches, but its hardness varies from almost that of granite to sun-baked bricks. Just under this crust, which varies in colour also in different localities, is found the illan resting on a bed of clay of greater or less thickness, and of different colours, even at short distances of space called "*Malawa*." I have seen it green, blue, grey, reddish, and at Balangoda deep yellow ; but the first-mentioned colours are reckoned the most promising. It is said that under the stratum of clay another bed of gravel has been found, richer than the one on the top, but of this I have no personal knowledge. The gravel being exposed though under water, it is slowly and steadily scooped out with the mamotie abovedescribed, its concave form facilitating this, and being brought to the feet of the man engaged, is then deposited in the "Menik Wattia" (wicker basket) held under water with his feet. A sufficient quantity of illan being collected, he lays by the mamotie and washes it himself, or hands it over to another to wash, and goes on with the mamotie work. The washing of the illan is the next operation to be described, and is performed on this wise. The basket being held under water by the rim, the illan in it is rotated with a quick motion, by which the clay, now dissolved, and the lighter particles of stone are thrown out at the rim. From time to time the larger stones are taken up examined and rejected if they are not gems. The whole is now reduced down to what is called the "*Nabooa*," which is the heavy, thin sand, mostly composed of particles of precious stones, jet and the gems, the objects of search, settled down by reason of their greater weight at the conical part of the basket. The basket is then brought ashore and the *nabooa* examined, when the precious stones are easily recognised and removed. The foregoing is a brief account of gemming in water.

GEMMING ON LAND

is done in the following manner :—The place being selected, also in the dry season, the operations of pitting are begun, the pit being invariably of the square shape. The earth being removed to the level of the water, it becomes soft. From this stage commence at the sounding of the pit from time to time to ascertain whether the illan is at a practicable depth, the "illankoora" in the hands of the experienced seldom misleading. The illan being found, the gem-men are obliged to re-double their exertions as now they have to contend against the influx of water which they are obliged constantly to bale out, and this the more as they get nearer the above described "crust," over which generally lies a bed of very permeable sand of greater or less thickness. The sand being got rid of, the illan is got at either after breaking through the catooa or not, if it does not exist. The illan is detached from the bed of clay with the crow-bar and heaped up to be washed, but the larger stones that are found have almost all been discovered whilst breaking the illan from its situation. After collecting the gravel, its washings take place either in the pit itself, if there be sufficient water in it, or in an adjoining stream or pond, and this by the above-described basket. It ought to be mentioned that the whole of the pit is not gemmed at once : the earth of only one-half is wholly removed at first, that of the other half being partly left constructed into a flight of steps to expedite the removal of earth and the baling of water. The first being exhausted of the gravel, the earth of the remaining half is thrown into the empty space, and the illan got out, thus saving a good deal of labour. I also omitted to mention that in gemming in water the sand of the spot on which the men with the mamoties stood, which spot is called "*Hetty Katlia*," is invariably washed in order to detect any pieces of gem which might have fallen into the water in the act of transferring the illan from the mamoties to the washing basket.

CEYLON PROPRIETARY TEA ESTATES COMPANY, LTD.

Directors.—Messrs. G A Talbot (Chairman) H K Rutherford, R A Cameron, F H Wiggin. Secretary. --Sir Wm. Johnston, Bart, Manager in Ceylon.—Mr. H V Masefield. Office.—20, Eastcheap, London, E.C.

Report of the Directors to be submitted at the Fifth Annual Ordinary General Meeting of Shareholders, to be held at the Office of the Company on Tuesday, 13th May, 1902.

The Directors herewith submit the General Balance Sheet and Profit and Loss Account for the year ending 31st December, 1901, duly audited.

The nett amount at credit of Profit and Loss Account, after providing for General Expenses, Income Tax, &c., is ..			3,505 19 5
Debenture Interest paid to 30th Sept., 1901 (*less* Income Tax) amounts to	£709 7 6		
Less from last Account	178 2 6		
		531 5 0	
Three months' Debenture Interest to 31st Dec., 1901 (*less* Income Tax) amounts to ...		211 17 6	
Preference Dividends paid for 1901 (*less* Income Tax) amount to ..		1,232 17 3	
It is proposed to write off for Depreciation ...		750 0 0	
And to carry forward to next year a Balance of ...		779 19 8	
			£3,505 19 5

During the past year the Company's Estates have given a yield of 407 lb. per acre against 490 lb. in 1900.

The gross price for the Teas sold in London and Ceylon averaged 6.36d. against 6.10d. last year and the rate of exchange is 1/4⅜d against 1/4 13-32d.

The low prices ruling for medium and low elevation teas in 1900 continued in 1901, but it is a matter for satisfaction that the prices realised for the Company's teas have been higher than during the previous year. The shorter output caused by a very unfavourable season, and to some extent by more careful plucking, has, however, seriously reduced the profits.

Tho following statement shows the results of the working of the Company for tho last fivo years :—

Year.	Acreage of Tea in Bearing.	Yield per Acre.	Sale Price of Tea. d.	Tea Manufactured for others. lb.	Total Tea. * lb.	Profits. £
1897	2100	413	6.90	89,307	990,816	6,277
1898	2105	407	6.94	94,370	990,251	4,834
1899	2111	439	7.11	1,681	990,848	6,790
1900	2071	490	6.10	3,331	1,119,124	3,691
1901	2165	407	6.36	..	936,485	3,124

Exchange for five years.—1897 1/3 15-32d, 1898 1/4 15-64d, 1899 1/4 13 32d, 1900 1/4 13-32d, 1901 1/4⅜.

* Estate Tea for five years.—1897 868,710 lb., 1898 857,351 lb., 1899 927,395 lb., 1900 1,016,412 lb., 1901 883,174 lb.

* Bought Leaf Tea for five years.—1897 32,799 lb. 1898 38 530 lb., 1899 61,772 lb., 1900 99,351 lb., 1901 53,311 lb.

Under Clause 69 of the Articles of Association, Mr R A Cameron retires from the Board on this occasion, but being eligible, offers himself for re-election.

The Auditors, Messrs. Harper Brothers, Chartered Accountants, also retire from office, and offer themselves for re-election.

By Order of the Board, WM. JOHNSTON, Secretary.
London, 5th May, 1902.

OUVAH COFFEE COMPANY, LIMITED.

(Incorporated in 1896.)

CAPITAL £100,000 IN 10,000 SHARES OF £10 EACH.

DIRECTORS :—Alfred Brown (Managing Director) L Famin; J G Wardrop and P C Oswald. SECRETARY :—J Alec Roberts. Offices.—5, Dawgate Hill, London, E. C.

REPORT

to be presented to tho Seventh Ordinary General Meeting of the Company, to be held at No. 5, Dowgate Hill, London, on Thursday, the 15th day of May, 1902 at 12 o'clock noon.

The following Annual Accounts are now presented to Shareholders, viz :—

Balance Sheet made up to 31st December, 1901.

Profit and Loss Account for the year ended 31st December, 1901.

The receipts from the sale of produce were as under :—

	lb.	£ s. d.
Tea from the Company's own estates ..	1,029,400	
Tea made from bought leaf	68,666	
Total ..	1,098,066	31,574 1 2
Coffee 220 cwt. 0 qr. 18 lb. ..		881 14 3
Cocoa 81 cwt. 0 qr. 15 lb. ..		218 8 1
Cinchona 2,889 lb		46 10 9
Sundry sales in Ceylon		117 16 0
Value of Cinchona Bark and Cocoa under-estimated last year ..		603 6 9
Total receipts ..		£33,441 17 0

The total expenditure in Ceylon and London amounted to £27,053 10s 10d, and deducting this from the value of the produce a profit is shown of £6,388 6s 2d, to which has to be added the balance of £705 5s 4d brought forward from the previous year, making a total of £7,093 11s 6d at the credit of profit and loss.

From the above sum the Directors have transferred to the credit of Badulla Factory account £500. The interim dividend of 2½ per cent, paid on 15th, November, 1901, absorbed £2,500, and Income Tax £332 2s 1d, leaving a balance of £3,761 9s 5d, out of which it is proposed to pay a further dividend of 3½ per cent, making 6 per cent for the year and to carry forward to next account the sum of £261 9s 5d.

Climatic conditions during the past season were not favourable, and this, combined with a system of finer plucking, reduced the yield of made tea to 520 lb. per acre, against 602 lb. secured during the year 1900.

The finer plucking improved the quality of the tea, which sold at an average of 6.90 per lb. against 6.40 for the previous reason, but the smaller yield enhanced the producing cost, which rose from 24·51 cents to 28·13 cents f. o. b. Colombo.

The policy of liberal cultivation has been continued, and the Company's properties are reported to be in good heart and condition throughout.

Mining on the line of the plumbago vein has been suspended, owing to the difficulty of keeping the vertical shafts ventilated and free from water at the increased depth. Work is at present confined to driving a low-level inclined tunnel, which is expected to cut the vein of plumbago, well in advance of the present workings. This tunnel will form a natural drain from the mine, and all ore bodies will be removable by means of gravitation, which should reduce the cost of working to a minimum.

The acreage of the Company's property is now as follows :—

			Acres.
Tea, over 5 years old	...		1,926
Do Planted Nov.-Dec.	..	1897	133
Do do	..	1898	23
Do do	..	1899	18
Do do	..	1900	40
Do do	..	1901	46
Area under Tea	..		2,186
Area uuder Coffee and Cocoa	..		341
Area under Fuel	..		336
Forest, Patna and Waste	..		712
Total Area	...		3,575

Mr. J G Wardrop, a member of the Board, retires on this occasion, and, beiug eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors, also offer themselves for re-election.—By order,

J. ALEC ROBERTS, Secretary.

London, 5th May, 1902.

HUNASGERIA TEA COMPANY, LTD.

REPORT OF THE DIRECTORS.

To be presented to the seventeenth ordinary general meeting of the Company, to be held at No. 5, Dowgate Hill, London, on Thursday, the 15th day of May, 1902, at 1 o'clock p.m.

The following accounts are now presented to share holders, viz :—

Balance-sheet made up to 31st December, 1901.

Profit and loss account for the year ended 31st December, 1901.

The tea crop amounted 353,030 lb, of which 348,760 lb were sold iu London for £8,873 3s 11d, giving an average selling price of 6·10d per lb. Tea was sold in Ceylon to the value of £69 3s 3d.

The expenditure in Ceylon and London, inclusive of £331 11s 7d spent on machinery, amounted to £9,901 15s 5d, showing a loss of £959 8s 3d on the year's working, and after adding to this the balance of £527 6s 3d brought forward from last year, there is a sum of £1,486 14s 6d at the debit of profit and loss account.

The area under tea remains at 763 acres, of which 31 acres are in partial bearing.

At the commencement of the year uuder review the price of medium quality tea stood at a level considerably under the cost of production.

In these circumstances it became necessary to make a change in the system of working, and during the past year, fine plucking has been resorted to, which reduced the crop to 353,030 lb. against 479,170 lb. secured during the previous year.

This step was taken in conjunction with the majority of tea gardens similarly situated in Ceylon and India and the desired result of curtailing supplies has to some extent been attained ; a less favourable flushing season has also helped to keep supplies within moderate limits.

During the last six months of the year the estate worked to a profit, which has gone to reduce the heavy loss sustained before prices had time to respond to the effect of shorter supplies, and the new year has commenced on a better basis.

The cultivation of the property has been fully maintained, the bushes continue to crop well, and the future entirely depends upon market conditions.

Mr J G Wardrop, a member of the Board retires from office on this occasion, and, being eligible offers himself for re-election.

Messrs. J and J Sawyer & Co., the Company's Auditors, also offer themselves for re-election.

THE ANKANDE ESTATE COMPANY OF CEYLON, LIMITED.

REPORT OF THE DIRECTORS TO 31ST MARCH, 1902

DIRECTORS :—Messrs. John Aymer, Chairman ; H Creasy, W. Rae Sands. Agents and Secretaries :—Messrs. Baker and Hall.

ACREAGE.

Tea	156	acres
Cocoa and Liberian Coffee...	104	,,
Cardamoms	95	,,
Jungle	197	,,
Total ..	552	acres.

The Directors have now to present to the Shareholders their Report, Balance Sheet and Profit and Loss Account for the year ending 31st March, 1902.

Interest on the loan of £1,500 has been paid to 30th June, 1901, but it has since been in arrear, and depreciation on buildings, viz : R250·93 has been written off.

The Directors regret to say that a sum of R2,104-70 remains lying to the debit of Profit and Loss Account, owing to the poor results of the working account which is entirely due to the shortage in crop.

The Total Crop harvested during the year were as follows :—

ANKANDE.		
Tea	lb	55,415
Cocoa	Cwts.	42-7
GLENURY.		
Tea Green Leaf ..	lb	9,778
Cocoa	Cwts.	46-2-0
ALTWOOD.		
Cardamoms	lb	2,413

and a small quantity of minor products were sold.

Mr. W Rae Sands retires by rotation and is eligible for re-election.

The appointment of an Auditor for 1902 will rest with the Meeting. By order of the Directors,

BAKER & HALL,

Colombo, June 2, 1902. Agents and Secretaries.

PLANTING NOTES.

KWANGO RUBBER.—I note that according to Mr. Deghilage, who has been for some time in the Western Kwango District of Africa, that rubber can be collected and sold in the district for 80 centimes per kilogram. The transport to Matadi costs 8 francs for 35 kilos., and the rubber is sold in Europe at 4 francs to 4-50. Surely this trade is worth developing.—*India Rubber trade Journal*, May 12th.

TOBACCO AS A GERMICIDE.—The "Lancet," replying to the invitation of "The Daily Chronicle" to make some declaration concerning the influence of tobacco on microbic life, regrets its inability to say anything definite on the point. That which it makes clear by a reference to the experiments of Tassanari is that when steeped in dense tobacco smoke for many hours certain disease germs were either scotched or kil'ed. The "Lancet" remarks that the conditions of the experiments cannot of course be represented in the use of pipe or cigar. Yet it is not at all unlikely that a very considerable effect may be produced on mouth microbes (many of which are quite harmless) by the ingestion of tobacco smoke. Possibly the soil is rendered a less fertile one for microbe development; but microbes have an evil habit of breeding rapidly, and in the contest it is quite likely the tobacco makes only a feeble second after all. As yet I am afraid we who smoke cannot present the germicidal power of the weed as a strong argument for the anti-tobacco societies to tackle.—*Daily Chronicle*, May 8.

RAINBOW TROUT FOR EVERY RIVER AND STREAM IN CEYLON.

We direct attention to a very important suggestion made by "Piscator" in a letter which we publish elsewhere. We would ask the Committee of the Fishing Club at the earliest possible date to lay the subject and proposition—if they approve —before His Excellency the Lieut.-Governor. It is a matter of great importance to the whole community of Ceylon to add to the local Food Supply, and especially to make such a welcome addition as that of rainbow trout. "Piscator," who must know what he is saying, insists that they can be acclimatized to sea-level, so that every "ganga," "oya," and even "ella" in the island, may have the benefit of the introduction. We need say nothing in regard to the very welcome and enjoyable sport the fishing of such trout should afford. We put the matter at present, entirely on a utilitarian basis, and we trust the Fishing Club will induce the Government to take the needful action. If the Legislative Council were sitting, a motion could be made by one of the unofficial members. But, in any case, a matter of such general advantage and utility, must not be overlooked.

CEYLON AND ECONOMIC PRODUCTS.

At last we are to have a reliable hand-book on the Vegetable Economic Products of Ceylon, whether they be native or imported. The Supplements, which are now being issued with the "Annals of the Royal Botanic Gardens," Peradeniya, are being compiled by Messrs. J. C. Willis and Herbert Wright, and appear to contain all available information regarding the various products which are dealt, with. The latest Supplement dealt with Gums and Resins, and will be followed by an account of our Caoutchoucs Guttaperchas, Oils and Fats, Dye Stuffs and Tanning Substances, Fibres, Drugs and Medicinal Products. Edible Products, Timbers, Miscellaneous Products and Useful Plants, This is a great work and if we mistake not, should form a volume which for accuracy and detail will compare favourably with that of Dr. Watt on the "Economic Products of India"—one of the most useful compilations in our library of reference.

TROUT OVA.

BROWN TROUT OVA.

Of the first consignment of Brown Trout Ova which turned out so very successfully, and of which we gave our readers a statement as to the manner in which they had been distributed in various streams and shewing 1,500 fry as being still left over in the stew ponds, some few commenced to die in twos and threes, of some disease, daily. Health having been completely restored in the hatcheries, the balance of the fry were late last week put out in the streams in and about Horton Plains, while the remaining 683 were placed out in streams and about the town.

RAINBOW TROUT OVA.

Both consignments, owing to bad packing, as is known have proved failures. The actual result of the turnout, of two consignments, is estimated as early 1,600 fry, of which some died in larger umbers than the Brown trout fry during the 2nd and third week in May. These fry are now healthy and are said to be doing very well. 300 of the fry have been sent to Mr G G Ross Clarke early this week. Mr John Fraser is expected to remove 200 other fry during the present week.

THE BREEDING OF RAINBOW TROUT IN NUWARA ELIYA STREAMS.

Mr J Wickwar's letter having finally established the fact, any "doubting Thomas" who would like to satisfy his doubts would do well to visit the little tributary stream branching off in a curve from the main stream running parallel with the drive into Saint Andrew's Hotel. Here the writer who had been in quest of proof, had his attention drawn to a shoal of little fry barely ½ inch long.—*Cor.*

THE BEGINNING OF THE INDIAN TEA SEASON, 1902-1903.

Yesterday the new tea season, 1902-1903, was fairly inaugurated. What is it to bring forth? That is the present question. The days are past when tea producers and merchants entered upon each new season with light hearts and pleasing interest. The interest is there still, but it is of a much more anxious order than formerly. No longer is it, in the majority of cases, What are we going to make? but, What are we going to save? No longer do we look forward with pleasure to a big crop, in the sure and certain hope of clearing some more China tea out of our way and making room for our produce.

At present there is no reliable indication of what the present season will bring forth in the way of quality or quantity, The first teas are of the usual non-committal order. Those that were offered yesterday were neither very good nor very bad, though on a slack market they were depreciated. Cachars were perhaps a bit bolder than last year and it may be that this mark a return to the manufacture in vogue before the movement for turning out a finer tea took hold in the Surma Valley in 1901. If the Surma planters found last year's alteration did not pay, they cannot be blamed for returning to their old style of tea making, and at all events there are none to dictate to them. Each district is entitled to adopt its best gait. Of the all-important Assam there is little opportunity at present of judging. But few invoices are on the Calcutta market and there is nothing particular in these. Terais are a bit disappointing after the one or two nice teas that came from the sub-Himalayan district and were snapped up as soon as they reached Calcutta a fortnight ago. Darjeelings are plain, but the hill teas will improve as usual with the May flush and no judgment can be passed on the first plucking.—*Indian Gardening and Planting,* May 22.

AUSTRALIAN COFFEE CULTIVATION

Among the future industrial possibilities in New South Wales is that of coffee cultivation on a remunerative basis. It has already been successfully introduced into Queensland, where it furnishes employment to about a couple of hundred workers. Nearly a quarter of a century ago encouraging experiments were made in the Clarence River district, in the northern portion of the parent State, when,

from the very outset, it was demonstrated that coffee trees would grow and yield good crops of berries. There were coffee trees growing in Grafton, the beautiful Northern Coast Metropolis, upwards of 30 years ago, which yielded good crops, and at the present time several, over 25 years old, healthy and productive, are to be met with. The cultivation and treatment of the trees have (says a recent visitor) a great deal to do with the production of a berry of good quality and flavour. Then in the transformation of the berries into the brown powder-like substance which makes the popular beverage, there are many processes, on the proper execution of which depends the preservation of the essential qualities of the coffee in a form which readily assimilates with boiling water. The leading experiments in cultivation were made on a river island having an area of about twenty acres, the coffee plant being grown with other crops. Last year there were about 580 trees in bearing. It is estimated that coffee should be planted 8 feet by 8 feet, which would give 680 trees to the acre. The average production of berries on each tree is 10 lb, from which 2 lb of manufactured coffee is made. This, at 1s per lb wholesale, would be £68. The principal cost is the picking of the berries, which is put down at £3 per acre "pulping" costs £1 10s for the product of an acre; fermenting, bleaching, and cleaning, £1 16s; roasting, £3; tinning and labelling, 15s. Total.—£13 6s for the produce of each acre. This leaves a profit of over £50 an acre, not counting cultivating expenses. These, however, are light once the trees have been planted and well grown. The ground must be kept cultivated, and the trees pruned. The work of picking the berries is light, and may be done by boys and girls, one person being able to pick from 100 lb to 150 lb per day. The next operation is that of "pulping." This is done by means of a small wooden roller, with corrugations on its surface. The object of this operation is to crack the shell, which contains two beans of a bluish-white colour. The machine used for this operation is of the grower's own construction, and with it two boys can treat 2 cwt per hour. The beans have also to undergo a process of cleaning, in which an "Enterprise" bone mill (costing £1 10s) is used. They have also to be fermented, dried and bleached, in the course of which they must be exposed to the sun no stretchers, and brought under shelter at night, and when the weather is showery. These processes cost £1 16s for the produce of an acre. The roasting process is estimated at about £3 per acre. For grinding a newly-patented American machine (costing £2) is used, which puts through 20 lb per hour. The usual addition of chicory is mixed with the coffee. Last season's coffee speedily established a reputation for its quality on the Clarence and Richmond Rivers, and has become a favourite with all who have used it, thus ensuring a ready market for all that can be raised in the future. From this it would appear that those practically acquainted with the work of Coffee cultivation would possess unlimited opportunities for turning their knowledge to profitable account in New South Wales.

Did you ever read anything more idiotic than the remarks of an Australian Journalist on Tropical products? I recollect in the Melbourne Exhibition seeing samples of coffee from some district with a descriptive pamphlet stating that the coffee was grown from the "finest pea-berry variety!"—*Old Colonist*.]

TERRIERS AND A COBRA.

Mr. C W E Cotton, I C S, Hosur, Salem writing in the *Madras Mail* of the 24th says— "James" and "Dolly." two English-bred fox-terriers which I am looking after for Mr. F Gompertz (now on furlough), killed a large cobra measuring 5 ft. 1 in., in the compound of this bungalow this morning. "Dolly" found the cobra lying up in some long grass on a high bank and proceeded to haul it down by the tail. It was not until it reached level ground that I realised she had got hold of a cobra, and, though I tried to cal her off, she was too excited to pay any attention. At this point "James" joined issue and gave the cobra the *coup de grace.* It was a very smart piece of work, and simply a miracle that neither dog was bitten, as the cobra showed plenty of fight and their agility alone saved them. It was an exceedingly exciting five minutes for myself and Mr. F J Richards, I.C.S., who were the sole spectators.

ACETYLENE LAMP.

Le Phare Agricole—MEDUSE.

This lamp, for the destruction of night, butterflies and other insects, seems worth noting. The price is moderate, *i e.*, 16 francs (12s 10d), including packing and delivery anywhere in France. Address: V. Vermores, Villefrance, Rhone, France. The lamp is simple and strong, and cannot blow out in the wind. It is easily filled and for the intense light it gives is very inexpensive, costing, in France, only about a farthing an hour. Dazzled by the light, the butterflies fall into the receptacle around it, which contains water upon which floats some kerosine, and are drowned. When butterflies are numerouse they are caught by hundreds in a minute, One lamp has been known to dispose o. 5,000 creatures in the night. In vineyardsf the lamps are placed 50 yards apart, and only lighted on calm nights; if it is cold or windy, the insects seek shelter, and are not flying about. We publish these particulars by particular request for the benefit of planters and others.

THE DETERIORATION OF RUBBER.

Mr. James D. Sargent, of the Scottish Vulcanite Company, in a letter published in our issue of March 21st, takes exception to our statement that in the last 20 years a considerable improvement has taken place respecting the loss on washing of a number of rubber qualities, and he points out that this can refer to African qualities only. But Mr. Sargent must have overlooked that this is all we desired to call attention to. From the list we appended to our remarks, it is perfectly obvious that at best the high-grade qualities, as perhaps the American qualities as a whole, have only just held their ground. Therefore, there is hardly any difference of opinion between us Mr. Sargent goes a step further and asserts that the present loss on washing fine Para rubber is at least 18 to 19 per cent. If this is his actual experience this is difficult to contradict, but this experience is indeed not the writer's. In a considerable number of lots of fine Para, washed during the last two years and selecting only the top 7 figures, the following losses were ascertained:—16.1, 15, 15.0, 14.9, 15.9 per cent. The quantity of resinous matter in these same lots

varied from 2·2 to 2·9 per cent., average 2.5 per cent; the amount of ash varied from 0.27 to 0·59 per cent., average 0·41 per cent. These figures certainly do not support Mr. Sargent's contention, but they would tend to show that the quality of fine Para has remained stationary.

It is not easy to account satisfactorily for the reason of the great difference between Mr. Sargent's contention and the above-quoted figures. The difficulty in this respect is all the greater as the numerous complaints, which have recently been made regarding the serious adulteration of fine Para, must have some foundation in fact, although the writer has not succeeded so far in obtaining a specimen of such an adulterated sample. Perhaps the washing losses quoted by Mr. Sargent were obtained with such adulterated lots.

The fact that adulterated Para begins to appear in the market appears to us an ominous indication of the state of affairs in the rubber districts of the Amazon. It seems to us highly probable that as the distances which the rubber collectors have to travel, in order to find a sufficiency of trees worth bleeding, increases from year to year, at the same rate also increases the danger of the rubber being adulterated If this is so, the determined efforts now put forth in all parts of the world to make the cultivation of rubber trees a commercial sucess come none too soon—*Inida Rubber Trades Journal*, April 28th.

TEA IN THE UNITED STATES.

New York May 7.

The market continues favourable to sellers of both Moyune and Pingsuey greens which bring full prices. Young Hyson firsts Moyune, 32c to 35c; Pingsuey Gunpowder firsts 31c to 33c; Blacks barely steady; Formosa superior, 26c to 27c. Japan steady. Today at noon the Montgomery Auction and Commission Company hold their regular auction sale of teas. The offering comprises 3,571 packages as follows: 62 packages Moyune, 47 half-chests Japan (basket-fired and dust), 839 half-chests and boxes Congou, 273 packages India, Java and Ceylon Pekoe, 653 half-chests Foochow, and 1,697 half-chests and boxes Formosa.—*American Grocer.*

CEYLON TEA COMPANIES IN 1901

A year ago many of those interested in the Ceylon industry had come to the conclusion that although the official scheme for reducing the output had fallen through as unworkable, much might be done in the way of improving the prospects by individual effort in the way of more careful selection of the leaf. This, however, as we pointed out at the time, was not enough in itself to bring about a recovery in price sufficient to compensate the planters for their smaller output, and the policy of reckless extension of the planted area would also have to be abandoned in favour of a more conservative plan which would regulate the increase in the acreage by the growth of the demand. Apparently this has been done to some extent during the year but the companies have had to suffer for their folly in the past, and nearly all of them show an enlargement of their plucking area. In spite of this, however, the efforts to restrict production evidently made some headway, although the heavy decrease in crops cannot be altogether ascribed to the forethought of the planters. Much of it was due to the adverse climatic conditions which prevailed at the beginning of the plucking season when the bad weather and heavy hailstorms experienced did considerable damage to the bushes, and necessitated the exercise of even greater care than would otherwise have been the case to avoid permanent injury. Several of the companies venture to estimate their production for the current year, and these appeal to have learnt little or nothing from past experience, as they are apparently preparing to increase their outturn again with little thought for the probability or otherwise of a commensurate improvement in the demand.

Prices in the first six months of the year continued poor, but in the second half there was a decided recovery, due no doubt to the market having by that time realised that supplies would be reduced by the causes mentioned above. The public, however, turned its attention chiefly to the poorer qualities and for that reason the average prices secured, although higher than those for 1900 in most instances, could not be said to be altogether satisfactory. Several of the larger companies were unable to do more than maintain the 1900 level, while others, notably the Dimbula Valley and Standard, experienced serious reductions, the first of 0·87d., and the second of 0·80d., and among the smaller companies, producing less than 500,000 lb.; the Highland showed a decline of ¾d to 7¼d. The Alliance, Eastern Produce and Estates, and General Ceylon on the other hand realised moderate gains of 0·15d to 0·40d.

These higher values were insufficient in many instances to help the undertakings to secure larger revenues, partly because they were realised on smaller quantities of tea marketed but also because working expenses were proportionately heavier. The Ceylon Tea Plantations and the Standard of Ceylon managed to maintain their dividends at 15 per cent., but in both cases it was at the expense of the allocations to reserve and depreciation, which in the first-named were reduced by half and in the latter abandoned entirely. By the same plan of reducing the depreciation allowance from £629 to £300 the Elerapolia contrived to increase its distribution to the shareholders by 2 per cent. to 5 per cent. The Imperial Ceylon Company with an increase of over £700 in its net profits, again transferred £500 to depreciation account and increased its dividend by ½ to 3½ per cent., the Bandarapola paid 6 per cent. against *nil* in 1900 and the Rangalla paid 4 per cent in each year, in addition to doubling its depreciation allowance, These, however, were the only companies to improve or even maintain their previous record and all the others were forced to cut down their return to the shareholders from 1 to 2 per cent., notwithstanding the fact that most of them at the same time devoted less to depreciation. The Nuwara Eliya was perhaps the most prominent example of this unfortunate state of affairs, and was only able to pay 6 per cent. compared with 7 per cent. a year ago, after setting aside £4,655 less, but the Portmore was still more to be pitied, as it could not afford to make even the same small provision of £207 as in 1900 in its effort to keep up the dividend, and even then had to be content with paying 12 against 13 per cent. Such a record as our tables display are not calculated to induce any great hopefulness for the future, especially as the results of the over-planting have not yet been felt to their full extent, and there is every prospect that the trade will have to face a still great excess of supply over demand unless the

efforts now being made to find new outlets for the produce of the gardens meet with a more ready response than at present seem probable or even possible. In time no doubt the new markets will be opened up, but until they are secured the industry will have a hard struggle for existence.

Company.	Plucking Area. 1900. Acr's.	1901. Acr's.	Crop. 1900. lb.	1901. lb.	Price per lb. 1900. d.	1901. d.
Alliance ..	2,657	2,655	1,210,907	1,086,861	a6·43	a6·60
Bandurapola ..	782	782	487,432	468,901	5·51	6·25
Burnside	1,134	—	402,113	353,284	6·30	6·58
Ceylon T Plantations ..	8,913	8,962	4,432,132	3,957,335	7·15	7·41
Dimbula Valley ..	—	—	1,091,963	1,193,357	8·98	8·11
Eastern Produce & Est'te	10,960	11,028	4,045,146	3,830,383	6·51	6·61
Ederapolla	995	—	554,430	508,058	5·79	6·19
General Ceylon..	5,281	5,436	2.525,088	2,371,738	5·79	6·04
Highland...	617	—	262,510	241,481	8	7¼
Imperial Ceylon..	1,451	1,630	655,814	647,742	a6·03	a6·58
Kelani V...	1,212	1,715	662,248	549,906	5·79	6·21
Nahalma	446	446	208,419	185,268	—	—
N'Eliya ..	2,443	2,506	1,458,911	1,225,614	a8·66	a8·48
Panawal..	590	590	339,550	273,322	—	—
Poonagalla	1,237	—	480,886	396,593	6·54	7
Portmore	480	—	265,710	226,282	9·52	9·72
Rangalla...	695	716	218,572	230,002	a6·46	a6·49
Scottish Ceylon..	1,720	1,720	899,806	795,098	6·94	7·08
Standard	2,468	2,481	1,129,753	1,105,996	a7·58	a6·78
Yatiyantota ..	2,854	2,972	1,470,590	1,261,484	a4·56	a5·10

a Net sale price.

We are compelled to publish this table in an incomplete form as our efforts to secure the necessary particulars were unsuccessful. In some instances the secretaries of the companies promised to supply the information required but have failed to do so, and in others our request has been ignored.

Company.	Net Profits. 1900. R	1901. R	Sums put to D'reciation, &c. 1900. R	1901. R	Dividends 1900. %	1901. %
Alliance	4,660	4,869	1,000	1,000	7	6
Bandarapolla	823	2,224	627	1,026	—	6
Burnside	—235	—743	—	—	2	—
Ceylon tea Plantations	41,011	37,199	10,000	5,000	15	15
Dimbula Valley	a11,686	14,000	1,000	2,500	10	8
Eastern Produce and Estates	15,787	16,839	b7,875	b7,875	3½	3
Ederapolla	1,389	1.336	625	300	3	5
General Ceylon	714	3,718	2,000	2,000	—	—
Highland	2,439	1,499	500	250	6	4
Imperial Ceylon	2,327	4,062	500	500	2½	3
Kelani Valley	601	613	—	638	3	—
Nahalma	—1,544	—653	—	—	—	—
Nuwara Eliya	23,743	11,893	6,655	2,000	7	6
Panawal	1,567	923	506	—	4	3
Poonagalla	474	—1,234	—	—	2	—
Portmore	5,407	4,376	207	—	13	12
Rangalla	1,459	1,669	500	1,000	4	4
Scottish Ceylon	5,319	4,154	638	429	10	8
Standard	14,085	8,960	3,200	—	15	15
Yatiyantota	6,753	5,963	1,000	1,000	4	2½

a Calculated on results for nine months.
b 7,500 debentures paid off each year with bonous of 5 per cent.

—*Investors' Review*, May 24.

"SOLUBLE TEA EXTRACT."

A CEYLON PREPARATION TO BE EXPLOITED BY A LIMITED COMPANY.

"Soluble" tea is by no means a new idea. Many attempts have been made by different people for years, but without success, to produce an extract of tea, which would retain all the well-known and popular characteristics of tea in its ordinary form. The local inventors (Messrs. John Rogers and Kelway Bamber) of the new "Soluble" tea, claim that, by their patented process, they have produced an article which makes a sound wholesome cup of tea and one which has been favourably reported on by experts and others in Ceylon, England and elsewhere. This

"SOLUBLE" TEA IS ABSOLUTELY PURE

and no chemical or chemical process is employed in its manufacture. Moreover, its keeping qualities are proved by the fact that samples made two years ago are stil favourably reported on. Like ordinary tea it must be kept in air-tight packages; otherwise, owing to its having a similar hygroscopic character it will in the same way lose in point and quality if exposed to a moist atmosphere. Its convenience in use is evident from the fact that the mere addition of either hot or cold water is all that is necessary, sugar and milk being added to taste. It is expected that its convenience in use will find for it new markets in countries where tea is scarcely in use at all, and in Coninental armies and navies and that it will be used by travellers, the man in a hurry, and colonists, and others in out-of-the-way places. Its purity and wholesomeness will commend it to people of weak digestion, as a cup of "Soluble" will contain less tannin than a cup of ordinary leaf tea. "Soluble" tea will

SUPPLY A LONG-FELT WANT

in tea such as the wellknown essences did in coffee. It certainly will not displace tea in its ordinary use, but it will be used when it would not be convenient to infuse leaf tea in the usual way. It will doubtless displcae coffee essences in some measure, and some so-called non-intoxicating drinks. "Soluble" tea can only be made from good green leaf In fact, as in ordinary tea manufacture, the better the leaf the better the tea, and a blend of samples made from different estates in different districts has been found to give the best results. It is expected that, as for every pound of "Soluble" tea made three pounds of leaf tea will be removed from the market, the introduction of this new product will in some measure

RELIEVE THE OVER-SUPPLY OF THE MEDIUM SORTS OF TEAS

which bulk so largely in the tea-sale lists both in Colombo and London. "Soluble" tea manufacture will be carried on in the existing tea factories, but will probably require more personal supervision than ordinary leaf-tea making.

THE PLANTING ENTERPRISE OF CEYLON.

IN JUNE 1902:

IN TEA, CACAO, CARDAMOMS, CINCHONA, RUBBER, COFFEE AND MINOR PRODUCTS.

6,000 ACRES LESS IN TEA; 5,000 ACRES MORE IN RUBBER, CARDAMOMS, CINCHONA, CACAO, ETC.

Omitting the usual elaborate analysis and review, we summarise the information sent to us in correction of our Directory and here present the results in the briefest possible form:—

	Acres.
Total area of 1,906 plantations and planting properties	817,933
Total area of 1,539 plantations in cultivation with 1,493 Superintendents and Assistants (apart from Conductors, &c.) ..	460,215
Total approximate extent under Tea ...	382,343*a*
Do do Cacao ..	24,136*b*
Do do Cardamoms	8,621
Do do Coffee (*Arabica*) ...	4,304
Do do Coffee (*Liberica*) ..	758
Do do Cinchona [8 to 9 million trees or plants] =	3,471
Do do Rubber ...	3,356*c*
Do do Grass (Cultivated) ..	4.461
Do do of Camphor, Annatto, Coco, Kola, Ramie, Vanilla, Pepper, Cloves, Citronella grass, Divi-Divi, Croton, Castor-oil, Aloes, Cinnamon, Tobacco, Cotton—in our plantations' list ..	11,201
Coconuts, Arecas, Nutmegs, Fruit trees (on the cacao, tea, or coffee plantations) ..	22,696
Of Fuel, Timber, Sapan, and Kapok (on he tea, cacao or coffee plantations) ..	7,576

The most notable fact is the falling-off in the area of Tea--our total in cultivation on plantations being 4,000 acres less than a year ago, or including native gardens a decrease of 6,000 acres, making a total of 386,000 in place of 392,000 acres. This must be due to the abandonment of non-paying fields and some unprofitable gardens; for it is accompanied by an extension of the total extent in cultivation by 1,000 acres, although poor "Coffee" has gone down, being 3,200 acres less than a year ago. Cacao on the other hand is 500 acres more in planted extent; Cardamoms are greater in area by 1,800 acres; Cinchona shows an increase of 1,000 acres; and Rubber of nearly 1,000 acres—which must, however, be rather under the actual area planted during the year, our total extent planted being about 3,400 acres. In several minor products, too—Camphor, Nutmegs, Crotons—there has been a good deal of planting; and still more have we had in the Kelani Valley and other low-country estates, a planting out of Coconut Palms among the Tea, just as Para Rubber has been put in freely on the Kalutara tea estates.

The check to Tea, and the fact that there are no clearings this year to plant, ought to strengthen the hopes of those who believe in a future for our staple, so soon as consumption overtakes production. A year ago we anticipated that there would be 400 000 acres under Tea at an early date in Ceylon; whereas now we are in reality back to 386,000 with no immediate prospect of extension.

a This is apart from perhaps 3,000 acres still cultivated in native tea gardens of small extent; so that the grand total under tea in Ceylon in June 1902 may be taken at say 386,000 acres.

b Apart from 7,000 to 8,000 acres in native gardens.

c Chiefly young, and interspersed with other products.

PLANT SANITATION IN INDIA.

THE "PIONEER" ON MR. J. B. CARRUTHERS' SUBJECT.

A striking instance of the progressive specialisation in agricultural science is to be found in the latest issue of the *Contemporary Review*, which contains an article by the well-known authority Mr. J B Carruthers, entitled "Plant Sanitation," and dealing with the methods adopted by advanced communities for the prevention of ordinary plant diseases. Not very long ago an agricultural experiment station was considered to be adequately equipped if it was supervised by a chemist and had a botanist on the staff; nowadays there should be at least ten experts in different branches of science; soil-physics, agricultural entomology, cryptogamic botany, bacteriology, vegetable pathology—each of these requires an expert, and the latest development is the sanitary inspector. In the United States the foundation of the whole system appears to be based on compulsory notification of disease, combined in some cases with regular inspection of nurseries.

Now there can be no doubt that India offers ample scope for plant sanitation. Mr. Carruthers quotes the well-known estimate that the annual loss to this country from wheat-rust alone amounts to ninety-one millions sterling, though by some curious error he attributes this damage not to when trust, but to the ravages of the hop-aphis! The destruction of the mango crop in wet seasons is believed to be due to an insect; the occasional entire loss of the mohwa crop may possibly have a similar cause; sugar-cane suffers enormously from grasshoppers, borers and fungoid pests, rice and poppy from caterpillars, and almost every field crop grown largely in the country has its own peculiar enemies. Of general enemies to plant life it is sufficient to mention the locust, whose ravages we have recently discussed.

What is wanted is organised and sustained research into the life-history of our pests; and we welcome the recent strengthening of the Imperial Agricultural Department by the appointment of a cryptogamic botanist and an entomologist as an important step in this direction. But where the area of research is so vast, a few experts cannot make rapid progress; they require the co-operation of trained observers all over the country. To take an instance: the intermediate host of the wheat rust in this country is still unknown;

"intermediate host" it may be explained, is the technical term for the plant on which the fungus lives during the interval between one crop and the next, much as the malaria parasite finds a temporary rest in the body of the mosquito. The search for this intermediate host, if indeed there be one, for even that is still a matter of doubt, involves the patient examination of every shrub and weed that exists during the rains, an impossible labour for any individual, but quite within the power of an organised band of zealous students. It is the absence of the trained observer that, more than anything else, retards the progress of agricultural science in this country, and it is one of the main arguments for the establishment of agricultural colleges that they would in time tend to remove this difficulty; but in the meantime the experts must work alone.

But the question is sure to be raised: Supposing you know all about the pests and have found means of combating them, what is the good? The cultivator will take no notice of your suggestions, even if he ever happens to hear of them. This is in fact the great obstacle to improvement in the agriculture of this country, and it is too large a subject to be discussed at the close of an article. Briefly speaking, our view is that information on such matter must proceed from the experts to the wealthy landholders, and from them to their tenants; and this is the second

ARGUMENT FOR ESTABLISHING AGRICULTURAL COLLEGES,

and using all legitimate means to induce the sons of the landholding classes to attend them. Something doubtless can be done by lessons in the elementary schools, but results obtained in this way will be very limited, and not to be compared with what will follow when in every district there are a few landholders cultivating their *sir*, or home farm, in accordance with the teachings of science, and influencing their tenants to follow their practices in combating disease. In this way a natural system of sanitary inspection might gradually be evolved, for a landholder who saw his tenants allowing preventible disease to spread would probably take effective steps to protect his own interests. Paid inspectors are of course out of the question, at least for very many years to come; but it is only a natural development of the authority of the landholders that they should take the lead in influencing their tenants and neighbours for objects that will benefit all alike.—*Pioneer*, June 11.

PLANTING NOTES.

SIR FRANK SWETTENHAM has made a grant of R8,750 for the purpose of completing the publication of the "materials for a Flora of the Malay Peninsula,' by Sir George King, formerly Superintendent of the Botanic Gardens near Calcutta. Its publication had been stopped for want of funds.—*Straits Times*, May 16.

THE VALUE OF GREVILLEAS—is usefully argued in Mr. Maclure's letter to the Mycologist quoted elsewhere. At 15 years, the correspondent reckons, a grevillea is worth R3·40, and a tea-bush a small fraction of this: so where crowding occurs he would remove the tea-bush. Have other planters' experiences and estimation of the grevillea been different?

ESSENTIAL OILS.—All concerned with citronella, cinnamon, camphor and clove oils will peruse the report of Messrs. Schimmel & Co., quoted on page 37 with peculiar interest. We had no idea that Java had gone in so extensively as it has for citronella oil.

A SPECIAL MANURE TO SECURE QUALITY IN TEA—is likely to be the next improvement made available to the tea planter. The working-out of the constituents are in competent hands and careful experiments are to be made, so as to afford satisfactory tests, before the new fertiliser is brought to the notice of the planters generally.

200,000 GALLONS OF WATER A DAY.—"What is said to be the deepest artesian well in Rangoon has just been completed by Mr D D Coath at the Italian Colonial Company's mill at Dowbong. The well is 348 feet deep, and at a recent test gave water at the rate of 200,000 gallons a day. During boring a boulder was encountered about 200 feet from the surface; that tube had to be withdrawn and put down in another place."—*Times of Burma*, April 26.

PRODUCE AND STOCK IN THE NORTHERN PROVINCE.—Interesting information from the Government Agent's Report on Tobacco-Wild Beast Destruction, Cattle, and Horses breeding in the Northern Province is quoted today. In the islands devoted to the latter there has been serious mortality both in horses and cattle. On Iranativu a poisonous plant, which Mr. J. C. Willis may be called upon to investigate, is thought to be the cause: insufficiency of pasture accounts for it among cattle on Delft. General Olivier, it appears, has offered valuable suggestions.

"MACHINERY IN THE TEA INDUSTRY."—We have received from Feilden Publishing Company, Limited, a Copy of "Feilden's Magazine" for April 1902, which contains the first part of an interesting article on "Machinery in the Tea Industry" from the pen of Mr H J Kersting Green. The article is intended for readers at Home and elsewhere who have never had the opportunity of visiting a tea estate and seeing for themselves the buildings and machinery erected thereon. The article is well-illustrated, and will prove of value to planters in foreign lands (other than India), who may be thinking of going in for tea.—*Indian Planters' Gazette*, April 26th.

THE TRADE OF JAMAICA.—For the year ending March 31st, 1901, the following were among the Exports from the Island:—Ginger 26,530 cwt, value £66 324; logwood 34,006 tons, value £98,618; pimento 100,547 cwt, value £110,602. In the previous year the figures were: Ginger 2),205 cwt, value £60,615; logwood 28 871 tons, value £77,971; pimento 123,973 tons, value £173,562. The falling off in quantity of pimento was due to short crops resulting from unfavourable seasons: The price moreover, fell from 28s to 22s per cwt. Logwood shows an increase in quantity, price and total value the last by £20,647. Logwood extract was valued at £31,599, in place of £15,881 in 1899-1900. The bee-keeping industry, which is almost entirely in the hands of persons of limited means, shows remarkable improvement, honey having increased in value in five years from £1,891 to £10,739. This fact indicates the exercise of increased intelligence and industry.—*B. and C. Druggist*, May 9.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900 :—"I received your letter of 26th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 14th October, 1901 :—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900 :—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from sea level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February; also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901 :—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products :—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel, and Ornamental Trees, Trees for Roadssides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says :—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London :—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Agent in British Central Africa :—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address :
WILLIAM, HENARATGODA, CEYLON.
Liber's, A 1. and A.B.C. Codes used.

J. P WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

Correspondence.

To the Editor.

RUBBER PLANTING IN COSTA RICA

April 25.

DEAR SIR,—As far back as January last I promised to write you an article on Rubber-planting in the San Carlos Valley, and intended at that time to have made a trip over there, and to furnish some newer information and experiences acquired personally. This I have not been able to do; when we got through with the handling of the past coffee crop about the middle of March, I was taken with acute neuralgia in the head, and from this I am still suffering. I had, therefore, to avail myself of the kindness of Mr. Alfred Long, an American, who is settled in the San Carlos Valley on quite a large scale, for most of the information that follows. Mr. Long returned a few days ago, after spending about two weeks, visiting the more settled parts of the Valley.

Mr. Theodore Koschney, well-known to you and to the readers of the *Tropical Agriculturist*, is without doubt the oldest living of foreign settlers in the San Carlos Valley, as well as the most practical of Rubber planters, his experience running back over some 25 years in the district. Strange to say that, though at all times interested in Rubber for the purposes of trade, his own plantation should consist of Rubber trees not over two years old, which he has planted and kept up in a way dictated to him by his own observations, and all his plantation is so far of very good promise.

Mr. Koschney's method of planting calls for the preparation of a seed-bed six or eight months previous to planting, and as handy as possible to the plantation, and the felling of the virgin forest to admit of a liberal amount of sunshine on the ground, leaving it under what is termed "light shade." This felling is quite a matter of judgment with the planter, and he varies it according to the kind of timber, and the dryness or humidity of the soil, these being the principal things to consider. At the time of planting the six-or-eight-month seedling is between 18 and 30 inches high; and though some have planted the seeds themselves 2 or 3 to each stake, there is nearly always a heavy loss from the small lizards or chirbalas, and replanting never ends. A cleaning is given to the young Rubber about 3 months after planting. This is not more than a rough chop-down 4 or 5 feet on each side of the

ROWS OF PLANTS

(which are set about 18 or 20 feet apart both ways) and is repeated 5 or 6 months later, and kept on pretty much in this manner once or twice a year to ensure the Rubber tree good freedom from the scrub or undergrowth, while at the same time it is being shaded overhead by the trees of the virgin fore t left standing. The style of Rubber tree thus obtained is similar in growth to the forest Rubber tree, a long straight trunk with but few extending branches. In the preceding manner Mr. Koschney planted about 6 hectares (15 acres) for his neighbours, Messrs. Kotelmann and Heynsohn, about 6 years ago, and so far the plantation leaves nothing to be desired. Mr. Koschney has several rubber trees of long standing in his pastures and other cleared ground, quite sufficient to prove that, alone in the open the Rubber tree cannot flourish, a large number of lateral branches being developed; the flow of late is very small and of poorer quality, and the tree often dies after a few tappings. The only known advantage of the Rubber tree grown in the open is that for production of seed it is more prolific. In past years Mr. Koschney experimented unsuccessfully by adopting another method—that of felling all the timber after scattering Rubber seed broadcast. Bananas were planted also at the same time. At first the Rubber came up like corn, every seed seemed to have sprouted, but in a few months many died, and the increasing growth of the bananas affected the balance unfavourably.

Mr. Carl Grutzmacher, a settler in Caño Negro, is a strong advocate of another system in

RUBBER PLANTING,

differing considerably from the "light shade" method, and though his experience does not cover many years, his hopes of success are very bright at the present time. It calls for the seed-bed 6 or 8 months old, but the felling of *all* the trees in the forest for planting, the young plants being set out in rows 18 or 20 feet apart both ways. Three months later a cleaning is done, about 4 feet on each side of the rows of plants, and so on at regular intervals of 3 months until the plantation is 1-year old, when everything is cut down again, and the rubber trees stand alone in the open, but only for a short time. In about 3 months the soft-wood or charral growth is up again almost equal to the small Rubber trees, and another cut down in the rows is given, and repeated at gradually increasing intervals, serving to give at all times an advantage in height to the Rubber tree above the charral, the latter serving as perpetual and regulated shade to the trunk of the tree, but with no large forest trees to shade its crown. The growth of the tree is also similar to that of the wild Rubber tree. A little observation is needed to see that this is a tree grown precisely under the same conditions as the forest Rubber tree, which is always found among charrals or shrub growth There is a disadvantage in the first cost of this method, it being more expensive to fell all the virgin forest than a part of it, and at the same time leaving the ground more encumbered; and the clearings for the first 2 years are more frequent than in the "light shade" method, after which time they run about equal. Time is needed to show which of the two systems is the be ter: in results the "heavy shade" and "in thet open" Rubber trees have both turned out failures, andare not being repeated where they have once been tried.

The only kind of Rubber planted in the Valley is the Castilloa Elastica, and most of it on the flats at an altitude of 400 feet and less above sea-level, though one of the newer plantations—that of Mercedes Quesada is somewhere about the 1,500 feet level.

Many of the foreign settlers are at present hanging fire to see what the U. S. Government determines on the Isthmian Canal question. Should the Nicaraguan route be voted for, hundreds of families would be down in a short time from the States; in the other case many will draw out and abandon what they have invested in.

The following is a list of settlers who have made Rubber Planting their business in San Carlos Valley:—

1—Messrs. Umfried and Schoch at the head of Tabla Grande with 40 hectares (100 acres) which they started to plant 4 years ago.

2—Messrs. Hoppenstadt and Gillett in Banco de la China, 3 hectares, all planted 6 years ago.

3—Mr. A. Long below the mouth of Arenal river, 37 hectares, all planted at different dates since 1897.

4—At the mouth of the river "Tres Amigos," an American family the Hogans are at present making preparations to plant Rubber on a large scale.

5—Mercedes Quesada has about 6 hectares of 6-year-old Rubber on his estate in very good condition.

6—Messrs. Kotelmann and Heynsohn have about 6 hectares of 6-year-old Rubber planted for them by Mr. Koschney in excellent condition and has had one tapping.

7—Mr. Koschney has on his estate 25 hectares of 2-year-old trees, 11 hectares of 1-year old Rubber and 16 more being planted.

8—Mr. Koschney together with other planters have planted in Caño Negro 4 hectares barely a year old, many of the trees being now 2 metres high, 100 hectares being now actually planted and preparations being made to plant 350 hectares more.

9—Mr. Long has in Caño Negro 6 hectares planted about 1-year old and is preparing to plant 30 hectares more.

10—Max Bergmann has several hundred trees planted in Caño Negro, 1 to 3 years old, all in good condition.

11—Carl Grutzmacher has about 4 hectares planted in Caño Negro, 3 years old, in very good condition.

Hoping that you will find the foregoing of sufficient interest to publish.—I remain, yours very truly,

ED. COLES.

SUNSPOTS AND EARTHQUAKES.

SIR,—Of the times and the seasons we are told we can have no exact knowledge; and though men have professed to interpret the dark sayings of scripture, most intelligent people believe that there is an impenetrable veil drawn over the time when the world will come to an end, which man cannot pierce. Still, one may reverently regard the trend of great events which convulse the world, without exhibiting any undue curiosity, and without professing the prophetic gift. The connection between sun-spots and seismic disturbances seems now well established from the scientist's point of view, but was not the connection foretold in a way in St. Luke's Gospel (XXI. 25)? "And there shall be signs in the sun and in the moon, and in the stars; and upon the earth distress of nations, with perplexity; the sea and the waves roaring; men's hearts failing them for fear, and for looking after those things which are coming on the earth." Was there ever a time when the conjunction was more marked of signs in the heavens and of convulsions (physical, moral, intellectual) on the earth? STUDENT.

TROUT IN CEYLON.

May 19.

DEAR SIR,—It is a pity "A. J. M." should have gone so far afield as the "Asian" re rainbow trout breeding in Ceylon, as his doing so has prevented myself and others from criticising his remarks prior to his going to glory in South Africa.* If "A. J. M." is still within the bounds of civilization he will no doubt see this, so I beg to assure him the fry in the Ambewala stream are not trout fry. May I now publicly ask Messrs. Farr & Sparling to catch a few of those fry and little fishes they are so certain about being young trout, and to satisfy themselves that they really are trout? They might send a few to the Hon. Secretary of the Fishing Club and the Curator of the Museum, so that there may be no question as to their identification as the settling of this point, once for all, is of considerable importance to the Fishing Club and the whole community in fact. Mr. Farr says there are on native fish in the Hortons stream. I say there are. Hence my doubts now, though at the time I said I'd swallow all Mr. Farr reported—the wish, I fear, being father to the hope, but do let us have the point authoritatively settled. As to "A.J.M.'s" animadversions upon the varying sizes of the fish in my pond, I doubt if it is worth while wasting your space, but I should have liked to reason with him on the subject.

Any child born on a river bank will tell you that trout of similar age vary in size, whether they be in ponds or rivers. My pond is about the size of your bath tub. I got 197 rainbow fry from the Fishing Club in May, 1900. I repeatedly cleared out the larger fish of from 3 in. to 6 in. during the following twelve months, and in May, 1901, the remaining 25 varied from 2 in. down to the size they were when I got them, which was about 1 in. I turned these dwarfs out last month and they then ranged from 2½ lb. down to about an oz. or two, as three of them were still only about 3 in. long. And yet, in face of this, "A J.M.", whose friend caught a 4-in. trout, dogmatically informs us and all Asia that trout have been breeding in Ceylon for years! My fry were fed three times daily and food on the Hortons is not over superfluous. Do give us something definite, please.—Yours faithfully,

JOHN FRASER.

P.S.—By the way out of the 197 fry I received, I reared 127 trout. I think you will find this is not at all a bad outturn for Asia or anywhere else. J. F.

POTASH SALTS.

Colombo, May 22.

DEAR SIR,—Enclosed we beg to hand you copy of a leaflet published by us, entitled "The Value of the Stassfurt Potash Salts," the contents of which, we trust, will be of interest to your readers.—We are, dear sir, yours faithfully,

FREUDENBERG & CO.

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*"A. J. M." have gone to the Coronation.—ED. T. A.

[The leaflet gives an interesting account of how 15 mines near the Hartz Mountains supply rich Potash Salts which are found to be of great value in the manuring of tea and cacao, the favourite preparation being "Sulphate of Potash" with a purity of 90° to 96° equal to 50° to 52° of pure Potash. Planters of tea and cacao should apply for copies of the leaflet which gives good deal of useful information.—ED. *T.A.*]

USEFUL AND ORNAMENTAL TIMBERS.

Hanwella, May 31.

DEAR SIR,—Referring to your notes and comments in your paper of the 29th inst. *re* "The valuable timber tree," the *suriya mara*, I am surprised to hear of its being used for the construction of bullock bandies. I think, even in Ceylon, it is a rare cabinet wood, far more valuable than nedun, though similar in appearance, but heavier than nedun,

Suriya (Tulip) is the wood par excellence used in building all sorts of conveyances in the island. Its heartwood is of a dark red colour, and is very light in weight, a cubic foot being equal to about 40 lb. I may mention here that there are four kinds of *mara* found in the Western Province, *viz.*, Suriyamara, Hurimara, Rabalmara, and Maditiyamara. I suppose Aramana or Waya is also one of these species. The two former are very useful trees, both for cabinet and other purposes, and the rest are only used for building. Mora wood, referred to in your paper of the 28th instant, is not a cabinet wood, being very heavy. A cubic foot is said to weigh 62 lb. It is largely used as firewood in cremation and also for brick and lime kilns and is of a light brown colour.

A NATIVE.

[Our authority about Suriya-mara (Sinhalese), "Albizzia Lebbek" (of botanists) is the late Mr. Wm. Ferguson, F.L.S., who, writing in 1863, said :—"Wood brown, used for bullock bandies." Doubtless this timber was more plentiful then. Of "Suriya-gas" (Thespesia populnea—the tulip tree) the same authority reported :—"The best-known timber tree of the island, wood a shade between the colour of walnut and English elm; a tough, excellent wood used for felloes, naves and panels of carriages and for gun stocks."—ED, *T.A.*]

RAINBOW TROUT FOR EVERY STREAM IN CEYLON: GOVERNMENT SHOULD AID IN THEIR INTRODUCTION.

June 3.

SIR,—Now that it is an established fact that rainbow trout are breeding in Ceylon, would it be out of place to suggest to the Government that it might very graciously subsidise the Fishing Club liberally, so that trout may be introduced to every stream and river in Ceylon?

These trout can probably be acclimatised down to sea-level, and, if properly regulated and looked after, you can hardly imagine what a splendid food supply they would prove for the Colony, not to mention the grand sport for young and old.

Them's my sentiments. What do you think, Mr. Editor?—Yours,

PISCATOR.

II.

THE FACT ESTABLISHED BEYOND QUESTION.

Ceylon Fishing Club, Nuwara Eliya, June 2.

SIR,—I am requested by the Managing Committee of the Ceylon Fishing Club to inform you that there is now no doubt that rainbow trout are breeding in Ceylon—both in the Horton Plains and in the Nuwara Eliya streams. Mr. Farr has sent two small rainbow trout for inspection, that could only have been locally bred, whilst at least one tributary to the main Nuwara Eliya stream is swarming with rainbow fry, two members of the Fishing Club having caught and examined several varying in length from 2½ inches to 3½ inches.—Yours, &c.

J. WICKWAR, Hon. Secy., C.F.C.

SOUTH AFRICA RECOMMENDED TO YOUNG MEN WITH A LITTLE CAPITAL.

June 3.

SIR,—I wrote you the other day that I heard the rustle of the wings of the Angel of Peace, and now the glorious Angel has appeared in all her smiling beauty, bearing a palm-branch in her hands. Lord Wolseley (then Sir Garnet) at the Vaal told the people that the country would remain English till the sun stood still in the heavens and the waters of the Vaal ran backwards. *Now* it will come true; but many dark days of blood and slaughter have come between. The struggle is ended, and all those farms and towns we saw devastated—deserted—ruined will again be peaceful happy homesteads around which the golden oranges, the soft peaches, and green fields will yield rich harvests. To show you the sad ruin war brings, I will give one instance. At Rustenberg I obtained leave to go through the town to get firewood (or anything else handy I could pick up.) I went along the street and approached the door of one of a line of pretty cottages and knocked. On the door was a paper beseeching any one who came to spare the property in the house. I knocked again. I heard heavy footsteps inside and went round to the back. There were a number of Tommies in there. They had gone through everything. It had been a comfortable, well-furnished house; but clocks, pictures, ornaments and furniture were lying on the floor, tossed about and trampled on. I went into the bed-rooms and there were all the paraphernalia of a lady's bed-room and toilet strewn on the floor. Articles of clothing, &c., &c., lying about. I went to the kitchen—in fact everywhere it was the same. One Tommy said, "There is little enough you will pick up. They have been through everything." This is only a sample of hundreds of houses we saw. One woman said they had been robbed by Boers and British by turns as they occupied the town.

And now to know that all this has ceased, that the country will begin to prosper and that there is room for thousands of British settlers to go and form happy homes in the veldt! Unlike Australia the veldt has everywhere a natural drainage and is undulating. Thus water can be tapped in the hollows; and many a grand stream of clear pure water we

saw flowing past farms which had been tapped from the hillside with comparatively little labour. I would recommend all youngmen in Ceylon, who have a little money, and who find their prospects in tea planting the reverse of promising, to go out to this country and gradually settle and participate in the coming prosperity that is near. Government will be most indulgent and liberal to all immigrants. With a powerful, wise and settled Government, and the presence of large numbers of hard-working British immigrants, the country will develop by leaps and bounds; and those who go there now will share in the coming prosperity. Though Peace has been declared, the Government will have a responsible task and large numbers of Police will have to be maintained, and regiments of soldiers in the chief towns, till matters gradually adjust themselves after the long war. Bitterness of feeling will gradually die out. TROOPER.

MOSQUITOS AND FLIES.

Colombo, June 5.

Dear Sir,—We have not heard much about the experiments with kerosine oil and "chuloos" against lake flies, mosquitos *et hoc genus omne*. May I draw the attention of that august body, the Municipal Council of this city, to the remarks of an American paper (The *Public Health Journal*) with reference to a simple remedy for abating the mosquito nuisance, viz., permanganate of potash (in solution known as Condy's Fluid) which is said to kill the insect at any stage. To quote the journal itself: "a handful of permanganate will oxidise a ten-acre swamp, kill its embryo insects, and keep it free from organic matter for thirty days at a cost of 25 cents.* With care a whole State may be kept free of insects at a small cost, [and so might a small island like Ceylon]. An efficacious method is to scatter a few crystals widely apart. A single pinch of permanganate has killed all the germs in a 1,000 gallon tank." Will the Acting Sanitary Officer, who seems zealous of the good name of his department, put the alleged marvellous properties of permanganate of potash to the test and see if some benefit could be derived from the above remarks of the American Journal of Public Health?

Another matter, which will no doubt interest the Health Officer just at this time, when enteric is abroad, is the following statement which occurs in an article on the Entomology of the HouseFly, by the Government Entomologist at the Cape:—

"Numerous diseases, some of them most serious in character, may result from the visits of the fly to our food and our persons, for it often brings with it virulent germs from the fæcal or putrid matter which it has visited. It has been demonstrated thta the fly can contract plaguo from feeding on animals that have died of this disease, and tbat having contracted plague, it may live for several days and finally fall or drop dead on to food, meanwhile having been depositing excrement laden with virulent bacilli. It is firmly believed by medical men in India that cholera is very frequently transmitted by the house fly. Tuberculosis bacilli are taken up by it through feeding, as it often does, on the sputum of consumptive persons, and these germs are given off in the excreta. The excreta of flies that had been fed on infective sputum, when injected into rabbits, has given rise to tuberculosis. But of all diseases that it may transmit, typhoid or enteric fever probably ranks first in importance. The dejections of persons infected with this disease, it has been stated on the best of authority, harbour the causal organism not only during the period of actual illness, but for some days before and for some time after apparently complete recovery. The fly becomes contaminated by alighting on dejections that have not been properly disinfected, and then may carry the germs into surrounding households. The bacilli multiply rapidly in milk, and how easily can a fly render a whole pailful poisonous by falling into it or even simply sipping it! In cities and towns with good sewerage systems and well-enforced sanitary regulations, the carriage of typhoid by the fly is doubtless exceptional, but in concentration and army camps it is presumed to be very common."

Let us hope that before long we shall have in Colombo, such a Sewerage System and such Sanitary Regulations as those referred to above.—Yours truly, SANITAS.

*—Of a dollar—about 80 cents of our rupee.—Ed. T. A.

VOLCANIC DUST FROM BARBADOS.

MR. JOHN HUGHES' EXPERT ANALYSIS.

London, May 30.

Dear Sir,—I enclose you a specimen and Photo-micrograph taken by my senior assistant, Mr. A Ashe, of the Volcanic dust, which, as the result of the eruption of Mount Soufrière in the island of St. Vincent, fell in such quantities in Barbados on the 6th of May and following days. The Dust is of a dark grey appearance, possessing a distinctly gritty character, though the largest particles probably do not exceed the size of a printer's full stop." When exhausted with a weak vegetable acid solution of a strength of one part Crystallised Citric Acid to 1,000 parts of cold distilled water, employing 1,000 parts of such solution to one part of the dust, and allowing 48 hours for exhaustion, there is only 2·60 per cent dissolved out and 97·40 still remains in an insolubl, form as Silicates of Iron and other Mineralse associated with Quartz. In the portion soluble in the above weak solution, Iron Compounds chiefly predominate, associated with small quantities of Calcium Sulphate, Potash, Salts and traces of Phosphoric Acid. Though not possessing any special fertilising value in itself, the dust by reason of its minute state of division will naturally improve the physical character of a soil such as that of Barbados, and it may reasonably be expected that the crops of sugar will under the influence of a suitable rainfall give an increased yield during the next two years at least, if not for a longer period. Under the microscope it will be seen that the dust consists of two classes of minerals, one being large and fairly uniform in size while the other consists of a very fine dust. Of the former a large proportion is black and opaque; whilst the transparent particles are partly white, such as Quartz associated with crystals tinged with green. The very fine dust appears to be composed almost entirely of Quartz. The dust when exhausted with a strong solution of Hydrochloric Acid (50 per cent Hcl) was dissolved to the extent of 14·45 per cent and contained ·39 Potash probably derived from Felspar, a common ingredient in igneous rocks.—Yours faithfully,

JOHN HUGHES, F.I.C.,
Agricultural Analyst.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Agra Ouvah Estates Co., Ltd.	500	...	850	—
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	—	90	—
Ceylon Provincial Estates Co. Ltd.	500	505	..	—
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	...	50	—
Clyde Estates Co., Ltd.	100	—	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	..	67½	...
Drayton Estate Co., Ltd.	100	—	..	—
Eila Tea Co., of Ceylon, Ltd.	100	—	25	—
Estates Co of Uva, Ltd.	500	..	205	—
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	610	—	—
Hapugahalande Tea Estate Co.	200	125	—	—
High Forests Estates Co., Ltd	500	..	500	450
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	—	80	..
Kalutara Co., Ltd.,	500	—	175	...
Kandyan Hills Co., Ltd	100	—	40	—
Kanapediwatte Ltd.	100	—	50	..
Kelani Tea Garden Co., Ltd.	100	..	35	—
Kirklees Estate Co., Ltd.	100	50	—	...
Knavesmire Estates Co., Ltd.	100	...	45	—
Maha Uva Estates Co., Ltd.	500	—	350	...
Mocha Tea Co., of Ceylon, Ltd.	500	—	775	—
Nahavilla Estate Co., Ltd.	500	..	300	—
Nehrda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co , Ltd.	100	—	75	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	...	40	—
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd.	500	..	—	—
Rayigam Tea Co., Ltd.	100	...	40	—
Roeberry Tea Co., Ltd.	100	—	85	—
Ruanwella Tea Co., Ltd.	100	...	30	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	20	—	—
Do 7 per cent Prefs.	100	..	—	...
Tonacombe Estate Co., Ltd,	500	..	...	...
Udugama Tea & Timber Co., Ltd.	50	...	...	...
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	..	—	—
Uvakellie Tea Co., of Ceylon, Ltd	100	...	—	—
Vogan Tea Co., Ltd.,	100	42½	—	40
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	—	235	..

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	...	80	—
Bristol Hotel Co., Ltd.	100	100	—	100
Do 7 per cent Debts	100	107	—	—
Ceylon Gen. Steam Navigation Co., Ltd	100	210	...	—
Ceylon Ice & Cold Storage Co. Ltd.	100	—	115	..
Ceylon Superæration Ltd.	100	—	40	—
Colombo Apothecaries' Co. Ltd.	100	—	135	132½
Colombo Assembly Rooms Co., Ltd.	20	15	..	—
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	85	80
Colombo Hotels Company	100	—	...	280
Galle Face Hotel Co., Ltd.	100	—	195	—
Kandy Hotels Co., Ltd.	100	..	135	—
Kaluganga Nav. Co. Ltd.	60	...	—	50
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	..	125	—
Nuwara Eliya Hotels Co., Ltd.	30	30	—	...
Do 7 per cent prefs.	100	—	115	—
Public Hall Co., Ltd.	20	...	—	10

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Selles.	Transaction.
Alliance Tea Co., of Ceylon, Ltd.	10	..	8—9	—
Anglo-Ceylon General Estates Co	100	...	55–60	—
Associated Estates Co., of Ceylon	10	..	1½—2½	—
Do. 6 per cent prefs	10	..	3—5	—
Ceylon Proprietary Co.	1	.	¼–½	—
Ceylon Tea Plantation Co., Ltd.	10	..	23¼–24	—
Dimbula Valley Co., Ltd.	5	..	5—5½	—
Do prefs	5	—	5—6	—
Eastern Produce & Estates Co. Ltd.	5	...	3¼—3¾	—
Ederapolla Tea Co., Ltd	10	...	6—8	—
Imperial Tea Estates Co., Ltd.	10	...	4 4½	—
Kelani Valley Tea Assn., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	6–8	—
Lanka Plantations Co., Ltd	10	..	4	—
Nahalma Estates Co.,Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾–3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	9¾	—
Ouvah Coffee Co., Ltd.	10	..	6—7	—
Ragalla Tea Estates Co., Ltd.	10	.	11–13	—
Scottish Ceylon Tea Co.,Ltd.	10	.	10–15	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	10—	..
The Shell Transport and Trading Company, Ltd.	1	...	2⅞—3⅛	—
Ukuwella Estates Co., Ltd.	2F	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¼	..
Do. pref. 6 o/o	10	..	9—10	...

BY ORDER OF THE COMMITTEE.

Colombo, July 4th, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1897.	1898.	1899.	1900	Av of 32yrs.	1901	1902
	Inch	Inch	Inch.	Inch.	Inch.	Inch.	Inch
January ..	3·81	2·32	6·98	3·72	3·24	11·91	1·95
February ..	1·68	1·98	2·78	0·63	1·89	3·55	4·57
March ..	3·66	4·21	0·88	3·71	4·75	5·12	6·85
April ..	10·97	22·81	6·66	15·12	11·43	8·71	10·01
May ..	8·30	5·80	17·73	10·63	12·04	6·28	11·89
June ..	10·14	10·94	9·23	7·83	8·35	5·93	9·84
July ..	5·24	6·15	1·11	6·77	4·30	4·52	0·91*
August ..	9·09	0·97	0·62	7·35	3·79	0·46	
September ..	4·58	6·90	1·48	4·00	4·98	3·93	
October ...	4·71	20·60	12·99	9·47	14·36	3·01	
November ..	11·66	17·38	8·58	9·25	12·55	19·84	
December ..	8·89	3·05	4·44	5·20	6·35	1·70	
Total..	82·73	103·11	73·48	83·68	88·03	75·86	46·02

* From 1st to 3rd July 0.91 inch, that is up to 9-30 a.m. on the 4th July.—ED. *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for June 1902—12½ to 13 mil. lb.
Total Shipments Do 1902—13 mil. lb.
Do Do Do 1901—11,425,044 lb.
Do Do Do 1900—12,151,886 lb.
[ESTIMATE for July 1902—9½ to 10 million lb.]

THE DEAF HEAR.—No. 479 of *the Illustrated World* of 626, Chiswick High Road, London, W., England contains a description of a remarkable Cure for Deafness and Head Noises which may be carried out at the patient's home, and which is said to be a certain cure. This number will be sent free to any deaf persons sending their address to the Editor.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, June 30th, 1902.

CARDAMOMS :—
All round parcel, well bleached per lb. R1·10
Do. dull medium do. R0·90
Special assortment, 0 and 1 only do. R1·25
Seeds do. R1·00

CINCHONA BARK :—
Per unit of Sulphate of Quinine 8c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 52c.
Nos. 1 and 2 only per lb. 58c.
Nos. 3 and 4 only per lb. 46c.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lbs.)
Per candy of 560 lb R70·00

COCOA :—
Finest estate red; unpicked per cwt R45·00 }
Medium do do do R38·00 } Nominal
Bright native unpicked and undried R37·00 } Local supplies
Ordinary do do do R28·00 } scarce

COCONUTS—(husked).
Selected per thousand R53·00
Ordinary „ R43·00
Smalls „ R39·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 0c

COCONUT OIL—
Dealers' Oil per cwt R18·00.
Coconut Oil in ordinary packages f. o. b. per ton R395·00.—Sales at both rates.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—None.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—47c Steady.

COPRA—
Boat Copra per candy of 560 lb. R58·00
Calpentyn Copra do do R58 00
Cart do do do R53·00
Estate do do do R57·00

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot—R180·00.—Next sales fixed for 4th August.
Inferior R90·00.—Next sales fixed for 4th August.

FIBRES—
Coconut Bristle No 1 per cwt None
Do „ 2 None
Do mattress „ 1 None
Do „ 2 None
Coir Yarn, Kogalla „ 1 to 8 15·00
Do Colombo „ 1 to 8 R11·00.—Fine qualities steady, others lower.
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R650
Ordinary lumps do R625 Fine qualities scarce, but an easier tendency.
Chips do R425
Dust do R275
Do (Flying) do R150

SAPANWOOD— per ton R40·00

SATINWOOD (ordinary) per cubic ft. R4·00
Do (Flowered) per cubic ft. R17·00

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	49	39	30
Orange Pekoe do	33	35	27
Pekoe do	32	36	26
Pekoe Souchong do	30	25	24
Pekoe Fannings do	28	27	27
Broken mixed—dust, &c	27	21	25

CEYLON EXPORTS AND DISTRIBUTIO FOR SEASONS 1901 AND 1902.

COUNTRIES	Black Tea. 1902 lbs.	Black Tea. 1901 lbs.	Green Tea. 1902 lbs.	Green Tea. 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1902 cwt	Coconut Oil. 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago. 1902 cwts	Plumbago. 1901 cwts.
To U K. ..	52512?16	55819101	253571	93449	3058	-	3058	17559	182854	151524	82231	93343	92462	9708	3612549	21	6264405	90618	71889
„ Austria ..	11478	2 100	..	..	1	..	1	...	...	5600	36400	2987	1178	...	49400	...	5000	...	..
„ Belgium ..	34353	8666	...	..	54	..	54	475	...	46000	66640	1396	2495	4903	92070	34505	78040	5006	7130
„ France ..	10479	148927	...	..	2	...	2	379	448	28200	5600	238	..	3 530	14000	...	56020	..	186
„ Germany ..	191112	193021	...	..	23	..	23	2509	74344	281581	303634	4464	903	43942	683400	32947	520830	29774	21514
„ Holland ...	3190	15489	...	..	...	..	..	..	..	17000	124600	..	..	..	100620	..	--	203	...
„ Italy ..	5619	7711	.	..	...	..	..	32	435	49100	75992	1310	499	...	...	10	9110	..	...
„ Russia ..	4736502	4769103	106435	..	8	...	8	...	448	130	..	...	..	21036	..	..	...	1546	3595
„ Spain ..	3281	...	..	..	...	..	..	..	..	86800	26100	..	..	...	..	..	...	...	...
„ Sweden ..	39173	26474	...	..	..	..	..	400	...	..	..	617	199	...	-	..	..	206	...
„ Turkey ..	16423	24822	..		...	...	..	..	..	..	...	...	...	..	...	...	..	..	...
„ India ..	316695	665108	14031	15093	63	...	63	1	44912	...	2296	33081	35909	...	...	...	19100	1582	158
„ Australia ..	8820816	10225870	..	...	1740	14	1754	311	...	2924	14648	.	94	...	265930	21	..	89	137
„ America ...	2182048	1175172	372595	314703	820	...	820	...	2326	80000	4315	30313	7007	...	732095	...	...	144983	82333
„ Africa ..	274163	152386	1200	..	4	..	4	..	2226	..	..	60	76	..	17300	1	589381	...	...
„ China ...	1662871	1506530	...	4450	16	..	16	100	5745	200	112	319	707	--	...	..	-	797	..
„ Singapore ...	75896	73923	...	...	1	...	1	4321	400	...	...	20	...	...	...	...	...	...	...
„ Mauritius .	44960	15330	..	...	108	..	108	..	..	..	..	...	..	...	..	..	..	..	..
„ Malta ..	181881	161433	..	...	...	...	..	...	..	...	..	-	..	..	...	..	..	...	..
Total export from 1st Jan to 30th June 1902	71017507	75014166	747832	427695	5898	14	5912	26090	314138	749059	742618	168148	141529	115119	5565364	67505	7542186	264804	187437

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, June 18th, 1902.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry	70s a 80s
Zanzibar & Hepatic ,,	Common to good	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay { White ,,	Good to fine	£6 a £7 10s
{ Yellow ,,	Fair ,,	£6 a £7 5s
Madagascar ,,	Dark to good palish	£6 15s a £7 10s
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 180s
Japan ,,	Fair average quality	170s
CARDAMOMS, Malabar lb.	Clipped, bold, bright, fine	1s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump	1s a 3s
	Seeds	1s 3d a 1s 7d
,, Tellicherry ,,	Good to fine	1s 6d a 2s
	Brownish	1s 3d a 1s 6d
,, Long ,,	Shelly to good	9d a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s 3d a 3s 3d
CASTOR OIL, Calcutta ,,	1sts and 2nds	2¼d a 2½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s 6d a 45s
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	6d a 9d
	Crown, Renewed	5d a 7d
	Org. Stem	3½d a 7d
	Red Org. Stem	3⅜d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	4½d a 6d
Zanzibar and Pemba }	Good and fine bright	3 13-16d a 4¼d
	Common dull to fair	3⅝d a 3¾d
Stems ..	Fair	1d
COFFEE Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 120s
	Middling to fine mid ..	80s a 106s
	Smalls	40s a 60s
Native	Good ordinary	40s a 55s
Liberian ,,	Small to bold	36s a 40s
COCOA, Ceylon ,,	Bold to fine bold	66s a 80s
	Medium and fair	58s a 65s
	Native	49s a 60s
COLOMBO ROOT ,,	Middling to good	8s a 13s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 93s
B & C ,,	Small and medium	48s a 70s
Cochin Rough ,,	Common to fine bold	35s a 40s
	Small and D's	34s a 38s
Japan ,,	Unsplit	32s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £18
	Part yellow and mixed	£7 a £9
	Bean and Pea size ditto	70s a £9 2s 6d
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar ,,	Fair to good palish ...	£4 a £8
	,, ,, red ..	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 40s
Turkey sorts ,,		35s a 37s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 21s
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ...	18s a 25s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 30s
KINO ,,	Fine bright	6d a 9d
MYRRH, picked ,,	Fair to fine pale	80s a 120s
Aden sorts ,,	Middling to good	50s a 70s
OLIBANUM, drop ,,	Good to fine white	40s a 46s
	Middling to fair	28s a 42s 6d
pickings ,,	Low to good pale	20s a 26s 6d
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 3d a 3s 6¾d
Assam	Good to fine	2s a 2s 3d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 4d
Borneo	Common to fine	6d a 1s 9d

	QUALITY.	QUOTATIONS.
INDIARUBBER (Contd.) Java, Sing. & Penang lb.	Foul to good clean ..	8d a 2s 1d
Mozambique ,,	Good to fine Ball ...	2s 6d a 2s 9d
	Ordinary to fair Ball ...	1s 10d a 2s 2d
	Low sandy Ball ..	9d a 1s 6d
	Sausage, fair to good ..	1s 10d a 2s 6½d
	Liver and Livery Ball ..	1s 9d a 2s 6½d
Nyassaland	Fair to fine ball ..	2s 3d a 2s 8d
Madagascar	Fair to fine pinky & white	2s a 2s 5½d
	Fair to good black ..	1s 3d a 1s 9d
	Niggers, low to fine .	7d a 2s
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 4d a 3s 8d
	Consuming mid. to gd.	2s 10d a 3s 2d
	Ordinary to mid.	2s 6d a 2s 10d
	Mid. to good Kurpah	1s 6d a 2s
	Low to ordinary	9d a 1s 3d
	Mid. to good Madras	1s 9d a 2s 2d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 6d a 5s
Bombay ,,	Jubblepore	4s 6d a 5s 6d
	Bhimlies	4s a 6s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 5½d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 3d
CASSIA ,,	According to analysis	2s 1d a 2s 6d
LEMONGRASS ,,	Good flavour & colour	5½d
NUTMEG ,,	Dingy to white	1½d a 3d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s 3d
CITRONELLE ,,	Bright & good flavour	9½d a 10d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar ,,	Picked clean flat leaf ..	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	5¼d a 5½d
Singapore	Fair	5 9-16d
Acheen & W. C. Penang	Dull to fine ...	4⅞d a 5¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair ..	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ...	£5 a £5 10s
Manila ,,	{ Rough & rooty to good bold smooth ...	£4 10s a £5 15s
Siam ,,		£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	115s a 120s
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair greenish	3½d a 4d
	Common dark and small	½d a 3d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's; D's and B's; Small ...	£1 a £5
Mergui ,,	Small to bold ..	£7 7s 6d a £9 15s
Mussel ,,	Small to bold ...	22s a 60s
TAMARINDS, Calcutta... per cwt.	Mid. to fine bl'k not stony	8s a 10s
Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 23s 6d
TURMERIC, Bengal cwt.	Fair ...	14s a 16s
Madras ,,	Finger fair to fine bold bright	12s 6d a 16s
Do. ,,	Bulbs ..	10s a 12s
Cochin ,,	Finger ..	11s a 14s
	Bulbs ...	9s a 9 6d
VANILLOES— lb. Mauritius .. } 1sts	Gd. crystallized 3½ a 9 in	6s 6d a 22s 6d
Bourbon ... } 2nds	Foxy & reddish 3½ a 8 ,,	5s a 15s
Seychelles 3rds	Lean and inferior ...	3s a 7s 9d
VERMILION lb.	Fine, pure, bright ..	3s 1d a 3s 2d
WAX, Japan, squares cwt	Good white hard ...	43s 6d

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for July :—

Vol. XIV] JULY, 1902. [No. 1.

OURSELVES.

THE *Agricultural Magazine* has rounded off another year of its existence, and with the present issue appears the first number of Volume XIV. Of modest aspirations the little periodical has, we venture to think, done good work, and that it is appreciated is evidenced by the many applications we have received for special numbers from those who are not regular subscribers Through the Magazine as an exchange, we have been enabled to keep in touch with the agricultural literature of other countries, and to the Editors of foreign Journals we owe much thanks for their liberal co-operation in the cause of agricultural advancement. We have also to thank our subscribers, both local and foreign, for the support we have received during the past year.

CLOSE PLANTING.

There is little doubt that one of the unfortunate tendencies in planting, and particularly in the cultivation of perennial crops, is planting too close. The manner in which trees are crowded together in native gardens where sunlight and air are to a great extent kept away from most of the foliage, and almost altogether from the stems and roots of crops, is often spoken of with scorn and ridicule, but are we sure that we are growing our coconuts, for instance, to the best advantage when we plant 75 trees to the acre? The advantages of reducing the number of trees per acre have before now been discussed by correspondents in our columns, and we fancy that there is a tendency—slow but sure—towards increasing the distance between the trees on coconut plantations. The idea of getting the most out of one's land by occupying it as fully as possible is difficult to get over, and there are a large number of growers who have yet to be persuaded that this is false economy, and that the liberal treatment of trees in the matter of air and light is reciprocated in a measure that leaves no doubt as to the wisdom of such treatment.

A cocoa planter of long experience lately stated to us that if he had to plant an estate again he would not place his trees less than 20 feet apart. Many will smile at the decision, and say that there is no necessity for doing so, as the cocoa tree does not develope to the space provided by such a system of planting. The truth is that it does not because it has not the opportunity. Give it the chance and it will. The extreme artificial conditions of plant life under cultivation are in a great measure answerable for the trouble that has followed the cultivator, who is generally set on making what he thinks the most of his resources with a thought only for the present and none for the future.

The latest illustration of the advantages to be gained by a more liberal system of cultivation—liberal as regards the natural environments of plant life, so as to produce the fittest individuals without the struggle for existence—is the experience with regard to coffee cultivated according to what is called the Leeming system, which

is no more than the rational system, or, as Dr. Watt is reported to have termed it, the correct scientific system. What Mr. Leeming has done is what every other grower of "fruits" might have done before him, viz., he thought out and applied to coffee growing the principles carried out by practical and scientific growers of fruit trees in various parts of the world. Large cultivators are too apt to look upon and treat their estates as a composite mass without sufficiently recognizing the claims and requirements of trees as individual living organisms. We need not here refer to the various elements that go to secure the benefits resulting from what some are pleased to call "intensive cultivation": we are only concerned with the necessity for giving room—air space and ground space—for the full developement of trees, without which there must always be limits to developement which the most liberal treatment in other respects cannot extend.

We read with regard to the Leeming system of coffee culture that the crops were increased enormously by the removal of more than half the bushes and proper attention given to the balance. To quote the *Indian Agriculturist*:—"Mr. Leeming has cut out his trees from 6 feet to 8 feet, and from 8 feet to 12 feet, and the further apart the trees are grown, the better he finds the yield in quality and quantity." Those who are interested in the details of cultivation should consult the proceedings of the United Planters' Association of Southern India for 1901, but we would now only point to that one important condition which, when attended to, would appear to allow not only scope for the developement of the trees, but scope also for the ingenuity of the planter and for the possibilities of more successful and remunerative cultivation.

OCCASIONAL NOTES.

"Cocoa and its Adulteration" by an "Expert" will be found instructive and racy reading, and should, if printed in the form of a "Circular," appeal to the convictions of many with whom cocoa is now only a casual beverage. Before long, we have no doubt,t he economical householder will discover that cocoa, unlike tea, is not merely a dilutent of sweetened milk, but in itself a nutritious food. The infusion of tea leaves will do for the better-off to sip to their heart's content, but those who possess a moderate-sized purse and wish to get their money's worth of nutriment, will very soon take to buying pure cocoa where it can be had at reasonable rates.

The dressing of the horse's hoof is a matter of interest to many. We give below the views of Mr. A. Chinniah, Veterinary Surgeon, on the subject. "Covering the hoof with tar is a pernicious practice which has taken deep root in most stables in Ceylon. Tar gives a mechanical and impermeable coating, and is no doubt favoured on account of its cheapness. Tar, as we know, is used as a protective agent against the action of air on iron, &c., and thus prevents oxidation. Now the wall of the hoof is not dead tissue, and though hard in consistency, it is thin and protects very sensitive tissue, not merely against concussion but against excessive heat and cold and other atmospheric changes. When tar is applied, it effectually keeps out air, with the ultimate result of 'brittle hoof.' All that is wanted is a good dry stable and an attentive syce. As a protective substance any bland oil may be used. When tar is recommended by some as a hoof dressing, it is no doubt intended to be applied not to the walls of the hoof but the sole surface (and that with discretion), viz, the frog, bars, cleft, &c. But this is only necessary where a number of animals are kept (as in omnibus stables) under the care of one man; it is out of place in a private stable. There are many hoof dressings on the market, but the one commonly in use in Ceylon is Stockholm tar and fish oil, which is often seen forming a thick layer over the hoof, when this 'finger nail,' as it indeed is, should appear in its natural beauty."

The Director of the Royal Botanic Gardens accompanied by the Director of Public Instruction and the Superintendent of School Gardens inspected some of the School Gardens in the Western Province on the 18th June.

We observe with much regret that there is a possibility of the company of which Mr. E. Elliott is Manager being wound up. In India, we read, agricultural farming is just being taken up by Europeans, and that a Mr. Wilde has obtained a grant of 1,000 acres of waste land in the Darrang district on a 30 years' lease, and will devote his attention to mixed farming, cultivating commercial crops, such as oil-seeds, flax, jute, aloes, &c.

The following note from the *Veterinary Journal* for June will doubtless prove of interest to the authorities in control of the Harrasbedde Breeding Farm, where hitherto the lambs born have all turned out to be males!

Working on the hypothesis that sex is determined by the influence of the more vigorous parent, M. Dechambre gives the following observations. He deduced from the hypothesis that in a lambing season the influence of the male might be predominant at the beginning, and that of the female towards the end. M. Dechambre examined three flocks, and found that out of 1,065 lambs 519 were male and 546 female. Dividing the season of copulation into two portions he found:—

First half, for evey 100 males 96·6 females.
Second „ „ 100 „ 117 „

Dividing the season into three portions he found—

First third, for every 100 males 89·6 females.
Second „ „ 100 „ 119 „
Third „ „ 100 „ 125 „

Dividing the season into four portions he found—

First quarter, for every 100 males 84·3 females.
Second „ „ 100 „ 107·3 „
Third „ „ 100 „ 109·3 „
Fourth „ „ 100 „ 146·3 „

It will thus be seen that at the beginning of the copulative period male lambs were in the majority, but the females soon made up on them, and at the end formed a distinct majority. M. Dech-

ambre does not lay too much stress on these results, and says that a great number of observations are necessary before any reliable data can be found.

The subject of castration is one concerning which we have often had enquiries, and about which there is much misconception. We have therefore taken over from the last Veterinary Journal a reliable, clear and full account of the operation, which we have no doubt will prove useful to our readers.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JUNE, 1902.

1	Sunday ..	1·06	17	Tuesday ..	Nil
2	Monday ...	Nil	18	Wednesday	Nil
3	Tuesday ...	·02	19	Thursday ..	Nil
4	Wednesday ..	·85	20	Friday ...	2·90
5	Thursday ...	·03	21	Saturday ..	Nil
6	Friday ...	·14	22	Sunday ...	Nil
7	Saturday ..	Nil	23	Monday ...	·20
8	Sunday ..	Nil	24	Tuesday ...	Nil
9	Monday ...	Nil	25	Wednesday	Nil
10	Tuesday ...	Nil	26	Thursday ...	·95
11	Wednesday ...	·12	27	Friday ...	·22
12	Thursday ...	·9	28	Saturday ..	·20
13	Friday ...	·14	29	Sunday ..	·62
14	Saturday ..	·10	30	Monday ...	1 02
15	Sunday ...	Nil	1	Tuesday ...	·06
16	Monday ..	Nil			
				Total...	7·36
				Mean...	·25

Greatest amount of rainfall registered in 24 hours, on the 20th Friday 1902, 2·90 inches.

CLUB-ROOT.

We were sorry to find on a recent visit to the Nuwara Eliya district that the cultivation of Cabbages was being greatly checked by the prevalence of this troublesome disease, about which we append the following note for the information of our readers :—

Club-root in Turnips, Cabbages, Cauliflowers, Rape and other cruciferous crops is the name given to the malformation of the roots. When pulled the main root is found to be much dwarfed, while the side roots are often swollen into spindle-shaped masses, presenting an appearance to which the name of finger-and-toe is appropriately applied. Lumps or nodules may also be seen upon the roots. A crop thus affected ultimately perishes, owing to the decay of the roots.

This disorder—whether called club-root, finger-and-toe or "anbury"—must not be confounded with a malformation of the root which occasionally arises as a result of some peculiarity of the soil, seed or manure, and is really a case of degeneration or "reversion" to the wild type. In such cases the growth though distorted is nevertheless healthy, but in club-root it is only necessary to cut across the root to see that it is full of decaying matter.

Nor, again, should the wart-like growths formed upon the roots by the small beetle termed the turnip-gall weevil be mistaken for clubbing. By cutting across such galls on the roots of turnips and cabbages the legless "maggots" of the insect may be found.

True Club-root is always associated with the presence of a slimy fungus known as *Plasmodiophora Brassica.*

The spores of the organism are very minute, and they not only attack and destroy cruciferous crops, but they infest the soil to such an extent that it is unwise to grow such crops on the same land again for several years. A spore existing in the soil finds its way into a cruciferous plant through a root-hair, and at once makes a demand upon the protoplasm of the plant. The spores produce slimy masses called *plasmodia*, and these have a slight power of locomotion from cell to cell of the infested plant.

The refuse of the diseased crop should not be left on the ground or thrown about in the neighbourhood of the garden, as it is capable of serving as a new source of infection. Dressing the land with lime—and especially gas-lime—tends to destroy the spores in the soil. Therefore, burn all crop refuse and diseased plants and thoroughly cleanse the soil of spores by using gas lime, or, in its absence, caustic lime, before replanting an infected area.

SODIUM ARSENITE AS A PLANT DESTROYER.

Some time ago we published a note with reference to the efficacy of this chemical in eradicating Prickly Pear and other plant pests, and received a communication from a leading coconut planter, who is nothing if he is not up-to-date, asking us to procure for him a small quantity of the arsenite for purposes of experiment. This we have been able to do, and in order to give some idea of how the chemical has been used in other countries, we append a description of the method of mixing, applying, &c.

There is no doubt that many plants can be similarly treated, but it is questionable whether "Iluk" (*Imperata arundinacea*), which is truly the "planter's curse" will succumb to the destructive agent, unless liberal application of the solution, so as to reach the roots, be made.

Here is an account of how it was used against Prickly Pear, the native "Katupathok."

Making the Solution.—8 lb. of the chemical was first weighed off and placed in a kerosene can or old bucket; to this was added 2 gals. water, and it was then placed on a fire and heated until the chemical was quite dissolved, the operator stirring it occasionally. The 80 gal. vat nearly filled with cold water, and the 2 gals. of solution then poured in, and more water added to make up to 80 gals. One great advantage in using sodium arsenite is that it dissolves easily, and therefore no trouble occurs from pumps or spray nozzles becoming choked, which is so often the case with many solutions used.

Method of Application.—For applying the solution a powerful "Doncaster" spray pump was used. This was mounted on an 80 gal. vat and placed in a light cart drawn by a single horse. Two lengths of hose were attached and connected with nozzles mounted on light iron pipes, so that two sprays were working at once; and by means of the pipes the spray could be got over the top of the tallest plants. It takes one man and two boys (or three boys would do) to carry out the work, *i.e.*, one to work the pump and drive the horse, and two to apply the spray. With this plant there is no difficulty in spraying an acre of thickly-infested pear land per day, and, generally, as the land is rarely thickly covered, some few acres per day could be sprayed.

Time to apply.—The experiments extended over two years, and as they were conducted at regular intervals, a good opinion could be formed as to the best time to spray. It appears that, as might be expected, the spray proved most effective when the sap was active, *i.e.*, in spring or summer after heavy rains.

Cost.—It was estimated that to spray an acre of land thickly covered would cost as follows:—

80 lb. sodium arsenite, at 3½d.	0	18	8
Application—wages for 1 man and 2 boys	0	12	0
Horse and cart for 1 day ...	0	6	0

As a rule, however, even on badly-infested land, I do not think that the cost of spraying would exceed 10*s*. or 15*s*. per acre, and often it could be done for less.

Sodium arsenite can be purchased in Sydney at 3½*d*. per lb. for large quantities.

Spray pumps suitable for the purpose can be obtained at from about £4 to £10 each, complete. Almost any ordinary spray pump will do, such as those used by the fruit-growers.

Effect of the Spray.—The action of the spray was very rapid, as within 24 hours the leaves were fading, and a strong smell of decaying vegetation was given off. By the end of the first week the foliage had all turned brown, and large numbers of the leaves had broken off and fallen to the ground. *Within from three weeks to a month the foliage had decayed, and was sufficiently dry to burn off rapidly without the aid of brushwood, &c.*

In all cases it was found that none of the chemicals destroyed the roots of the pears, and nearly all the plants made a fresh growth if left undisturbed. If, however, the decayed mass is burned off, there is very little trouble from plants shooting again; and should they show any signs of life, the few roots that do start can be easily removed, as they are only very shallow.

Danger to stock.—In using any poisonous spray for eradicating prickly pears, &c., there is a great risk of stock being killed if they are allowed to graze in the paddock where the treatment is being applied. No matter how carefully the spraying is carried out, the grass near the plants is certain to receive some of the poison, and should stock eat this they may die. If, however, the stock are kept out of the paddock for a week or so, there is little danger afterwards as the poison soon disappears.

Briars, lantana thistles, and other weeds can be treated in a similar way to the pears, and it will be found that the arsenite of soda solution is very effective in destroying them. Also it is a good remedy for eradicating couch grass from garden paths, roads, &c.

COCOA AND ITS ADULTERATION.

[BY AN EXPERT.]

Theobroma, meaning in the Greek "the food of the gods" was the name given to cocoa by the eminent botanist, Linnæus, who could find no language more fit to express the inestimable qualities and the delicious flavour of this food. In Mexico, in the untrodden mould of forests primæval, by the banks of the mighty Amazon, and hidden away under the cool shade of the heavily-timbered glens and ravines, may still be seen this rare and beautiful plant in all its wild luxuriance.

In many parts of the world it is, however, now found under cultivation.

"Historicus" writing on cocoa so lately as 1892, says that the finest qualities are grown in Central America, Trinidad and Ceylon. "The latter is of comparatively recent cultivation, but it is the most delicate in colour, flavour and aroma, and unfrequently commands the highest value in the market."

Ferguson in his Ceylon in 1884 says: "To the late R. B. Tytler belongs the credit of introducing this cultivation, and in his hands Ceylon cocoa speedily realized the highest prices in the London market, experienced brokers remarking that there must be something in the soil and climate of Ceylon peculiarly suited to cocoa." That is so. Our earliest acquaintance with cocoa as an article of diet may be dated from 1494, in connection with the discovery of the western world by Columbus; but its great value was known long before to the dwellers of the countries where the plant grew.

Prescott, in his history of the conquest of Peru, says: "The Emperor took no other beverage than the chocolate. The beverage, if so it can be called, was served in golden goblets."

So early as in the reign of Charles II. medical men recognised its excellence, and a Dr. Stubble wrote a book on it entitled the "Indian Nectar," extolling its "secret virtues" as he termed its nutritious properties.

But it was not long before unscrupulous dealers, even at so early a date in its history, recognised the great facilities it afforded for adulteration; for the elder Disraeli in his "Curiosities of Literature," tracing the cocoa to Mexico, tells us that "the Spaniards introduced it into Europe," but not in its purity, for he adds "it was a coarse mixture of ground cocoa and Indian corn with Racoa."

The adulteration which began then cannot be said to have ceased yet, for some few years ago there were several prosecutions in London, and it appeared upon analysis that there was in some cases as much as 30 per cent. of pure starch added to the cocoa, and to-day can it be said that there

is no cocoa in the market which is not absolutely pure? Neither the rigour of the law nor the vigilance of officials has yet succeeded in suppressing adulteration, and indeed we have to take our cocoa on trust very much as we do our tea, though with regard to the latter article the absence of all mystery about it, and the absence of all necessity to adulterate it at the present day, has given it a consumption which is not likely to be reached by cocoa so long as the public continue to take their cocoa without a guaranteed analysis.

The fact is, the public know very little about cocoa, far less than they know about the fermentation of wine or the brewing of ale; and then as it is quite a common practice among manufacturers to add flavouring agents to cocoa and chocolate, it is by no means a simple task for the ordinary consumer to pick out a genuine brand of cocoa from a host of sophisticated lines found on the market. And so a confection made soluble through chemicals, and bearing a glorified label on an attractive packet concealing a large percentage of starch and other "wholesome" ingredients, may upon analysis appear to be a veritable whited sepulchre. And hence the shyness of the public in approaching cocoa.

There is one test, however, which seldom misleads, and that is the test of colour. Where cocoa deteriorates and falls off in quality and brightness of colour, nothing will bring it back. There is no sophistication possible here, and you could recognise it as readily as you would an Australian aborigine.

The London brokers' highest quotations are for what is known in the trade as "bright bold," and with this brightness is invariably associated flavour, freshness, perfect curing, &c.

On every plantation there are well-cured and ill-cured samples. There are beans picked up from under the trees by the bushel—daily dropped by squirrels, and already black before they can be handled by the planter. There are also samples spoiled by rain, as well as hard unripe beans from "cankered" pods. To all these no art can give back their lost colour, although benzoin and vanilline may substitute a flavour. Yet these are sold and shipped, and what follows is all a mystery.

Ask the doctor and he will explain the reason why he recommends the cocoa "nib" to his patients, and directs them to make their own decoction. Solubility of a powdered cocoa may be secured at the cost of quality and wholesomeness, for it is well known to the initiated that with the aid of tartaric acid and carbonate of potash, coupled with the retention of a part of the butter in the cocoa, a thick, creamy and most attractive sample may be produced. But the eminent scientist, Dr. Hart, referring to such a product, has told us that we should remember potash combined with fat is commonly called soap. And no wonder that, what between starch on the one hand and chemicals on the other, consumers are often heard to assert that they like cocoa but they get bilious over it, and have to discontinue the use of it after a while.

Ignorance regarding this most wholesome food is not confined to the general public alone. The most educated and enlightened may be often found in the ranks of the deluded. Once an amiable but credulous physician of some distinction, speaking to the writer about cocoa in Ceylon, and the superiority of the article prepared by the Spanish and Portuguese, was relating how a Catholic priest in Ceylon had offered him such a luscious bowl of cocoa that the spoon might have been made to stand in it. The writer unguardedly interjected "Chiefly starch!" for it was that, or both starch and the fat of an indifferently cured sample that gave it the consistency. The physician and the writer have never met since, but the priest who holds to his particular gruel as he upholds the dogmas of his creed, and the doctor who is by now the guardian of that jovial monk's liver, are disseminating the gospel of their own "Societas de propaganda fide" from high places.

A well-known confectioner, who may be said to hold in his hands the four corners of Western Australia in that time, expressing his opinion on a sample of Ceylon cocoa sent to him at his request, wrote back: "Its flavour is most excellent, but it is not dark enough for this market."

It was soon explained to him that colour and flavour are correlative, and went together or disappeared together, and he is now ordering his supplies largely from Ceylon, and doubtless educating the Australian eye to the true colour, and the palate to the genuine flavour of pure cocoa. One more illustration. A Ceylon newspaper, referring last week to the "*German Export Review*" says: "A recent number contains an excellent paper on the manufacture of chocolate with a series of very interesting illustrations so far as the machinery &c. go, but there is also the inevitable "cocoa plantation, and instead of this being a grove of Theobroma Cacao, it is simply a coconut palm garden."

Ye gods and little fishes! What confusion is here. For when the oil of the coconut is expressed, what is left is "poonac," the favourite food in Ceylon of cart bulls and pigs, and when the fat is taken out of the other what is left is the food of the gods!

These illustrations are intended to show the public how widespread is the general ignorance which prevails all the world over with regard to this remarkable article of diet, and it is deplorable to think that its popularity in many cases is retarded one way or another by the makers themselves. The general unwillingness to partake of it as liberally as we do tea or coffee no doubt arises out of this ignorance, and the doubt and suspicion in the public mind as to the purity and genuineness of the article offered for sale.

One may, however, venture to assert that if the public were made better acquainted with the manufacture of cocoa, and the makers agreed among themselves to drop their mysterious declarations and rival claims for specical preparations, and substituted instead a simple certificate of the chemical analysis of their produce, cocoa may speedily become as popular a drink at our breakfast table as is the homely Ceylon tea, about which there is no mystery, and to which nobody

sets up any exclusive claims of superiority arising out of secret methods of preparation.

The highest claim a manufacturer should make regarding cocoa is that having expressed the expressible oil, he is content to leave well alone. It were vain to attempt "to paint the lily or guild refined gold"!

SERICULTURE.

In cur last issue we had something to say about the proposed introduction of Sericulture as a village industry. The *Indian Agriculturist* for June in referring to the encouragement which His Excellency the Viceroy of India is giving to industrial work, goes on to give an account of the progress made with Sericulture, Apparently the rearing of silkworms exactly suits the tastes of the Indian peasantry, to judge from the manner in which Sericulture has been taken up, not casually but on sound scientific lines; and this fact should give encouragement to those who are endeavouring to popularise silkworm culture in Ceylon. The following extract will give an idea of the progress of Sericulture in Bengal:—

The Government of Bengal, acting in conjunction with the Bengal Silk Committee, have done useful work in introducing improved methods of rearing silkworms, and the industry has now been placed on a sounder footing. The chief evil which threatened to destroy the industry was that of diseases affecting the silkworms. The principle disease is known as pebrine. It is hereditary, affecting the blood of the worm and has the effect of killing the wcrm attacked when just about to spin its cocoon. Impressed by the wonderful results secured on the continent by the adoption of the Pasteur system of silk rearing and disease prevention an effort was made to introduce it into Bengal. The Silk Committee consists of representatives of three European firms in Berhampur, and the Collector *ex-officio*. At the outset of the Committee's operations they were not particularly successful but persevering in their efforts to see the Pasteur system given a fair trial, they now have the satisfaction of witnessing their labours attended by more satisfactory results. The Government of Bengal contributed Rs. 3,000 annually towards the experimental work that was being carried on, and this year the grant has been increased to Rs. 6,000, on condition that the Committee raises a similar sum.

Incredible though it may sound, there is no doubt that, especially in the Malda District, where the people are more intelligent, the Pasteur system is practised with excellent results by mere peasants to whom the microscope and bacteria were but a short time ago unmeaning terms.

Starting then with the female moth that has been placed in a position to lay fertile eggs, these eggs hatch out in about a week, and the worms are carefully taken by the rearers and placed on big bamboo trays. The worms are fed on mulberry leaves for varying periods according to the time of year, as long as forty days in the cold weather, until the expert rearer by their appearance judges they are about to spin a cocoon. At this stage the worms are placed on a spinning tray called a *chandraki*, which has running from the outer edge of the centre in spiral form little hedges of wicker-work some three inches apart. Five hundred or six hundred worms are accommodated on one of these trays, and here they soon start to work, spinning around themselves what proves in their case a shroud of silk.

On the moth hatching out and being ready to lay eggs, it is placed by the rearer inside a small circle of tin with a piece of paper underneath on which it lays its eggs. Pebrine being a hereditary disease it follows that the eggs of healthy moths only should be retained. To determine the existence of disease in the blood of the moth the microscope has to be brought into requisition and the fungoid growths are so marked that with a little preliminary training it is apparently easy to distinguish between the healthy and unhealthy moths. In the case of the latter both eggs and moths are burned or buried without loss of time, eggs of the moths free from disease alone being retained.

In addition to the microscopical examination of seed the Silk Committee have built three rearing-houses. The results have so far been most satisfactory. The produce of silk per unit of cocoons reared at Chondonpur has been 40 per cent. greater than that of native reared cocoons. One of the houses which the Committee is building will be divided into two compartments, one having ruby and the other violet coloured glass windows. The use of ruby glass excludes the actinic rays, and worms raised under this condition are said to develop more perfectly than when reared in the ordinary way. The object of the violet glass is to destroy microbes inimical to the health of the silkworms.

All this goes to show that Sericulture in India hsa come to be a regular "business." And why should this not be the case in Ceylon also?

CASTRATION

[BY E. WALLIS HOARE, F.R.C.V.S.]

The operation of castration appears to be regardedas one of vast importance in veterinary surgery. Nearly every practitioner fancies himself an expert on the subject, and proclaims that his method is superior to all others. Some, with an exaggerated idea of their own skill, tell us that so successful are they at the work that no colt ever dies as the result of their operation

At one time, in the simplicity of youth, we used to regard such individuals with awe, and a touch of envy at their success and our misfortune when a case slipped through our fingers, and we got the credit of slaying the animal. But as years rolled on we gradually learned that these succesful men had similar experiences to our own, with this difference, however, that in our case we attributed the cause of death to the operation, in their case it was a calamity resulting from some disease that was lurking in the system

prior to the operation. And not only this, but, *mirabile dictu* they were able to persuade the owners that such was the case, while our reputation was hanging in the balance, and we were anathematised as having caused the death of the rent-payer of the farmer or the pride of the widow. Indeed, not so long ago we saw it reported that the cause of death in one case that succumbed was the attempted swallowing of the testicle that was left in the animal's stall!!

One would imagine that some great surgical skill was required in the operation if we consult recent works on veterinary surgery. In a work recently issued we find no less than thirty-nine pages devoted to this operation, different methods being given, and plates of instruments, and some implements belonging to a former age. For such a simple operation it is surprising how much space is occupied, and what a number of barbarous methods are described. We beg to assert, however, that a student would learn everything about the operation after assisting a practitioner of modern views, and that he might read the descriptions given in the thirty-nine pages *ad nauseam*, and be totally unfit to castrate even a donkey.

Let us for a moment inquire into the essentials of the operation. In normal cases the proper securing of the spermatic artery, in order to prevent hæmorrhage, and the after-treatment, which consist in measures for the prevention of septic peritonitis and tetanus, comprise the important details.

That the operation, by whatever method employed, is a simple one, is apparent when we consider the large number of animals mutilated by empirics, and the small percentage of fatal results. As regards fatal results and untoward complications, the element of chance enters very largely. Sometimes even with the greatest care a fatal result will occur, and no one is to blame. Again, we find that, as a rule, cases do better when on grass every day than under the best hygienic surroundings and surgical care in town, of course provided the weather is suitable.

As to the method of operation, modern practitioners prefer one on surgical lines. Certainly the antiquated clam and the hot iron are not in accordance with modern surgical ideas, in spite of the dogmatic assertions of those who pin their faith on ancient methods. The method by torsion and that by ligature are both scientific and surgical, and our experience of the former leads us to state that it is perfectly safe and expeditious. We do not, however, agree with the illustrations given of this method in modern text-books, as it is essential to apply the torsion forceps as close as possible to the surface of the clamp, in order to operate in as short a time as possible, and to avoid leaving a quantity of bruised tissue behind. Some of the instruments illustrated in works on veterinary surgery are exceedingly crude for this operation.

The hot iron and the clam have a strange fascination for many practitioners. These barbarous methods are adopted by the travelling castrators, we presume, in consequence of a superstitious belief in the efficacy and in the simplicity of their manipulation. The qualified man, however, should not be influenced by such considerations.

It has been stated that the results of the hot iron are more favourable than those by other methods; but we would like to inquire how such results are arrived at, as we are not going to accept the *ipse dixit* of the individual on the matter, or draw conclusions from his results of the different methods of operating.

The devotee of antiquated surgical methods resents violently if his deductions and handiwork are criticised; but as "old customs die hard," we are not surprised at this.

Veterinary surgery is bound to progress with the times, and not lag behind to follow in the trail of human surgery. As an example, we may mention the employment of chloroform, which, although by no means as largely used in veterinary surgery as it should be, still, aided by the humane owners of animals, its use is becoming more general. We take it as a sign of the times when owners of animals insist on the employment of anæsthetics, but we do not consider it altogether to the credit of the profession that such a request should be necessary.

With regard to castration, we were told more than once during a long paper discussion that it would be impossible to carry out anæsthesia, and the most trivial excuses were put forward. What was the result? Every excuse that was mentioned was proved to be imaginary, and any one who has operated with the patient under chloroform will continue to use it. Prejudice and a want of practical knowledge of the employment of anæsthetics are the real causes for their use not being general. So long as prejudice exists, a want of knowledge is sure to continue, with its attendant train of erroneous ideas.

A long experience of the method of castration by torsion enables us to draw attention to some important details in connection with the operation. We do not claim that no unfortunate sequelæ follow this method: as we have already remarked, the element of chance enters largely into the results, no matter what method be adopted. No doubt the condition of the animal has a great deal to do with the results; if his constitution be sound and fit, he has a far better chance of doing better than under the opposite circumstances. After all it is simply a question of the healing of the end of the spermatic cord and of the operation wounds; and, just as in wounds of other regions, if the animal's constitution be unhealthy or out of condition, and if the surroundings are unfavourable, we cannot expect satisfactory results.

Aseptic castration we look upon as impossible under existing circumstances and conditions. No doubt attempts may be made to bring about such a fortunate state of affairs by those who are not engaged in the routine of daily practice; descriptions of the attempts also serve to embellish the chapter on castration in works on modern veterinary surgery.

While we can never hope to perform this operation under conditions similar to those in human surgery, and with the same results, still we must as far as possible pay attention to antisepsis and surgical cleanliness. We can at least have our instruments aseptic by taking the precaution of placing them in boiling water; we can also have

the instrument tray aseptic, and the vessel containing the antiseptic solution in a similar condition; we can to a certain extent disinfect the skin and surrounding parts of the field of operation; and, last but not least, we can render our hands aseptic.

Next comes the great difficulty and drawback to our efforts, viz., the surroundings and the attendant. Our experience has been, that provided the weather be favourable the animals are far better on grass than in the best-formed stable, also that the less handling they receive from the attendant the better. Of course no hard and fast rule can be laid down on the subject, and while some give no trouble, without any attention from the attendant, others require to be looked after. With very few exceptions do we find buildings which are fit to accommodate surgical cases, certainly not in country districts where the majority of colts are housed after the operation. Many are filthy in the extreme, and even the aid of a Hercules would not render them clean enough to satisfy our minds. Still we have to make the best of our surroundings, and endeavour to have them cleaned and disinfected as far as possible. As regards the ordinary farm attendant's hands, we imagine that even prolonged boiling would hardly sterilise them. Under such circumstances we cannot be surprised when bad results of the operation follow, a combination of dirt and rough handling being opposed to natural healing.

Taking everything into consideration, we may state that the results obtained are very satisfactory, and that the unfavourable sequalæ to which we shall shortly refer can to a great extent be minimised or prevented. Given an animal in healthy condition, and surroundings as favourable as can be expected, the next important point is with reference to casting for the operation. Of course all necessary precautions must be taken, as in casting for any operation. We may state that we prefer casting with small-sized hobbles, and performing the operation with the animal lying on the side, the uppermost hind leg being released from the hobble and secured towards the shoulder by means of a side-line. Needless to say, we administer chloroform to animals of all ages, and have no trouble, danger, or anxiety from its use. Next with reference to the instruments. We use a special clamp, with edges that fit accurately like an artery forceps. The testicle is exposed in the ordinary way, the so-called non-vascular portion of the cord is severed by means of a pair of scissors with serrated edges. This precaution prevents hæmorrhage from the small testicular artery. The clamp is then fixed on the vascular portion of the cord as high up as possible, without dragging on the latter, and the instrument is closed as tightly as possible. The torsion forceps are then applied, and if the testicle be large it is removed a short distance from the forceps. We apply the forceps as close as possible to the surface of the clamp, and then rotate the forceps slowly and regularly, the first few turns being more rapid; by this means no bruised tissue is left behind, and the operation is more expeditious. We never permit an assistant to hold the clamp, as we can do so ourselves, and perform torsion with facility. The important matter is to avoid any dragging on the cord.

In the case of yearlings, if we operate in the country we leave them on the grass at once, provided the weather is favourable; of course, they are housed at night for a variable period. In two-year-olds and upwards we keep the animals inside until next day, then leave them on the grass, and make certain they have at least an hour's exercise daily. The importance of daily exercise cannot be over-extimated.

The sequelæ of castration we are all unfortunately too well acquainted with.

Hæmorrhage, either primary or secondary, will sometimes occur in spite of all precautions. Although we have never known a case that terminated fatally as the result of hæmorrhage, still it is our experience that colts which bleed after the operation do not progress favourably, and frequently develop other sequalæ. The source of the hæmorrhage is not always easy to discover, but in yearlings we have often observed that the small testicular artery is very well developed, and we are of opinion that the hæmorrhage arises from this vessel. If this portion be severed by means of a serrated scissors instead of a knife, there will be practically no hæmorrhage. In weak yearlings we have found it of advantage to place the entire cord in the clamp, and sever the non-vascular portion on the surface of the instrument before applying the torsion forceps. It is rare to encounter hæmorrhage immediately after the operation; of course, some animals bleed more from the scrotal incisions than others, but this soon ceases.

It is hæmorrhage occurring from two to six hours after the operation that is likely to cause trouble. As regards its suppression, much depends on circumstances. If the bleeding be only slight, the application of cold water may help to bring about a spontaneous cessation; but if profuse, especially with evidences of arterial bleeding, we must resort to plugging the canal, and the best material is carbolised tow pushed in firmly in pledgets. This has always succeeded, but we must admit that next morning there is always enormous swelling, and a tendency for a recurrence of the hæmorrhage when the pledgets are being removed. It is astonishing the tendency to hæmorrhage possessed by some animals; we have seen intermittent hæmorrhage to last for three days, and recur in a continuous drip every time the pledgets of tow were removed. One important detail is not to allow the packing to remain in too long, as it very quickly becomes septic. At the same time care is required in removing it. One of the most troublesome cases of bleeding we ever encountered was when acting as assistant. The animal, a large yearling, was castrated the previous day by another practitioner. By chance we happened to be passing by, and found the groom in a great state of alarm; the blood could be heard gushing in a firm stream. No appliances were at hand, and not even tow or wool. We came across some alum and dissolved it in cold water, and applied

same diligently, and sent to town for the operator. When he arrived the hæmorrhage had ceased spontaneously, and the animal made a good recovery, although having lost a large amount of blood.

It is a point worthy of note that in bleeding after castration the animal generally keeps the hind legs moving and frequentaly disturbs the clot, and so favours a continuance of the hæmorrhage. When hæmorrhage does occur it is absurd to attach blame to the operator; in spite of every precaution it will occur in some instances, and we believe that a similar result would ensue from a wound in any other part of the body.

We are aware how profuse is the hæmorrhage in some animals after the operation of docking, and how difficult is its suppression. If asked what suggestions we would give in the prevention of this annoying sequel, we would say:—

First. Avoid exciting the animal before operation, and have him cast as quietly as possible.

Secondly. In weak animals, take especial care in twisting the spermatic artery, and in every instance see that the animal gets an opportunity of rising without knocking himself about. Do not walk him immediately after the operation, but keep him at rest so as to give the arteries a chance of being properly sealed. On no account permit an animal to be walked home the same day if it is any distance. The owners of animals usually exaggerate the extent of bleeding, and become very much alarmed at a small amount of bleeding. Our experience teaches us that in many instances the bleeding will cease spontaneously without any plugging, and the latter is certainly to be avoided if possible.

In our next article we shall consider some more sequelæ of castration.

THE COCONUT PLANTER ABROAD.

One of the greatest troubles of Coconut growers on the river has hitherto been the destruction caused by the natives, who cut step in the trees to reach the nuts. The trees never bear after this mutilation. They have, however, had it explained to them that they are "killing the goose that lays the golden eggs" by this proceeding, and further more that it is very displeasing to the white residents. They have consequently promised not to do this for the future, and will not allow their picaninnies to do it, so that now there is very little danger of loss by coconut planters.

When planting the nuts, all the protection they get is three stakes driven into the ground round the spot to keep off horses. In cases where there is danger of fire, sweet potato vines are planted about the young trees, which are thus quite protected from that element. Once the trees have made wood, cattle and even goats may be allowed amongst them, as they never touch them, and trees under which cattle camp thrive better than others.

In planting coconuts, Mr. Pentreke says:—"I shall in future always plant them in an upright position with the eyes uppermost. The reason is that when a tree is sheltered, the nuts will remain in their place till the germ pushes the nut off (unless it is forced by some extraneous cause), and if in falling it strikes the sand or soft earth, it will stand upright and grow into a straight upright tree. The nuts only turn on their side when they fall on hard ground. When the nuts stand in the natural, upright position, the gases or volatile oils float on the top of the contained liquid near the embryo, which liquid and oils serve the purpose of lubricating the kernel near the seed, and supply the germ with its first food, and continue to do so till the young plant makes its appearance on top. Crooked growing plants should be removed as they indicate the first stage in degeneration."—*Queensland Agricultural Journal.*

If the "cutting of steps" by the natives (ready to obey when told not to do it again) is the greatest trouble of the Coconut Planter in Queensland, then the Queenslander is fortunate, as also in having so effectual a means of insurance against fire in the sweet potato plant. But the scientific explanation of the advantage of planting nuts upright, viz., to bring the embryo within the influence of the "gases or volatile oils" which "float on the top of the contained liquid" is something new even for Ceylon.—ED. *A.M.*]

GENERAL ITEMS.

The *Station, Farm and Dairy* of June 12th referring to the variability in the composition of cows' milk, says that there are many causes for variation as conclusively shown by a series of tests carried out by the Highland Agricultural Society (Scotland) where 700 analyses were made of the milk of 18 cows during a period of 21 days, each cow's yield being collected and analysed, separated both morning and evening. Samples containing less than 3 per cent, or even 2 per cent, often occurred, and a few days later tests of the milk for the same cow would give 5, 6 and 7 per cent of fat. Of course the average milk of a herd would not vary so greatly, but according to the best authorities tests might go more than 30 per cent above or below the average for the year. It was found in England that the average of a herd during drought was much lower than the same period in the previous year. Variation might be classed as due to three causes: (1) those that are natural and progressive, (2) those that are accidental and usual temporary, (3) those that are unknown.

Oxalis Crenata, the "oka" of the Peruvians, is spoken of as a vegetable worth cultivating, though not likely to take the place of the "tubers" already in cultivation, such as sweet potatoes or artichoke. Sir W. Thistleton Dyer referring to it says:—"The tubers should be planted 3 feet apart in sandy soil and treated like the potato. New tubers are formed at the end of the season, and under favourable conditions they are 3 inches long and weigh 2 oz. When lifted they should be exposed to sunlight for 2 or 3 days. To cook them boil for 20 minutes in water containing a pinch of carbonate of soda; they then turn into a

bright amber colour, and if eaten with pepper and salt they are palatable and of pleasant flavour." Another closely allied species is *O. esculenta*, the tubers of which are cooked in salt water and served with melted butter and cream.

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The following appears in the *Victorian Agricultural Journal*:—Beyond acting as a support, wood is not actually necessary to the life of bark and leaves. Any cylinder of bark from which the wood has been skilfully removed will, if its sides are carefully closed against air, go on growing and deposit new layers in its inside until a centre of solid new wood is formed. This applies only to exogenous trees, or such as increase their diameter by depositing new layers on their exterior. Such are all our fruit trees, and when it is realised that the entire life of the superstructure is wrapped up in the bark, the need for careful and systematic attention to this substance is not to be over-estimated.—This statement is apt to mislead those who know no distinction between the heart wood and sap wood, for it cannot be said the sap wood is not necessary to the life of the bark and leaves. But of course the object of the above statement is intended to impress upon those, who are apt to think little of the bark of a tree, that it is not the least important part of the stem structure. The agent that is really responsible for the deposition of new layers of wood tissue is the cambium which lies between the wood and the bast, or the inner part of the bark.

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Mr. A. Crawford, an authority on poultry, in reply to the question how much food should be given daily to fowls, writes to the *West Australian Journal of Agriculture*:—This is rather difficult to reply to, for so much depends upon the breed and the surroundings; in some places the fowls can pick up nearly their whole living when running about, while in others they are entirely dependent on what is given to them. Then there is the difference in the habits: some breeds are good hunters, and extremely active, always on the go in quest of what they can pick up, and will wander far afield, while others will hang round the homestead or sit in the shade waiting for food to be thrown out, and even when neglected do not seem to have the sense to try and make a living for themselves. Then again, there is the matter of size to be taken into consideration: a Leghorn or Hamburg will not eat anything like as much as an Indian Game or Cochin, but if we take ordinary fowl of moderate size, the following ration would be about an average of their requirements:—For breakfast, from 3½ to 4½ ounces of soft food such as pollard, bran and pollard, pea meal, bean meal, oatmeal, etc., and for the evening meal from 2 to 2½ ounces of grain; always remembering that it is better to rather underfeed than overfeed.

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The *Journal of Agriculture*, West Australia, does not approve of the application of lead paints and similar preparations for healing the wounds, but recommends vegetable oils, lard or other animal fat or grafting wax, which it thinks sufficient to keep out disease germs, insects, toadstools and extremes of heat and cold, so that any sap brought to the margin will remain active and form new bark. Wounds when intentionally inflicted (as in pruning) should be as smooth and clean as possible to induce quick healing.

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Says the *West Indian Bulletin*:—Uncooked sweet potatoes may be sliced and then dried either in the sun or in evaporators. They are prepared for the table by soaking and baking. Dried sweet potatoes were exhibited among the products of Japan at the Columbian Exposition. Their preparation is described as follows:—"Cleanly washed potatoes are placed in a suitable basket and immersed in boiling water for a short time; when taken out of the basket they are cut into thin slices and spread over mats and exposed to the sun for two or three days. In order to make a superior quality, the skin of the potato is peeled off before slicing." As an indication of more recent developments it may be mentioned that a company has been lately started in New Jersey, America, with a capital of 1,000,000 dollars, to make flour from sweet potatoes. The early results are reported as being very successful, and it is proposed to erect mills all through the sweet potato growing region. The more important States in this region are North and South Carolina, Georgia, Texas, Alabama, Mississippi, Virginia, and New Jersey.

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Mr. Clark Nuttal writing in *Longman's* about the banana, gives us some idea of the increasing trade in the fruit in the following extract from his interesting paper:—The coast of Hondurus is a great centre of the export fruit trade, but in 1883 one little schooner was sufficient for all the requirements in the way of transport. Now three lines of steamers and sixteen sailing vessels barely meet the demands made upon them, the greater part of the fruit they carry consists of bananas. The cargo of a steamer may be anything between 8,000 and 15,000 banana bunches; hence it is obvious great numbers are exported yearly. The West Indies, Cuba, Costa Rica, and Central America generally tell the same tale of increasing trade. From Jamaica alone we get millions of bunches now every year.

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The fruiting of the "Male" papaw tree is the subject of a special note and illustration in the *Queensland Agricultural Journal* for May. The phenomenon—if it could be called so—is familiar enough in Ceylon where the papaw is so plentiful, but the fruit, as an inferior product, is looked down on—in fact never gathered. The papaw is as a rule diœcious, but when the "Male" bears, as it sometimes does, seeded fruits, the term male tree becomes a misnomer. The fact is thatthe papaw which is generally diœcious exceptionally bears hermaphrodite flowers on the "Male" trees.

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We read in the same Exchange of the suitability of Queensland for cinnamon, which, however, appears to have a deadly enemy in the shape of a black beetle that attacks the young plants.

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Banana bread made from the flour is now available in Chicago, and is voted excellent.

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"THE ECONOMIC RESOURCES OF THE STRAITS SETTLEMENTS AND THE MALAY PENINSULA.

By H. N. Ridley Esq.

SIR Cecil Clementi Smith presided, on the 16th December, at an illustrated lecture given at the Imperial Institute by Mr. H. N. Ridley, Director of the Botanic Gardens, Singapore, entitled "The Economic Resources of the Straits Settlements and the Malay Peninsnla.'

Probably, said Mr. Ridley, no portion of the Empire was so little known to the English public as the Straits Settlements and the attached Federa'ed States. It was, however, one of the most thriving of the smaller colonies, and possessed in Singapore, the most important port in Eastern Asia.

Its heavy rainfall, of over 100 inches annually, was evenly distributed throughout the year; so, nnlike other tropical regions, there were no season. The trees, which were evergreen and for the most part bore flowers and frnits irregularly all the year round, grew with great rapidity; conseqnently it had been fonnd more suitable to cultivate plants whose prodnce was derived from the vegetative portion rather than from the fructificative. The climate, though hot, was neither unpleasant nor unhealthy, and cases of sun-stroke were almost unknown. Coolie labour on the estates was supplied by Japanese and Tamils; the Chinese, though very industrious and invaluable when working for themselves in agriculture; commerce, or mining, had not been found amenable to European methods of discipline.

The greater part of the Malay Peninsula, which consisted of hills rising to about 7,000 feet altitude with more or less flat country running along the coast-line, was or nntil recently had been, covered with dense forests; and the characteristic view from almost any of the hill-tops at the present day was one of endless trees, of which there were several thousand kinds, although to the casual observer they seemed very similar. These produced excellent timber, both hard and soft woods snitable for all kinds of purposes, while some of them, ebony and other ornamental woods, were suitable for cabinet work.

Among the trees of special interest Mr. Ridley mentioned the camphor, not the Japanese camphor tree from which the camphor of commerce was now obtained, but a much larger one, belonging to a different natural order, and from which camphor had originally been obtained some hundred of years before the discovery of the Japanese tree. This Malay camphor was obtained from the hollows of the trees but it was very scarce and far too expensive to come into the London market. It was sought by the Malays with quaint ceremonies, and generally nsed in magic and religious ceremonials by both the Malays and the Chinese.

Wood-oil was obtained from certain of the large trees by cutting a hole in the trunk about a foot across and six inches deep and lighting a fire therein. This caused the oil to flow out, which was caught in tins and used as varnish. Owing, however, to the death of the trees the supply of the oil had become so scanty that it seemed nearly to have disappeared from commerce. The sweet-scented incense gum, benzoin, was also obtained from one of the Malay forest trees, and formed the chief element in the incense used in churches.

The most important of the Malay jungle products, however, was gutta percha, without which the submarine telegraph cables could never have developed to their present importance. This tree, the *Isonandra gutta*, was confind to the Malay Peninsnla, Sumatra, Borneo, and the islands of the immediate neighbourhood. It was discovered in 1843, first being noticed on account of its property of becoming soft and easily moulded in hot water. Its high insnlating powers, and resistance to sea-water, were soon noticed, and it very shortly was in great demand for electrical work, surgical instrnments, and many other purposes. The tree was of very slow growth, but eventually attained great size. The gutta percha

was obtained by felling the trees and cutting rings through the bark all up the trunks, when it exuded in the form of white milk, which was collected in leaves and set into blocks of different forms.

So great indeed had been the demand that every accessible tree of any size had been felled, not only by the Malays, but by the wild tribes who rambled all over the forests, and consequently in large areas no tree large enough to produce seed remained, and the plant was on the verge of extinction. The trees produced seed very seldom, and although Mr. Ridley had offered large prices for some none had been forthcoming. The Government of the Straits Settlements had consequently stepped in and taken measures for the protection of the remaining trees. The amount of gutta percha produced by felling and cutting was very small in proportion to the age and size of the trees; one upwards of a hundred years old would produce but 2 or 3 lb.

However, a Frenchman in Singapore, had, about eight or nine years ago, discovered that, by drying the leaves and twigs of the tree, and grinding them to powder and then mixing the powder with water, the gutta percha floated to the top so that it could be skimmed off and pressed into blocks. He had started a factory in singapore, which had, at his death, passed into other hands and had been eventually transferred to France, whither the leaves and twigs were now sent to be worked. By this simple method, and by growing the plant in the form of bushes rather than trees, it was hoped that in time the Malay peninsula would be able to furnish the world with a good and regular supply of this valuable product.

The rattan was another important jungle product. It was the stem of a thorny, climbing palm which scrambled about and over trees by the aid of sharp hooks with which the leaves and flower-stems were provided. There were a great many different kinds of rattans, and Mr. Ridley gave an interesting account of the method of cutting them down and preparing them for shipment to Europe and the United States, for manufacture into chairs, baskets, etc. As the supply was hardly equal to the demand, the plant was now beginning to be cultivated, and a reasonable return might be expected with but very little expense.

Coffee was cultivated over a large area of the Peninsula, and the large seeded Liberian had been found to grow there very well indeed, and better than the more valuable Arabian variety; but, unfortunately of late, the price of Coffee had been so low that most of the planters were adding the valuable Para rubber tree to their estates. This tree, a native of the Amazon district in Brazil, had been introduced from Ceylon in 1884 to the Botanic Gardens in Singapore, where it has been found to grow with remarkable ease and rapidity, and to produce a very good yield of first-class rubber.

While coffee had been in the ascendant, however, the planters had not troubled themselves about rubber, but now, owing to the increased demand for the latter commodity, due in great measure to the rapid evolution of the bicycle and the moto car, the attention of planters all over the world had been directed to this product. A large number of plants produced rubber, of one kind or another, but that from the Para tree was by far the best. Attempts had been made to cultivate this tree in many parts of the world, but with only partial success. In the constantly damp and warm climate of the Straits Settlements, however, it has grown with astonishing rapidity. A tree raised from seed attained its full height of 60 feet in five or six years, after which it continued to increase in girth to about 4 feet, in twelve years. The expense of cultivation was very small, no manure being required, and the tree could be tapped when six years old, when it would produce about 2 lb. of rubber a year. Older trees produce more. The rubber was obtained by cutting first a narrow channel through the bark vertically, with slanting ones leading into it all the way down the trunk of the tree, at the foot of which a little box was placed with the lid so arranged that, although the rubber-milk could get in, dirt and rain-water could not. The trees were tappped in the afternoon and the rubber collected from the boxes on the following morning. Every day for a week, at 4 o'clock, a thin slice was cut off the edges of each slit, and more milk ran out until the tree was finally exhausted. The wounds were then left to heal, which usually took about one or two months. The trees could be tapped once or twice a year according to size, and the rubber thus obtained was worth from 4s. to 4s. 6d. a pound. Even at half that price the cultivation would be the the most remunerative of any in the East, and thousands of trees were being planted all over the Peninsula, as fast as the seeds could be procured.

The india rubber, *ficus elastica*, so common in pots in English houses, was being cultivated by many planters. Its appearance, however, was very different when grown into a large tree with great roots. It was a native of the Peninsula, and throve well there, but its rubber was of less value than that of the Para.

Another paying crop, which was cultivated wherever the soil was sufficiently sandy for its growth—generally along the sea-coast, was coconut; and large areas were devoted to its cultivation in Singapore, Penang, Province Wellesley, and elsewhere. In some places the trees were severely attacked by two kinds of large beetles, which burrowed through the shoots and soon caused the death of the tree. The destruction of trees, at one time, had been enormous, until a law had been passed compelling owners to destroy badly affected trees, and also the rubbish heaps in which one of the beetles bred. This law had had very beneficial results. The nuts were sold either for food, for which there was always a large demand, or as copra—made by splitting the nuts in two and drying the halves, which were used for the manufacture of oil and stearine.

The betelnut palm was also cultivated to a considerable extent, and although betel chewing had largely gone out of fashion in the Peninsula, there was still a considerable demand for the nut in India. It was also used to a small extent in European medicine.

The most useful of the palms, however, was the sago, which was planted in a good many places in the Peninsula. Three sago plants would give more nourishment than one acre of wheat, and one acre of sago as much as 163 acres of wheat; in fact sago gave a larger amount of food per acre than any plant in the world. The plant was grown from cuttings, or seeds, in wet swampy places, forming dense thickets, with its huge leaves 20 feet in length. The main stem crept along the ground and threw up great branch stems, about 40 feet high and 1½ feet through, which eventually produced at the top great panicles of flowers and fruits. The plant took twelve years to produce its first stem, after which its growth was more rapid, and fresh stems appeared regularly, so that at most times of the year, in a big plantation, there were generally stems ready to cut. These were felled when full size, but before the appearance of the flowers, and cut into pieces about two feet long. They were then split in half, the bark and woody exterior removed, and the sago manufactured from the inside white pith, first into sago flour and then into granulated or pearl sago. A full size stem would produce as much as 600 or 700 lb. of flour, and about 30,000 tons were exported annually from Singapore.

The tapioca plant was a tall, half-shrubby plant, resembling somewhat the castor oil. It was a native of South America, but had long been cultivated all over the East, and was very largely propagated from cuttings of the stem, which we just stuck into the ground, and, in a year or eighteen months, attained a height of about six feet, forming huge thick roots under ground. When these roots were of full size, the plant was cut down and the roots dug up and taken to the

factory to be manufactured into flake or pearl tapioca. This plant was always cultivated by the Chinese. Only three crops were taken off the land. Its cultivation, often a very paying one, was said to injure the soil, and so was not one upon which the Government looked with much favour. Tapioca and sago were, of course, used for many other purposes than as food.

Gambier, cultivated entirely by the Chinese was a climbing shrub. It was always grown in the open field in the form of bushes, which was severely cut every year. The branches and leaves were then taken to the boiling sheds, and, after going through various processes, the gambier was shipped to Europe for the use of tanners. Another, a totally different plant, the mangrove, produce a tan-stuff which was now finding its way into our markets. The mangrove was a tree, growing on the edges of tidal rivers and sea-shores, wherever they were muddy. This particular tan-stuff was also used in combination with indigo as a dye-stuff by the Chinese. Indigo, however, was not a large or important cultivation in the Peninsula. It was only grown to meet a small local demand.

Pepper was another plant generally cultivated by the Chinese, usually by gambier planters. It was raised from cuttings and climbed up large stems or posts. Formerly it had been a highly priced article, but of late years had fallen off very much and its cultivation in the Straits had diminished. Now however, the price had risen and the Chinese and Malays had recommenced planting.

The Straits Settlements were famous both for nutmegs and cloves, which were also chiefly cultivated by the Chinese. The nutmeg, as grown in the Straits, was quite a small bushy tree with deep green leaves and fruit resembling a small peach. When ripe the husk split partly open, exposing a black seed, covered with a beautiful scarlet net-work. This net-work, the mace, was taken of when the fruit was ripe and dried in the sun. It was often more valuable than the nutmeg itself.

This cultivation was an old established one. In 1848 Singapore alone supplied over four million nutmegs, but in 1860 a disease was developed which entirely destroyed the cultivation in that place, and nearly did so in Penang. European planters had been ruined, and their estates and houses sold for very small sums. The Chinese then started the cultivation in Penang, and had kept it up to the present time.

Mr. Ridley, not long ago, had his attention called to what he considered the same disease, and on investigation he found it due to a minute beetle which burrowed into the bark of the tree, beneath the ground, so that its presence was not noticed until, by its burrows, the cambium, or living layer of the bark of the tree, was destroyed and the tree appeared to die suddenly. Had this discovery been made in 1860 the cultivation could easily have been saved. This was, he said, an excellent example of the importance of the entomologist to the planter.

The most important native cultivation in Singapore was the pineapple. The plants grew from cuttings, placed close together, and completely covered the ground. The fruit, when ripe, was cut and brought into the town in cartloads to the preserving factories. The industry of tinning pines was a large and very remunerative one. By far the largest number of the best preserved pines in the markets of the world came from Singapore, where the price of a pine varied from ½d. to a penny a piece. The plants produced fruit nearly all the year round, were very easy to cultivate, grew in the worst of soils, and its only enemies were porcupines and wild pigs.

From the leaves of the pine a very beautiful fibre was extracted. The leaves of the ordinary varieties, however, were too short to be used successfully for this purpose, the most suitable leaves being from plants in waste ground that had grown up with grass and scrub among them.

The Malay Peninsula was remarkable, according to the mineralogist, for having given samples of almost all the known elements, but these were so sparsely and generally scattered over the whole region that the expense of collecting most of them would hardly repay the cost. Tellurium, wolfram, and titanium were comparatively common. Gold, silver, lead, zinc, copper, antimony, and other metals all occurred in small quantities widely scattered over the country; but little mining had been done except for gold and tin. In former years the Peninsula produced a good quantity of gold; the yield, however, at the present time was but small.

Tin was the mineral of the country, being found there in great abundance; in fact, more than one-half the world's supply was derived from the Peninsula. The greater part of the mines were alluvial, though lodes had been found and worked. Rich beds occurred in the stream valleys at the base of the hills in Selangor and Perak, and were worked by the Chinese, who dug to no great depth, and washed the alluvium with very primitive sluices. The tin was sold to European firms, melted into ingots at Singapore, and then exported.

In conclusion, Mr. Ridley said that in the course of a single lecture it would be impossible to give more than an idea of the great wealth of resource of the colony. He had attempted to describe rather the peculiar vegetable products of the country, so as to show what had been done in the introduction and cultivation of new and exotic plants during the last half-century. When Sir Stamford Raffles planted the English flag on Singapore Island in 1819, it had been inhabited only by about 200 fishermen and pirates; now it was the most important port in Eastern Asia, with a population a thousand times as large. Then the Native States had been in a constant state of war and anarchy, and the natural wealth of the country was neglected; now, owing to the energy of the white man, aided by patient hard work of the Chinaman, the forests had been felled, mines opened up, cultivation introduced, and commerce developed. An era of justice, freedom, and peace to all had been inaugurated, and the country had become one of the most thriving of our tropical colonies.

There were still, however, large areas of country practically unexplored, and doubtless much mineral wealth untouched; and Mr. Ridley was of opinion that the colony was only really in its infancy, and that gradually and steadily the work of progress would continue year by year, and he was confident that the future of the Malay Peninsula would be one of great and increasing prosperity.

The lecture throughout was illustrated by a well-selected series of slides, many of which had been specially prepared.

The chairman, in proposing a vote of thanks "for a very attractive lecture," referred to Mr. Ridley's commendable simplicity of language, and to his avoidance of technical expressions, which had enabled all those present to carry away every single piece of information which he had been good enough to impart to them.

Sir Cecil Clementi Smith said he should like to take this opportunity of drawing attention to the work that Mr. Ridley, and the Directors of other Botanical Gardens, were doing in going out to the Colonies and devoting themselves with ardour and zeal to economic botany. They, in a quiet and unobtrusive way, were winning victories over nature of which the ordinary man in the street knew absolutely nothing. They did not get honours thrust upon them or mentioned in the newspapers, but their work was neverthless of extreme value in forwarding our efforts of making human life more endurable and more delightful. Mr. Ridley's labours—only a small portion of which he could have referred to that evening—in experimenting on the cultivation of plants, and the similar work of the Directors of

other Botanical Gardens, were of immense benefit to the Empire. Most people in this country knew Kew as a place where they could see beautiful and attractive things grow. It was, however, much more than that. The making the gardens attractive formed but a small part of the duty of Kew. It was a mighty organisation and the centre of the botanic activity of the Empire; and Mr. Ridley would probably be the first to acknowledge the great assistance he had received in his botanical efforts from the Authorities of the Royal Botanic Gardens, Kew.—*Imperial Institute Journal.*

PHOSPHORIC ACID AND POTASH IN SOILS.

The fertility of a soil is estimated, not by the total amount of chemical constituents which it contains, but chiefly by the availability of the plant-food ingredients.

Phosphoric acid, though soluble in water, is not easily washed from the soil, either by rain falling upon it or by artificial waterings.

In some recent investigations by Dr. Bernard Dyer with soils obtained from the Experimental Station at Rothamsted, it was found that there was little risk of loss of either phosphoric acid or potash, even if larger quantities are applied at one time than what are required for the immediate use of the growing crop, but that these elements accumulate in the upper layers of the soil, where they remain until taken up by the plant. It was, however, found that these ingredients when derived from farmyard or stable-manure were less stationary than when derived from artificial manures; considerable quantities were found to have penetrated into the subsoil even as low as 27 inches from the surface. This is doubtless due to the more open and porous texture of the soil under the influence of continuous applications of large quantities of organic and bulky manures.

When a manurial application of superphosphate, combined potash, and other mineral salts is made, a distinct influence is exterted in the retention by the soil of phosphoric acid in a less fixed and, therefore, presumably more available condition; while if, for want of nitrogen in the soil, the growing plants have been unable to utilise all the phosphoric acid thus rendered available, more of it descends to the subsoil, as a result of the soluble action of these alkali salts. The importance has for many years been fully recognised by the intelligent horticulturist of applying nitrogenous manures in combination with phosphates, and the reason for this practice is shown in the foregoing statement.

In some of the vineyards of France it was found that there was a feeble development of wood, a falling-off of blossoms, diminished yield of Grapes, diseased leaves and roots, with a consequent retrogression of fruit quality. Attempts were made to remedy this defect by the application of abundant dressing of cow-manure—a material which has long been recognised to be one of the best of fertilisers available for the purposes of viticulture; nevertheless, this treatment proved utterly incapable of arresting the gradual exhaustion of the soil. Old vineyards exhibit a continuously progressive falling-off in fertility, and require digging at intervals, which become more frequent, or even, after a short period, they frequently have to be replanted. It is readily conceivable that soil which is frequently being turned over, so that fresh portions are always brought in contact with the roots ramifying in it, must, in course of years, lose much of its pristine richness, that cannot be completely restored by cow-manure alone.

The writer is acquainted with a plantation of Black Currant bushes which had been manured year after year with heavy dressings of peat-moss manure, and yet this material utterly failed as a restorer of soil fertility; the Currant-trees blighted, lost their leaves, and the fruit was scanty and of poor quality. After various trials it was found that to ensure perfect nutriment of the bushes, and to render possible the production of good and full yields of fruit, chemical manures providing available phosphoric acid must be resorted to. Phosphoric acid is directly connected with the increased development of fibrous feeding roots within the surface soil, that enables the plant to obtain the maximum of benefit from rainfall and bright sunshine. This is the special effect of phosphatic manures when applied to superficially ro ted crops, such as Turnips, Onions, Potatos, Carrots, &c., and it is by virtue of this development that these crops so markedly exhaust the available nitrogen within the soil, and especially of the surface soil.

In regard to the element potash, it is sometimes stated that this ingredient is of relatively less importance than either nitrogen, phosphoric acid, or lime; partly for the reason that fertile soils are naturally richer in potash, and because the generality of plants remove a smaller quantity of this element from the soils than of the other substances mentioned.

Until recent years it had not been made quite clear what function potash exactly performed in the plant, although it has been proved over and over again that no plant is able to grow satisfactorily unless potash be present in a more or less available condition within the soil.

A theory was at one time held that soda, which is not an indispensable plant ingredient, was capable of replacing potash in the plant; but this has now been shown to be false. No other substance can replace potash, which is an essential constituent of all plants.

According to investigations at Rothamsted, it is found that the presence of available potash in a soil is an important condition of the formation in plants of carbo-hydrates generally. It is always to be found in the actively growing parts of vegetation, as in the growing buds and shoots, and it exists in relatively large proportion in the seed. In the culture of Potatos potash is a most necessary ingredient in the production of the carbo-hydrate starch; and in the culture of Turnips, Carrots, Beets, and all descriptions of fruits, the carbo-hydrate sugar is greatly dependent on a liberal available supply of potash—and the richer the soil may be in the element nitrogen, which necessarily increases the luxuriance and succulence of growing plants, the more potash will be required. In fact, the great function of potash is, that it acts as a carrier of the ingredient nitric acid to growing parts of vegetation, and assists in the maturation, colouring, and ripening of fruits.

Now, there are some Apples which are fit for table in early autumn, while there are others which only become ripe when kept over the winter. Experiments have shown that succulent fruits, such as Apples and Pears, are remarkably influenced by the different elements of manure, not only with regard to their size, but also with regard to composition and maturity of the fruit juices; thus, the substances, potash and phosphoric acid, favour early maturity, while nitrogenous manures retard ripeness. Consequently, Apples and Pears that are required for early market or consumption, may be stimulated to forwardness by dressings of superphosphate of lime, basic slag, and potash; while fruits that are grown more exclusively for winter use may be retarded by making the ingredient nitrogen of greater prominence in the manurial mixture than either potash, phosphoric acid, or lime. Further, the later crops having the whole season for their growth, greater dependence can be placed upon the natural resources of the soil.—J. J. WILLIS, Harpenden.—*Gardeners' Chronicle.*

PLECTRANTHUS AS A VEGETABLE.

In a recent issue of the *Journal de l' Agriculture Tropicale*, attention is called to a paper of M. Lemarie on the tubers of Plectranthus as a vegetable. These plants are Labiates, closely allied to the already known Stachys affinis; they produce tubers that can be used similarly. MM. Paillieux and Bois, who in-

troduced this plant (and also the Stachys), have failed to acclimatise it in France, owing to insufficient heat, but M. Maxime Cornu introduced it successfully into Madagascar, the Congo, Gaboon, the Soudan, and Indo-China, whence excellent repoits of it have been obtained, testifying to its value in countries where Potatos do not thrive. The tubers of Plectranthus even exceed in amount of starch and farinaceous properties those usually cultivated in the colonies, and those of Stachys tuberifera (affinis). There are several species of Plectranthus, and they are not easily identified; most of them are natives of tropical Africa, India, and Malaya. At Hanoi in 1898 four small tubers, the size of a nut, were planted in the botanic garden, and from these M. Lemarie raised gradually increasing crops of tubers, that in January, 1900, were as large each as as a hen's egg, and in their entire weight attained to 208 kilos., or about twice that number of English pounds. At the same time, very similar tubers were distributed which, when cultivated, showed such differences that they were determined to be distinct species. In the flowers the tint of blue and the position of the stamens with regard to the pistil varied. M. Cornu gave the first plant here mentioned the name of Plectranthus Coppini. Dr. Heckel prefers the name Coleus Coppini. MM. Pailleux and Bois received from Réunion tubers of yet another species, known in the Transvaal; these on trial proved to be those of P. tuberous (Coleus tuberosus). Now it is identified with P. ternatus. In 1887 the late M. Pierre, Director of the Libreville Botanical Garden, introduced the new vegetable into the Congo, where it was highly valued. The *Potager d'un Curieux* mentions yet a fourth species, Coleus tuberosus, cultivated in Ethiopia; this has since been identified with *C. edulis*. Various other species have also been reported from tropical districts, but some of these are doubtless identical with those already mentioned, and when the vegetable receives further attention, the list of distinct species will be diminished. The properties of the varieties are practically alike. In parts of Tonkin the Plectranthus tubers will fill an otherwise unfertile period between May and October, leaving the ground free for other crops the rest of the year. This remark applies to other countries also. M. Lemarie judiciously remarks that before drawing hasty conclusions or planting the new tubers on too large a scale, attention should be paid to developing those that are largest of size, and in hastening on also the period of growth as much as possible. The species mentioned as producing edible tubers aro Coleus tuberosus (Malaya,) Coleus barbatus (East Tropical Africa, India), Plectranthus esculentus (Natal), Plectrauthus floribundus (tropical Africa).—*Gardeners' Chronicle.*

OUR PRINCIPAL TIMBERS

(By W. Maiden, New South Wales.)

IRONBARK.

We have four ironbarks:—

1. The white or grey iron bark;
2. The narrow-leaved ironbark;
3. The broad-leaved ironbark; and
4. The red ironbark, or mugga.

(No.1) *Eucalyptus puniculata*, Sm., is confined to the coast districts, and is paler than the others, although it varies in colour to a pinkish and even pale red colour, so that in the south it is sometimes known as "red ironbark"; this is the hardest, toughest, and most esteemed of our ironbarks.

(No. 2) *Eucalyptus ereba*, F. v. M., is very widely diffused. It is the principal ironbark in that enormous stretch of country between Dubbo and Pilliga, &c., and also forms a part of the ironbark country east of Dubbo. But in greater or less abundance is it found over the whole of the north-eastern fourth of the State. It is red in colour, is known in the trade as "red ironbark," and is a valuable timber. It is a narrow-leaved, drooping species, the most graceful of the group.

(No. 3) *Eucalyptus Siderphloia*, Benth.—This is largely developed in the Clarence River Ironbark district, but it extends along the coast and for a considerable distance south of Port Jackson. Like the preceding one, it also is well developed in the interior, though not to so great an extent. It crosses the dividing range and is abundant north of Dubbo, and is more or less diffused in the *creba* country between the interior and the coast, but it is much less plentiful in most districts than *creba*. It is always known as red ironbark, and is a valuable timber though, occasionally it is too free to be classed as a best ironbark.

(No. 4) *Eucalyptus sideroxylon* A. Cunn.—This is *par excellence* the ironbark of the interior; at the same time there are few districts of the State, even in the coastal belt, in which it is not found sparingly. It penetrates furthest into the interior of the ironbarks being found at least as far west as Nymagee and Mount Hope, is well diffused in the south-western portion of the State, where it is the only ironbark tree, and is the only ironbark that extends into Victoria. In the northern half of the State it is also found, but, as a rule, not forming dense forests. It is a less compact tree than the others, yields timber of a deep-red colour and, although the least valuable of our ironbarks, is a valuable timber, often the best in the districts in which it grows.

RED HARDWOODS.

Timbers of this colour are usually very durable, hence people who have been victimised by receiving bad pale hardwoods frequently specify only red hardwoods. But even amongst red hardwoods we may have inferior timbers, some of the white gums, for example, having redwood. Our red hardwoods include—

1. Red mahogany (*E. resinifera*, Sm.).
2. Grey gum, which includes two species (*E. Punctata*, DC., and *E. propinqua*, Deane and Maiden).
3. Murray red gum (*E. rostrata*, Schlecht).
4. Forest red gum (*E. tereticornis*, Sm.).
5. Sydney blue gum (*E. saligna*, Sm).
6. Woollybutt (*E. longifolia*, Link and Otto).

The whole of these belong to the coastal belt, with the exception of the Murray red gum, whose principal habitat has already been indicated; it also is found near watecourses in the greater part of the western half of the State.

Red mahogany is chiefly found in the north Coast districts, though it is sparingly found for many miles south of Sydney. It is of a rich-red colour, and is one of the most durable of our timbers. It has a fibrous bark, and is a handsome tree.

Grey gums have bark of a dull grey colour, and somewhat blotched. The bark is a little roughish, in contradistinction to the smooth and even shiny appearance of that of some of our gums. Grey gum is one of the most valuable timbers of New South Wales, and is one of the principal timbers to be relied upon as an ironbark substitute, and thus to arrest the depletion of our ironbark forests. The best description of it as a timber lies in the fact that it is difficult to tell it from red ironbark on appearance only; an expert usually discriminates between the two by noting the tensile strength of a fibre. It is remarkably durable timber, and the only cases in which it should not be substituted for ironbark are where the tensile strength of best ironbark is required. It is largely used and esteemed in New South Wales, and can be recommended with the utmost safety to the foreign buyer.

Murray red gum is well and favourably known partly because it is the most gregarious of New South Wales trees. As with the Western Australian jarrah, so with Murray red gum, there is no difficulty in supplying a practically unlimited demand

of a timber of one uniform quality. We have other trees yielding timber of quality equal and even superior to these two, but because they are more scattered in distribution, there is always some liability to admixture with other timbers.

The forest red gum is botanically closely related to the Murray red gum; in fact, in their extreme forms the species run into each other; but, as a general rule, while the Murray red gum frequents river banks and flats, the forest red gum generally (but by no means always) prefers dry, open forests. Its durability is superior to that of Murray red gum, many experts always selecting it in preference to the latter when both are available. This preference of forest red gum is another instance of the general truth of the observation that the best timbers grow in dry or, at least, well drained localities.

The Sydney blue gum may be so called to distinguish it from the pale-coloured blue gum (*E. globulus*, Labill.) of Tasmania and Victoria. It, however, occurs in both north and south Coast forests, preferably on rich damp land or flats. In this respect it is similar to Murray red gum. It forms magnificent straight trunks, is extensively used, being one of the best of our timbers where durability is required. It is much sought after for felloes of wheels.

Woolybutt, found in the south Coast forests, is the least known of the group. Yet, although not of the first-class on account of deficient tensile strength, it is undoubtedly a durable and generally useful timber. A good many people use it without knowing what it is, but it can stand on its merits, I think. Its bark is sub-fibrous, and its timber is not unlike red ironbark.

I have omitted a few of our Eucalyptus hardwoods that I might have included, but time does not permit of the inclusion of a complete list.

Turpentine and Brush Box.—Turpentine and brush box are useful hardwoods, and both occur in the coastal forests, the former from the Shoalhaven to the Tweed, and the latter in the northern forests from Port Stephens northwards, usually in brushes, but often in open forests. Turpentine is botanically known as *Syncarpia laurifolia*, Ten.; and brush box is *Tristania conferta*, R. Br. Though not Eucalypts, they are closely related thereto. Turpentine is so called because of the peculiar oleo-resin it exudes; it forms magnificent straight trees in deep gullies, and is, perhaps, the most generally useful of our timbers resistant to marine borers, hence its very extensive use for piles in harbour works. It also has the great merit of being almost uninflammable, and hence is sometimes used for beams in buildings. Brush box is a durable timber, obnoxious to white-ants; it has other merits, and in spite of its tendency to warp, it should be more largely employed than it is at present. It is one of the most beautiful of our trees, and is often seen in gardens and boulevards under the name of "Lophostemon."

Cedar, Beech and Hoop Pine.—These valuable timbers I must dismiss in a few words. They are chiefly found in the area marked blue on the map, as already indicated, though cedar is found in patches in mountain fastnesses in a latitude as far south as Sydney. Red cedar (*Cedrela australis*, F. v. M.) is one of our few deciduous trees, and is a denizen of rich brush forests. The timber takes the same place here that the West Indian mahogany does in Europe; our cedar being, however, much lighter in weight. Closely allied to it and substituted for it to some extent, are Rosewood (*Dysoxylon Fraserianum*, Benth. and red bean (*D. Muelleri*, Benth.), valuable timbers, though less esteemed than red cedar. White beech (*Gmelina Leichhardtii* F. v. M.) is another instance of a handsome tree yielding a valuable timber. It is of a pale colour, durable, does not shrink much, and is one of the best carving timbers we have. It is the most esteemed of a number of brush timbers of the same class, of which flindosa or cudgerie (*Flindersia australis*, R. Br.) is one of the most important. Hoop pine, or white pine, or Colonial pine, or Richmond pine, are all names for the timber of *Araucaria Cunninghamii*, Ait., which occurs in brush lands at the heads of our northern rivers. Araucarias form remarkable looking trees in the forest with their branches in whorls and their conical habit. They are more often planted for ornamental purposes than for timber. The hoop pine is our most abundant soft wood of the pine class, and is a useful timber, particularly in a country whose predominant vegetation is hardwood, yet it falls far short of the best soft woods of the Baltic and the Pacific Slope.

Cypress pine covers extensive tracts in the drier pastoral districts, and is chiefly confined to the western and southern plains and tablelands. It is usually more or less admixed with box of various kinds, although there are large areas entirely covered with pine. The cypress pine area has been already indicated on the map, and the pines therein consist mainly of two species, Murray or white pine (*Callitris verrucosa*, R. Br.) and red or black pine (*Callitris calcarata*, R. Br.). Other species extend to the Coast ranges and tablelands forming for example, dense forests in New England gullies), and even to the Coast, the beautiful cypress pine of Port Jackson being a case in point. Cypress pines are beautiful trees, and yield valuable timber in the arid districts in which they grow. Such timber is usually highly ornamental, even garish, in figure and colouring. Its chief merit is its resistance to white-ants, which enables it to be used for telegraph and fence-posts, in country infested with those insects and carrying but little other timber. It is also commonly used for house construction, and stands well. It is full of aromatic resin, and hence burns readily, diffusing a sweet fragrance. The attention of the forester has, during recent years, been a good deal devoted to thinning areas of cypress pine, work which will afford the State an adequate return if it be carried out under experienced direction and on business principles. Residents of the Coast districts do not readily realise what the conseravtion of our cypress pine forests means to the arid western districts which do not possess the abundant and comparatively accessible forests of the Coast belt. Cypress pines are small or medium-sized trees, compact and shapely in habit, and quite different in appearance to the hoop pine. They grow readily (too readily many people think) from seed, and are well worthy the attention of those who desire to cultivate the most horticulturally desirable of our native plants.

Miscellaneous.—I have only time on this occasion to mention by name brown pine (*Podocarpus elata*, R. Br.) of our northern forests; the silky oaks (*Grevillea robusta*, A. Cunn., and *Orites excelsa*, R. Br.) of our northern rivers and tablelands; the black bean (*Castanospermum australe*, A Cunn.), from the Clarence to the Tweed; the tulip wood (*Harpullia penduala* Planch.) of the northern brushes; the myall (*Acacia pendula*, A. Cunn., of our western plains); the she-oaks (*Casuarina*) distributed practically all over New South Wales.—*Indian Forester.*

A RUBBER PLANTATION IN GUATEMALA.

The large specimen of crude rubber shown at the entrance to the Guatemala pavilion at the Paris Expositon of 1900, and for which a good medal was awarded, was produced from cultivated trees (*Castilloa elastica*) on the hacienda "El Baul," in Guatemala, on the Pacific slope. This plantation was specially mentioned by Dr. Paul Preuss, in reporting on his expedition to Central and South America, under the auspices of the German colonial committee. It has more recently been referred to at length—because of its size, of the care taken in the extraction of rubber, and of the good quality produced—in the *Journal d' Agriculture Tropicale* (Paris), from which the details that follow have mainly been derived.

The plantation "El Baul," until recently the property of Joachim Asturias, is now in possession of a wholesale mercantile firm of Hamburg, who are extensively interested, like many other German houses in coffee planting in Guatemala, and its management is in the hands of Fritz Konig. He, by the way, is a brother-in-law of P. Ossaye, owner of the coffee, vanila, and rubber plantations "Arenal" and "Seamay" in the same region. Such details are mentioned here as indicating that large and permanent planting interests exist in Guatemala, based upon outside capital, as a result of which much experience has been gained in such matters, which is shared by many persons of repute and success, whose confidence in the practicability of rubber cultivation is entitled to consideration.

According to Rene Guerin, director of the Central Laboratory of Guatemala, writing in the *Journal d' Agriculture Tropicale*, the plantation "El Baul" comprises about 50,000 rubber trees, of which 30,000 have reached a productive stage, being from 10 to 15 years old. Dr. Preuss, by the way, writing two years earlier, mentioned 20,000 trees between the ages of 15 and 20 years. The soil, very liberally watered, is divided into sandy and black-earth zones, though no difference has been observed either in the grown or the productiveness of the trees planted in the two zones. The vegetation is continuous, but at the beginning of the dry season—March and April, when the seeds ripen—the leaves turn slightly yellow and fall.

The trees growing in the plains furnish at all seasons a latex of the same quality. The trees on the higher altitudes, and which are for this reason less well watered, yield during the rainy season a larger quantity of latex than during the dry season. However, as this latex is less rich in caoutchouc, the true yield is the same. The rubbr trees which have developed in the plains, exposed to all weathers, begin yielding seed from the third year. Those growing in the woods develop much slower, and at that age have not reached a height above 3 meters. But as soon as these have attained the height of the surrounding trees, and receive the sun's rays direct, their development proceeds rapidly and they reach large dimensions and possess exceptional vigor.

In extracting the latex, incisions are made in the bark horizontally, at a distance of $1\frac{1}{4}$ inch apart, so as to not girdle the tree completely. The latex coagulates spontaneously on exposure to the air, and at the end of two or three days the rubber can be gathered from the tree in bands, which, after being washed, may be rolled together into balls. Each tree yields about 125 grams of rubber (from incisions in the trunk alone, and without the branches), and as the cuts will heal within three months, it is possible to make four extractions each year, giving a total yield of 500 grams [=1 1-10 pound.] The annual yield of 1000 grams [=2 1-5 pounds] mentioned in Dr. Preuss's report, resulted from making incisions in the branches as well as the trunks, but this involves an undesirable amount of labor.

Much thought has been given on the plantation "El Baul" to the choice of a tool for incising the rubber trees, with a view to affording a suitable outlet for the latex, without cutting into the wood, which contains no latex, and the wounding of which tends to decay. Dr. Preuss found in use in Guatemala for this purpose a sort of transformed saber, a sketch of which appears in the first of the two cuts herewith. Senor Asturias has had made to

order, in the United States, the tool illustrated in the second cut, which is regarded as superior to the old model. The latter comprises a blade of tempered steel—square at the end, about 3 inches long, and at the top about $1\frac{1}{3}$ inches wide—mounted in a hard wood handle $3\frac{1}{2}$ inches long. The steel blade diminishes in thickness from the handle, until at the other end it does not exceed the thickness of a playing card. The left angle of the blade is turned over so as to form a rounded gutter, about finger wide, and at 45 degrees to the axis of the tool. The left side of the blade is notched right at the gutter, so that the lower end of the gutter projects at that side. The parts that do the cutting are the two sides of the turned over angle.

M. Guerin states that Senor Asturias intends trying a new process of extraction, by the employing a vacuum, in the hope of accelerating the flow of latex, and adds: "It would be desirable if other cultivators, intelligent and progressive like M. Asturias, would display the same activity in the improvement of rubber cultivation and the rubber product." In too many cases, however, the collection of rubber is left to the native, who injure the trees unnecessarily, besides producing a poor quality of rubber by the use of soap or vegetable compounds, whereas by the spontaneous coagulation of the latex, after the complete elimination of the *serum*, an article of superior quality may be derived from the same trees.

It was found by Senor Asturias that trees on his plantation which presented precisely the same appearance, yet yielded different qualities of rubber. M. Guerin forwarded specimens to the museum of natural history at Paris, where Jules Poisson, of the museum staff, has discovered differences in the fructiferous receptacles of the seeds, and if further engaged in endeavoring to discover weather different species exist. While some of the trees yield caoutchouc of a superior quality, the product of others remains after coagulation sticky, glue like, and with little elasticity. There is also a perceptible difference in the color of the latex, that from both trees being white, but in one case with a tinge of yellow and the other with a grayish tinge.

The question of differences in the product of the *Castilloa elastica* is by no means new, but generally the trees not yielding the true rubber have been supposed to bear outward marks by means of which they could be avoided by persons having any experience in hunting rubber. By the way, in connection with the subject, it is interesting to quote from Dr. Preuss: "One has repeatedly asserted to me that there were, on the other hand, places where *Castilloas* exist that are rich in caoutchouc, and yet whose latex flows along the trunk, so as to be collected in liquid state in vessels, but I have never been able myself to prove the fact." Which would indicate an interesting difference between the trees on "El Baul," the latex of which, as above stated, coagulates on the trunks, and these in Mexico, for example, whose latex flows more freely and requires to be coagulated by other means.—*India Rubber World*.

THE TREATMENT OF OLIVE OIL IN FRANCE.

In an interesting report on the treatment of olive oil in France, R. P. Skinner, United States Consul-General at Marseilles, points out that the manufacture of crude clive oil in Europe has undergone comparatively little change since Scriptural times. The olive tree gives a good yield of fruit every two years, which is gathered in France in either November or December. In Italy the picking season is in either February or March. The rule is to collect the olives before their maturity, without which they fall, become bruised and give an oil green in color and sharp in taste,

Gathered too long before their maturity the oil extracted has these same disagreeable quantities, and it is therefore necessary to recognize with certainty the proper moment for taking them from the trees. At first green, they become yellow, then red and finally reddish brown, at which point they have arrived at the desired state of maturity. The olives found upon the ground are placed aside, and the trees are then shaken in order that the completely ripe fruit may also fall and be put apart. The oil extracted from these olives is of inferior quality and has the flavor of the fruit itself. The olives remaining upon the tree are either picked by hand or beaten with long poles. The latter method is discountenanced, as the fruit is thereby necessarily bruised, with disastrous consequences to the oil, and the trees themselves give a less abundant yield thereafter. This system is so expeditious, however, that in a large proportion of cases the trees are beaten and the fruit falls into sheets held beneath for the purposo. An olive tree ten years old should yield about six pounds of fresh olives, and at twice that age twice that quantity and at the age fifty years from twenty-two to twenty-six pounds.

In the south of France and Italy the crop of olives is gathered in large sheets and transported to warehouses or cellers, and there laid in beds six to eight inches in thickness. They remain for from twenty-four to forty-eight hours, until they commence to wrinkle and lose a little of their water, but not sufficiently long to permit fermentation to begin. In other countries, and particularly in Spain, the habit is general to store the fruit in piles, where it remains for from twelve to fifteen days. A black water is drawn from this mass which heats and ferments. Before the fermentation proceeds too far, a point which is decided by thermometrical test, the manufacture of the oil begins. The piles should not exceed six feet six inches in height. The extraction of oil from olives thus manipulated is easier than otherwise, as the cells containing the oil are less resistant, but the oil has a strong odor and is less desirable than that of more carefully handled fruit.

The manufacture of the oil, properly speaking, begins with the crushing of the fruit, which usually takes place in an old-fashioned mill. The crushed fruit is placed in round mats, of which twenty-two are usually placed one above the other, the weight of olives ranging about 165 pounds. The first pressure being applied for the virgin oil, the oil and water drain into tubs, the proportion being 72 per cent. of water and 28 per cent. of oil. The virgin oil is set aside, and the mats, removed from the press, are bent back and forth by hand, some of the manufacturers pouring a quart of hot water upon each mat, after which the twenty-two are placed in a hand or hydraulic press and the second pressure applied. The oil and water are drained into tubs, as with the virgin oil. The pulp remaining in the mats is removed, and by a single mechanical process, which takes place in a separator, the kernels are separated from the pulp, from which latter a third and very low grade of oil is obtained by chemical process. This process is rarely carried on by the olive growers, as it requires complicated apparatus. Both pulp and stones have a regular market price, however, and are manipulated in Marseilles on a large scale. The local cultivator occupies himself with the first and second crushings of the olive only.

The oil in the tubs, as it comes from the press is carefully skimmed and placed in barrels. After all the oil of the surface has been skimmed, apparently, the water itself is poured into stone or tile cisterns, called the "enfer," where it remains three or four months. In the course of this period a considerable quantity of oil in suspension mounts to the surface and is also skimmed off and sold as "huile d'enfer." Its odor is very strong and the price is low. The oil of the first pressing, or the virgin oil, and the oil of the second pressing are always kept separate and sold for what they are. They are decanted three or four times from one barrel to another, and finally deposited in huge earthenware jars, where they remain until spring, and are then decanted for the last time into barrels and offered for sale in the market.

The successful manufacturers and exporters of olive oil find their raw material wherever they can, having buyers who scour France, Italy, Spain and Tunis, and the success of the business hinges mainly upon the tasting capacity of the head of the house, whose work begins after the oil has been pronounced upon by chemical analysis.

The most important operation in the treatment of the crude oil is its filteration. While the various nut and seed oils are now readily freed of the mangarin in suspension by subjection to a low temperature, this process cannot be successfully followed in the case of olive oil, which is a much more delicate product. Until comparatively recently the packers of olive oil filtered it through cotton, and probably the majority of packers cling to the old system mainly because of the expense of the improved paper filters. Excellent results are obtained by passing the oil through cotton, but the process is slower, and the cotton itself absorbs large quantities of the oil which cannot be expressed and used, except as an inferior product. It is now generally agreed that no more satisfactory filtering material has been found than specially prepared paper, and the oil is passed through paper either by means of force pumps, hydraulic pressure or the application of the stand-pipe principle, the pressure upon the paper depending upon the height from which the oil is injected into the apparatus.—*Bradstreet's.*

PLANTING NOTES.

Earth-nuts in Uganda, &c.—It appears that these Nuts can with ease and profit be grown in East Africa —so says the *East Africa and Uganda Mail* of a recent date. In British India 46,000 acres are under cultivation with this nut. In the native states of India over 16,000 acres are under the same culture, and this area will yield nearly 11,0,00 tons; and the journal noted is of opinion that after satisfying the home demand, sufficient would be left to pay for exportation to England and elsewhere.—*Gardeners' Chronicle*

Martinique.—The following extract from a private letter to one of our correspondents bears witness to the beauty of the stricken Island:—"The scenery of Jamaica and Cuba cannot be compared with that of Martinique and Dominica; my pen cannot adequately describe the beauties of Martinique, rising smartly out of the sea, and its mountains towering away up into the skies! Dominica, too, is sublimely beautiful, with its deep gorges and primeval forests. Tremors have been felt in Dominica, and a lake on the top of a mountain is said to have gone dry, so that they are evidently within the seismic sphere of disturbance."—Ibid.

Doryanthes as a Food for Pigs.—According to the *Agricultural Gazette of New South Wales*, the Giant "Lily" (Doryanthes excelsa) has been suggested as a useful food for pigs. Analyses have been made of the bulbs of the plant (here so prized, but in the upper Mangrove district growing wild), to see if it would be valuable for fodder when other foods are scarce. It is considered that the bulbs compare very favourably as to feeding values with ordinary root crops, and that, provided they are found palatable, they should prove fairly nourishing; superior, indeed, in this respect to Parsnips, Beets, and Turnips. But New South Wales swine do not consider the Lily-Bulbs eatable when raw, but prefer them boiled and mixed with a few handfuls of ground Maize. So served "the pigs consume the mixture greedily."—Ibid.

SCIENTIFIC AND TECHNICAL DEPARTMENT OF THE IMPERIAL INSTITUTE.

RECENT EXPERIMENTS ON THE CULTIVATION OF TOBACCO.

The tobacco industry has become so highly specialised that it is necessary for the successful planter to become thoroughly acquainted with the scientific side of the processes involved in the cultivation and fermentation of this material. The qualities of the tobacco leaf as regards the size, shape, thickness, flavour and aroma, the grain and general appearance, are so easily influenced, and so difficult to control, that its cultivation in new localities can only be attended with success after much experimental work.

At the present time experiments are being undertaken in Ireland, on the culture of tobacco, by the Department of Agriculure. Some useful information on this subject is contained in Report No. 63 of the United States Department of Agriculture, and the following summary is compiled from this source. The report is a review of the experimental work conducted for some years past at agricultural experiment stations situated in widely separated localities, and is intended to throw light upon the various problems connected with the growth and cultivation of tobacco.

Methods of growing plants in seed beds.—At the Alabama State station various methods of starting tobacco seed were compared. Seeds were started in several beds, some open and others covered with cheese cloth. During the first year of the experiments the greater number of plants in the open beds were desstroyed by a spell of cold weather, and during the second season they were injured by the flea beetle. In the covered beds the plants came up well, grew rapidly and were not subject to insect attacks. From these results it is evident that under the climatic conditions of Alabama young tobacco plants are readily affected by low temperatures, and quickly killed by frosty weather. At the Colorado staition, in pursuing this work it was found that it took no longer to produce plants suitable for setting out by growing seeds in cold frames than by the use of the hotbed.

The following method of germinating the seed at the Georgia station proved very successful. The seeds were placed in wine glasses and soaked in water for half-an-hour, the water was then poured off,—the glasses placed in saucers containing water, and a tumbler inverted over each glass so as to confine the moistened seed in a damp atmosphere. In about a week, when the seed had started to germinate it was sown in a cold frame, and with in a month from that time plants suitable for transplanting to the fields were obtained.

In the experiments conducted at the Central Experimental Farm, Canada, the seeds were sown in hotbeds, and some of the plants thus obtained were transplanted to cold frames before being set out in the fields. A striking difference was noticed between the plants set out from the hotbeds and those transplanted to the oold frames prior to setting out. The latter were stronger and grew more rapidly than those taken direct from the hotbeds. It was also found that if the plants were transplanted to a second hotbed before setting them out in the fields, the vigour was increased and the number lost in transplanting was materially reduced.

In the districts where fungoid diseases gave any serious trouble it was found quite possible to sterilise the soil used for the plant bed. Boiling water, hot stones, or steam under high pressure may be used for this purpose.

The size, weight, and condition of ripeness of the seed, as well as the method of planting, has been shown to have an important bearing upon the crop.

Varieties of Tobacco.—At Calhoun, the North Louisiana station—ten varieties of tobacco, namely, Conqueror, Hester, Long-leaf Gooch, Ragland Improved Sweet Oronoko, White Burley, Comstock Spanish, Persian Rose, Improved Havana and Brazilian American, were tested. Of these Comstock Spanish, Persian Rose, Improved Havana and Brazilian American, are cigar-leaf, and the rest are described as bright-leaf varieties. The last-named, with the exception of White Burley, produced a leaf which, when cured, was of a lemon yellow colour; they were more successful than the cigar-leaf varieties which, when cured, produced leaves too bright and in but small quantity.

It was also shown that Conqueror, Long-leaf Gooch, Hester, Oronoko, and Ragland Improved, cured brighter than other bright-leaf varieties, and that Vuelta de Abajo, Havana, Seed-leaf, Imported Havana, Choice Havana, Little Dutch, and Pumpelly, produced a leaf of greater silkiness and finer texture than other cigar varieties tested.

The kind of tobacco which can be grown in any district depends partly upon the climatic conditions and also upon the character of the soil. In testing varieties, therefore, consideration should in the first place be given to the type of tobacco adapted to the locality, to the soil, and the grade which the climatic conditions and soil may reasonably be expected to produce.

Influence of distance in Planting.—A study of the relation of distance of planting to yield and thickness of leaf, was made at the Wisconsin station. Plants were set 20 inches apart in rows 31 and 36 apart, and at intervals of 24 inches in rows 42 inches apart; close planting was found to increase the yield, and the plants nearest together in the row produced a thinner leaf than those further apart; but lessening the distance between the rows did not have this effect. A distance of 31 inches between the rows was sufficient for the full development of the plants. The surface area of the cured leaves per pound from the closest planting was 42·01 square feet, and from the widest planting 40·86 square feet.

Other experiments made with a view to ascertain to what extent close planting may be advantageously practised, showed that planting 1 foot apart in the row was not too close for Wilson Hybrid, the variety grown in this experiment. From these and other experiments it was concluded that too close planting interferes with the development of the leaves, while too large spaces between plants tend to produce coarse leaves. The dimensions of the leaf, thickness, elasticity, and size of the vines may all be more or less modified by giving the plants space or increasing the number in a row.

Fertiliser Experiments.—The results of experiments at Kentucky indicated that potassium, chloride, and sulphate, gave equally good results as fertilisers for tobacco, and that sodium nitrate produced a better quality leaf than other forms of nitrogen.

Tests with complete fertiliser applications were also made. A yield of 1,460 lb. of cured leaf per acre was obtained after an application of 80 lb. of sodium nitrate, 80 lb. of dried blood, 160 lb. potassium chloride, and 140 lb. of double superphosphate per acre, whereas by doubling the quantity of fertiliser the yield of leaf was increased to 1,620 lb.

Fertilisers used on soil in a good state of fertility, were found to increase the yield of tobacco considerably, and potassium chloride proved more efficient than the carbonates of potassium and magnesium.

At Calhoun experiments were conducted on red saudy and grey sandy soils- and it was shown that potash had little or no effect on the crop, but nitrogen, either in the form of sodium nitrate, ammonium sulphate, cotton-seed meal, or dried blood, caused a marked increase in the quantity obtained. An application consisting of cotton-seed meal, acid phosphate, and sulphate of potassium produce the best quality leaf.

The effects of different fertilisers on tobacco were studied at the Virginia station. Five plots manure with complete fertilisers, all of the samo cost per acre,

were compared with an unmanured plot. Dried blood gave the largest yield and the best financial returns as a source of nitrogen. The tobaoco grown without fertiliscrs ripened ten days to two weeks later than that grown with fertilisers.

Influence of Time of Harvesting.—These experiments were underdaken at the Wisconsin Station to determine whether the tohacco leaf increased in size and thickness, and whether the loss in curing diminishes, when the plants are allowed to stand a considerable time after topping.

The results showed that when the plants were permitted to stand 32 days, as against others allowed to stand only 18 days, the thickness and dry matter of the leaf tended to increase, and the yield has a like tendency, *i.e.*, after curing, a greater weight of the leaf was obtained, but the area per pound of leaf was less.

It was thus possible to vary the commercial grade, and influence the price considerably, hy harvesting the crop at different stages of maturity. This was one of the methods by which the quality of tobacco might he sensibly cotrolled.

Effect of Priming Tobacco Plants.—Primiug, which consists in removing the leaves from the stalk of the plant as they mature, has a marked effect on the growth and chemical compositiou of the upper leaves. The removal of the lower leaves causes an increase of growth in the upper, and also a higher percentage of nitrogenous matter and nicotine. Priming is believed by many practical growers to he the proper method of harvesting the cigar-and cigarette-types, for in this way the leaves are uniformly matured and the suhsequent product is consequently of a more uniform character. The priming of tobacco is more expensive than cutting the stalk, as more labonr is required, but the improvement in quality fully warrants this additional cost.

Experiments in Topping Tobacco were conducted at the Central Experimental Farm at Ottawa, Canada, in order to determine how the time of topping, and the number of leaves left on the plants, affect the yield. The plants were topped July 20th and 26th and August 2nd, and on each date one plot was cut back to nine leaves and another to eleven leaves per plant. The larger yields were obtained from the latest topping, and the greater uumber of leaves per plant. The time and manner of topping has a great influence upon the character of the leaf produce. As a ru'e the earlier a plaut is topped and the lower it is cut, the heavier, richer and darker-coloured the leaves become. This is a decided advantage for some crops, but a disadvantage to others.

Disease of Tobacco.—The disease to which most attention has been given manifest themselves during the curing process, and are commonly known as "stem rot" and "pole hurn" or "pole sweat." The latter makes its appearance as small dark spots on the surface of the leaf near the veins and midrih, where moisture is most abuudant. The disease is supposed to be primarily due to a fungoid growth which attacks the leaf on the surface and gives access to a hacterial process of decay by disiutegrating and partially destroying the leaf tissue. It has been ascertained that moisture and temperature have a marked effect on the activity of these organisms. Decreasing the amount of moistnre lowered their vitality, and a temperature up to 70° F. or even 90° F. favoured their development, while a temperature of over 100° or 110° F. and below 35° or 40° F. temporarily or permanently checked their vitality.

From investigations it was concluded that nnder the atmospheric conditions most favonrable to the development of "pole sweat" the temperature and moisture in the interior of a closed barn could be regulated by artifiicial heat so as to reduce to a minimum the liability of tobacco to damage from fungi or other like organisms.

"Stem rot" is a fungoid disease which frequently affects the stems of the plants in the last stage of curing. No special experiments were made upon this disease, hut as a remedial measure it was suggested that when the crop is cnred all stems and refuse attacked hy stem rot be burned before the fungus has matured, and the barn fumigated with sulphur immediately after curing, and again hefore the harvesting of the next season's crop.

Experiments in curing Tobacco.—Tobacco goes through certain processes of fermentation from the time it is cut until it is ready for the manufacturer. During this time it is said to be curing aud ageing, After the harvest the leaves are speared upon laths and hung in a barn to dry, Artificial heat is often employed for this purpose. Experiments with different methods of curing tobacco have been conducted at several experimental stations. At the North Carolina statiou, the ordinary method of cutting down the plant and curing it with the leaves on the stalk proved less profitable than curing by the Snow process, in which the leaves are cut from the stalk as they ripen, and cured separately. A greater yield was obtained with the tobacco cured by the leaf process and the quality was better. This effect is ascribed to harvesting the leaves as they became mature, while, by the stalk process, many of the lower leaves were over-ripe, and the upper leaves still green at the time of cutting. It was found that the time and temperature required for curing leaves from different parts of ibe plant varied according to their ripeuess, and for this reason the leaf-curing provided the most desirable method, as the leaves were all of the same degree of maturity. At Wisconsin it was found that the loss of water in curing was about 71 per cent. of the weight of green leaf.

It is stated that the changes in the colour of the leaf during the curing process were not directly due to the loss of moisture, hut depended largely npon the degree of ripeness—the riper the leaf, the lighter in colour it would be when cured.

From data obtained in this work it was coucluded that tobacco should he cured in as moist an atmosphere as possible, without incurring damage from "pole burn." A temperature within the curing house not exceeding 75° F., and a degree of humidity among the plants represented by a wet bulb depression of 2°, were regarded as suitahle conditions. In order to maintain these requirements. the plants should he eveuly distributed in the curing-house, in order to equalise the humidity of the building, and the ventilation should be under perfect control, with a provision to regulate the humidity of the air by the use of artificial heat.

Fermentation of Tobacco.—The fermentation or sweating of tobacco is carried out in several ways. To give a general idea of the method of procedure, that followed in Florida may be cited. After the tobacco is cured, the leaves are stripped from the stalk and made up into hands, *i.e.*, bundles tied together at the base. These hands are either piled on the floor or put into bins, and the fermentation allowed to proceed gradually. The temperature of the pile gradually rises, until it reaches its maximum, which is sometimes as high as 180° F. From this point the temperature gradually subsides, and finally attains the normal temperature of the room.

In connection with the changes which take place during the process of fermentation, most attention has hieherto heen given to the loss in weight of the leaves and to the chemical changes which occur. At Connecticut State station the weight and chemical composition of cured and fermented leaves was compared. The loss in the fermentation of upper leaves, short seconds, and first wrappers was 9·7, 12·3 and 9·1 per cent. respectively. About three-fourths of the loss in the short seconds consisted of water, the upper leaves, lost almost the same proportion in dry matter, and in the first warppers the loss of dry matter was a little less than that of water.

The nitric acid, ammonia, fibre and starch contents of the leaves were affected very little by the process of fermentation, and the chief loss of dry matter was found to have occurred in the nicotine, albuminoids,

and amide bodies, nitrogen, free extract and ether extract. At the Pennsylvania station it was found that the loss in fermentation was greater with tobacco fertilised with barnyard manure than with tobacco grown with other fertilisers.

When it is considered that, commercially, tobacco is divided into four classes, viz.: cigar, cigarette, snuff and export, it becomes evident that the systematic observations as briefly described are invaluable to growers, who must, of necessity, produce tobacco suitable to the requirements of the market.—*Imperial Institute Journal.*

COFFEE CULTIVATION IN INDIA.

REPORT ON THE LEEMING QUESTION.

The following report on the "Leeming System" of coffee cultivation was supplied to Messrs. H. J. Gardiner and Co., Loubon, by Messrs. Binny and Co., Madras:—

MESSRS. BINNY AND CO., Madras.

DEAR SIRS,—As requested by you in your letter of the 9th instant I went to the Shevaroy Hills and visited Scotforth, Mr. Leeming's estate, on the 12th and Kooderay Panjan Estate, of which he is manager, on the following day, and beg to report as follows:—

The system of cultivation carried out on these properties has, for the sake of convenience, been called the Leeming system, but Mr Leeming does not claim to have discovered anything new. He says he has merely thought out and applied to coffee growing the principles carried out by practical and scientific growers of fruit trees in various parts of the world, and his system as it stands at present, is the resnlt of careful observation and experiment carried on over several years. I was taken over every field in these two estates, so that I might see for myself the effect of the sysrem on both the good and poor soils, Mr. Leeming answering all my questions without any reserve whatever.

The system may be said to have been institnted seven years ago, when he ceased to either prune or handle and allowed suckers to grow, the trees being left to nature, but he continued to cultivate and manure the soil more carefully than ever. The result was that his crops increased and his trees suffered less from leaf disease; but it was apparent that they were so crowded that they could not give nearly as good crops as they might. In 1896—only three years ago—he began cutting out in field No. 10 of Scotforth reducing the number of trees from 27,000 to 13,500, just half, and giving them a space of 12 by 12 feet in which to spread, i.e., about 600 trees per acre. 1899-1900 he picked 1,500 struck bushels of ripe cherry from this field, equal to nearly 7 cwts. per acre. Last season he picked 1,700 bushels, nearly a ton more than in the previous year, and in April, again, he thinned out the field to 10,200 trees, and the estimate for the coming crop is nearly 10 cwts. per acre. These figures I took from the estate books myself, and are unquestionable, and a better record than this can hardly be imagined. The other fields were similarly treated in 1899 and 1900, and now his object is to finally get about 300 trees per acre, and no more. In field No. 3 of Scotforth this has been done.

No sooner had ths trees got root and air space than they at once began to fill out laterally, and the long branches came sweeping down to the gronnd, thereby increasing the bearing area enormously, and suckers grew very slowly. What suckers there are were grown before the thinning-out process began. These trees are now 10 to 12 feet higher, and the branches have a spread of over 15 feet, and I agree with Mr. Leeming in thinking it will take another five years to see them at their full development. I merely give the figures of field No. 10 because it was the first to be cut out, but those relating to the other portions are equally good. When thinning out from 600 to 700 trees per acre, he first cut off the primaries, leaving the suckers for a couple of years, thus giving air and some root space to the trees that remain, but he is not certain that it would not pay better to take them out at once.

When going over Kooderay Panjan, he took the same trouble in order that I might see part of each field. I remember seeing this estate some eight or nine years ago, when, although it grew very fine oranges and silver oaks, the coffee was very poor indeed; now, under this system, there is a complete transformation, oranges, etc., have disappeared, and the avenue of great coffee shrubs, healthy and vigorous, with dark glossy leaves and laden with crop, have taken their place. When Mr. Leeming took charge of it, eight years ago, its crop was 1½ ton off 65 acres; last year, off the same area, with some little assistance from the yonng coffee, he picked 25 tons. For seven years he never pruned, and in 1899 he cut out to 600 trees per acre, and there is a good deal of it now thinned to 300 trees per acre. The coming crop is estimated at 11 tons, and, judging from the wood now making, it should easily be followed by 30 tons. The way trees that were a mass of sticks from overbearing, both here and at Scotforth, are making new wood is simply marvellons.

The new clearings on both estates are planted 7 by 7 and 8 by 8 feet apart, and beyond topping the trees that are intended to be permanent, they have never been touched with a knife. Those trees that are to be cut eventually will have their primaries cut off, and a crop or two taken from the suckers. I have never seen finer clearings, soil, climate, and deep cultivation being all in their favour.

Regarding cultivation, Mr. Leeming believes in deep drains (3 to 4 feet deep) and 40 feet apart to enable those large trees to send their feeding roots deep into the soil, a six-inch digging with a quintanies once a year and ¾ lbs. bone meal, poonac, and nitrate of potash scattered over the surface and dibbled in. The supervision of applying the manure has been very greatly simplified under the new system, and each individual tree can be studied. and manured according to its needs. He is also growing a legume (a creepsng pea) in the middle of the row, one to each tree, which, when growing, will cover the ground and act as a mulch in preventing wash and loss of moisture, and induce the earthworms to come up and make casts. I was shown examples of these casts as we went along. Just before flowering the legumes will be dug into the soil, and will enrich it with a cheap store of nitrogen. He very kindly gave me a supply of the beans to try in onr district.

The advantages of the Leeming system, as compared with our present methods, are: Economy, in that no pruning or handling are required, and only half the quantity of manure is necessary (Mr. Leeming believes in manuring at least once a year; improved quantity of bean, as leaf disease is not nearly so virulent now that none of the leaves, which are the lungs of the tree, are sacrificed in pruning, and the crops are not only more regular. but are much better. These large trees are not nearly so easily affected by a bad blossoming season, although they will always do best in a good one. Mr. Leeming's figures speak for themselves, the results are, as Mr. Hodgson remarked at the Conference of the U.P.A.S.I. simply astounding Whether we in Mysore are ever likely to achieve such results is doubtful, as the Shevaroys are, generally speaking, much more favourably situated as regards soil, climate, and rainfall. but even if we only receive a third of Mr. Leeming's success, we will improve our position enormously.

The system has been objected to on the score of borer, but I find Mr. Leeming has had worse borer than we ever get, and yet he has no fears on that score. He says it is only destructive on the clearings, and that old trees are rarely attacked, as the branches are close and come down to the ground, thus protecting the stem, and this is borne out by the fact that those trees that have suffered have been brode near the top, when the damage amounts to very little. It has been alleged that if trees are neither pruned nor handled they will lose their primaries,

SOME NOTES ON RUBBER GROWING.

SOME VALUABLE POINTS.

The following notes are written by a gentleman at present in the island who from his long experience in the handling of rubber in all its forms is entitled to be considered somewhat of an authority upon the subject:—

The continued increase in the price of the raw India rubber has naturally turned the attention of both planters and manufacturers to the extention of our existing rubber supplies. The ever-increasing demand for the manufactured article, its ever-widening field of application, the new and great demand not only for rubber tyres, but also for road vehicles, and the thousand and one applications of the manufactured material for mechanical purposes, had all so increased the demand for the raw gum, that the world's supply barely met the necessities of the demand, consequently the cost of the raw material had advanced to famine prices. Para, the standard brands had advanced from its normal price, viz., 3s. per lb. to 4s. 6d., an increase that left the manufacturer poor indeed, and the producer rich beyond all telling. This increased demand not only then, but also now, promises to be permanent and to expand still more, rubber cab and cycle tyres have come to stay; the advent of the motor car has also added to the demand. The climatic conditions of Ceylon, its temperature, its heavy rainfall, the character of its soil, all pointed to this island as being an extremely good, if not an ideal, rubber-producing country, the plantations both at Henaratgoda and Edangoda, where the Hevea Braziliensis so successfully flourishes, proved that the merely experimental stage had been safely passed; a loamy soil, with a heavy rainfall, a country not too liable to flooding, plenty of moisture in the atmosphere not too much around the roots, at any elevation up to 1,500 ft., had already proved to yield satisfactory results. Cheap and plentiful labour held out a reasonable prospect of many coolies becoming fairly intelligent in rubber collection, if properly trained. In brief, the promise of Ceylon as a rubber-producing country to the visitor versed in rubber culture was distinctly favourable, perhaps this opinion was influenced and biased by the lovely climate, by the good nature of the people, and, perhaps too, by the beauty of the natural scenery.

THE FINEST RUBBER.

Far and away the finest rubber is derived from the Hevea Braziliensis, it is hardly worth while now to experiment with any other variety, the same care and attention given to the Hevea will produce a far better gum, stronger in fibre and possessing a much higher breaking strain than any other, and for this reason it will command higher prices than the products of either the Syphonica or Ceara. The seeds of trees now in the island are derived from plants sent hither from Kew in 1876, and although these still produce excellent results it is certainly worth the experiment to introduce a fresh stock direct from Manaos on the Amazon, the native home and habitat of the true Hevea Braziliensis. Reliable agents there are of opinion that the seeds can be safely sent to Ceylon if in proper and specially made germinating cases, and if this experiment proved successful Ceylon would be in possession of a new stock, the development of which it would be interesting to note side by side with the existing growth. The growing requires but little care. Rough weeding is quite sufficient. Upon the tapping of the trees at say eight to ten years old, and subsequent curing of the milk the success of the crop absolutely and solely depends, and upon this first crop also depends the reputation and future prosperity of the estate from which it is exported. A new brand placed upon the market immediately attracts the attention of the manufacturer. He is quick to secure a portion, and test a new rubber to discover if perchance there be "any good thing" in it. Happy is the new rubber which has no history. It is received eagerly, put upon its trial with every wish to make the best of it. If this test is satisfactory future success promises well, if unsatisfactory the shadow of suspicion and the coolness of neglect will for a time at least hang over that estate. To secure a good result from the first collection, it would be advisable to import two or three experienced collectors from the Amazon—not a costly enterprise; and where several planters are interested and prepared to combine, the expenses may be shared, and the more intelligent of the coolies on the interested estates duly instructed in their work. This policy was adopted by the Belgian Government on the higher reaches of the Congo, and here these Amazon experts succeeded in extracting from the African indigenous Hevea, by careful extraction and curing, a rubber called *Ruki* (after an adjacent village), which is actually better than Para itself, with a lower pecentage of rubber resins, and a lower percentage of foreign matter, thus offering a higher tensile strain. Naturally, this secured a better price in the European markets than Para itself, and is in great demand. This care, of course, is the ambition and goal of every grower. The same course was adopted by the Liberian Government in reference to the rubber trees near Monrovia, and at first it exported some excellent samples, truely capable of improvement; but, upon the departure of the rubber experts, the native Krew boys, either from want of care, or pure and simple laziness, abandoned due care, and consequently, Liberian rubbers are to-day more or less under a cloud in the market. The first and greatest care necessary and even imperative,

IS ABSOLUTE CLEANLINESS IN THE EXTRACTION

of the milk: the bark of the tree to be tapped should be carefully cleansed, the knife to be used carefully cleaned, the V shaped cuts and perpendicular central channel all should be perfectly clean before the milk is allowed to run, the collecting cups and milk can also need attention in this respect. The necessity of this seemingly excessive care is clear, in view of the fact that oftentimes the smallest particle of grit present may cause endless trouble to the manufacturer, depreciating or destroying the quality of his work. The manufacturer, to start with, must have his raw rubber perfectly pure. To this end the imported gum is first of all heated, then torn and rolled between friction rollers, under a stream of water to remove the foreign matter that may have been introduced through the carelessness of the collector. This constant tearing and rolling necessarily reduces the original strength of the gum, the greater the proportion of foreign matter to be removed, the greater the percentage of the loss of tenacity of the material. For instance, the removal from firm Para rubber, of even 5 per cent. of impurity, will oftentimes occasion the loss of 20 per cent. in strength and vitality of the resulting product. It is oftentimes the one little grain of sand which does the greatest mischief. As an illustration, may we take the case of a cycle tyre inner tube. If a little grain of sand is allowed to get into the milk in collecting, these little particles are the most difficult to remove mechanically by washing, hence the grain of sand eventually finds itself embedded in the thin skin of the cycle tube. Upon inflation the grain of sand pops out leaving a point of least resistance. Subsequent inflations tend to form a bubble, in a few days the bubble bursts; the sand has done its work, and the tube requires mending. Manufacturers know this to their cost, and are therefore willing to pay highly for a perfectly clean reliable rubber, and look with suspicion of either "gritty rubber" or "barky rubber." In the latter case the embedded fragments of bark or vegetable matter being very difficult to remove from the gum, become charred or carbonized during the process of vulcanization at a temperature of 280° F. and then simply drop from the article as so much soot. These foregoing remarks refer to what one may regard as accidental impurities due to want of cleanliness or absence of sufficient care, but which neverthless, depreciate the value of the article from 2d. to 6d. per lb. There is, however, another form of adulteration which will in time destroy

the reputation of any brand, and effectually "boycott" from the markets the estate sending it. This is the designed admixture of inferior gums, such as *Euphrobia* gum and many others of the resin class to reduce the price and illegitimately to increase the meantime profit, but to court disaster, and discredit the market of the future. For example, some six years ago, Borneo produced a fair rubber promising with increased care and experience better things. The producers in their haste to be rich, introduced "potato gum" into the milk; and down to the present time the class of rubber is hopelessly discredited and

CONTEMPTUOUSLY SPOKEN OF AS "DEAD BORNEO."

Many other brands have met the same fate from the same cause. On the other hand, where resolute and continuous attempts have been made to improve the method of collection, such efforts have been amply rewarded. Four years ago, the poor gum of Accra, Cape Coast and Saltpond sold with difficulty at 10d. to 11d. per lb.; and now, by a process of clean collection and careful curing, the price has advanced to 2s. to 2s. 3d. per lb., at which it finds willing buyers. Perhaps the most striking illustration of this appreciation of quality is that shown by the Congo rubbers, the preparation of which is yearly steadily improving with a proportionate increase in price, moving from 1s. 3d. to 3s. 6d. per lb. The process of curing to produce the first grade rubbers also necessitates an experienced headman, so that the smoking or curing may be thorough and complete, that all the immature so may be dully coagulated into caoutchouc—here decrimination is necessary, secured by experience in order to smoke the milk thoroughly, yet not excessively. Great care in this process is necessitated by two considerations—in the first place, to be certain that all the sap is coagulated, failing which the immature juice will be lost in washing, causing perhaps the loss of 15 to 20 per cent. in weight, instead of 5 per cent., as in the case of a well-cured, clean rubber, and in the second place to secure its freedom from rubber resins. To the presence of these has been traced the cause of the rotting or hardening of vulcanized rubber, and this knowledge has led to the issue, by Sir A. M. Rendel, of a rigid specification on behalf of the Government, refusing to pass any rubber article found to contain more than 5 per cent. of rubber resins. This official specification is being rapidly adopted by the Indian Government, and by the principal engineers, and will, in a few months, become the recognized standard for a good rubber. If Ceylon rubber is to command a good place in the market, *it must meet this requirement*; otherwise the product will be relegated to a third class group, looked upon with suspicion and priced at "rubbish heap" rates. Recently some experiments have been made by prof, Heinrique, to effect the removal of these resins by chemical treament, with alcoholic soda. Good results are predicted, but the practical results of time, sunlight and heat upon the manufactured article must be awaited before any reliable opininon can be formed as to the value of this chemical process, and also of its cost upon a commercial scale.

IN CEYLON'S OWN HANDS.

It is proven that the soil, climate, and rainfall of Ceylon are all alike favourable to this new industry, but it now depends upon the care, the attention, the intelligence of the planter, in view of the considerations herebefore mentioned, as to whether Ceylon rubbers are to command a high place in the markets of the world, securing profit to the planter and reputation to this colony, or to become one more addition to the role of discredited and unreliable products.—Local Times.

NEWS AND VIEWS FROM MANAOS.

(To the Editor of the *India Rubber World.*)

The Brazilian nut crop now being over, the landholders are turning their attention to the rubber crop for the coming season, and already large shipments of goods have been made from Manaos to the rivers Jurua Purus Japura and Madeira, and rubber is trickling in from the Embira Tarauaca, and other affluents of the Jurua. The nut season has been very poor, as regards both quantity and price.

The production of Upriver rubber is not expected to be so large during the coming season, for many people are saying that rubber at 4 $ 500 Brazilian is not worth working. Yet the receipts are larger to date than last year at this time. The price here is equivalent to 50 and 55 cents a pound for fine, and further up it is selling at 25 to 30 cents.

As indicating the tendency to introduce modern improvements in Amazonian towns, it may interest some of the readers of the *India Rubber World* to know that an electric lighting plant has been installed at Lahrea, on the river Purus, at the point where the Ituxy joins the Purus, 692 miles from the Amazon. The plant was constructed by the C. & C. Electric Co., of New York, and is based on the Nernst lamp system. The same company will probably supply a plant for Manacapuru, in the same region. The town of Labrea is also planning to obtain a water works system.

The Indians on the river Japura have been out on the war path, burning two or three rubber stations and killing some thirty persons.

The Amazon cable is as usual broken, so that business in rubber has been done by fits and starts depending entirely on the arrival of ships bringing news of exchange rates from Para.

The greatest present need of the Amazon country is a better, quicker, and cheaper means of steamer communication with the United States.

THE CONWAY CONCESSION ON THE ACRE.

Everybody here is talking about the concession by the Bolivian government, of the Acre rubber district to the American syndicate, of which the India Rubber World has lately published accounts. The river Acre rises in Bolivia—in which country it is called the Aquiry—but enters Brazil before discharging into the Purus, one of the largest tributaries of the Amazon. The highest point on the Acre navigable is 1,058 miles distant from the Amazon. The chief towns (they are called "cities") are Floriano Peixoto on the Brazilian section, and Puerto Acre (or Puerto Alonzo), at the boundary, in Bolivia. At the latter place in a Bolivian custom house exists and a fort is being built; a mule road is also being opened to La Paz. the capital of Bolivia. On the Brazilian Acre are rubber stations at Apuhy, Arares, Nazareth and the state revenue station at Caqueta. On the Bolivian section there are rubber stations at Flor de Ouro and at Bagaro, where Galvez, the head of the late so-called "republic of Acre," fired upon a Brazilian boat.

The dispute at one time between Bolivia and Brazil over the ownership of this territory arose from the trouble in determining the exact source of the river Javary, the division line being specified as running from that point to the mouth of the river Beni. This point having been settled, Peru now bases a claim to a portion of the Acre district, on another imaginary line, and has filed a formal protest against the validity of the concession granted to Sir Martin Conway.

That the Acre district is the richest portion of the Amazon valley, there can be no doubt, some of the *seringales* their yielding from 8 to 12 kilograms of fine rubber a day, per *estrada* of 180 trees. This is equal to 2.3 ounces per tree. Elsewhere in this paper the same writer refers to 1·5 ounces as a good average yield—[THE EDITOR]. The Caucho has been largely worked out on the Brazilian Acre, but doubtless very much still exists on the upper waters of the river.

At present the prices of goods are very high on the Acre, owing to heavy freight rates and the fact that everything must be imported. In 1900 I paid at the rate of $1 a pound for jerked beef, and

everything else in proportion. But a fairly active man could earn $8 to $12, gold, a day, at working rubber, and in sixteen days I once made $1,400 cutting Caucho on the Xapury, a branch of the Acre. But the Caucho is gone in that region, and rubber is selling at 50 cents a pound in Manaos and 15 20 cents on the Acre.

Several steamers ply between the Acre and Manaos and Para, at least two a week leaving Manaos for that river at the height of the season. The Acre is somewhat rich in minerals, coal gold quartz, and tiny emeralds having been found in various parts. S. G.

Manaos, Brazil. April 14, 1902.

CULTIVATION OF VANILLA IN GERMAN EAST AFRICA.

The current number of *Der Tropenpflanzer* (April, 1902), the organ of the German Colonial Economic Committee, contains an interesting article on this subject by Herr Blintzner, a planter who has grown vanilla in Africa, and who has had considerable experience in the preparation of this material for the European market. The object of the article is to extend the cultivation of vanilla in such German colonies as the Cameroons and Togoland, and for this purpose full information on the question of choosing suitable localities for the plantations, the artificial ripening of the pods in inclement weather and the proper packing of the commodity for export to Europe are given, and may be commended to English planters in tropical colonies where vanilla cultivation is possible.

Of the various species of plants yielding vanilla the one giving the best results is *Vanilla planifolia*, which begins to bear usually in the third year after planting and yields from 3 to 5 crops. It flowers in East Africa from August to November and bears fruit from April to July, the latter requiring about eight months to ripen in normal whether, and a further two months for drying and fermentation. For a plantation of about 10,000 plants, 15 labourers are necessary, and the wages of the latter on the East Coast of Africa are about 3½d. per day each. In forming a vanilla garden special attention should be paid to the selection of a site protected from wind shaded by trees from the direct heat of the sun, and in the neighbourhood of a stream which is not dried up in the hot weather. The importance of the latter is obvious when it is remembered that the roots of the plant only penetrate about twelve inches into the ground and, therefore, obtain water only from the easily dried surface soil. For this reason it is necessary to have a good supply of water for irrigation, in dry whether. The plants are arranged in parrellel rows about five feet apart, passages being left at intervals of about 45 to 50 yards to permit of regular inspection of the plants. As supports for the orchids poles of ebony are sufficient in situations where there is sufficient natural shade, but, if the latter is deficient, then *Jatropha curcae* may be grown in the garden to afford both shade and support. It is usually best to place the young vanilla plants for about a fortnight in a well-shaded moist situation where they are kept well watered, and then to transplant them to the small pits about twelve inches deep already prepared with leaf mould for their reception in the plantation, the aerial portion of the plant being at once secured to the support by bast or banana fibre. The orchids should not be allowed to grow higher than about 5 feet, and when they reach this stage the heads should be carefully bent towards the ground. The plants require manuring with leaf mould or similar material once a year. The chief enemies of the vanilla orchid are beetles, snails and caterpillars, which eat the fleshy roots and young stems, the only remedy being the constant examination of the plants, and destruction of these insects, when they are found. The flowering period is an important time, since the plant, outside its native habitat, is not self-fertilising, and must therefore be pollinated individually by hand. This work, although rather a delicate operation, can be readily taught to negroes. In order to secure pods of good quality it is necessary to limit the fruit production of each plant to from 20 to 25, although in special cases the maximum limit may be 35; if this number be exceeded the ripe fruits suffer in size, appearance and flavour. Ripeness of the fruits is indicated by the formation of a yellowish patch at the base, and at this point they should be gathered by breaking the attachment to the stem cautiously with the finger nail.

The operation of curing the ripe pods has an important bearing on the quality of the vanilla ultimately obtained, and great care has to be exercised in the carrying out of the drying and fermenting processes. The pods, after gathering, are sorted on the following day into about three sizes, and placed in large pots warmed to about 80° C by hot water for about 14 seconds, then packed in wool-lined boxes for a day, and finally dried with a linen cloth and placed in the sun on wool-lined trays for complete desiccation. In wet weather the exposure to the sun is dispensed with and the final drying accomplished by careful heating in ovens kept at temperatures between 80° and 100° C. The prepared pods are then stored in drying rooms and finally in large metal-lined boxes.

The preparation of the finished vanilla for the market, consists in sorting it into various qualities according to its appearance, size of pods and flavour. The pods of the same quality are then tied into bundles of about 50 to 60 each, secured with fine twine and packed into well-closed zinc-or parchment-lined boxes, capable of holding from 10 to 12 lb. of the product.—*Imperial Institute Journal.*

WATERING YOUNG TREES AND SHRUBS.

Amateur gardeners as a rule do not understand the art of watering in dry weather. When they see that the flowers and shrubs are drooping, they attach a hose to a stand pipe and thoroughly wet the—surface. They rarely think of looking to see how deep the water has penetrated, and would be astonished to find that after half-an-hour's hose play the soil is only wetted to the depth of less than a quarter of an inch. Such watering is worse than useless. Far better to mulch the soil, and trust to that for the preservation of moisture than to form a thin layer of damp soil, which only attracts the roots upwards to it that they may be par-boiled by the hot morning sun.

A good way to water shrubs is one which we adopted with perfect success in the case of some valuable coffee-trees during a very dry season. We took a number of beer bottles, and, with a tap of a pick on the bottom knob, drove the bottom neatly out. These bottles were then buried neck downwards close to the tree. Every night they were filled with water, which slowly drained away beneath the surface—1 foot below. The rootlets then sought the needful moisture downwards instead of upwards, and the plants grew luxuriantly. The surface was never watered, but by capillary attraction it was kept fairly moist.

In India, gardeners bury a porous jar like a water monkey unglazed. They are filled as soon as empty and a plug on the neck serves to keep out insects and dirt. If gardeners would try this plan they would save many a plant which would die under the ordinary hose treatment.—*Queensland Agricultural Journal.*

HONOUR FOR SIR JOSEPH D. HOOKER.—An official announcement in Berlin states that Sir Joseph Delton Hooker, formerly Director of the Royal Gardens, Kew, has been appointed a Foreign Knight of the Order pour le Merite for Science and Arts.—*Gardeners' Chronicle.*

GREEN TEA FOR ASIATIC MARKETS.

It is gratifying to find that my last letter on the above subject has attracted the attention of so many both in India and Ceylon. I regret however to notice that your leader criticising my remarks on the trans-frontier markets was based on more than one misconception as to my meaning. I will therefore feel much obliged if you will kindly allow me to explain and defend the position I took up regarding this once valuable trade.

You state that "so far from the making of the new style green tea being experimental in India, it is only following on the lines which proved successful in Ceylon." This may be, but why slavishly follow Ceylon at all in this matter, when India can already produce the genuine article, which proved so successful that it rapidly ousted its China rival from the great markets of Afghanistan and Central Asia? The trans-frontier markets are acknowledged to be

TOTALLY DIFFERENT FROM THE GREEN TEA MARKET OF AMERICA.

In the former we have to compete against the produce of China and in the latter that of Japan, and the mode of attack in each case must necessarily be different. It does not follow that because the Ceylon green tea suits America, which many experts still doubt, that therefore it is also the best for Afghanistan. Strange to say this is conceded in your leader, when you say, "in point of fact the American and not the Afghan market was aimed at." If this is really the case, then why is the Association trying to force the Afghan market with these new teas when the North-West can supply a tea that is already known and appreciated by all Asiatics? You further remark "that the three old districts did not make the slightest impression on the American market." But I do not believe anybody up here ever seriously tried to make any such impression, simply because there was no necessity for wasting our efforts in America, when we were receiving the highest prices in India at our very doors. The North-Western planters claim no special favours, but they do claim equitable treatment, and object to being arbitrarily brushed aside on behalf of purely Calcutta interests. The Association ostensibly exists for the benefit of the whole Indian tea industry. Why then is it promoting internal competition by artificially aiding Bengal tea against the teas of Dehra Dun, Kangra and Kumaon, the markets legitimately belonging to these districts? What would the Bengal planters say if the Association withheld its support from them in the direction of America, while it deliberately encouraged the North-West men to exploit and capture the American market? Regarding

THE ACTUAL PRODUCTION OF GREEN TEA

you say, "but we are of opinion that the expense and trouble of making green teas on the old system will always stand in the way of their being turned out in quantity." But the argument will not hold, as we have only to quote China, with its millions of pounds of green tea, every particle of which is made by hand in the old style." And nearer home, the much maligned "three old districts" also turned out between them a million or two of this very tea, and made it cheaper than the black teas of the period; and I feel assured that even now the same results could be easily produced. There is no reason why the process of "panning" should be done any longer by hand. I had not much difficulty even in the old days, in erecting a rough but workable hand apparatus by which one man did the panning of a dozen or more. Something on similar lines, adapted to steam-power would, with a few attendants, do the work of the whole factory. So we need not fear any difficulty about the cheap mechanical production of the old style green tea. What is really causing serious anxiety is the casual and airy way the inexperienced men of Bengal have decided to discard this tea for a new hybrid green which is untried and wholly unknown to the conservative Asiatic markets. I will take this opportunity of once more reiterating that genuine green tea, of a greenish hue, can easily be made without the addition of any foreign colouring matter whatsoever. But it is very probable that our Asiatic customers will insist on having a lighter green, and this can only be produced by "facing" the natural green with certain effective and harmless ingredients which cost next to nothing.

To resume our arguments. You state that "after all a style of manufacture which died out for want of support on the great markets is scarcely worth while making special efforts to revive" But it is forgotten that it was not the "style of manufacture," that caused the loss of our markets; but on the contrary, it was the extinction of these markets by the political and fiscal actions of Russia and Afghanistan that made it unprofitable to make any more green tea. Again you say, "by all means let the old tea districts revive their green tea trade with Afghanistan, but they cannot help us in America or elsewhere." I beg leave to doubt this latter assertion, but even if we allow it to pass, why should Bengal go out of its way to foist its new imitation green teas on the Afghans, when there is already a well-known and suitable article available on the spot? What would be said of our Government if in a trans-frontier war, it entirely neglected and ignored the splendid native army of the Punjab, and deferred taking active measures, till it had raised, equipped, and trained a scratch lot of raw and untried Bengalis and Cingalese for the campaign! When India first started capturing the tea markets of the world from China we

WISELY DID OUR BEST TO CLOSELY IMITATE OUR RIVAL'S TEAS

in make, colour, and even in names. The reason we triumphed in the end was because, quality for quality, we gave our customers better tea for their money. We did not, as some still seem to imagine, manufacture an entirely new kind of tea with fancy names of our own concoction. Likewise when the North-Western planters made up their minds to oust China from the trans-frontier markets, they did not waste their time and money in trying to force a wholly unknown commodity on the suspicious and extremely conservative natives. They took the more businesslike course of first obtaining approved samples of green teas from the great China entrepôts at Kabul, Kandahar, Mashed, Bokhara, and Samarkand, and then manufactured up to these qualities. And as they were not above consulting the people and meeting their wishes, they very rapidly secured a firm foothold in the desired markets. Had the Russians and Afghans not deliberately closed these markets to us, we would—long ere this—have secured the entire monopoly of tea in that direction, and could easily have defied competition from elsewhere. We lost this lucrative trade not because our teas were unsuitable, but because of the antagonism of Russia and Afghanistan, and

the indefensible supineness of our own Government, which had not the courage or the statesmanship to maintain the "open door" for our commerce. Reasoning from the above two examples, showing how we ousted China black teas from the home market and China greens from the transfrontier markets, one is forcibly obliged to come to the conclusion that our present campaign in North America would have been greatly facilitated had we imitated and improved upon the Japan teas now supplied there, instead of placing an entirely new product before the Americans, to which they have not in any way been previously acccustomed. It will

NOW BE NECESSARY FIRST TO EDUCATE THE YANKEE

palate and inclinations: a slow process which must produce stronger competition on the other side, and consequently greater loss of time and money to India. Whereas had we given America, quality for quality, name for name, a genuine green tea but one superior to that now supplied by Japan, it is hard to believe that our cute commercial cousins across the Atlantic would not by this time have deserted the old love for the new. The decadence of England's world-trade of late years, it is well known, has been caused principally by the Englishman's perverse and thick-headed policy of always trying to force his unsuitable manufactures down the throats of people who have been accustomed to, and want, something totally different. While on the contrary our foreign rivals, with their keener insight into human nature, take the more practical course of first consulting their customers, and then supplying just what is most suitable to each particular case, regardless of whether or not the article comes up to their own personal ideas of perfection and convenience. In my humble opinion

A SIMILAR MISTAKE IS AGAIN BEING PERPETRATED

both in America and Afghanistan with the new so-called green teas. These teas may gradually become popular on their own merits, but that is another story. As they stand, however, they are undoubtedly retarding instead of facilitating the introduction of our green teas in the above markets. I cannot help thinking that we would win over our customers more rapidly by "panning" these teas if possible, till they assumed a natural green colour: after which the same names should be used as for Japan greens in America, and China greens across the frontier, with the addition of India or Ceylon as the case may be. We have succeeded before on these lines, and there is every reason for believing we would succeed again.

If we are to make a serious attempt to revive the former green tea trade across the frontier, we must first bear in mind that there are many political issues involved, which can only be satisfactorily settled by the intervention of the Home and Indian Governments. It is therefore necessary that the Indian Tea Association, working in conjunction with the planters of the North-West, should lose no time in approaching our Government about the matter. Both Russia and Afghanistan might be persuaded to remove the difficulties in the way by a little judicious pressure on their own trade with this country. In 1888 I suggested to the Punjab Government, that if Russia would not agree to let our tea in to her territories in Central Asia on reasonable terms, the Indian Government as a set-off should put similar prohibitive duties on the import of kerosine oil from Batoum. At the time, my suggestion was received with horrified amazement by the official worshippers of the free-trade fetish; but some years later a duty was actually imposed on imported kerosine, though not sufficient to make Russia relax her restrictions on our Indian tea. There is, however, yet time to put the screw on in this direction to India's great advantage.

WITH THE PRESENT AMIR THERE SHOULD BE NO VERY GREAT DIFFICULTY

in arriving at some mutually satisfactory arrangement. But in both cases the initiatory steps must be more political than commercial, and the Association's business should be to persuade the Government to make an early move in this matter.

The North-West men, rightly or wrongly, think that the I.T.A. does not take a sufficiently broad view of the whole position. There is ample room in the world's tea markets for all sections of the Indian tea industry: but it is urged that each market should be dealt with on its own merits separately, and the most experienced men, and the most suitable tea should be told off for each particular situation. No one with any glimmerings of intelligence can be expected to believe that Calcutta tea and Calcutta men are the only possible means of opening every new market that appears on the horizon. Yet some such idea seems to prevail down Bengal way, as witness the manner things have been done regarding the trade in India, and in Persia, and now towards Afghanistan. Specialisation and decentralisation, that is, special men and special means, and delegation of authority, are the mainsprings of all modern progress. If the Association would only bear this in mind, there would be less irritation and dissatisfaction, and more combined and harmonious work done for it by the varied planting communities of this country.

J. B. LESLIE ROGERS.

Umballa, Punjab.

—*Indian Gardening and Planting*, June 12.

WHERE GREEN LEAF IS PREFERRED.

The following particulars may interest the Indian Tea Association and others concerned to revive the green tea trade with Afghanistan and Central Asia. Tea grown in China and Ceylon is most in demand in those countries. It finds its way by rail from Bombay to Peshawar, whence the bulk of the export trade goes by the Khyber or Mohmand country to the Districts beyond. The tea is most carefully packed by the Peshawar dealers in packages varying from two to four maunds, according to the transport animals to be used. The outside wrapper is of undressed leather, and thus the loads are fully protected against rain and snow. On reaching the Afghan frontier the Amir's officials levy 1 anna (Kabuli) per Kabul seer, which is equal to 8 seers Indian. This payment entitles him to an import certificate, which he has to produce at the place where he ultimately disposes of his tea. Up to and including Kabul this terminal charge is R5-1-6 (Kabuli) per Kabul seer. The total dues thus levied before the consumer is reached amount to about 2½ annas per pound, English. If the tea is carried through Kabul to the Oxus, for the Central Asian markets, the further charges are about the same, while the Russian fiscal duties in their Asiatic territory are practically prohibitive. The Indian planter, therefore, can scarcely hope for more than a re-entry into Afghanistan; he must consider the Central Asian khanates closer to him. We may

mention that Indian hill tea is not in favour in Kabul circles, where the upper classes are great tea-drinkers. The product of Assam and Kangra Valley are considered too heating, and the green leaf from China is preferred. It is, by the way, a mistake to suppose that the tribesmen of Afghanistan consume great quantities of tea. They are much too poor to be able to afford the beverage. In the big towns and bazaars tea is commonly drunk by well-to-do people; while traders and caravan men also use it freely. If the Punjab and the North-West Frontier Province were properly exploited, they would offer a much better market for Indian tea than can ever be secured in Afghanistan.—*Pioneer*, June 14,

THE INDIAN RESTRICTION OF OUTPUT CIRCULAR.

The following resolutions were unanimously agreed to at a meeting held at the offices of Messrs James Finlay & Co., London, on 26th May, 1902:—

(1) That those present agree to recommend and to use their influence to stop manufacture of tea from 1st to 21st August inclusive.

2 That if sufficient support is obtained, say to the extent of 65 per cent. of the crop, or 118,000,000 lbs. of tea, the Ceylon growers shall be approached to stop manufacture for a period of three weeks; and provided growers representing 50 per cent. of the Ceylon crop—or, say a total of 72,000,000 lbs. of tea—agree, the scheme shall forthwith be given effect to.

(3) That importers signing shall not alter, in the direction of coarser plucking, their present instructions to managers.

(4) That all signatories shall submit the totals of their estimates for the present season's crop, and at the end of the season will also submit the total figures of their actual crop.

(5) That the following gentlemen be appointed as a Committee to carry out the above, and to consider other steps that may be beneficial to the combination:—W H Verner, R B Magor, J N Stuart, C C McLeod. and A Bryans.

CEYLON TEA COMPANIES REVIEWED.

ADDITIONAL PARTICULARS.

We have to thank the secretaries of the undermentioned Companies for supplying the supplementary information required to complete our statistics, and which we now print for reference purposes. The acreage in bearing of the Burnside and Highland companies in 1901 was the same as in the previous year at 1,134 and 617 acres respectively, and the Kelani Valley Company showed an increase of ten acres only to 1,222, but the Poonagalla and Portmore undertakings had 1,280 and 522 acres against 1,237 and 480 acres in 1900, and on the other hand the Ederapolla reduced its acreage by 53 acres to 1,336 acres. As regards two companies, of which the particulars of prices obtained were omitted, the Panawal should have been classed with those showing an improvement as the average rose from 5½d. in 1900 to 6d. per lb. in 1901, but the Nahalma was less fortunate than its companion, and realised only 4½d. compared with 5¼d. a year ago.—*Investors' Review*, May 31st.

THE HANKOW TEA TRADE.

NO DIRECT SHIPMENTS TO THE UNITED KINGDOM.

The following details in regard to the tea trade at Hankow last year, contained in the report of the British Consul at Hankow just issued, will be interesting not only to tea dealers generally but to investors in Indian and Ceylon tea companies:—

The local supplies of Hankow teas during the season were 531,389 half-chests against 698,897 half chests in 1900, and the settlements 479,587 half-chests, against 677,738 half-chests. For Kewkiang teas the settlements were 180,620 half-chests, against 210,228 last season. Shipments to Shanghai on native account amounted to 62,687 half-chests against 34,668 in 1900. There were, as in 1899 and 1900, no direct shipments to the United Kingdom. The subjoined table shows that the demand in the United Kingdom continues to fall as it does for Russia direct, while shipments to Russia *via* the northern ports only slightly recovered from the collapse of the previous year; but the supplies for Canada and America doubled last year in fear of extra taxation, show a satisfactory increase on former figures. A certain amount of tea goes up the Han River for Mongolia and Siberia. This year the supply of leaf, brick, stalk and dust totalled only 6,870,800 lb against 7,300,000 and 11,860,00 lb in 1899 and 1900; the value is returned at £160,775:—

	Quantity,		
Destination.	1901.	1900.	1889.
	lb.	lb.	lb.
Great Britain	6,324,991	8,271,788	16,141,506
Russia	24,828,088	35,447,580	25,940.112
Tientsin and North	7,517,219	6.905,756	23,889,948
America and Canada	6,794,396	10,583,182	5,264,276

The market opened on 9th May, when the most atractive parcels of Khemun tea were settled at prices ranging from 40 to 55 taels per picul (say, 10d to 1s 2d per lb). Quality turned out to be quite satisfactory, and later on lower grades were in strong demand, chiefly for Russia, and very few chops remained unsold for more than a few days. Crack chops of Ningchows found buyers up to 57 taels, but though some were excellent, the majority were not superior to last season's. Hankow teas were of a good average quality, and the two Ichang crack chops were quietly taken at 58 taels. There were again no settlements at Kewkiang. The average cost laid down in London of first crop of tea, nearly the whole of which was settled before the end of May, was 9d per lb. Second crop teas began to arrive on the 16th June, The supply was very small; the tea-men, aware that the demand would be much less than usual, have made up their minds to reduce the production. Nevertheless, but for a partially unexpected demand from America, a considerable amount would have been left on the market.—*Financial Times.*

CRUDE RUBBER.

(To the Editor of the *India-Rubber and Gutta Percha Journal.*)

Dear Sir,—There is a great deal of activity going on here in rubber planting, and the Peninsula must before long be an important rubber-producing country. The soil and climate seem to be particularly suitable for the cultivation of Para (Hevea Braziliensis) and Ficus (Ficus Elastica) and, should the results equal the experiments which have been carried out from time to time, this country will afford a very profitable field for investment in this direction. Straits rubber has, I believe, a bad name, which is because it is more or less a heterogeneous collection of indigenous rubbers and saps collected by the natives, and, of course, we

planters do not wish to associate our cultivated product with this variety. Although my own estate is not yet in the p oductive stage, yet I can extract sufficient latex to make small experiments, and I read with very great interest your remarks on crude rubber. From these articles I learn that a great deal of waste occurs in the washing process in consequence of adulterants. Well, Sir, I am only anxious to turn out as pure a rubber as possible, and I am prepared to do anything in reason to accomplish this, but, being a planter, I know nothing about the manufacturing side. Since there is a process of cleaning rubber, would it not be possible to accomplish this on the estate, and so avoid paying freights on useless material, or, better still, so prepare the milk as to avoid this washing process? With scrap it is quite impossible to collect the latex in a pure state; an admixture of rubber bark and soil always results.

If you would, through the medium of your valuable paper, advise the planter what to do, you would be conferring a great benefit upon the community. I know there is a great deal of diversity in the opinions as to the best means of coagulating the latex; one is recommended alum, spirits, centrifugalisation, smoke, and various other methods—one of which is to allow coagulation to take place naturally. I was privileged last December in the company with Mr. Fox, the assistant director, Singapore Botanical Gardens, to take part in an experimental tapping of some Ficus trees (5½ years old) belonging to Mr. Tan Chay Yan, of Malana. From 3½ imperial pints of latex were obtained 2 lb. 10 oz. of dry rubber, which was coagulated by adding water while the latex was still in the fluid state, and then boiling the mixture for about 1¼ hours in an earthenware pot. This rubber has since been valued in Mincing Lane at 2s 6d per lb., and described as "good, clean, fairly elastic, and dry." It is, of course, open to question whether the value would have been higher if some other means of coagulation had been adopted, but it would be interesting to know whether this sterilising of the latex is likely to deteriorate it in any way, as otherwise it seems to be an effective and handy method of coagulating. Some information on this point would be very useful.

I trust I am not unduly intruding upon your valuable space in asking you to insert this letter, as I think a great deal of good could be accomplished if the manufacturer and planter had some means of communicating with each other to discuss this important subject.—I remain, Dear Sir, yours faithfully, FRANCIS PEARS.

CACAO PLANTING IN SAMOA.

(*From a Planter.*)

Apia, Samoa, May 18.—It may interest you to hear that Cacao planting is being undertaken on a large scale here. The prospects are very promising, and this year's crop will probably fully justify past experiences and the predictions contained in reports already sent to you, particularly Mr. Moor's letter to you about a year ago. Our Cacao is a hybrid of Criollo and Forastero, the former largely predominating, and fetches a good price, 85s to 95s so far. I have seen many trees under 3½ years old full of young pods, and the older trees bear frequently 200-300 in a year. I shall have 500 acres planted by this time next year (170 so far) and there are numerous other smaller plantations being laid out.

CINNAMON IN LONDON.

The information to hand by the last mail helps to explain the private commercial telegram which we published three weeks ago, that at the quarterly sales of cinnamon held in London last month, prices had advanced as much as 2d. to 3d. per lb. Just as the fall at the February auctions was caused by an over supply, last year's exports of the quilled spice having exceeded 2¾ million lbs. —the highest quantity ever exported from the island—so the recovery of prices (and more !) was due to exceptionally small offerings. The May auctions are generally not very heavy—the drought of the first quarter of the year, and the festivities of the Sinhalese New Year early in April, combining to keep down the out-turn; but 433 bales represent about the smallest quantity offered, we suppose for the last 25 years. At the corresponding sale last year, 1,088 bales, or considerably more than double the offerings of this year, were brought to the hammer. And of this small quantity, only 156 bales were "worked"; but it was not these alone which shared in the gain of 2d. to 3d. per lb. While worked Firsts ran up as high as 1s. 9d., a figure we do not remember to have heard of since the early seventies, "unworked," which is a comparatively recent innovation, born of resistance to an exorbitant charge for undoing, examining and re-doing each bale, at about four times what the whole operation of sorting and baling costs here, also shared in the advance. During the ten years or so that cinnamon has been offered in the London markets as "unworked" spice—in the face of threats of boycott!—prices for Firsts have always been short of a shilling. But then it must be remembered, that the marks which dared the London monopolists were not the better marks, but those which studied quantity rather than quality. We do not think these have suffered by offering their wares without the hall-mark "worked"; but 1s. 3d. per lb. for their cinnamon is an unprecedented figure, and must rejoice the heart of shippers. Still, it would be unsafe to calculate on such prices again. They are not likely to be repeated except under very exceptional circumstances; and our counsel against over-production remains. The market for spice, which is a luxury, is necessarily a limited one; and though the statistical position was good last month, the Cinnamon that is now being hurried into the market will turn the scales.

The following is the Report on the last Sales of the leading Firm whose views we regularly quote:—

King William Street, London, May 27.

CINNAMON.—At the quarterly sales held yesterday the exceptionally small supply of 433 bales Ceylon quill was brought forward compared with 1,311 bales in February and 1,088 bales at this period in 1901. Considering the small quantity offered, competition was not brisk, except for a few small lots of "Firsts," which brought 2d to 3d per lb. advance for "worked" and "unworked."

Only 156 bales "worked" spice were offered and all sold at firm prices, to occasionally dearer, especially 8 bales Firsts A.S.G.P. which brought 2d to 3d per lb. advance,

Of 277 bales "unworked," 235 bales were cleared chiefly at ½d to 3d per lb. better for "Thirds" to "Firsts," which "Fourths" ruled about steady.

"Worked" Firsts 11d to 1s 9d; Seconds 10d to 1s 6d; Thirds 9d to 1s 5d; Fourths 7½d to 11d.

"Unworked" Firsts 7½d to 1s 3d; Seconds 6½d to 1s; Thirds 3½d to 10½d and Fourths 5d to 8½d per lb.

CHIPS, &c.—1,038 bags offered and 350 bags were sold in the room, a little coarse bark at 1d to 1½d. Chips up to 2⅞d and quillings, &c. 5½d to 9½d per lb. No wild Cinnamon catalogued.

			1901.	1900.
Stock of Ceylon	..3.313 B	against	3,442	3,644 B
,, Wild	..1,979 ,,	,,	2,725	2,606 ,,
,, Chips, &c.	..2,093 ,,	,,	3,705	5,333 ,,
,, Wild bark, &c.	..7,301 ,,	,,	8,242	8,100 ,,

The next auctions will be held 25th August.

DR. MORRIS AND VOLCANIC DUST FROM BARBADOS.

Dr. D Morris, Commissioner of the Imperial Department of Agriculture for the West Indies, has forwarded to the Royal Colonial Institute a sample of volcanic ash collected in Barbados on 7th and 8th May last.—*Daily News*, May 28th.

RUBBER IN BURMA.

The "Moulmein Advertiser" writes—The apparent or seeming ease with which India Rubber is extracted in the hill-forests above Bhamo in the Upper Province is responsible for some loose ideas on India rubber planting and cultivation, it being assumed that it is quite simple matter which looks after itself and only wants to be left alone. Those who have entered upon this kind of planting in the Malayan Peninsula are beginning to realise that rubber plantations entail a long wait for capital, and some very heavy work before actual planting can be begun. And there might be much in these 'handicaps' to account for the long complaint made some time ago against the local Government for its intention of opening out about 10,000 acres of land in the Mergui district for rubber cultivation as a Government enterprise. So far as the Amherst district is concerned, we have, we believe, a small rubber venture at Amherst of which the result is an uncertain, if it is not an unknown, quantity as yet. We have never been able to trace the origin, on the large tracts of hill country, inhabited by the Kachins and other tribes, of the widespread forests of the India-rubber-yielding trees. In those parts there is nothing to show that those forests were at any time artificially raised; and during a stay of several weeks in that part of Burma, enquiries about how those forests were preserved and continued were very disappointing. But it is quite a certainty now that rubber, when adopted as a special cultivation, is by no means the easy enterprise it looks when extracted from a forest which apparently has been planted and cared for by Nature. From some reports that have been printed and published of India Rubber Companies, we learn that their undertakings have swollen financially to very large proportions by the preliminary work that has to be done before planting is possible. * *

Under these circumstances the action of the local Government, which unfortunately has not always led where private enterprise would follow, is most commendable in having resolved to experiment in rubber planting on such a scale as would afford a reliable precedent to private companies investing large capital in developing the rubber enterprise in such parts of Burma where the soil and atmospheric conditions are favourable. The advantage of having these plantations as near as possible to a port is obvious; it avoids the heavy expenses incurred in transit. And the Mergui district is, perhaps, the most convenient, if it is favorable, district in Burma for exporting rubber, dressed ready for use. The enterprise as we have shown is so beset with heavy outlay that it would be almost impossible to expect private capital in following a lead which has been proved to have passed the initial and experimental stage; it never hesitates under these conditions, and if the local Government does not succeed in establishing the rubber enterprise firmly in Burma and thus prove its commercial value to Burma, it will have done something towards disarming opinions which are now very prevalent that the province has not been developed as it should have been under our present regime.—*Times of Burma*, June 7.

PRODUCE AND PLANTING.

AT THE MEETING OF THE TOWER HILL COMPANY, LIMITED,

another of those large distributing companies which handles tea so profitably, Mr. T Lough, M.P., referred to the report on tea and coffee recently issued by the Board of Trade and given in our columns. The statistics given in that official document are certainly encouraging to those connected with tea in any way, but especially so to those who distribute it. As was pointed out by Mr. Lough, out of about 600,000,000 lb. exported in 1900 from the great tea-producing countries,—China, India, Ceylon, Japan and Java,—nearly half was imported by this country, this large proportion including seven-eigths of the whole Indian export, and three-quarters of the Ceylon export of tea. Notwithstanding the increase of 50 per cent in the duty on tea, which took place in March, 1900, the consumption throughout the United Kingdom continued to increase. Five years ago, in 1897, this consumption was 5·81 per head of the population, in 1898 it became 5·86, 5·98, in 1899 6·10, in 1900 and 6·17 in 1901. A large percentage of this recent increase was due to a greatly extended use of tea in Ireland. In that country the consumption was now nearly 8 lb. per head of the inhabitants, it was difficult to say precisely. This placed the United Kingdom far ahead of all European countries. The recent increase of duty had made our tea duty stand very high in proportion to that of other nations. In Belgium tea was admitted free, in Holland the duty was 2¼d per lb., in Denmark 4d, in the United States 5d, in Germany 5½d, in the United Kingdom 6d, in France 9d to 1s 5d, and in Russia from 2⅛d to 1s 10d per lb. Seeing that the Empire was so deeply interested as a tea producer, it was surely to be deplored that they did not follow the example of those countries that gave the most favourable treatment of this indispensable article of diet.

THE MEETING OF LIPTON'S, LIMITED,

on Tuesday was not quite harmonious. A reduced dividend is not conducive to excessive amiability on the part of shareholders. Only one gentleman, however, referred directly to Sir Thomas's yacht-racing proclivities as calculated to lessen his attention to business but his remarks found little endorsement among his fellow shareholders. Sir Thomas Lipton said he was very hopeful that the current year's trading would prove the turning point in the adverse market conditions from which they had suffered. He had not sold one single share since the formation of the company; in fact, he had increased his holding since the last meeting, and now owned nearly half of the total issue of each of the Ordinary and Preference shares and Debentures. The whole of the advertising outlay had been borne by Sir Thomas Lipton himself, in accordance with an arrangement made last year, in consequence of the bad condition of trade, and although the actual amount of this was not disclosed it is estimated in some quarters at about £40,000.

THE BALANCE SHEET OF THE CO-OPERATIVE WHOLESALE SOCIETY

for the first thirteen weeks of the present year has just been made up. The sales totaled £4,413,708, being an increase of 9 per cent on the corresponding

period of 1901. The London branch was responsible for about three-quarters of a million, and the tea and Coffee department in Leman Street, E, for £13,000. So far as the general policy of the Wholesale Society is concerned, the most significant recent development has been the purchase of two tea estates of 364 acres in Ceylon—the outcome of a deputation of two years ago, and also of the demands of Co-operators to go direct to the origin of things.

Lyons & Co.—It is not alone the distributing companies which make large profits in connection with the sale of tea. The possibilities of profit to those who run tea shops and cater for the multitude are apparently illimitable. The directors of J. Lyons and Co. have, in accordance with expectation, issued another bonanza report, in which the gross profits are shown to have expanded by over £50,000. The net result to the shareholders is a final dividend on the increased capital of 32½ per cent., as against 30 per cent., whilst they have the satisfaction of seeing a larger balance carried forward and their reserve augmented to £400,000.

The quarterly sales of Cinnamon—held last week attracted more than ordinary attention. The total number of bales passing the hammer amounted to 433, as against 1,311 bales in February last, and these consisted—with the exception of a few thirds—entirely of good and fine qualities, fair plantation being conspicuous by its absence. This fact illustrated more clearly than anything else the depression from which the trade had suffered for a considerable period and which had rendered forward business almost impossible. Even a certain few operators among shippers appear to have failed in their endeavour to find buyers of usual assortment at greatly reduced prices. Offers of 8¾d c.i.f., we are told, had to be returned to Colombo as being too dear for our market. Evidently some consumers have unwisely allowed their stocks to run dangerously low. The trade had to purchase and was forced to concede prices which were much in excess of those accepted privately. Fine sorts realised an advance of about 2d above last sales' rates, and good fetched about 3d more than was paid in the February auctions, whereas the few fair bales of thirds found buyers at an advance of ½d per lb. The tone in the market has since been a firm one both here and in Ceylon.—*H. and C. Mail* June 6.

CEYLON ASSOCIATION LONDON.

(Report of the Executive Committee.)

[For the year 1901-1902.—To be laid before the fourteenth annual general meeting on Monday, 16th June, 1902.]

The number of members on the roll is 154. The chief business of the Association during the year has been dealt with by the Tea and Produce Committee, and the Executive Committee has had no other important business before it. In last year's report it was stated that there was an unexpended balance—£39 8s 3d—of the money raised in 1900 for providing comforts for the Ceylon Contingent serving in South Africa. Of this balance £19 17s was contributed to the cost of the dinner given to the contingent, and the remainder, £19 11s 3d has been remitted as a donation to the Planters' Benevolent Fund. The Association is much indebted to Mr. W S Bennett for a present of lantern slides with views of Ceylon, forming a valuable addition to the collection purchased in Ceylon a few years back. The slides have been much used by members for the purpose of illustrated lectures.

THE DEATH-ROLL FOR THE YEAR

includes the names of the following members:—Mr Daniel W Blyth, Mr George Smyttan Duff, Mr Donald Noble, Mr John Mackintosh Smith and Mr George T White. The connection of the two first-named with Ceylon dates back to the middle of the last century. Mr Smith and Mr Noble were well-known in the Colony at a later date as Planter and Banker respectively, while Mr White, as a leading London Tea Broker, has been a Member of the Tea and Produce Committee since its formation in 1889.—The report of the Tea and Produce Committee and the accounts for the year are, as usual, appended to this Report.

REPORT OF THE TEA AND PRODUCE COMMITTEE.

(For the year 1901-1902.)

The Committee has held nine meetings during the year.—The first business of the year was the appointment of a Sub-Committee consisting of the President, Messrs R A Bosanquet, A Brown and A Thomson, to consider and report upon the proposal for the formation of a Joint Indian and Ceylon Tea Growers' Association, in accordance with the resolution passed at the annual meeting of the Association on 24th June, 1901. The Sub-Committee, acting in concert with a Sub-Committee of the Indian Tea Association, submitted in February last an interim report, after consideration of which by your Committee the matter was referred back for further inquiry.

The question of the increase of the Tea Cess in Ceylon from 20 cents to 30 cents per 100 lb has engaged much attention. In considering this important subject the Committee had the advantage of hearing addresses by Mr P C Larkin of Toronto, Canada, and by Mr J H Renton, Ceylon Tea Commissioner on the Continent of Europe. After hearing the former a resolution was passed and forwarded to the Thirty Committee in favour of devoting to the bonus on the manufacture of Green Teas a larger proportion of the funds available.

On the question of the proposed increase of the Cess much difference of opinion was at first manifested; but in response to a circular issued in December, together with a letter from Mr. E Rosling, Chairman of the Planters' Association, appealing for support for the increase, a large majority of the replies received from tea growers in this country were favourable. An ordinance to remain in force to June, 1905, has since been passed by the Legislative Council, enacting that the Cess may be at the rate of 30 cents per 100 lb of tea exported from Ceylon.

It was mentioned in the Committee's report last year that it had been agreed to give a trial to private sales of tea, under conditions to be arranged by the various sections interested in the trade. For three months, July, August and September, private sales of Ceylon tea were held every Thursday, but sellers, finding no advantage in the system, reverted to the Tuesdays' public sales.

At the beginning of the Indian tea season the Committee for the regulation of sales resumed its operations. Your Committee was prepared to assist in these, both by supplying information as to the quantities of Ceylon tea being brought forward for sale and by a vote in aid of the expenses, but the Regulation Committee, unfortunately, failed to receive adequate support from Indian sellers and again its operations came to an end.

Several suggestions have been made to your Committee during the year by the Tea Buyers' Association (1) For the marking with the letter *R* of all packages containing tea which has been racked into fresh packages at the Custom House; (2) For the nomination of three representatives to confer with representatives of the Indian Tea Association and of the Tea Buyers' Association on certain specified matters connected with the tea trade; (3) For the re-weighing—of the ounce—of the selected average tared tea packages by the Customs authorities. The Committee has not been able to assent to any of these proposals.

There have recently been many complaints on the part of Importers of damage to Tea, by fruit

hides, &c., shipped in the same vessel. A Sub-Committee, consisting of the President, Messrs W H Anderson, R A Cameron, J B Keith and T C Owen, has been appointed to confer with the Shipowners in connection with the numerous claims arising from the damage so incurred.

A Deputation of India and Ceylon Tea Growers waited on the Chancellor of the Exchequer on 4th February, with reference to the duty of Tea entering the United Kingdom, and met with a sympathetic reception. No change has been made in the British and French duties, while in Australia Tea will in future be free. In the United States also it is probable that Tea will be freed of duty at the end of the year.

Other objects that have engaged the attention of the Committee during the year are the planting by the Indian Government of a large area in Burma with rubber trees; the rules of steamships as to claims on account of "ullaged" packages, and the more careful plucking of Tea on estates.

ACCOUNT OF RECEIPTS AND EXPENDITURE 1901-1902.

Receipts.—1901, May 23, To Balance with Messrs Smith, Payne & Smiths, £157 8s 9d; To Use of Ceylon Room, £1 1s; To Newspapers Sold, 8s 3d; To Subscriptions—Planters' Association, £60; Ceylon Chamber of Commerce, £50; Members—1899-1900, £2 2s; Members—1900-1901, £10 10s; Members—1901-1902, £134 8s; Members—1902-1903, £2 2s—£259 2s. Total £418.

Expenditure.—£1901 By Secretary's Salary, £100; By Rent, £80; By Firing, etc., £2 13s 4d; By Room for Annual Meeting, £1 11s 6d; By Book Case, £9 10s; By Office Repairs, £11 11s; By Newspapers, Books, &c., £7 19s 7d; By Printing and Stationery, £27 4s 7d; By Ceylon Contingent Fund, £39 8s 3d By Postages and Petties, £12 13s 3d; By Balance with Messrs Smith, Payne & Smiths, £125 8s 6d. Total £418.

Examined and found correct, Wm. Rollo.

London, 29th May, 1902.

ANNUAL REVIEW OF TEA TRADE.

(By Messrs W J and Henry Thomson.)

38, Mincing Lane, June.

Another season's business being completed, and London figures published for the twelve months ending 31st May we take this opportunity of reviewing the events of the year and considering the future.

Attention is at once fixed upon the contrast with record of the previous season. A year ago we were confronted by

OVER-SUPPLY AND INFERIOR CROP,

from India and Ceylon, expansion in China's export, and a serious decline in value. Now, we record reduction in the total output of British-grown tea, contraction in exports from China, and the beginning of recovery from depression. Amidst much that changes, two features are constant, viz: that the use of tea almost everything increases, and that British-Grown tea advances in favour wherever it once fairly gains a footing. What were the remedies proposed a year ago; how have they been applied; what has been the result? They were, in the first place to raise the standard of quality; in the second place, and as a consequence, to make less tea, and then to find new buyers. Smaller and better crops have been made, partly because weather checked growth of leaf, partly as the result of more careful plucking. The crops have contained less common tea, and the average value has risen, although, for reasons to which we will presently allude, all kinds have not shared in the improvement, but only those that were specially depressed. Directly or indirectly, our trade with Colonial and Foreign markets is maintained, and openings are lost for business which should be larger during the coming year. The attempt to place tea within the reach of native consumers in India is watched here with interest; the business-like way in which it is being carried out, and the progress already made, augur well for ultimate success. But when expedients, schemes and policies have been contrived, discussed and given a trial, we come back to the elemental facts that what Planters need is a better price, and that the value of tea, as of other commodities, is subject to the inexorable law of supply and demand. We said a year ago—and it will bear repetition—that producers could maintain prices at the level that pays by combining to keep supply within reasonable limits: for consumers in the aggregate, outside the producing countries, are now dependent upon India and Ceylon for the greater part of their requirements, and tea has become so necessary that its use will not be stopped by such a moderate advance as would satisfy growers and could be caused by reducing supply.

The necessity of making no more than is required is particularly felt by those at home who see the balance of power passing into the hands of buyers with large means, fertile in resource, who operate in London, Calcutta or Colombo as may suit them, and are ready by acting in concert to control the market—but are only able to do this effectually when there is too much tea; where it is, or who has it, matters not. But if the law of supply and demand prevails in the long run, markets are effected by other influences which have also to be taken into account. Tea has been too long subject to the

DEPRESSING INFLUENCE OF HEAVY DUTIES,

and the theory held by some that they are wholly paid by consumers has broken down under the practical experience of those engaged in trade. Every grower abroad, every shareholder at home, pays part of the sixpence levied here; shippers of China and Japan teas have suffered from the 10 cents' war tax in the United States, and traders all the world over are hampered by duties almost everywhere imposed as though tea were a needless luxury instead of a most nutritious and, to many, a necessary article of diet. Those who think otherwise rely upon the argument that consumption is large here than when the duty was less, and ignore the fact that the average value is much lower than when duty was fourpence, notwithstanding that over-supply is arrested and crops are of good quality. They also seem hardly to realize that when more of the buyer's capital is taken for payment of tax less of it remains for purchase of tea—which must be prejudicial to the seller, for the capital employed in a trade is not capable of indefinite expansion unless business is so profitable as to attract it, which is not the case with tea. We dwell upon this because a beneficent industry of great importance to India and Ceylon is being partly crippled by high taxation, and unless there be relief some gardens will be abandoned and native labour will cease to find employment. That the fruit of British enterprise in our Eastern Possessions should have to pay an impost of nearly £6,000,000 upon a value of £7,500,000 before it can reach consumers at home, to whom it is a necessary of life seems to be without precedent. Would such a tax upon the produce of Australian or Canadian husbandry be now agreed to?

What prospect is there of relief, and where? The Australian markets are now free: they should take more from us, and tea of higher value. The American tax will be abolished next year, an impetus given to trade, and larger imports called for, as stocks are low—an encouragement to India and Ceylon to make more uncoloured or green tea than has yet been thought of. This should be tried at once and where it can be done cheaply on gardens whose black tea does not usually command a high price. An estate that can put a crop of black on the London market at a cost of 4d per lb could lay down a crop of green tea in New York at 9 or 10 cents per lb without much risk. Such a chance may not recur for years; it should not be missed and America left dependent upon Japan and China. The probable

reduction of the German duty to 1½d per lb should also do good. But helpful as all this will be, it is but little compared with the importance of getting the duty reduced here. It is admitted to be excessive, and while the highest authorities declare increased indirect-taxation to be necessary, they also see the need of broadening its basis by adding to the number of dutiable articles. Every additon brings nearer the day when taxation can be more equally distributed and relief given to those upon whom the burden has fallen most heavily.

But what are growers to do in the meantime? It is easy to say "curtail the supply"—but at whose expense and how is it to be done? A decline in the value of the finer qualities, discouraging to those who grow and import them, has been the result of heavier duties and lighter crops. Quotations always move towards an average; a short supply means higher prices for common followed by lower rates for fine tea, and the approximation in value of the different qualities will be accentuated if the crops be shortened only at the end where cheap teas are made, although the average value of the whole would be raised. The problem is a hard one, but it must be faced, and persuasion of its difficulty lead us once more to speak of

THE BENEFIT OF AMALGAMATION.

To combine in one interest estates in the same district is good; to unite those in different districts, yielding both high and lower-price tea, is better; to link together groups of estates in Ceylon or India, and thus lessen the risk to which individual growers are in turn exposed by a change in value of the particular variety they happen to make, would be best of all, and it would facilitate all-round reduction in the quantity, the shortest road to all-round recovery in price, But things being as they are, we have to consider probabilities. They seem to be that more low-priced tea will be made; that its value may recede, especially if the increase be obtained by coarse plucking, and that a recovery in rates for better qualities may follow. Those who contemplate making heavy crops should, therefore, watch what is being done in their district, and the quotation for common tea in London, lest they repeat the experience of 1900-1901. Those who usually make a large crop of medium quality should, we think, make a smaller one, concentrating attention upon its improvement; while the few who grow the finest varieties should, maintain the highest possible standard of quality. Extensions should be stopped for the present, the closest scrutiny be applied to expenditure, and labour and energy be transferred from poor acreage not giving a profit to that part of the estate which pays for cultivation. Now

AS TO FINDING FRESH OUTLETS,

progress has been slow where the most pains have been taken, *i.e.*, in the United States, and quicker where our tea has been suited to local tastes and has made way on its merits, *e.g.*, in the Colonies and Russia. What is the bearing of this upon future efforts? It teaches us that it is of little use to push black tea upon those who want something else, and that if the industry is not to stand still we must learn to make what others wish to buy. The funds raised by Cess or otherwise should, we think, first be spent in freely subsidizing the pioneers prepared to make the new kind suitable for America and foreign consumers—say to the extent of 10 million lb. this season and 15 millions next. The outlay will be recouped later on in the price of black tea, and in the extension of India's and Ceylon" trade. Then, if enough money be available, let it be used for extending the work already begun of making the merit of tea known in European countries whose vast populations are still almost strangers to its value. At our doors are 200 millions of potential tea-drinkers taking between them a mere 15 million lb per annum. Surely a wide field for enterprising traders to explore! But these are visions of the future: our present task is to reckon how much we can take here. In 1901 nearly 300 million lb. were disposed of—256 millions at home and 43½ millions abroad—but this included the excessive clearances in the spring, and perhaps was not all used; allowing for increased consumption, we therefore assume 300 million lb to be the utmost we can sell here without lowering the price; to meet it there is in boud a stock of 82 millon lb,—10 millions too much we therefore estimate that imports should not be more than 290 million lb. Apporting this on the basis of recent deliveries, India's share would be 158 millions, Ceylon's 106 millions, China's 20 millions and Java's share 6 millions. How to keep importation within these limits and find a market for the rest elsewhere are problems to be solved,

We abstain from discussing matters of detail and conclude by saying that severe as the trial is through which many Planters are passing the position is better than it was twelve months ago. We have still to feel the full effect of extensions made in former years but it will not be quite what some seems to fear for against yield from new gardens must be set the deterioration of old ones and the abandonment of outlying and unprofitable plots which continually goes on, and the more rapidly when expenses have to be cut down and the labour staff is reduced.

WM. JAS. & HY. THOMPSON.,

PLANTING NOTES.

THE CEYLON ASSOCIATION'S ANNUAL REPORT appears on page 96, and deserves careful perusal, along with that of the Tea and Produce Committee. The latter body showed over £125 balance; and the "Association £38, which was divided between the "Planters' Benevolent" and the Ceylon Contingent.

RAINBOW TROUT IN NEW ZEALAND.—During the coming season the Wellington Acclimatisation Society expects to have, given even moderate success, 500,000 rainbow trout ova and fry for sale and distribution. The proportion of rainbow fry in the Masterton ponds is far larger now than the society has ever had before.—*Auckland News*. May 29.

STINGLESS BEES.—Stingless bees are not uncommon in the West Indian islands, living wild and making nests in trees. A colony is to be seen in the Dominica Botanic Station and is worth a visit. The bees are small and very active, and become very excited if the nest is disturbed. Even though one knows they are stingless, it is hard to remain near the nest when the bees become angry and fly about just as the real honey-bee does: one instinctively fears a sting, and instinct in this case proves stronger than reason. The bees belong to an undescribed species of *Melipona*, a genus which includes numerous tropical stingless bees.—*Agricultural News*, May 24.

COFFEE.—During the coming year it is expected by some authorities that the coffee crop will be small both from East India and Central America, with the exception of Mexico where a larger yield is promised. Costa Rica will also produce a much smaller crop than usual. According to "American Trade," however, the crop of coffee from the States of Salvador, South-Western Honduras, Western Nicaragua, and Costa Rica will be as large in quantity for 1901-1902 as the aggregate of the last two crops. The cost per pound to gather it for market will be more than twice that in previous years—*Tea* for June.

THE NORTHERN PROVINCE (CEYLON) IN 1901.

(Extracts from Mr. Ievers' Administration Report.)

TOBACCO CULTIVATION.

Next to food supply, this industry ranks highest in this Province. The following is the statement of tobacco exported beyond sea and coastwise :—

Beyond Sea.

	Quantity. Cwt. qr. lb.	Valne. Rs. c.
1900 ...	42,519 0 17 ..	981,665 05
1901 ..	28,269 2 4 ...	673,061 68

Coastwise.

	Quantity. Cwt. qr. lb.	Value. Rs. c.
1900 ...	25,932 2 12 ..	602,070 25
1901 ...	51,220 2 12 ..	583,660 60

It is important to note that the export to Travancore has fallen, while the local trade to Colombo and other parts has more than doubled. The Travancore trade has fallen off from the successful competition of Coimbatore tobacco, and the price has fallen. It is a matter for the serious concern of the local producer to find outlets for his tobacco. This can only be done by improvement of the process of manufacture. It will, I hear, take a long time before the grower realises this, and meantime he must be content with less profit and reduction of crop. During the close of the year Jaffna was visited by Mr. MacD. Gibson, who is said to have large experience of tobacco growing in Sumatra and elsewhere, and he expressed his opinion that the locally-grown leaf is of excellent quality, and the methods of planting and irrigation are sound; but the plucking is erroneous, and the curing injurions to flavour. The leaf is actually made rotten, and hence the difficulty in keeping the cigars for any length of time. He was unsuccessful in inducing any local capitalist to take up new methods. The idea here is that, when such methods are introduced by other people's money, the local grower and manufacturer will learn the methods without expenditure. Meantime I am rather discouraged at the prospects of this important branch of trade. The great increase in export coastwise cannot be maintained without a heavy fall in prices, for the market is now glutted, and there is little or no possibility of local expansion for the class of cigar now produced.

It is possible that Government may grant a concession of land in the Vanni for experimental cultivation of tobacco under proper guidance. I think this would be useful, for, if the people see that tobacco cured in the modern methods fetches a higher price, it may induce them to follow these methods and obtain a more extensive market. But no initiative can be locally expected.

CATTLE.

The following is an account of cattle in the Jaffna division :—Buffaloes 3,552; Black cattle 163,911; Sheep 77,236; Goats 57,284.

There was no cattle disease in the Jaffna District during the year, and the condition of the cattle was on the whole good. An experiment was made, through the local Agricultural Association, with fodder seeds obtained from Queensland. I regret to say it was altogether a failure, as the seeds did not germinate.

Another attempt will be made after request for special care in selection of fresh seeds. An irrigation wheel, which can be easily made locally and worked by a pair of bulls, was procured from Cyprus. It has not been tried experimentally, pending receipt of some information which has been asked for from Cyprus.

IMMIGRATION.

The immigration route continues to be closed from the early part of January, 1900. But during the year a relaxation of the plague regulations was made in respect of the coolies for the Giant's tank works, and 42 coolies were landed at Pesalai from South India, the number of emigrants being 15.

The whole question of immigration and the best route for coolies into Ceylon must soon be well weighed and considered. This consideration will be forced on the local Government when the South Indian Railway system has been extended from its present terminus on the mainland to the proposed harbour on Ramisseram island. It will then be a question whether the steamer lines are to run direct to Colombo, where the Ragama Camp is used, or be taken to a similar camp on the mainland of Mannar and on to Madawachchi Railway Station. A road tram line would probably afford the best means of transport from the landing-places to the camp and onwards. The camp would probably be formed somewhere near Murunkan, and between the 10th and 14 miles from Mannar, for a sufficient supply of good water for a large camp is not procurable nearer to the points of landing.

A steam ferry would probably replace the sailing ships in conveying the coolies to Vengalai and Pesalai according to the monsoon seasons. Possibly a road-tram from Dutch Bay to some convenient point on the Kurunegala-Anuradhapura section of the railway might be better. No doubt the two routes will be considered in the view of cost, convenience and time of transit. But any reversion to the old system of road travelling for coolies is to be most earnestly deprecated.

DESTRUCTION OF WILD BEASTS.

This item is more important in the Vanni and Mannar Districts. For the Jaffna District rewards were paid for the destruction of ten leopards and three bears in the mainland divisions. But since more is paid by traders for skins than can be obtained in the official reward, the figures in no way represent the actual killing of these animals.

HORSE ESTABLISHMENT, DELFT.

The following figures give the statistics of the establishment :—Revenue R1,675; Expenditnre R832·97; Nett Revenue 842·3.

There were 32 births during the year, of which 9 died, chiefly of weakness caused by the mothers being old. Eight brood mares died during the year of old age, and they have been replaced by young fillies from Iranativu.

There were at Delft on the 31st December—Stallions 2; Brood mares 60; Foals 33: and at Iranativn nnder three years old 26.

From the commencement of the experiment in 1898 the total expenditure has been R5,140·36 and the revenue R7,839·80, giving a nett profit of R2,699·44. The expenditnre include, besides the annual staff expenses, the building enclosures and the purchasing of stallions. The experiment has so far been a success financially, but I do not so much regard the making of revenue as the protection and improvement of these ponies, which are so hardy and useful in a climate like North Ceylon, where Australians cannot be

kept. From the breeding point of view the experiment has been successful, and the cross of the Delft with the Arab has produced a very much improved young stock, which is now coming on for sale. After another year all the young stock will be either half-bred Arab or half-bred Indian. The only drawback has been an excessive mortality, which has arisen in two ways :—(1) Anæmia and ' poverty " among the young foals on Delft arising from "tics"; (2) the mortality on Iranativu among apparently healthy fat horses, the cause of which we have been unable to ascertain. During the months from August to October we have lost about twenty-five per cent of the stock.

(1) This has, I think, now been controlled. By the advice of Mr Sturgess, Government Veterinary Surgeon, the foals have been rubbed fortnightly with an oil mixture, and since 1899 very few foals have died from preventible causes. It is now proposed to build a bath and drive the foals through a solution in the manner used in Australia and South Africa, for hand rubbing is impracticable where a large number have to be dealt with. I am indebted to General Olivier for some valuable suggestions as to the methods used in South Africa.

(2) The mortality at Iranativu is still unexplained. Last year Mr. Sturgess found the ponies suffered internally from parasitic worms, and we attributed the death to this cause. The disease disappeared by treatment, but, although the water-holes were carefully cleaned and fenced, the same mortality occurred at the same time. One of the finest colts was seen, apparently quite well, in the morning by the Stock Inspector, who was on the island, and was found rolling on the ground in the evening, and died before any treatment could be applied. Unfortunately the intestines were too far gone for *post-mortem* purposes of examination by Mr. Sturgess.

The occurrence of some poisonous plant at this time of year seems to be indicated, and a botanical examination of the island becomes very necessary. I shall be glad to have the help of a botanical expert, whose researches might be able to throw light on this hitherto obscure cause of mortality. It is noticeable that there is no mortality among the cattle, sheep, or goats, which graze freely over the island at this time, nor does it appear in Delft. If the mortality could be controlled, the profits would be very largely increased, as well as the supply for the public, which at present falls short of the applications. I have written at length on this subject, which, though a trivial one in administration and revenue, is of great interest and real value to persons who have need of such animals. The experiment has proved a success, and it may be extended now, with satisfactory results. I was unwilling to ask for any considerable expenditure until I could show that the business was on a sound basis, and for this experiment was necessary. I have now no hesitation in recommending that Government should take up the business in earnest, and, it carried on upon the lines that experiment has proved to be successful and with regard to economy, I believe the Islands will be a source of both revenue and public advantage. Indeed, if this establishment pays its way without profit, it would be sufficient. But I must admit I prefer to conduct it on "business principles."

I observe that country and Indian 'tat' ponies are now being advertised as 'Delft' ponies. No ponies under 13 hands are now sent out for sale; most of them run to 13·2 to 13·3 hands, and they are not 'cow-hocked' like 'tats.' It can therefore be easily seen whether the description is correct.

CATTLE BREEDING.

I am very anxious to improve the cattle in Delft. As cattle disease never occurs there, it is quite an ideal place for raising a good breed. But from over-numbers the cattle have greatly deteriorated in the last fifty years, and the Island cannot support the 14 000 heads which are at present on it. The people are very ignorant and suspicious, but I hope by means of village rules for limiting numbers and castration or sale of poor-quality animals, and the introduction of Scinde bulls, to show the people that they can get more profit from even half the number. During the year (1901) 831 animals are reported to have died on the island from insufficient grass and water. Such (preventible) mortality is shocking. I have received good accounts of the Scinde bulls placed at Mannar, Vavuniya, and Iranativu. At the end of the year I placed two Scinde bulls on 'Delft.' This breed is excellent for milk produce, but the bulls are rather too small in height. I think we should try some other, possibly South Indian breed. The difficulty about these, however, is that they deteriorate unless highly fed.

TOBACCO IN BRITISH CENTRAL AFRICA.

A correspondent in Nyassaland writing to us in April last, says :—In the early days of this Protectorate tobacco was cultivated for consumption within the Protectorate by Messrs. Buchanan Bros. Subsequently it has been grown by Messrs. Hynde & Stark, and by Mr Henry Brown of Mlanje. At the present moment, perhaps, the largest cultivators of this produce are Blantyre and East Africa, Ltd., and Mr. Brown. Considering that we have no experts in curing tobacco, no market has been found for it in Loudon, and with the exception of a small quantity sent to South Africa the remainder is consumed locally, as cut tobacco and cigars. It is thought that in the event of our joining the South African Customs Union, we shall be able to trade in this article to better advantage.

Taking this country as a whole, the land suitable for tobacco cultivation is almost unlimited. By planting the young seedling tobacco plants early in the wet season three or four cuttings or crops may be secured in the year. In the "Journal of the Society of Arts," for January 31st, 1902, is a note on "Tobacco Culture in Hayti," in which the length of leaf is given as 20 in. Here we can grow it fully 30 in. and broad in proportion without blemish. So that it is not want of proper material, but the correct method of curing which is our desideratum. Havana tobacco is the variety most in cultivation, though this year our Scientific Department distributed to planters seed of a number of the best varieties.

Nowhere in B.C.A. is tobacco found growing in a wild state, but, as a remarkable instance of the longevity of tobacco seed, it is worthy of note that after a coffee plantation is first cultivated there are sometimes numerous kitchen middens exposed, and almost exclusively composed of wood ashes; on these, particularly in the Namasi district, tobacco plants grow spontaneously. At

the time (1861-2) of the first missionary occupation of this district it was densely populated, but when it was first opened up by coffee planters no people lived there, so that it was overgrown with timber of an average height of 30 to 60 ft., —ample proof that this seed has remained in a fertile condition for forty years more or less. This variety of *Nicotiana* is probably *N rustica*, also found on the West Coast of Africa and elsewhere.—*British Trade Journal*, June 1.

PLANTING IN THE MALAY STATES.

(Extracts from the Report for 1901 of the United Planters' Association, F. M. S.)

EXPORT COFFEE TO EUROPE.—With the idea of eventually placing regular monthly consignments of 10 piculs upon the London market to attract attention to our coffee, several of your members combined and sent a trial shipment of 80 piculs. This was bulked in the Port Dickson Co. Mills, and sold through Messrs. Frame, Alston & Arbuthnot. The price realized was 32s per cwt. which worked out to $17·78 per picul. This result was not sufficiently encouraging to provide any inducement for persevering with the experiment, and no further shipment of any size was made. A small parcel of 12 piculs was, however, purchased to test the respective merits of sun-drying and storing in Port Dickson and Aden; 7 piculs of this, which the Port Dickson Coffee Curing Co. took in hand, were sold in London at 30s per cwt., whilst the 5 piculs sent to Aden realized only 26s per cwt. There were grounds for believing that the Aden shipment was not properly looked after, and therefore no information of any value was derived. A large parcel of good 3-year-old Coffee was disposed of at $2 per picul less than No. 1 fresh from the plantations, and the idea has gained ground that to speculate by holding, on the assumption that coffee appreciates in value with age, is a very doubtful policy. There may be markets where old coffee is eagerly competed for, but Singapore is certainly not in touch with any of them. Reports from London Brokers favour shipments of coffee dried in the cherry before peeling, and report such coffee to be sweet and suitable for home consumption, but it is suggested that a market for this description must be gradually built up, and no shipments of any size are known to have been made.

YIELD OF COPRA.—In response to a request for information on this subject, the Manager of the Singapore oil mills kindly favoured us with the following communication which your Committee think they cannot do better than reproduce "in extenso."

Mr. E B Skinner, Secretary, the Planters' Association, Selangor, Singapore, October 11th, 1901.

Dear Sir,—I am in receipt of your letter of the 19th ult. *re* the various copras and their comparative yield of oil. The copras arriving in Singapore usually go under the name of the Island or State they come from, as for instance Bally, Macassar, Selangor, Kelantan, etc. These copras are more or less the same, the real difference being that, while same qualities are made from ripe and fully-matured nuts, others contain 50 per cent of copra made from half-ripe nuts; consequently the yield of oil from the latter is much below that of the former.

Formerly Bally copra was recognized as the standard for "Sun-dried Quality." It was thick, dry, and rich in oil. Evidently great care was taken in picking only the ripe nuts, and it was properly dried before being packed. This copra has fallen from its first position and is now very inferior, being no better, if as good, as the poorest qualities.

Some samples of copra from Penang and Kelantan have given good results but, as mentioned above, all depends on the percentage of unripe copra in the parcel, and where you may get one shipment with, say, 5 per cent of unripe in it, the next lot from the same place and dealer may have 50 per cent.

Occasionally a small parcel will arrive from the Nicobar Islands. This copra is evidently made from a nut much smaller than those usually seen in Singapore, the kernel is very thick and rich in oil. Our Chinese dealer says it is made from the "Klapa Raja." Ceylon copra is also noted for its richness in oil, yielding about 3 per cent more oil than the Straits article. Yours faithfully, (Signed) The Manager, Singapore Oil Mills.

EXPERIMENTS MADE WITH FIREWOOD, to decide the respective merits of Casuarina, Bakau (mangrove) and ordinary wood, were undertaken by the State Engineer with the following result.—

Firewood.	Hours worked.	Consumption in lbs. per hour.	Cons'ption in cubic feet per hour.	Average time taken to get 50 lbs. steam.	Average steam pressure.	Average weight per cubic foot of firewood.
Casuarina	105½	56·44lb.	1·22c.ft.	2hors.	81·7lb	46lb,
Bakau	57¼	78·25 ,,	1·21 ,,	2 ,,	81·6 ,,	64½ ,,
Ordinary	62	75·8 ,,	1·36 ,,	1·68 ,,	87·5 ,,	55¼ ,,

The above trial very clearly demonstrates the superiority of Casuarina. This tree has been largely planted in Southern India for future fuel reserves, and, as seed is easily procurable at an almost nominal price, it would seem sound policy for the F M S Forest Department to follow the example of India in districts which have been largely denuded of jungle.

RUBBER IN MEXICO.—On the 24th October your Chairman addressed a letter to H B M Consul, Mexico City, D F Mexico, asking for further information regarding the "wild rubber" in Mexico and any cultivated varieties in that republic, but so far no reply has been received although your Chairman's letter was the outcome of a communication from the Consul to the Singapore Chamber of Commerce.

RHEA FIBRE.—The cultivation of this product has attracted little or no attention during the past year, owing mainly to the uncertain market for ribbons Upon information received from Sir F Abel, Director of the Imperial Institute, to the effect that a firm of high standing in London were prepared, for several years to come, to purchase Rhea ribbons at £15 per ton, the Government by notification in the different "Gazettes" gave wide publication to this offer. When a member of your Association however interviewed the firm in question in London, he was told that they would take 100 tons at £15, after which they could not guarantee a price. Such a rapid change of front was not allowed to pass without comment, and your Committee are pleased to be able to report that H E the Governor considered the matter of sufficient importance to refer to Sir F Abel, who has dealt with the complaint in a manner leaving nothing to be desired.

CATCH CROPS.—Very little success has attended the efforts of those who have endeavoured to keep down expenditure by the cultivation of subsidiary products. The outlets are too small and markets are in consequence easily swamped. As long as prices keep up, the Chinese sub-lessees will maintain their kladdie or pumpkins, as the case may be, in fair condition; but directly a slump occurs, they cease to weed and indeed to put any more labour into the undertaking at all, with the result that the Superintendent has to devote a lot of valuable time to trying to get things straight, and usually meets with very indifferent success. It is generally recognised now that, if more than one product is to be cultivated upon the same ground, the best combination is Coffee and Para Rubber, the former planted close, to yield maximum crops within a limited period, and the rubber at whatever distance may most commend itself to the individual proprietor.

COFFEE.—The export returns for Perak, Selangor and Negri Sembilan show an increase in 1901 of 6,476 piculs: this must be considered a satisfactory result in view of the fact that prices averaged $18·29 per

picul as against $20·80 in 1900. Moreover exchange fell from 2, (demand selling rate on London) in January to 1/10⅛ in December, but for which fact, dollar quotations would presumably have been lower still. A good deal of Coffee has nevertheless been planted in 1901, mostly in conjunction with Para rubber, and cultivation has been well maintained, whilst quality has improved, and complaints on this score have been much less frequent. Reports from Brazil go to show that the coming season's blossoms have to a great extent failed, and there is a widespread belief that 6,000,000 bags will be the limit of the crop actually gathered in Rio and Santos, though the unloading of heavy stocks may to a great extent counteract the hardening effect which such a phenomenally poor crop should exercise upon the market. It is a somewhat debatable point whether the failure of the blossoms in Brazil is to be attributed to the impoverished condition of the trees, consequent upon inadequate cultivation and a succession of abnormally heavy crops, or whether the season has been unpropitious. If the former assumption be correct, then there can be little doubt that a steady and continued improvement may be confidently anticipated, but advices are so conflicting that it would be premature in the extreme at this stage to attempt any reliable forecast.

COCONUTS.—Owing to the ravages of beetle and the cost of keeping the trees clean, Coconuts are not as much planted as their fine growth would lead one to suppose that they would be. Doubt has also been expressed as to whether the soil, except that actually on the sea-board, is suitable. The Selangor Planters' Association Annual Report however states that, on a small holding in the Klanang District, trees from 10 to 12 years old have yielded an average return of over 51 nuts per tree, although this plantation was opened by Malays and considerably neglected during the first eight years of its existence. Such a return is under the circumstances decidedly satisfactory, and your Committee are of opinion that the cultivation will always be a remunerative one as long as it remains possible to keep the beetles under without incurring a prohibitive expenditure in doing so.

GUTTA REMBONG (FICUS ELASTICA).—The unsuitability of this tree for planting amongst Coffee, to some extent accounts no doubt for the preference shown to Para. Nevertheless when put out on soil which it likes, growth has been very fine, but it has shown itself to be a tree which will not flourish anywhere and everywhere, and for it to make a vigorous start it appears essential that there should be a fairly rich surface humus or lots of ash after a recent burn. On rain-washed and impoverished hill-sides, it sulks from the day it is planted, but grows splendidly on practically bottomless peat, if well drained. Mr. Derry of Perak has interested himself more than anyone in this variety of Rubber, and is very sanguine of its eventual success, though he thinks that "perhaps eight years may have to elapse before the tree can be profitably tapped." In Malacca 4-5 years old trees are however being worked by a Chinaman who professes to be quite satisfied with the results, but his figures of yield and cost are considerably involved and difficult to follow. In Perak two 19 year old trees each yielded 25 lb. in one year, and of these Mr. Derry reports "the tapping was far short of being exhaustive." The value of this rubber is slightly less than para, and the method of collecting differs, in that the latex of the "Ficus" appears to coagulate on the trees, whereas that of Para runs freely, down the cuts made in the bark into tins.

HEVEA BRAZILIENSIS: PARA RUBBER.—With the decline in the price of coffee this product have been largely planted throughout the Federated Malay States, and when kept clean of weeds has everywhere come on in a fashion which clearly indicates that soil and climate agree with it admirably. The wintering habit of the tree, which is almost universal, seems to afford a further proof of this country suiting it. Some experimental tapping of young trees, which has been undertaken, goes to show that in 4 to 5 years from planting about 6 oz. of dry rubber may be regarded as the average yield of the best grown trees, and some 6 years old trees have yielded over a pound at their first tapping. The coming year will undoubtedly provide many returns of experiments for comparison, but at the present juncture very few Estates have any large number of trees ready for tapping.

EXPORT OF COFFEE, F.M.S.

		1894	1895	1896	1897
Selangor	pkls.	2,588	4,532	7,046	12,491
N. Sembilan	,,	unknown	unknown	unknown	1,071
Perak	,,	1,662	1,937	2,209	2,759
Total	,,	3,950	6,469	9,255	16,321
		1898	1899	1900	1901
Selangor	pkls.	22,948	26,407	34,295	37,664
N. Sembilan	,,	3,163	4,541	6,199	9,769
Perak	,,	2,837	932	4,269	3,806
Total	,,	28,948	31,880	44,763	51,239

INDIAN SALES OF CHEAP TEA BY LOTTERY.

Yercaud, June 20.—It has lately come to my notice that small packets of tea, containing about an ounce, are being sold up here by the Postmaster of Nagalore, for the small sum of three pies each! and he is allowed a commission of 10 per cent. on all he sells—from Messrs. Andrew Yule & Co., Calcutta. On the packet are the words "Indian Tea Markets Extension. The World its Field. Andrew, Yule & Co., Calcutta." Each envelope is marked with a letter and a number, the one with me now is G. 47,744, and it is stated that monthly prizes are awarded to any one holding the envelopes with the numbers drawn as prizes. There is one prize of R50, five of R5 each, ten of R2 each, and fifty-five prizes of R1 each; in all R150 a month is disbursed in prizes, or rather was disbursed in May. This is certainly a very sporting endeavour to push the sale of cheap tea. Those who are in authority, and have the interests of the coffee planting industry at heart, should bestir themselves with their product of coffee, and go and do likewise. —*Madras Mail Cor.*, June 21.

THE DRUMMOND DEANE GREEN TEA PROCESS.

(Extract from a letter to *Indian Gardening and Planting*, June 19.)

From the commencement of the process the Drummond Deane system has the advantage, for it is possible with the machines to treat the green leaf in large quantities at a time, and a whole roll of leaf can be prepared by the work of a single coolie attending the machine and be ready for the next process in two or three minutes. But so rapid is the process of preparing the leaf that most concerns prefer to take Green Tea machines of smaller capacity and find that they are able to keep pace with the rolling machines in working off the leaf as the half hour or so required for rolling gives ample time to pass sufficient leaf through the Green Tea machine to be ready for the next roll. There is also an absolute certainty that all the leaf that is put through the machines

will be thoroughly prepared automatically and brown leaf showing semi-fermentation never disfigures the outturn of a Drummond Deane tea, as too often proves the case with leaf prepared on the old Indian system. I do not say that semi-fermented leaf must occur in the old style Green Teas, but that it requires great care and constant supervision with our inefficient coolie labour to prevent the operation of preparing the leaf on the old system being carelessly performed, and then a certain proportion of the green leaf will escape proper contact with the hot pans on which the leaf is prepared on the old system, and these are bound to ferment later and spoil the true character of the tea. It is not possible to detect any lapse of this sort on the part of the coolie until the tea is made, when the mischief is done.

It is possible, of course, to ensure that the process shall be thoroughly carried out, but this, as every planter and tea-maker knows, means extra supervision and consequent throwing up of cost of production, which, with prices now to be obtained for tea of any description, is not to be incurred if it can be avoided. On the other hand, with the Drummond Deane machine every leaf is equally treated; it is only necessary to open the valves and set the machinery in motion by means of the change wheel and driving belt and the machine automatically does what is required, discharging the leaf thoroughly ready at the end of a minute or two. One man can treat up to three maunds at a time on the limit of sizes that have been found most convenient. It is the old story of machine *versus* hand labour, and it does not take a prophet to tell which must go to the wall. In the rest of the processes in the Drummond Deane system the ordinary black tea machinery is utilised, though of course the processes are greatly modified, and in these modifications the skill of the inventor, Mr Drummond Deane, has been shown. It would be futile to attempt to make Green Tea on the ordinary black tea machinery without the instructions of the inventor, as a good many have found out to their loss, and naturally these special instructions are guarded and only issued to those purchasing the machines. The whole process also compares with great advantage with the old system in point of time, and it is very true in tea as in other things that time is money. In some three to four hours the green leaf should be turned into finished Green Tea, uncoloured. The colouring or finishing process is just as applicable to these new style teas as to the old style, and if Mr Leslie Rogers were here I could show him samples which he would be fain to admit compare well with anything he has seen on the old system. With regard to the question of time taken in manufacture, a notable advance has recently been made by the new Deane-Judge machine, which we are now about to introduce. This new machine performs a supplementary process which much improves the condition of the leaf and very materially shortens the time taken in manufacture, beside making the process entirely automatic.

With regard to the finished product, it is just as feasible with suitable processes to colour and finish Drummond Deane Green Teas to any required appearance, and the only difference they present to the old style Green Teas when so treated is in the absolute purity of their cup and the uniform green colour of their infused leaf, points in which old style Green Teas are apt to be faulty, unless a very thorough and consequently expensive supervision has been given. But it is a moot point whether the colouring process is necessary to the advance of these Green Teas; the Japanese are more and more dispensing with the operation which adds nothing to the quality of the tea, and only satisfies a prejudice in point of appearance. Compare the beginning of the Ceylon Green Tea industry; it began about four years ago with a few thousand pounds; in the third year it reached nearly two million pounds; not much, it is true, in the eyes of those who want to rush everything and failing immediate success abandon the attempt, but sufficient to show that we are driving ahead in the same way as we did in the early days of black tea. The great point is that the motion has all been in a forward direction.

With regard to the Afghan market, the North-West planters cannot pretend to make a preserve of it. If their old style Green Tea is so much better, they are so favourably placed that the Bengal planters should not be able to compete with them. It was the special appreciation of the Manabarie teas made on the Drummond Deane system that drew the attention of the Bengal and Surma Valley planters to this Trans-Frontier market and the Association had nothing to do with it. Mr Rogers may be right as to the necessity of colouring the teas to the appearance with which the Afghans are familiar, for the Envoy judged them on the merits of their cup in which the Drummond Deane teas stand pre-eminent. But that circumstance will not prevent these teas making way. We are prepared if necessary to colour them to any shade that the Afghans may prefer, even to painting them all the colours of the rainbow, like Joseph's coat or a German Jubilee design.

THE AGENT,

Drummond Deane Green Tea
Process and Machinery.

Calcutta, 16th June, 1902.

THE TEA MARKETS EXPANSION COMMISSION.

Messrs Andrew Yule and Co, the Commissioners appointed by the Advisory Committee of the Indian Tea Association to extend and expand tea markets in India, have issued their seventh Report. We learn from it that the support accorded them has been steady and progress satisfactory during the three months in question, viz., March, April and May. The Commission, it will be remembered, came into being about the middle of last year, helped with a grant-in-aid of R40,000 from the Indian Tea Association and contributions of tea from planters up to 700,000 lb. The work has been continued on the lines that we have noticed before in these columns, and the reports received of its progress in all directions are encouraging. Of the 372,879 lb of tea, that up to the 31st ultimo had been contributed or purchased, 273,574 lb have been disposed of. The demand for the pice packets continues satisfactory, no less than 894,734 having been sold. The price of them is the same all over India, viz., one pice each. The total number of cups of brewed tea, which also are sold at one pice each, has risen to 219,244. Pice packets are now to be procured at 695 extra-departmental post-offices as against 70 on the 28th of February last, and applications for agencies are still coming in. Brewed and dry tea is now on sale to native passengers at 13

stations on the East Indian Railway, on the Oudh and Rohilkhand Railway, and on 17 stations on the East Bengal State Railway. Tea is also supplied on the latter railway by men travelling on the line, to whom the manager has kindly granted free passes. The Indian General and River Steam Navigation Companies have also kindly granted permission for the sale of tea to native passengers on their steamers and have offered to give free passes to the men employed by the Commission for that purpose.

The receipts during the three months to which this Report refers total up to R35,205-3-7, which is a very satisfactory increase; and the balance in hand on the 1st June was R69,879-7-7. The cost of working during these three months has been roughly R13,000, making a total of R30,000 to the end of May. The support accorded to the Commissioner to the same date, exclusive of the Indian Tea Association's Grant-in-aid, amounts to R97,474-10-7 in cash and tea—the average value of the tea supplied being taken as 3 annas 11 pies per lb. The Commissioners, in concluding their Report, which they hope will be considered satisfactory, trust that contributions in future will be made as much as possible in cash instead of tea, on the basis of, say, 4 annas per lb. They claim that the advantages of cash contributions are twofold; *firstly*, the Commission would be enabled to purchase tea of exactly the style required, and in such quantities as to avoid unnecessarily running into stock, and *secondly*, the purchase of tea at public auction would tend to stimulate competition, and thus indirectly return an immediate benefit to the contributors. At the same time the Resolution which was passed at a Meeting of the Advisory Committee of the Commission on Tuesday last, as reported among our telegrams, urging on all Tea Companies, proposing to destroy large quantities of tea in order to prevent a slump in prices, to make it over to the Expansion Commission to supply the growing wants of the new trade in India, is an eminently practical and sensible suggestion. This is in reference to the telegram from London recently received, which stated that at a Meeting of Indian merchants representing tea interests in India to the value of £1,000,000 sterling, which was held there towards the end of last month, those present strongly favoured a proposal to throw away all tea from the 1st to the 15th August, the most prolific month. It was estimated that 10 million lb. of tea would thus be kept off the market.—*Madras Mail*, June 26.

TROPICAL CULTURE.

(*From a Correspondent*)

The Official "Bulletin Economique" of Indo-China seems only of local interest; but I read that a Tonkin planter is going to plant *Momordica luffa* of which the fibrous sponge has several industrial uses.—One kind grows wild in the lowcountry here; another is cultivated as a vegetable. For the above purpose there is an Egyptian variety, very large, of which the fibrous part of the fruit is sold as vegetable sponge. I think it would be a very paying product for natives to cultivate.

The French Government is going to experiment on the action of phosphates on cultivation, rice particularly, in the different parts of Indo-China. I think that in Ceylon, where the yield of paddy is generally so small, our paternal Government ought to do the same. Better try and double the crop of the land in cultivation, than construct or restore costly tanks to double the area which might be cultivated?

In the February and April numbers of "Societé d'Etudes Coloniales" appears a translation from German of a recent work on *cacao* by Dr. Paul Preuss.* It is very interesting for cacao planters. There is no mention of "Traduction réservée."

* Paul Preuss I met in Cameroon in 1892. He was already then Director of the Government Botanical Gardens.

MR. GREEN'S CIRCULAR ON HELOPELTIS.

(*To the Editor, local "Times."*)

Sir,—May it not be possible that, like the mosquito, helopeltis breeds naturally in swampy places and standing water? It certainly hates the sun and lives by suction, and I have noticed that when a field is attacked helopeltis appears at the lower end near a stream or standing water first. It might be worth some low-country man's while to investigate for, if this were proved, helopeltis might be kept in check by sprinkling kerosene in all wet places, as is being done to eradicate the mosquito. It has always appeared to me that such pests as helopeltis and caetdis worm might be kept in check by burying prunings with a sprinkling of lime, or better still basic slag. Burying prunings has checked grey blight on this estate to an enormous extent; many fields which were a mass of blight are now almost free. That helopeltis is coming up-country is an undoubted fact. Mr Green mentions Nawalapitiya. I saw signs of helopeltis just below Ginegatennie Gap a day or two ago—this is very much higher than Nawalapitiya. I have never seen tea in the Kelani valley so badly attacked by helopeltis as it is just now. On one estate the best field was absolutely ruined. I doubt if coolies could have plucked a five lb average. I noticed in some paper the other day that the farmers in South Africa had found treacle and arsenic to be a perfect cure for locusts. Would this be useful for checking white ants which do far more permanent damage than helopeltis? Treacle made out of jaggery would be very easy to procure, and very cheap. Each pruner as he finishes pruning a bush might smear a little of the mixture round the stem. This might also keep borer and other pests in check.—Yours, &c.,

D. G. Brebner.

Kew, Norwood, June 21.

REPLY TO MR. BREBNER'S LETTER.

Sir,—With reference to Mr Brebner's letter, in your issue of the 23rd instant, the breeding habits of the *Helopeltis* insect are well known. The eggs are embedded in the shoots of the tea plant. All members of the family *Capsidae*, to which the *Helopeltis* belongs, have an exsertile horny ovipositor, which indicates a similar habit of oviposition. It is quite out of the question that they could "breed naturally in swampy places and standing water," as suggested by your correspondent. Under these circumstances, the sprinkling of kerosine over the swamps could have no direct effect upon the pest. It may be true that *Helopeltis* is more prevalent in damp places; but such a fact (if fact it is) might be due to many other causes. The insect may prefer a sheltered situation, and swampy spots are usually in hollows. The insect almost certainly prefers trees weakened from any cause and trees growing in damp spots are frequently unhealthy. The supposed fact is, however, open to question. I have been collecting particulars of the work of *Helopeltis* for several years, and have frequently received reports that the attack has been most severe on exposed ridges with poor soil. I have always advocated the burying or destruction of prunings as a means towards the check of all insect pests. The application of treacle and arsenic to the stems of pruned tea bushes—if otherwise practicable—would probably have little effect against white ants, as the syrup would im-

mediately attraet hordes of the more aetive true ants, which would speedily remove all traces of the mixture, though thousands would perish in the achievement. The wholesale destruction of these ants would be a distinet misfortune, and would probably result in a marked inerease of real pests, upon many of which they prey. Applieation of an arsenical preparation—such as Arsenite of Copper, or "Green Arsenoid"—*without* the treaele, would be more effective against the attaeks of white ants, as it would not attract the attention of other inseets.—Yours, &e., E. ERNEST GREEN.

Peradeniya, June 25.

LAGOS FOREST RESERVES AND RUBBER.

In October, attention was drawn in the paper "West Afriea" to the faet that indignation was felt in Lagos at the Ordinance introdueed into the Legislative Conneil by the Governor, in September (called the Forest Reserves Ordinance), with the object of proteeting the rubber trade, by which it was sought to impose the requirement of a licenee before rubber trees eonld be tapped or the produee could be sold. It was stated that the natives regarded the proposed legislation as an unjust interference with the rights of the owners of land, and that great dissatisfaetion was felt respeeting it.

The Seetion determined to address the Colonial Offiee on the subjeet, since, while reeognising and sympathising with every endeavour to proteet the rubber industry, it felt it necessary to protest against one clause of the Ordinanee as likely to cause mueh unneeessary friction. The following letter was consequently addressed to the Colonial Office:—

"Manchester Chamber of Commeree, "Nov. 23, 1901.

"SIR,—I am desired by the President of this Chamber to address you on the subject of the Lagos Forest Reserves Ordinanee, whieh has been uuder the consideration of the Afriean Seetion of the Chamber. The Section is strongly impressed by the neeessity of preserving the productive eapaeity of the rubber plant in the interests alike of the Colony and of British trade with Lagos. It is apprehensive, however, that some parts of the Ordinanee, espeeially Clause No. 1 of Section 5, are very likely to create alarm and irritation in the native mind, sinee they will almost certainly regard it as an eneroaehment on the just rights of native landowners. It is believed also that the elause requiring every native selling produee to take out a lieenee will prove a souree of diseontent. I am to suggest that before your assent is aceorded to this measure it may be revised with a view to removing all ground for reasonable objeetion on the part of the natives. I am further respectfully to express the regret of the Seetion that opportunity was not given, before the publieation of the Ordinance in the Colony, to the Home Chamber of Commerce interested in trade with Lagos to eonsider and report to you upon its terms,—I have, &e.,

"ELIJAH HELM, Secretary."

"The Right Hon. JOSEPH CHAMBERLAIN, M.P.,
"Colonial Office, London."

"Colonial Offiee, Downing Street,
"Deeember 26, 1901.

"SIR,—I am directed by Mr Secretary Chamberlain to ackuowledge the reeeipt of your letter of November 11 on the subjeet of the Bill reeently introdueed into the Legislative Council of Lagos to provide for the regulation of the forests in the Colony and Proteetorate. 2. Mr Chamberlain is glad to see that the Manchester Chamber of Commerce recognise the neeessity of preserving the produetive eapacity of the rubber plants. It would, in his opinion, be to the advantage of the country as well as in the best interests of trade that the Governor should have power to regulate, not only the collection of rubber, but also the cutting of timber, as proposed in the Bill introdueed into the Legislative Couneil, but, in view of the objections taken to the manner in which it was proposed that the regulations should be enforeed, the Bill will not be proeeeded with in its present form. Mr Chamberlain hopes, however, that further diseussion will eonvince the native authorities in the Proteetorate of the neeessity of taking measnres to prevent the forests from being exploited at the expense of the future, and that it will be seen that the effect of regulations sueh as those proposed would be uot to encroach upon the just rights of the landowuers and people in the Protectorate, but to proteet them against the operations of persons who are only interested in obtaining an immediate profit. 3. I am to add, with reference to the last paragraph of your letter, that the iutroduetion of a Bill into the Legislative Council is the method preseribed by the oonstitution of Lagos to afford opportunity for the diseussson of measures before they are passed iuto law.—I am, &e., "C. P. LUCAS."

"The SECRETARY,
Manehester Chamber of Commeree."—*India Rubber Trades' Journal*, May 26.

COFFEE IN ABYSSINIA.

It is reported in letters reeeived from Harrar that Mohamed Alia Bohra, a leading merehant of Abyssinia, has obtained from the King the monopoly of purchasing coffee in Abyssinia and Harrar. Coffee sells at Harrar at 6 shillings per maund of 36 lb and the monopolist may buy it at half this rate. —*Indian Witness.*

ASSAM TEA GOING OUT OF CULTIVATION.

Read letter dated 4th June, from Messrs. Shaw, Wallace & Co., pointing out, in reference to the "Report on Tea Culture in Assam" for the year 1901, just issued by the Assam Secretariat, the large amount of Tea land which appeared to be going out of cultivation. The method adopted by the Assam Secretariat in compiling the returns was to trausfer tea, which had been planted out three years, from the "immature" to the "mature" eolumn. For instanee, in 1898, the nett addition to the area under eultivation was shewn at 14,997 acres, but the increase in mature tea in 1901, as shewn by the Report was only 7 264 acres. It would thus appear that 7,733 acres had disappeared from cultivation. Mr McMorran also submitted a digest, which he had prepared from previous reports, shewing similar discripancies. It was decided to draw the attention of the Assam Administration to the differences, in the figures which had been pointed out.—*I. T. A. Minutes*, June 17.

FORESTRY AND FRUIT-GROWING IN THE ORANGE RIVER COLONY.

Bloemfontein, June 4.—Recent reports from the Government forest nursery which has been laid out near Thaba Nehu show that surprising progress has been made. Over 100,000 seedling trees, mainly eucalyptus and pine, are now ready for transplanation. Experiments have also been made in the cultivation of oak trees, of which eight acres have been planted, and the wattle area under cultivation is being continually extended. The construction of dams and water furrows is proceeding. It is intended to establish plantations generally, and wherever the Government acquires land a portion of it will be preserved tor forestry.

Mr G S Scott, the Government fruit expert, will arrive in Bloemfontein next week, after spending a year in Cape Colony inspecting the method of culture adopted on Mr Rhodes' fruit farms at Pearl and the tobacco farm in the Oudtschoorn district. Recently Orange River Colony tobacco has practically replaced that of the Transvaal, although it is being sold under the latter name, and there are prospects that the industry will be most profitable. Mr Scott will later act as itinerant instructor in various districts. Similar arrangements will be made in other branches of agriculture in the future.—*Laffan.*

INDIAN TEA FOR PERSIA: A FAILURE.

The Holta Company report considerable disappointment in the attempt to exploit the Persian market following on the representations made to the Indian Tea Association last year. The Directors say: A consignment of 10,065 lb was sent to Persia by caravan *via* Seistan. With reference to this, we may mention that we joined with other large proprietors in the valley in equipping a caravan for Persia. We were led to suppose that tea would meet a ready sale in Persia at prices which would give a very much better return than those obtainable in either the Calcutta or London Market. We regret to say that these hopes have not been realised, and we are afraid we shall not get much more than will cover cost of production and transport to Persia. The tea is as yet unsold, but the agent in charge has instructions to sell as quickly as possible, and return. *Indian Gardening and Planting*, June 26.

PLANTING NOTES.

Wire Tramways.—An interesting paper on Wire Tramways by Mr. W. R. Shaw, M. E. (Queen's) M. Inst. C. E., Consulting Engineer for Railways, Bombay, is reproduced on page 111 from the *Indian and Eastern Engineer*. We invite the attention of our readers to the article.

Spineless Lime Trees.—In 1892 on Shawford estate, Dominica, a lime tree was noticed without the usual formidable spines. Seeds from this apparent 'sport' were collected and sown. Some 75 per cent came true and a plot of spineless limes forms an interesting feature in the Dominica Botanic Garden. The plants in this plot are now bearing heavily and the Curator, Mr Jones, reports that 80 to 90 per cent of the seedlings raised are coming true. The fruit of the spineless variety is slightly below the average in size, and it remains to be seen whether, for estate requirements, the new variety is an improvement or not.—*Agricultural News*, May 24.

Lagos Silk Rubber at Tobago.—A plot of the African or Lagos silk rubber (*Funtumia elastica*) was planted at the Botanic Station, Tobago, in April 1901. The Curator reports that the plants have made good growth and flowered for the first time this month. Mr Millen adds that in a young state the plant assumes a shrubby habit, but by pruning it can be made to form a trunk. In Lagos it attains a height of from 90 to 100 feet before branching. This makes it easy for the collector to tap the trunks. The latex flows readily and rubber is easily produced by the hot and cold water process, no chemicals being required as in some rubber-producing trees. From its rapid growth the tree is apparently adapted for cultivation in Tobago.—*Agricultural News*, May 24.

Coconut Palms—are growing apace in the Kelani Valley (and so is Rubber); but porcupines are reported to be a terribly troublesome enemy, entailing much expense in watchmen. Do planters know of the Sinhalese trench traps for porcupines? When well baited, they are generally successful and all Sinhalese villagers must know the plan.

A U.S.A. Expert on Rice-growing in the East.—Professor S. A. Knapp, President of the Rice Association and Special Commissioner of the Department of Agriculture, United States, who was sent to Asia and the Pacific Islands to investigate the rice industry and learn what varieties were best adapted for cultivation in that country, recently made a report to the Secretary of Agriculture. Professor Knapp visited Japan, China, the Philippines, Hawaii, Siam, Ceylon, India and Burma. In speaking of his investigations, he said:—

"The United States can profit from the experience of the Oriental countries in the varieties of rice, but nothing can be learned from them in the cultivation of the plant. What the United States needs is the introduction of more early varieties of rice. I do not think the United States has anything to fear from Oriental competition."

Tea in Russia.—The Dutch Consul at Warsaw has been giving the imports of tea into Russia as follows, we changing his kilogrammes into lbs.:—

Total import, over	...	116,600,000 lb.
Brick tea = 75,680,000		
Black tea = 39,600,000		
Tablets tea = 2,145,000		
Green tea = 672,000		
Yellow tea = (*small quantity*) = 118,097,000		

We are not responsible for the discrepancy. The estimate of Brick tea is singularly near that of the Shanghai Tea Committee some years ago, which was 76,949,200 lb.; and Green tea was given (shipped to Batoum) at 631,733 lb.; but the estimate of black tea was much larger or 45,179,066 lb.—a good deal of which may have been for Central Asia and adjacent lands. The grand total of the Shanghai estimate was above on 133 millions lb.; and it is more likely that with Ceylon and Indian tea now (and perhaps less China), some 150 millions of lb. of tea must be taken in a year, by Russian merchants or on Russian account, to supply the markets not only of Russia in Europe and Asia, but the adjacent territories which have their tea requirements met through the Russian trade routes. We simply go on the fact that a Tea Sub-Committee of Shanghai Merchants—who must have known what they were about—gave detailed figures showing that in 1896 Russia had taken, by four different routes, 132,567,866 lb. of tea from China. This was apart from Indian and Ceylon tea sent direct or *via* London—so that the total demand was not then much under 140 millions lb. In the past six years in a tea-consuming country like Russia there must be a steady if slow increase in the imports, so that we do not think 150 millions lb. can be an over-estimate of the total requirements, in all kinds of tea, at the present time.

A CALCUTTA INTERVIEW WITH MR. DRUMMOND DEANE.

HIS OPINION ON CEYLON TEA AFFAIRS.

While Mr Drummond Deane, the well-known Ceylon and Travancore planter, was in Calcutta last week, a representative of this journal took the opportunity of eliciting his views on tea subjects generally. Mr Deane in reply to questions said :—

"Coming to Ceylon affairs," he said, "do you think it is practicable to amalgamate Indian and Ceylon interests in a joint campaign as has been suggested ? "

"Well, I think in the present state of tea they are practically identical. The present sluggishness of Indian tea on the markets is a distinct clog upon Ceylon. The weight of Indian tea on London adversely affects Ceylon prices in the market to which the greatest part of her crop is still sold. So, considering that Indian progress is evidently fated to be slow for some time yet to come, I think it would be wise of Ceylon to come forward and help what some people call her rival out of the ditch, if possible. It is a question from which sentiment should be excluded; the question Ceylon planters have to ask themselves is whether India will not do them more harm by wallowing in that ditch and bringing down tea prices generally than by getting on her legs by drawing off a certain proportion of the good of Ceylon efforts. I am not sure that it would not be sound policy to include Java in a general scheme of mutual help. I certainly advocate a combined movement for India and Ceylon. Of course, in the present state of Indian finances the Ceylon people would be bound to think that we in India were trying to get too much out of them, but if left to herself, so far as I can see, India will cause a greater loss to Ceylon by overloading London, and so bringing down tea prices. And in this last contingency no one at all will profit."

"How are Ceylon men likely to view this ?"

"Well, perhaps they are hardly educated up to it, though some of their leaders believe in it. In the Green Tea development alone there have been some very unsound views put forward with regard to India and Ceylon. It was considered as a sort of injury that India should take up this industry which Ceylon had started. Now this is capable of being turned to the real benefit of Ceylon planters. Every pound of Green Tea made in India leaves a chance for another pound of black tea made in Ceylon. The island cannot develop the whole of the Green Tea market in America. Taking it at that alone, there is enough room and to spare for both countries. But Ceylon has not enough of tea lands suitable for the Green Tea development. After producing about 10 million pounds Ceylon would have to stop, while India at a moderate computation has land on which Green Tea cultivation is advisable sufficient to produce four times as much. The qualities of Green Tea in favour have little strength. In Japan the flushes come on so rapidly during the short season that they are only fit to produce a washy sort of tea, the Indian bheel gardens of Cachar and Sylhet especially are, I am sure, just fitted to produce these qualities, and have the additional advantage that they can be worked at a very cheap rate, and also a practical inducement that, however tea may recover, these gardens with their heavy flushes of watery leaf will never attain high prices for their black teas. Now in Ceylon with any recovery in tea prices brought on, say by increased Green Tea production lightening the black tea market, it will pay Green Tea producer except in a fairly small proportion of acreage to return to black tea. Therefore I consider it would be to the real benefit to Ceylon proprietors to actually induce India to go in for Green Teas as she is more likely to stick to the manufacture and thus make a permanent withdrawal of a percentage of tea from the black tea market."

"You advocate, then, a joint propaganda between India and Ceylon in America in green tea as well as black ?'

"Certainly, though India has not much money at present to help, it would be well for Ceylon to let her do as much as she can in the joint effort and to supply the deficiency, including Indian tea in Ceylon advertisements for a contribution as great as circumstances will admit. Even if India gets her Cess she will still be behind Ceylon in the matter of money. This might seem too unselfish a course to follow to most, for selfishness and exclusiveness are rather prevalent; but I believe it is unselfishness that would pay Ceylon in the end."

"Well, Mr Deane, it may come off, but certain people in Ceylon will need a deal of persuasion. What, for instance, do you think of Mr Rosling's remarks on the subject of the Indian Cess, contributed last year to the Colombo press, where he wrote that it was not to Ceylon's interest that India should get her Cess?"

"I think he was so obviously wrong and short-sighted that it is quite sufficient to leave it to the intelligent reader to pick out the fallacy for himself."

"To sum up the present situation, what do you consider we immediately need?"

"At present we can only hope for the Cess to give us a chance to work off our surplus; another thing which would relieve us we are, it seems, not likely to get—reduction in exchange. The present artificially inflated rupee presses hard on those who sell produce from India. With regard to the Cess, we ought to have the sympathy of the Viceroy, because, if I remember right, it was he who, when addressing the Assam planters, impressed upon them the necessity of helping themselves by getting off their tea on new markets, and the Cess movement is nothing but the practical embodiment of the policy he advocated and recommended. The Cess, however, will be a serious responsibility upon those who administer it, and I trust that London will not get a preponderating influence, or there is no saying what things we shall see. Every district in India should be fully represented on the model of the Ceylon Thirty Committee and by men whose chief interest does not lie in tea trading to London particularly but who are devoted to the growing of tea and its disposal in the most judicious manner possible, no matter on what market; a body in fact who can be trusted to take care of the general interests of tea growers without any leaning to any particular trade."—*Indian Gardening and Planting*, June 26.

CEYLON COCOA IN GERMANY.

A HINT FROM MR. RENTON.

Ceylon cocoa growers will feel grateful for the keen interest displayed in their interests by Mr. Renton. Today through the courtesy of Mr. Philip we are enabled to publish a hint which Mr. Renton sends to cocoa growers in Ceylon and which is specially applicable to those who export their produce to Germany. A valued correspondent with considerable knowledge of the subject gives us the following information of interest:—"The washing of cocoa and consequent removal of mucilage is pretty general in Ceylon, though there are, I understand, two or three estates where cocoa is not washed and mucilage is allowed to dry on the bean. I sent a sample of cocoa home some weeks ago, with mucilage dried on. Brokers reported "dark stained skin, good brownish *break*, well fermented and of even colour. The dark stain on skin would prevent its sale on type. Bright fiery skin is preferred, and, if this can be obtained, coupled with 'break' same as sample, a fancy price might be secured." I do not suppose it is possible to get the bright appearance when the slimy mucilage is dried on the bean. Of course, if buyers generally began to realise that the "break" of the dark-skinned beans was always better, the fiery skin would cease to attract. Fiery skin has hitherto, I expect, generally indicated probable good "break." Enclosed are 2 samples: A, washed, B, unwashed. The latter has suffered in the keeping somewhat but not a great deal." (To the unpractised eye at any rate the washed beans look the most attractive.) What Germany wants, it is evident from the above, is not wanted at home. It would be interesting, however, and would save others experimenting, if some of those who export "unwashed" cocoa would give their opinion on the extract sent by Mr. Renton.

COMPRESSED TEA TRADE OF RUSSIA.

According to the Dutch Consul at Warsaw more than 53,000,000 kilogs of tea are annually imported by Russia, of which 34,400,000 kilogs consist of brick tea, 18,000,000 kilogs of black tea, 975,000 kilogs of tablets, and 280,000 kilogs of green tea. A small quantity of yellow tea is also consumed, which, however, is too insignificant to be taken into consideration. Green tea is rarely found in Russian households, and the great majority of Russians have never tasted it.

TEA IN TABLETS.

These tablets are manufactured with tea leaves of inferior quality. They are 130 millimetres long, 40 wide, and 20 thick, and each tablet is divided into eight sections. The tablet weighs ¼ lb (Russian) and is enclosed in paper bearing the name of the manufacturer. For packing purposes tin-lined cases, each containing 126 Russian lb, are used. The retail price at Moscow is 1 rouble 10 copecks per Russian lb (about 2·7d per English lb). All the tablets used at Warsaw bear the name of a firm at Hankow.

BRICK TEA.

Brick tea is also manufactured at Hankow. There are two qualities, the first quality measuring 227 millimetres long by 160 wide and 11 thick, and weighing ½ kilog each. Bricks of the second quality measure 287 by 183 by 22 millimetres, with an average weight of 1·160 kilogs.

These bricks are packed in wooden cases, holding from 216 to 240 lb (Russian). The retail price at Warsaw is 70 copecks per Russian lb (about 1s 8d per English lb) for the first quality, and 60 copecks (1s 5d) for the second quality.

Note.—Kilog=2·2 lb. Millimetre=·03937 inch. —*Chamber of Commerce Journal.*

FARMING IN ORANGE RIVER COLONY.

Bloemfontein, June 24.—Among the officials of the Orange River Colony Agricultural Department the opinion is held that it will be of the gravest importance for the success of this agricultural country that the class of intending settlers shall be most carefully selected, preference being given to real working farmers and men with families who can till with their own hands and be independent of outside labour. To such settlers large incomes will undoubtedly accrue. Land for settlement purposes is being acquired each week, and it is expected that farming will quickly become one of the most important industries of the Orange River Colony. Hitherto nine-tenths of the milk produced has been wasted, but now every cow is producing, and half is being turned to account.

With reference to the re-stocking of the colony with cattle, it has been found that more cattle are still in the country than was generally believed. If the supply, however, locally fails, it is thought that the competition between oversea colonies will be so great that prices cannot be exorbitant. On account of the deaths among the young that occur in imported stock the local supplies will be drawn upon as far as possible. At least half the quantity required, about half a million, for re-stocking the Orange River Colony is now in sight. The majority of the farmers will arrive on their farms in time for spring ploughing and sowing, and it seems likely that the country will not take a great time to recover its normal state. A large quantity of tobacco will be planted in all suitable districts in the coming season. Poultry clubs, under the presidency of Major Goold-Adams, are being formed in most of the districts, as the importance of poultry for producing a rapid supply of food is realised.—London *Times*, June 28.

Tea Over-production and the London Market.—A more feasible and desirable means of meeting the evil of larger supplies of tea being thrown on the London market at times than can secure fair prices, than any yet proposed, is an Indian and Ceylon Financial Combination of producers to enter the market as buyers and holders of tea whenever there is an over-supply. The object is to secure a more even distribution of the tea offering for sale, the purchases being made by the Combination to be re-offered at sales when the supply was less. We are assured on good authority that such a Combination is likely to be matured and got to work erelong.

THE TEA DUTY BEFORE THE HOUSE OF COMMONS.

The sitting of Tuesday, June 10th, was resumed at 9 o'clock. On Clause 2 (Duty on Tea), Mr Flynn (Cork N) moved an amendment to exempt Ireland from the duty. The duty on tea fell on the poorer country with greater severity than on the richer; indeed, tea and maize formed more than 50 per cent of the expenditure of the poorest families in Ireland. He also claimed that the exemption he asked for would tend to equalise the balance between direct and indirect taxation as regards the sister isle.

The Chancellor of the Exchequer said that his experience in this country was that the poor were more particular about the kind of tea they bought than other people, and probably it was the same in Ireland. (Hear, hear.) He could not assent to the suggestion of the hon. member, and as he was engaged in raising taxation he regretted to say he must oppose the amendment. He did not think that the Budget resolutions had any bearing on the subject of the financial relations between the two countries.

Mr T W Russell said that he did not understand that the question of the financial relations had been raised by the hon. member opposite. So far as he was concerned he was pledged to vote for any money that the Government required for the war. He would personally be glad to vote for the abolition of the tea duty all over the country, but if his hon. friend went to a division he should be compelled to vote against him.

Sir T Esmonde (Wexford, N.) thought that under the special circumstances the burden on Ireland should be reduced.

Colonel Lockwood (Essex, Epping) said that though there was no doubt that many on his side of the House had, generally speaking not much sympathy with the views expressed by hon. members from Ireland opposite, they had during the last three or four nights felt considerable sympathy with the poor people in Ireland who would undoubtedly suffer from the incidence of this tax. He thought, however, that the hon. member for North Cork would see that it would be impossible to draw a line of demarcation between England and Ireland in this matter.

The Committee divided, and there voted—

For the amendment	...	69
Against ...	...	138
Majority against	...	—69

Mr Channing proposed an amendment reducing the duty on tea to 4d. per lb. He said that figures furnished to him by one of the ablest co-operators in the country showed that an enormous contribution, as expressed in terms of income-tax, was made by the working classes towards the public revenue in respect of breadstuffs, tea, sugar and tobacco. One working class budget of 35s a week showed a total indirect contribution *ad valorem* on these four articles of 19d in the pound, expressed as income-tax; in another case the amount was 24·8d in the pound. He contended that there was a strong case for making a reduction in the tea duty.

The Chancellor of the Exchequer thought there could be no question that, having regard to the expenditure of the year, they must retain the taxes as they stood last year. Taking the whole of the country, he could not see what possible grounds, there were for this amendment. He passed by what the hon. member said as to the sugar duties, but with regard to the tea duties there had been a very considerable yield in the past year. This was very clear proof that the great bulk of the population continued to indulge in tea even to a greater extent than before. And why? Because, although the tax had increased, the price of tea had fallen. He considered that the proposal of the hon. member to reduce the tea duty was unjustifiable.

Mr E Robertson (Dundee) said the great objection which they had to this kind of tax was that it fell upon a large section of the community who were unable to bear any burden at all.

Mr McKenna (Monmouthshire, N.) said he should vote for the reduction of every indirect tax until they had absorbed the surplus of £6,000,000 which the Chancellor of the Exchequer possessed, and the tax on tea should find a first place among the taxes to be reduced.

Mr Broadhurst supported the amendment.

Mr Hemphill (Tyrone, N.) said there was no tax which pressed more unfairly upon poor people in Ireland than the tea tax. Tea was becoming one of the first necessaries of life among the poorest people in Ireland. Where formerly potatoes and milk were consumed, the fare in many Irish dwellings was now grilled cake, made of Indian corn, supplemented by tea. Equality of taxation meant equality of sacrifice. It was absurd to talk of maintenance of the proportion of direct and indirect taxation. The first duty of every Government was to see that none of the inhabitants of their country were dying of starvation, and if they taxed the first necessaries of life this involved more or less starvation, or the workhouse as the alternative of starvation. There was no necessity for this taxation since the announcement of peace. The first duty of the Chancellor of the Exchequer when peace was assured was not to repay the Sinking Fund, but to relieve the poor of these burdens on the necessities of life.

Mr Bryan Roberts (Carnarvonshire, Eifion) could not support the amendment. The tax reached a class which but few of the other taxes reached—the Nonconformist teetotallers. (Laughter.) These gentlemen ought not to escape any of the burden of war taxation. This tax was different from the corn tax inasmuch as it had no taint of protection about it.

Mr G White (Norfolk, N. W.) protested against the tax on behalf of the agricultural labourers. In his opinion an undue burden of taxation had been placed on their shoulders as a result of the war.

Mr Channing complained that the Chancellor of the Exchequer had evaded the point established by the trustworthy figures he had given, that the portion of this tax paid by the poorer classes was far in excess of that paid by the wealthier classes.

The Chancellor of the Exchequer would not admit that it was so, but whether it was so or not there was no question that the amount paid to the revenue by indirect taxation was far less than the amount paid by direct taxation. At the present time there was no ground for this reduction.

Mr. T P O'Connor (Liverpool, Scotland) regarded this duty as one of the worst and most illogical forms of taxation, and especially oppressive to the poorer classes. Accepting the principle that taxation should be spread over all

classes there was still the limitation that the means of bare livelihood should not be touched, a limitation recognised in the income-tax exemptions. Tea ought to be excluded from the operations of the Chancellor of the Exchequer. In the slums of London and in the congested districts of Ireland it was one of the main articles of food. Yet it was not only heavily taxed but the tax was levied unequally, being imposed alike on tea at 3s 6d and tea at 1s 6d per lb.

Mr. Lough (Islington, W) said that if the financial position had remained unchanged since the introduction of the Budget he would not have supported the amendment. But he supported it because the Chancellor of the Exchequer, with his surplus of £6,000,000, could easily spare the £2,000,000 which would be taken off the taxation by the acceptance of the amendment.

Mr. J Dewar (Inverness) said he was unable to support his hon. friend on this occasion, as he thought the Chancellor of the Exchequer was taking up a sound position in refusing to remit this taxation. He opposed the corn tax, but the tea tax was in a very different position. As to the incidence of taxation, he maintained that indirect taxation bore very unfairly on men with small incomes.

Mr. Groes (Salford, S) said the Chancellor of the Exchequer was applying first business principles to the consideration of this question—namely, that one should pay off debts before contracting liabilities, and be just before being generous. (Hear, hear.)

Mr. J A Pease (Essex, Saffron Walden) supported the amendment, believing that they would be wise if they called upon the agricultural labourers, as well as other classes in the community, to pay by a system of direct rather than by a system of indirect, taxation.

The Committee divided and the votes were—For the amendment 137, Against 229, Majority against —92.

Mr Lough moved to insert after the word "sixpence" the word "net." He said that the tea duty was not really sixpence, but sixpence with an addition of ½ per cent to cover the cost of collection. This charge had been abandoned in respect of every other duty, and no reason could be given for its maintenance in regard to tea.

The Chancellor of the Exchequer said that the hon. member had confused two totally different things. There was a small warehousing charge of ½ per cent. on all classes of goods which had continued for the last 40 years without complaint. If the hon. member had any particular grievance in regard to tea, it should be inquired into.

The amendment was by leave withdrawn, and Clause 2 was ordered to stand part of the Bill.—London *Times*, June 14.

RUBBER IN PERU.

THE DIFFICULTIES OF TRANSPORT.

Vice-Consul Robilliard, in a report from Mollendo (Peru) states that the rubber industry still occupies a good deal of attention, and although the quantity shipped this year only exceeds last year's output by 15 tons, this is accounted for by the fact that large quantities are being prepared in the interior ready to ship when the dry weather sets in—from the beginning of April. A few remarks on the difficulties that attend this industry may be of interest. From the time of landing here about 15 days will be occupied in travelling by train, steamer, mule, and canoe to get to the rubber districts. The first range of the Andes has to be crossed at 17,500 feet above the level of the sea before the descent into the valleys can be effected. Sorata, in Bolivia, is the place at which nearly all the roads into the rubber and mining districts converge. The traveller will often be delayed for several days, as all the owners of beasts of burden take advantage of the scarcity of the means of transport, and extort the highest possible freights for their animals. Once work has been started, the cheaper plan is to buy mules and horses. All supplies have to be carried in, as scarcely anything can be purchased there. However, stores are gradually being established on the different claims. The descent is very dangerous in some places the incline being from 30 to 45 degrees, and the animals often slip and are thrown over the precipices. This part of the road 23 miles in length, takes 12 hours, when Pararani is reached, 4,600 feet above sea level. From Pararani to Mapiri the road is more practicable, and rubber, Peruvian bark, and coffee plantations are met. Mapiri is the centre of these regions, and from there one strikes off to wherever the claims may be. At least 90 per cent of the travellers fall sick with malarial fevers, more or less intense, although seldom fatal. From Mapiri, Guanay is reached in canoes, or rafts made of nine sticks fastened with vines; three of these rafts formed what is called a callopo, capable of carrying 1½ tons of cargo. The distance is 62 miles and can be done in one day, going down stream, but coming back it takes three days, the current running six miles an hour. The Indians can only pull at the rate of 1½ mile per hour. From Guanay there are roads that lead to the placer mines on the rivers Tipuani, Covahuira, Challana, etc, in which regions gold is found in abundance, but machinery is badly required, especially to dredge the rivers.—*M. Mail*, June 28.

RUBBER IN PORTUGUESE E. AFRICA.

Beira.—Exportation of india-rubber shows an increase on previous years, but this is mainly due to the action of the Mozambique Company in employing a large number of natives to tap the country in every possible direction for this particular article of commerce, by which they have no doubt injured this resource for many years to come.—*India-Rubber Journal*, June 9.

DUTCH COLONIES.

The following statistics are taken from the *Indische Mercuur*, of 30th May last:—

THE DUTCH EAST-INDIES.

Area: 735,000 square English Miles. Population: about 29,000·000.

Agricultural Estates: coffee 836, tobacco 410; sugar 254; sugarbibit 141; indigo 176, cinchona 131 tea 112; spices 215; rice 430; cocoa 173; coconuts 289; groundnuts 53; kapok 92; cassave 12; guttapercha 40; timber 122, coffee hulling-mills 18; rice hulling-mills 53 sundries 61. Mining: grants up to January 1902: 205. Railways: Govt., length about 2.622 miles, private 6,205. Steam-tramways: Govt. 38 miles; private 1809,5. Capital: joint stock, £99,000.000, (besides capital in private commercial and industrial enterprises).

SURINAM.

Area: about 58,000 square Engl. miles; pop; about 68,000. Agricultural estates: cocoa 84, coffee 58, sugar 9; bananas 71, sundries 87. Capital; joint stock £3,000,000, (beside capital in private commercial and industrial enterprises).

WIRE TRAMWAYS: THE KANAN DEVAN, TRAVANCORE.

BY W. R SHAW, M.E. (QUEEN'S), M. INST. C.E. (*Consulting Engineer for Railways, Bombay.*)

[The following is from a paper in the "*Indian and Eastern Engineer*" for June, 1902, accompanied by two pages of (or five) photographs.—Ed. *T.A.*]

There are undoubtedly several places in India where a wire tramway would pay handsomely, and yet there are very few of these useful lines in the country. One reason for this is that capital is not over-plentiful, while labour is wonderfully cheap and the cost of carriage is low. Then, again, there are not many of these lines in England, so the engineer or planter who takes any interest in the subject is obliged to pick up his knowledge laboriously from various foreign technical papers.

Within the last year or two, however, there has been a decided advance in the subject of wire tramways in India. One promising line in Assam is now under consideration. A bold scheme has been outlined to connect Bengal and Thibet by means of a line 40 miles long over the Jalap La Pass, 17,000 feet high, to secure the wool traffic.

The present paper will give some of the main features of an unusually interesting wire tramway in North Travancore, which has been working now with the greatest success for the last eighteen months. The writer is indebted to Mr W Kemlo, the engineer who so successfully designed and constructed the line, for most of the following details and for the highly interesting set of photos.

The tramway is designed for the conveyance of stores and produce to and from a large estate in the Travancore Hills. It is divided into two practically equal sections, each over one mile long, and rises about 4,000 feet. When the scheme is complete there will be a branch line from the South Indian Railway to the lower station, and the upper station will be joined up with a 40-mile mono-rail tramway leading to the estate.

The route follows an old cooly track, and there were great difficulties in the setting out of the line on account of the feverish nature of the country in the lower section; in fact the climate was so bad that the home firms who were prepared to supply the materials would not undertake the work of erection, and it was finally decided to design and erect the line locally.

The line is on the running-rope principle. The two sections are geared together and are driven from a central station. The following are the details of the sections:—

		Vertical rise.	Horizontal distance.
Upper Section	...	1,745	5,700
Lower Section	...	2,187	7,563
Total	...	3,932	13,263
Longest span	..	427	1,533
Steepest span	...	246	558

Total length along rope 2·62 miles. In the upper section there are eight intermediate standards and twelve in the lower.

Two standards are about	...	40 feet high.
Remainder	...	13 do

THE ROPE.

The rope is ¾ inch diameter, best plough steel, hemp core and weighs 1 lb per foot run. It was sent out in eight pieces, each over 3,000 feet long, coiled on a drum. The drums were fitted to a locally-made stand, and the wire was hauled out by block and tackle and spliced on the spot.

THE GRIPS.

The grips on a line of such steep grades require to be very strong. Those in use were locally designed and will be patented. They grip the rope at any point automatically, go up to the top of the section, automatically leave the rope and run unto the shunt rail and are said to be a success in every way. The line is only meant for goods traffic, but if the grips are so reliable there does not seem to be any reason why passengers should not be also carried inspecially-designed carriers to hold one or two persons.

POWER.

Water-power is obtained by an 8-inch steel pipe, giving a fall of 720 feet, connected to two Pelton wheels. Each Pelton drives a dynamo capable of giving 40 amperes at 500 volts. This power is transmitted to the centre station, 1,850 yards distant, by two copper wires. The two sections of the tramway are driven together at the centre station by one or both of two motors similar to the dynamos at the power station below. At the centre station the gear is arranged to drive the ropes at one, two or three miles per hour. The rope has been worked at three miles an hour, but at present it is worked at two miles an hour, as this speed is sufficient for the traffic at present. About 20 H.-P. is sufficient to drive the line when the loads are uphill.

RESULTS.

The tramway has been working nearly continuously since August 1900 ten hours a day. About 40 carriers are used on the rope and all kinds of goods are carried, the load varying from one to three hundred weights So far the greater part of the traffic has been up, but the down traffic is steadily increasing as the estates are coming more into bearing. Three round trips can be made in a day, giving eighteen tons of traffic or for a year of 350 days say 6,000 tons. The traffic was formerly carried by some 5,000 ponies, bullocks and donkeys, and it is estimated the line will save at least £1 per ton, or £6,000 a year, so that the line is in every way a success.

NEW INDIAN TEA PATENTS.

The 5th December, 1901—Specifications of the undermentioned inventions have been filed:—

No. 162 of 1901, Andrew Gilmour McMeekin, Tea Planter, of the Allynugger Tea Estate, Shamshenugger. South Sylhet, British India. Improvements in tea-firing machines. (Specification filed 22nd November, 1901).

No. 163 of 1901, Thomas Aubrey Hunt, Engineer and Tea Planter, residing at the Lackatoorah Tea Estate, Sylhet, in British India. A marker for keeping the score at the game of "Bridge." to be called the "Simplex Bridge Marker." (Specification filed 22nd November, 1901).

No. 182 of 1901, James Begg, Tea Planter, of Hoolungorie Tea Estate, Assam, in British India. A new or improved machine for artificially withering tea leaf. (Specification filed 22nd November, 1901.—*Indian Engineering*, June 21.

TEA SALES.

PUBLIC SALES OF TEA IN COLOMBO.

DURING THE SIX MONTHS ENDED JUNE 30TH, 1902.

Date.		Offered	Sold	Avg. 1902.	Avg. 1901.	Exchange Demand Drafts 1902.
		lb.	lb.	c.	c.	s. d.
Jan.	3	1,493,593	1,020,013	34	27	1/4 1-32
,,	8	646,988	565,268	36	31	1/4 1-32
,,	15	1,120132	752,067	34	29	1/4 1-32
,,	22	1,375,393	1,050,692	33	27	1/4 1-16
,,	29	930,113	600,060	32	27	1/4 1-16
Feb.	5	784,641	591,461	33	30	1/4 1-32
,,	12	768,910	651,783	34	29	1/4 1-16
,,	29	1,011,108	775,306	34	29	1/4 1-16
,,	26	891,360	680,597	35	30	1/4 1-32
Mar.	5	847,998	684,470	36	34	1/4 1-32
,,	12	839,768	685,687	37	35	1/4
,,	19	1,176,128	941,572	36	36	1/4
,,	25	1,097,693	813,233	35	37	1/4
April.	9	1,697,525	1,535,020	36	39	1/3 31-32
,,	16	1,223,215	1,077,853	37	35	1/4
,,	23	1,015,491	799,986	36	33	1/3 31 32
,,	30	1,079,592	906,717	36	31	1/3 31-32
May	7	1,104,239	848,091	35	32	1/3 31-32
,,	14	1,285,620	839,487	34	30	1/3 15-16
,,	21	1,455,916	1,018.149	33	29	1/3 15-16
,,	28	1,474,765	833,098	31	27	1/3 15-16
June	4	1,523,104	1,169,815	30	31	1/3 15-16
,,	11	1,318,660	953,845	30	32	1/3 15 16
,,	18	1,472,731	1,180,630	30	32	1/3 15-16
,,	24	1,170 659	740,607	30	31	1/3 15 16
Total ½ 1902		28,805,342	21,715,507	33	32	1/4
Do 1901		26,620,270	19,872,871	...	...	...

PUBLIC SALES OF TEA IN LONDON.

DURING THE SIX MONTHS ENDED JUNE 30TH, 1902.

Date.		Packages Offered.	Packages Sold.	Reuter's Average. 1902.	Gow, Wilson and Stanton's Average. 1902.	190—
Jan.	2	11,000	9,000	7½	7½	7
,,	9	21,000	20,000	7¾	7½	6⅝
,,	16	32,000	29,000	7⅜	7⅜	6½
,,	24	26,000	24,000	7½	7½	7½
,,	30	27,000	25,000	7¼	7¼	6¼
Feb.	6	28,000	24,000	7	7	6
,,	13	26,000	23,000	7	7	6
,,	20	23,000	22,000	6⅞	6¾	6⅜
,,	27	26,000	24,000	7⅛	7⅛	6½
Mar.	6	21,000	20,000	7⅛	7⅛	6⅝
,,	13	25,000	23,000	7⅛	7	6½
,,	20	23,000	21,000	7⅛	7	6¾
,,	27	25,000	22,000	7	7	7
Apr.	10	27,000	25,000	6⅞	6⅞	—
,,	17	28,000	26,000	6⅞	6⅞	7¼
,,	24	24,000	19,000	6⅝	6⅝	6⅞
May	1	20,000	17,000	6½	6½	6⅝
,,	8	28,000	25,000	6½	6⅝	6⅜
,,	15	27,000	24,000	6⅝	6¾	6⅝
,,	29	30,000	25,000	6¾	6⅝	6½
June.	6	31,000	28,000	6¾	6⅝	6½
,,	12	30,000	28,000	6⅝	6⅝	6⅜
,,	19	27,000	25,000	6½	6½	6¼
,,	27	27,000	23,000	6¼	6¼	6¾
Total ½ 1902...		613,000	551,000	7	7	6¾
Do 1901...		646,000	583,000	..		..

[The figures for Local Sales are compiled from the weekly circular of Messrs. Forbes & Walker, while those for London Sales are from the telegrams received weekly.]

DOES THE MOON INFLUENCE VEGETATION?

In some countries, for example in the tropics, the bright moonlight is supposed to stimulate the growth, and it is believed that wood cut when the moon is waning from the full is apt to rot, perhaps because it has then more sap. M Bassieres, in the "Revue des Cultures Coloniales," from experiments made in Colombia, finds that phases of the moon do not seem to influence vegetation, but he asks for experiments to be made elsewhere in order to settle the question.—*Globe.*

VACCINATION FOR PLAGUE, CHOLERA AND TYPHOID.

A NEW PROCESS.

MM Roux and Besredka have brought a new process of vaccination against plague, cholera, and typhoid before the Académie des Sciences, Paris. Prevented serum injected into the blood of an animal only immunises it for a short time. On the other hand, if microbic bodies are injected, a longer immunisation is obtained but the animal does not feel well. M Besredka has combined these two existing methods by injecting a mixture of serum and microbic matter. The result is a prompt and lasting immunisation without discomfort to the animal.—*Globe*, June 13.

PERSIAN GULF PEARL FISHERY.

The season of the pearl fishery has just commenced in the Gulf, and Koweit people are very busily engaged in sending their boats. Koweit sends about 350 boats annually to the pearl fishery. Bahrein sends about 500 boats. Cassimin Thani of El-Bedaá, on the coast between Koweit and Bahrein, sends about 200 boats. There are besides those sent from Oman and the coast beyond. The pearl fishery commences in the Gulf in June and finishes at the end of September.—*M. Mail*, July 2.

ARTIFICIAL PROPAGATION OF OYSTERS.

Experiments of a somewhat remarkable character have recently been made at the John Hopkins University (U.S.A.) in the artificial propagation of oysters. A single female oyster of average size "lays" about 16.000,000 eggs, while a large specimen will produce from 30,000,000 to 40,000,000 eggs. The eggs are microscopic in size and an ordinary tumbler will hold about 100,000 eggs. Under natural conditions the eggs and milt are simply set free in the water of a river or bay and permitted to take their chances of coming together, which are so small that about one egg in a million is fertilised. The scientific manner is to open an oyster which is ready to spawn, and with the deep part of the shell downwards gently stroke, with an ordinary glass pipette, the upper surface away from the hinges, and should it be a female oyster it will pour out a fluid which will be full of eggs. In a tumbler of sea-water are placed a few drops of this liquid, to which is added a drop or two of this liquid similarly obtained from the male oyster, and fertilisation at once takes place. In about two hours afterwards all the eggs in the tumbler have been hatched, and in a few days' time they are ready to be placed in the water, and to attach themselves to some permanent object.—*Chamber of Commerce Journal* for June.

NEW TEA PATENTS.

ONE FROM MR. JAS. WHYTE, COLOMBO.

"Necessity is the mother of invention." The necessities of the tea growing business seem to be bearing the usual fruit. We have already noticed one or two developments which bid fair to become important, Mr C R Newton's enzymes and the soluble tea devised in Ceylon. The weekly reports of the Patent Office contain several others. Last week's list of patents applied for include a tea-drying and glazing machine, for which Messrs David Reid and John Dale of Baraoora, Sylhet, apply for protection. An improved method and apparatus for manufacturing green tea, patent applied for by Messrs Horace Drummond Deane and Charles George Landseer Judge. Improvements in apparatus for cutting teas sought to be patented by Mr James Whyte of San Sebastian, Colombo, Ceylon.—*Indian Gardening and Planting*, July 3.

INDIAN REDUCTION OF TEA CROP.

The local Committee of the Indian Tea Association have issued the following Circular to all producers of Indian tea :—

"We enclose copy of resolutions which were come to at an influential Meeting of Producers representing over 100 million lb. of Indian Tea, and shall be glad to know if you will join in the movement, and if so, please signify your approval on the annexed sheet, and return to the Secretary of the Indian Tea Association. You will doubtless recognise the importance of an early reply. Although it may be necessary to take the leaf off the bushes during the specified period, the undertaking provides that such leaf shall not be made into Tea from the 1st to 21st August inclusive." Later advices from London state that the London Committee have agreed to allow reduction of black tea crop by the manufacture of Green Tea, thus saving the leaf, if desired by growers. Producers who approve of the resolution for Restriction of Output, and agree to join in the movement on the terms named are asked to declare the amounts of their total estimates of crop for the current season and their outturn from the 1st to 21st August of last year.—*Indian Gardening and Planting*, July 3.

RAISING TOBACCO IN PENNSYLVANIA.

The Pennsylvania Board of Agriculture has decided to experiment in Pennsylvania with the raising of Sumatra and Cuban Havana tobacco under cover, and the eyes of tobacco raisers generally may be said to be turned toward Lancaster county, the scene of the experiment. While the growing of Sumatra tobacco in this country is beyond the experimental stage, as yet the centre of this new enterprise, strictly speaking, is Connecticut, and the recent report to Secretary Wilson of last year's crop in that state has awakened interest. The tobacco raised under the supervision of experts from the Department of Agriculture has been sold at an averege price of $1·25 a pound, and, as the cost was about 25 cents a pound, the profit was $1 a pound. As the average farmer can raise 1,000 pounds of selected leaf to the acre, the growers all over the state are watching the local experiment. Connecticut will produce this year about $1,500,000 worth of Sumatra leaf, which is about one-fifth of the annual importation of this particular tobacco. Under cover, the leaf has been known to grow to the height of eight feet. It is believed that the soil on the Pennsylvania tract is as good as, if not better suited, for Sumatra growing than, the Connecticut soil.—*Bradstreet's*, May 31.

CACAO AND RUBBER PLANTING.

SAMOA.—The Samoa Estates, Ltd., has just commenced operations in cacao planting, and great things are expected from it, which bid fair to be realised. Mr Hart, F.L.S., of Trinidad, recommends in his work on cacao the planting of *hevea* rubber trees between the rows as shade plants. Some of the experienced planters here do not favour this, on the ground that the *hevea* rubber tree is not profitable to cultivate, and say that the *castilloa elastica* is better; they also think that the rubber tree should not be planted amongst the cacao. However this may be, it may be regarded as certain that large planting companies should cultivate the *castilloa elastica* rubber tree which, I am informed, thrives here equally as well as cacao, and yields a return in from six to eight years, some say. It is not as subject to disease as the cacao, and could be planted, as experts may recomend, either between the cacao rows or in another part of the plantation. Whether it withstands hurricanes better than cacao, which is a very fragile tree, I cannot say. I strongly advise the companies who intend to carry on planting operations here not to depend solely on cacao, but to plant as well indiarubber trees, with other tropical products suited to the soil. Kola, too, bearing in ten years, should be cultivated by small planters.—*British Acting-Consul in Samoa.—British Trade Journal*, June 1.

TOBACCO-GROWING IN SOUTH AFRICA.

The modern smoker has such a wide range of tobacco from which to choose that the final selection of the brand which shall satisfy all his requirements is a matter of no little difficulty. Acting on the advice of various friends, he flits from one species to another, and finds, that so far as tobacco is concerned, there is no wisdom in the multitude of counsellors. Yet, even with the keen competition from oversea, South African—and especially Transvaal—tobaccos have hitherto held their own in public favour. And, now (says the "Cape Times") a new Cape rival has entered the field, and Transvaal growers will have to look to their laurels. It is about three years since Mr C W Leach, who had had wide experience as a tobacco-grower in the Rustenburg district of the Transvaal, first turned his attention to the Queenstown district as a favourable country for tobacco cultivation. He purchased the fine old farm in that district known as Poplar Grove, and there devoted himself to the cultivation of the "weed" on the most modern and scientific principles. The success of his operations has already been proved by the popularity of his tobaccos in the Eastern Province, but hitherto they have not been introduced to any extent in the Western districts, being only known to a fortunate few. Mr A Dowling, who represents Mr Leach, is now in Capetown with a view to introducing the Poplar Grove tobaccos in this city. The farm is now under cultivation to the extent of about 400 acres, on which at present about a million plants are grown. Estimating that each plant produces 3 lb. of tobacco yearly, the output works out at something over 3,000,000 lb. per annum. The consumption of Mr Leach's tobaccos already equals the supply, while the demand is far in excess, and consequently a large extension of the cultivated area is in progress, it being intended to cultivate no less than 3,000,000 plants during the present season.—*Natal Mercury*, May 27.

FRESH-WATER SHELL PEARL-BUTTONS.

During the last eight years the fresh-water shell pearl-button industry has developed in a greater degree than any other branch of button manufacturing. The fresh-water shell pearl-button industry did not exist in 1890, but since then vast quantities of mussel shells, formerly deemed valueless, have been taken from the Mississipi river and made the source of a revenue to the people of the states of Iowa and Illinois. In 1891 this country imported $100,000 worth of pearl or shell buttons. This sum was added to in 1892, when imports were valued at $292,332, but the next year, 1893, brought a slight decline, the values for imports for that year amounting to $275,216. In 1894 there was a remarkable falling-off in taking from oversea, the imports being valued at only $33,284. But in 1895 the loss of the previous year was entirely regained, imports being worth $375,886, the largest figures reached during the decade 1891-1900. From 1895 down to 1900 the value of such imports steadily dwindled, until in the latter year they amounted to only $36,262. In 1900 the output of fresh-water shell pearl-buttons amounted to 4,308.584 gross, valued at $1,176,285, and the production of ocean pearl-buttons was 4,049,452 gross, valued at $1,951,558; the respective items representing 20·3 per cent and 19 per cent of the entire button output of the country, which in 1900 amounted to 21,254,018 gross, valued at $6,467,373. The average price per gross received in 1900 for fresh-water pearl-buttons was 27 cents, as against 48 cents for ocean pearls. Photo and celluloid buttons brought in 1900 an average of 74 cents a gross, while bone and vegetable ivory buttons fetched 46 cents and 43 cents the gross respectively. Here it should be noted that United States Consul-General Jussen, in a report dated December 30, 1887, remarked "the manufacture of pearl buttons is not an industry of the United States and probably never will be." But on April 29th, 1898, Consul-General Hurst, writing apropos of the same subject (our imports of Austrian-made pearl buttons), noted that "the pearl-button industry of Austria-Hungary, which in former years occupied a prominent place among the flourishing industries of the monarchy, has dwindled of late to such an insignificant figure that pearl buttons can no longer be regarded as one of the principal articles of export to the United States. This may be attributed to the development of the industry in the United States." Nevertheless, by 1900 the making of these buttons constituted the second most important branch of the general indusry.. To Mr J F Boepple, of Muscatine, Iowa, belongs the credit of having started the industry in the United States, which he did in 1891. A few years ago mussel shells were delivered at the factsories in Iowa and Illinois at about fifty to sixty cents per one hundred pound, but by February, 1898, prices averaged $18 to $20 the ton. In July of the same year, however, they were selling at thirty cents per one hundred pounds. The cheapest grade of ocean shells are the Panama, which sell at ten and half cents per pound.—*Bradstreets'*.

INDIAN GREEN TEA PRICES.

The sale of Indian Green Tea at last Friday's auction deserves special mention. Some 67 chests of uncoloured green tea made on the Drummond Deane process at Manabarie Estate, Dooars, were put up and sold at the following very decent prices: No. 1 or young hyson, 11 chests, 6-3. do, 11 chests. 6-4. No. 2 or hyson No. 1, chests, 5-3. No. 3 or hyson No. 2, 21 chests, 4-6. The above prices for green tea at last Calcutta sale compare very well with the prices realized for the majority of invoices of black teas offering at the same sale, and we are informed that there is no special difficulty for gardens now producing black teas of ordinary description, which now sell very low owing to the glutted market for such, to make green tea which will sell at better rates than those procurable for common blacks on the depressed market. Most leaf will make decent green tea; there is no fermentation in the process to give different classes of leaf a chance to develop in different ways.—*Indian Gardening & Planting*, July 3.

PLANTING NOTES.

THE RUBBER EXPLOITING COMPANIES.—The work of organisation of the Congo and Sangha Development Co., mentioned in the last *India Rubber World* as having been incorporated in New Jersey to acquire the concession of the Société de la Sangha Equatoriale, in the French Congo, has been in progress during the past month, but as yet no further details have become available for publication. Meanwhile, the promoters of the company have been in receipt of samples of rubber produced by the *concessionaire* company in Africa, which are regarded as the most attractive rubber from that continent ever seen in New York.—*India Rubber World*, June 1.

COMPTOIR COLONIAL FRANCAIS BANKRUPT.—The Comptoir Colonial Francais was adjudged bankrupt by the tribunal de commerce de la Seine, Paris, in a decree dated April 7, 1902 This is a joint stock company constituted in Paris in May, 1899, with 9,000,000 francs capital, for objects of colonisation and commerce, and particularly the exploitation of Caoutchouc. With headquarters in Paris, at rue des Petittes Ecuries, 54, the company conducted trading operations at Para and Manaos, Brazil; stations on both sides of the Rio Javy, in Brazil and Peru; at Conakry (French Guinea), and St. Louis (Senegal), West Africa.—*India Rubber World*, June 1.

MOSQUITO-HUNTING—has had marvellous effects in Cuba. Yellow fever and malaria are disappearing, and the "Pearl of the Antilles" is now fit for for an Anglo Saxon population. In October, 1900, there were 74 deaths and no cases. Dr Grogas of the United States Army, writes:—"The disappearance of yellow fever is, I think, almost altogether due to the killing of the infected mosquitoes at the infected point. We do this by burning pyrethrum powder in the infected house and all the neighbouring houses. It has been extremely gratifying to see how promptly the focus of infection is stamped out in this way." Sanitation is being carried out energetically in Cuba all round, and in a few years the invasion of the American army into Cuba will have saved more lives than it cost."—*Australian paper*.

TEA AND OUR GUESTS.—We are heartily glad to learn that the suggestion made by the *Ceylon Observer* (June 24th) that a present of tea should be made to each of the Boer prisoners has been taken up by the Ceylon Planters' Association and that that body had, through Messrs. Crosfield, Lampard & Co., presented a 5-lb. box of tea to each of those who sailed by the ss. "Templemore" early this week. As the subject is one which is to be discussed by the "Thirty Committee" in a few days we hope to see the step imitated in every case where the prisoners return direct to South Africa—though as yet the firm who acted in this case have had no further instructions. The writer of the following lament will, or one, be gratified:—

"Sad to read how the first lot of Boers—and the loyalest—got away; and a good advertisement of tea lost. Can nothing be done even now? I shall gladly give my mite, either in kind or in cash to a Fund."

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February; also plants.

Coffee Arabica, Liberian Hybrid and ***Maragogopie* Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel, and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbling. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address:
William, Henaratgoda, Ceylon.
Liber's, A.I. and A.B.C. Codes used.

J. P WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

TEA SALES AND AVERAGES.

We direct attention to the letter of "A Planter" on this subject and especially the attention of the Brokers both here and in London. We fear the labour involved in working out the fuller information desired by our correspondent would be deemed prohibitory of the adoption of the plan. As matters stand, the detailed lists of each sale are open to each reader, showing how many grades are included, and of course no merchant, agent, proprietor, or practical planter is deceived by the high averages reported when only the highest grades have been offered for sale. At the same time no doubt the impression left on the mind of the ordinary reader is an unfair one, by the selection in our local paragraphs, or on the front page of London circulars, of the estates securing the highest averages without specifying the grades included in each case. So far as we are concerned, we must in future confine ourselves to the highest prices obtained for the same grade —thus the highest price for Orange Pekoe at yesterday's sale was 54 cts. for St. John's estate; for Broken Orange Pekoe, Devonford, 78; and for Broken Pekoe, Poonagalla, 56; and so on through all the grades. In this we suppose there will be much less unfairness, although even then comparisons can never be quite equitable; because an estate may pay special attention to a very few grades; while another Manager is bound by orders to do justice to all grades. In fact, only a rough approximation to fairness (by way of comparison) can be attained in any system of quoting prices or averages for our tea sales.

THE PROSPECTS OF "INDIA RUBBER."

Very full and interesting is the information which we this month receive from America, regarding the enormous Rubber industry and its several developments along the great Amazon river and its many affluents through Brazilian, Bolivian and Peruvian territory. We must quote in full in our *Tropical Agriculturist* some very interesting reports as to the different modes of treating forests of *Hevea* (Para) and of *Castilloa Elastica* respectively. But, in the meantime, we may mention that in the back valleys of Peru—near the region reported on by Messrs. A. Sinclair, the late Alex. Ross and P. D. G. Clark—the latter tree is said to grow profusely and "it is invariably cut down as it yields milk from the whole of the trunk; while the *Hevea* is only tapped, as it only yields juice from between the bark and stem." Again here is an astonishing statement in the same report:—"although entire forests of C. Elastica (Caucho) have been destroyed, the ground is quickly covered again with the trees from the roots or seeds left in the soil and in six years are fit to be again felled, so rapid is the growth." This fact—if fact it be—coupled with the accounts of the vast Rubber-growing regions still to be exploited, is not very encouraging to Eastern planters of rubber. On the other hand a botanical authority has pronounced that there are at least three kinds of *Castilloa* and that one of them is valueless, so that grave doubts are expressed if all the *Castilloa* plantations formed in Mexico will prove productive. It is generally considered that *Hevea* is the safer tree to cultivate. Here is another kind of warning from Mexico:—

James Maunder writes from San Juan Evangelista, Vera Cruz, to *The India Rubber Journal* (London): "I know of the disasters which befell some of our people who purchased a going concern —rubber—in this country; there is another concern going to be offered in London pretty soon, but take *Punch's* advice, 'Don't.' There is good wild land here to be had, near rail and river, for from 21 shillings per acre, and lots of money to be made, but the manager should be a man of experience in tropical agriculture."

The very extensive Acre (Rubber) concession granted by Bolivia to an Anglo-American Syndicate is likely to cause trouble with Brazil which is preparing to prevent access to the territory, if necessary, by force.

Finally, we draw the special attention of out Rubber planters to the article we reproduce on our sixth page from the *India Rubber World* of New York, as affording practical information on the difference between Para rubber produced in the Straits Settlements and that got from Brazil. In the editorial remarks, however, we fail to find discouragement to rubber planters, whether in Perak or Ceylon—quite the contrary. We do not think that London Brokers would give so good a price for the "cleanly-prepared" Para rubber from the East unless they were well assured of its appreciation by manufacturers.

TEA AND COFFEE IN INDIA IN 1901-2.

An elaborate review of the Trade of India for 1901-2 by Mr. J. E. O'Conor, C.I.E., Director-General of Statistics to the Government of India, has just come to hand, and we may at once quote the remarks made on our staple. First, as to its importation to the value of R1,603,936 in 1901-2, we are told:—

The importations of Tea declined to about the level of 1899-1900, the fall indicating a diminished use of Bombay as a depot for the shipment of teas to the regions served from the Persian Gulf and Afghanistan. Moreover, the prices of tea in the Indian market ranged on too low a level last year to offer an inducement for importation on an extensive scale for local consumption. The operations at present in hand for extending the consumption of Indian tea in India should have some effect presently on the importations of China tea.

But on the Export trade the report is naturally much fuller and more varied. Let us first quote some figures:—

	1898-99.	1899-1900.	1900-01	1901-02.
Tea	8,04,48,038	9,09,21,120	9,55,09,301	8,14,94 893
Coffee	1,74,98,242	1,48,47,146	1,22,84,498	1,25,02,200

This is what Mr. O'Conor has to say as to the Cess, improved cultivation and consolid-

ation of estates, and it will all be read with interest :—

	lb. (ooo omitted)	R
1897-98	.. 151,452	8,05,86,233
1898-99	... 157,471	8,04,48,038
1899-1900	.. 175,038	9,09,21,120
1900-01	... 190,305	9,55,09,301
1901-02	... 179,685	8,14,94,893

The principal consumers of Indian tea were found in the eountries specified below in the last two years (in lb, ooo omitted):

	1900 01	1901-02
United Kingdom	166,171	159,014
Australia	10,439	8,575
Turkey, Asiatic	3,240	2,626
,, European	618	144
Persia	2,429	2,530
Canada	1,725	1,659
China	1,143	1,337
Germany	838	638
Russia	772	1,624

These are direct exports as declared in India and do not inelude re-exports from the United Kingdom.

For the first time in ten years there was a decline in the quantity exported, but the decline of 11 million pounds was hardly sufficient to do more than arrest the downward trend of prices which tried the industry so severely in 1900. Until towards the end of 1901 that year was as discouraging as the one it followed, and the small recovery which then ocenrred has hardly been maintained, as regards the superior description, at any rate. The owners of tea estates are still, struggling with the difficulties created by the too rapid extension of production and the consequent fall in prices ; nor do they see their way clearly as yet to a sound position, although prospects are not so cheerless as in 1900 and the struggle not so intense. The small coutractiou of production was consequent on elimatic influences in Assam and Cachar in a larger degree than on the action of growers in fine plucking. No special endeavour was made in the year to win new markets for Indian tea, and the exports to foreign countries generally, Russia exeepted, did not expand and in most cases were on a restrieted scale. The voluntary contributions from estates for the purpose of developing external markets were not as freely and satisfactorily paid as was to be desired, and a proposal was made to the Government to levy a cess in the form of a small tax on each chest of tea exported, as is done in Ceylon, the proceeds to be applied to the cost of opening up external markets. This proposal, in which the owners of about two-thirds of the acreage under tea acquiesced, is still under the consideration of Government. But while the means and methods of securing wider external markets are still under discussion, the practieal efforts to find an Indian market for Indian tea have been successfully continued by the firm who undertook the business last year, and it is understood that the results obtained so far are full of promise and encouragement.

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Madras and Travancore.. ...	31,309	31,463	5,105,196	5,434,749
Punjab, U. P. of Agra and Oudh, Burma	19,279	19,989	4,703,569	4,695,727
Total...	522,487	524,767	197,460,664	191,230,773

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Another matter that now presses for attention is the consolidation of tea estates in order to reduce the cost of direction, agency, and management. The average tea-bearing area of each estate is, in Assam 420 aeres, in Bengal 299 acres, and it cannot be denied that three, four, six or more, of such estates might, with advantage, when lying adjacent to each other, be eonsolidated under one management, with one ageney at the port, and one board of directors.

TEA SALES AND AVERAGES.

WE direct attention to the letter of "A Planter" on this subject and especially the attention of the Brokers both here and in London. We fear the labour involved in working out the fuller information desired by our correspondent would be deemed prohibitory of the adoption of the plan. As matters stand, the detailed lists of each sale are open to each reader, showing how many grades are included, and of course no merchant, agent, proprietor, or practical planter is deceived by the high averages reported when only the highest grades have been offered for sale. At the same time no doubt the impression left on the mind of the ordinary reader is an unfair one, by the selection in our local paragraphs, or on the front page of London circulars, of the estates securing the highest averages without specifying the grades included in each case. So far as we are concerned, we must in future confine ourselves to the highest prices obtained for the same grade —thus the highest price for Orange Pekoe at yesterday's sale was 54 cts. for St. John's estate; for Broken Orange Pekoe, Devonford, 78; and for Broken Pekoe, Poonagalla, 56; and so on through all the grades. In this we suppose there will be much less unfairness, although even then comparisons can never be quite equitable; because an estate may pay special attention to a very few grades; while another Manager is bound by orders to do justice to all grades. In fact, only a rough approximation to fairness (by way of comparison) can be attained in any system of quoting prices or averages for our tea sales.

THE PROSPECTS OF "INDIA RUBBER."

Very full and interesting is the information which we this month receive from America, regarding the enormous Rubber industry and its several developments along the great Amazon river and its many affluents through Brazilian, Bolivian and Peruvian territory. We must quote in full in our *Tropical Agriculturist* some very interesting reports as to the different modes of treating forests of *Hevea* (Para) and of *Castilloa Elastica* respectively. But, in the meantime, we may mention that in the back valleys of Peru— near the region reported on by Messrs. A. Sinclair, the late Alex. Ross and P. D. G. Clark—the latter tree is said to grow profusely and "it is invariably cut down as it yields milk from the whole of the trunk; while the *Hevea* is only tapped, as it only yields juice from between the bark and stem." Again here is an astonishing statement in the same report:—"although entire forests of C. Elastica (Caucho) have been destroyed, the ground is quickly covered again with the trees from the roots or seeds left in the soil and in six years are fit to be again felled, so rapid is the growth." This fact—if fact it be—coupled with the accounts of the vast Rubber-growing regions still to be exploited, is not very encouraging to Eastern planters of rubber. On the other hand a botanical authority has pronounced that there are at least three kinds of *Castilloa* and that one of them is valueless, so that grave doubts are expressed if all the *Castilloa* plantations formed in Mexico will prove productive. It is generally considered that *Hevea* is the safer tree to cultivate. Here is another kind of warning from Mexico:—

James Maunder writes from San Juan Evangelista, Vera Cruz, to *The India Rubber Journal* (London): "I know of the disasters which befell some of our people who purchased a going concern —rubber—in this country; there is another concern going to be offered in London pretty soon, but take *Punch's* advice, 'Don't.' There is good wild land here to be had, near rail and river, for from 21 shillings per acre, and lots of money to be made, but the manager should be a man of experience in tropical agriculture."

The very extensive Acre (Rubber) concession granted by Bolivia to an Anglo-American Syndicate is likely to cause trouble with Brazil which is preparing to prevent access to the territory, if necessary, by force.

Finally, we draw the special attention of out Rubber planters to the article we reproduce on our sixth page from the *India Rubber World* of New York, as affording practical information on the difference between Para rubber produced in the Straits Settlements and that got from Brazil. In the editorial remarks, however, we fail to find discouragement to rubber planters, whether in Perak or Ceylon—quite the contrary. We do not think that London Brokers would give so good a price for the "cleanly-prepared" Para rubber from the East unless they were well assured of its appreciation by manufacturers.

TEA AND COFFEE IN INDIA IN 1901-2.

AN elaborate review of the Trade of India for 1901-2 by Mr. J. E. O'Conor, C.I.E., Director-General of Statistics to the Government of India, has just come to hand, and we may at once quote the remarks made on our staple. First, as to its importation to the value of R1,603,936 in 1901-2, we are told:—

The importations of Tea declined to about the level of 1899-1900, the fall indicating a diminished use of Bombay as a depot for the shipment of teas to the regions served from the Persian Gulf and Afghanistan. Moreover, the prices of tea in the Indian market ranged on too low a level last year to offer an inducement for importation on an extensive scale for local consumption. The operations at present in hand for extending the consumption of Indian tea in India should have some effect presently on the importations of China tea.

But on the Export trade the report is naturally much fuller and more varied. Let us first quote some figures:—

	1898-99.	1899-1900.	1900-01	1901-02.
Tea	8,04,48,038	9,09,21,120	9,55,09,301	8,14,94 893
Coffee	1,74,98,242	1,48,47,146	1,22,84,498	1,25,02,200

This is what Mr. O'Conor has to say as to the Cess, improved cultivation and consolid-

ation of estates, and it will all be read with interest :—

	lb. (ooo omitted)	R
1897-98 ..	151,452	8,05,86,233
1898-99 ...	157,471	8,04,48,038
1899-1900 ..	175,038	9,09,21,120
1900-01 ...	190,305	9,55,09,301
1901-02 ...	179,685	8,14,94,893

The principal consumers of Indian tea were found in the countries specified below in the last two years (in lb, ooo omitted) :

	1900 01	1901-02
United Kingdom	166,171	159,014
Australia	10,439	8,575
Turkey, Asiatic	3,240	2,626
,, European	618	144
Persia	2,429	2,530
Canada	1,725	1,659
China	1,143	1,337
Germany	838	638
Russia	772	1,624

These are direct exports as declared in India and do not include re-exports from the United Kingdom.

For the first time in ten years there was a decline in the quantity exported, but the decline of 11 million pounds was hardly sufficient to do more than arrest the downward trend of prices which tried the industry so severely in 1900. Until towards the end of 1901 that year was as discouraging as the one it followed, and the small recovery which then occurred has hardly been maintained, as regards the superior description, at any rate. The owners of tea estates are still, struggling with the difficulties created by the too rapid extension of production and the consequent fall in prices ; nor do they see their way clearly as yet to a sound position, although prospects are not so cheerless as in 1900 and the struggle not so intense. The small contraction of production was consequent on climatic influences in Assam and Cachar in a larger degree than on the action of growers in fine plucking. No special endeavour was made in the year to win new markets for Indian tea, and the exports to foreign countries generally, Russia excepted, did not expand and in most cases were on a restricted scale. The voluntary contributions from estates for the purpose of developing external markets were not as freely and satisfactorily paid as was to be desired, and a proposal was made to the Government to levy a cess in the form of a small tax on each chest of tea exported, as is done in Ceylon, the proceeds to be applied to the cost of opening up external markets. This proposal, in which the owners of about two-thirds of the acreage under tea acquiesced, is still under the consideration of Government. But while the means and methods of securing wider external markets are still under discussion, the practical efforts to find an Indian market for Indian tea have been successfully continued by the firm who undertook the business last year, and it is understood that the results obtained so far are full of promise and encouragement.

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Finally, we quote what is said about our old staple, though of no account in our Ceylon trade now :—

Coffee.—The exports have been :

	cwt.	R
1898-99 ...	270,056	1,74,98,242
1899-1900 ...	281,353	1,48,47,146
1900-01 ..	246,431	1,22,84,498
1901-02 ..	255,042	1,25,02,290

There was a small recovery in the exports, but the quantity was still much below the level of former years, and it cannot be said that the trade is progressive. The quality of Indian coffee is good, so good that it is appreciated by Arabs and Turks, but the world's markets are dominated by the great abundance of the supply of the cheaper kinds from Brazil which gives three-fourths of the production of the world, and last year's exports from that country were so excessive that prices fell to a lower point than ever. Indian coffee remains depressed in price even when the available supply is restricted either by an unfavourable season or by the ravages of disease. It is difficult, however, to ascertain with accuracy the area, yield, or condition, of the coffee estates of Southern India, the planters being averse, for some unstated and unconjecturable reason, to communicate statistical information relating to the industry. The menace of differential treatment of Indian coffee in France (to which a full third of it is exported) by applying to it the duties leviable under the general tariff while Brazilian coffee is charged at special minimum rates, has not yet taken effect. The *modus vivendi* under which the minimum tariff is provisionally applied to Indian coffee has been prolonged from time to time and will continue for a few months longer.

"IS TEA INTOXICATING. ?"

A NEW ZEALAND EXPERT AND THE "CEYLON OBSERVER.

Mr A H S Lucas, tea expert, referring to our published quotation from the *Ceylon Observer* under the heading, "Is Tea Intoxicating?" writes:—As this query affects the whole community, tea being a national beverage, I should like you to give a few facts that have come under my notice during the last fifteen years' experience as one of a number of tea-tasters. Dr D H Lord states that more poison can be obtained from an equal quantity of tea than from beer, and yet, after perhaps some hundred years of continuous tea-drinking, the nations of the earth do not trace any bad effects to its use. Marvellous, but true, and one would think that the house on the corner had the doctor's full sympathy ; not but that alcohol has its full merits, when used with discretion. I might say that most nations have their harmless national beverage, and, without fear of contradiction, I state that tea is the one most used. For instance, the Chinese and Russians drink China tea ; the Britishers, colonials and Americans consume Ceylon and Indian teas ; the Japanese take Java and China teas ; in Mauritius they make tea from the leaves of an orchid ; in Peru they drink Mate, a tea made of a species of holly ; the Abyssians make a tea with the leaves of "Catha edulis," which has strong stimulating properties; last, but not least, the Fijians are now growing their own teas, the plants being imported from India and Ceylon. At an average of fifty cups tasted daily, 39,125 grains of theine are swallowed annually by tea experts—a quantity sufficient to kill 7,825 rabbits.—*New Zealand Mail*, June 11.

TEA CULTIVATION IN INDIA :—

ABANDONMENTS *vs.* EXTENSIONS.

THE EXPERIENCE OF THE PREMIER INDIAN TEA COMPANY.

From the London *Times* of June 17th we take the following interesting report of the proceedings at the annual meeting of the Assam Company. The Chairman's speech is worth noting as typical of the feeling prevalent among the Directors of large Indian Companies. It will be seen that "extensions" were called for, "abandonments" hinted at, and plans for discontinuance of plucking or destroying crop—over which so much time and talent have been wasted —were scouted :—

The annual general meeting was held yesterday, June 16th, at the offices, Laurence Pountney-hill. Mr. J Graham, K.C., presided, and, in moving the adoption of the report, said that the directors were very glad to be able to present a more favourable statement than that which they submitted a year ago. Owing to the great fall in the value of tea, and to the difficulties in the way of the trade, the result of the company's working in the previous year was that there was nothing to divide, but for the year under review they were able to pay a dividend of 7½ per cent., which, he thought, would be considered satisfactory in the present condition of the tea trade. He hoped in another year that they might do better, but at present the trade was in a transitive state. In the opinion of some it was just about reaching the lowest point, but others thought that an amendment was taking place. The tea produced in the past season had been excellent, but prices remained very low indeed, and there did not seem any immediate prospect of an advance. This was owing to the immense over-production in the past, and at the present time stocks were very large. Probably the area of cultivation would be decreased. In the past year 10,000,000 lb. of tea less were produced. Many persons had thought that it would be a panacea for all the ills of the trade if the production of Ceylon and Indian teas could be reduced by 10,000,000 lb., but although that had been done, there did not appear to be any material market improvement. There was, however, no saying how much reduction might go on in the future owing to low prices, and the smaller the quantity of tea produced the greater the chance for those who had it to sell. In the past year the company produced about 3,500,000lb or 900,000 lb. less than in the previous year, when, however, the tea was of very poor quality indeed. The actual price obtained by them for their tea last year was about 8d a pound only, whereas in the year under review they obtained within a fraction of 2d a pound more. This improvement and the great reduction which had been effected in the expenses in India had resulted in their making a net profit of about £16,000. The decrease in the expenses had been very large—about R2,25,000, or about £14,000, and the saving had been effected without in any way impairing the efficiency of the work, which had gone on as well as ever. Their estimated production for the

current year was about 4,000,000 lb.* and the directors hoped that prices would certainly not go down. At present, however, all these estimates were uncertain, and the shareholders must take them for what they were worth. All the indications pointed to a more favourable state of things than had lately prevailed. Mr. Albert B Fisher (deputy chairman) seconded the motion. Mr. Fergusson congratulated the directors on the improved results shown in the past year. Mr. Reed stated that, judging from the returns, some of the company's gardens must have been working at a dead loss, although it was gratifying to see the satisfactory working of the Towkok garden. In view of the condition of the old gardens he strongly advised the necessity of extensions. Mr. McMichen thought that the cost of working each garden might be given; and he drew attention to certain expenses which he thought might be reduced. Mr. Seton also thought there was room for further economies. He advocated the abandonment of unremunerative areas of cultivation or reducing the expenditure on them to the lowest possible limit. Mr. Bullock stated there was a proposal on foot to meet the great over-production by stopping plucking from the end of July for three weeks, and he desired to know if the company intended to join in this movement. The chairman, in reply, stated that they were not willing to agree to the measure referred to by Mr. Bullock; it would not suit the company to do so at present. The position would be different if the factors in all cases were the same, but the directors' view was that all these combinations fell through. With reference to the amount of the medical charges, there were about 14,000 coolies,* besides children, to look after. Nearly all the vacancies in the different gardens had been filled up. The company had about 20 gardens, only two of which did not pay their expenses last year, although the deficiency in both cases was very small—£350 and £29. Several portions of gardens which were not remunerative had been abandoned; and for the last 15 or 20 years, indeed, the course had been followed of shutting old gardens and opening new ones. The motion was adopted.

PARA AND RAMBONG RUBBER IN THE STRAITS.

VISITED BY CEYLON PLANTERS.

In commenting on the annual report of the Negri Sembilan Planters' Association for 1901, just issued, the *Straits Times* says:—"Para-Rubber appears likely to be the salvation of the coffee planter. On most estates it will be found planted through the coffee to which it appears to do very little damage. Recently two well-known Ceylon planters, who are largely interested in Para cultivation in that island, visited the State. They seemed to be very pleased with the prospects of Para there and fancied that the trees there, when compared with those of a like age in Ceylon, showed freer growth. At present, so far as is known, the rubber is of a superior quality, but tapping appears difficult in the case of young trees. The report urges that Government should, with advantage to itself, advertise at home, say, the grant of free blocks of land for this cultivation with a view to attracting new blood and capital into the State."

* The Company must have about 11,000 acres in bearing, thus giving about 360 lb average per acre and about 1⅓rd cooly per acre.—Ed. *T.A.*

PROPOSAL TO PROHIBIT THE SALE OF TEA DUST.

The tea industry is in a very critical position. If the season is favourable for growth it probably means bad times for several concerns; if the season turns out to be a bad one for yield, we shall no doubt exist another year, but we have the same "bugbear," over-production, staring us in the face at the end of it. The idea of not plucking from 1st August to 21st August will not commend itself to any planter. Moreover, I hardly think it would be carried out. No doubt if it were loyally done, it would be an excellent thing.

I beg to make a suggestion. The scheme is to prohibit the sale of tea dust, say, for three years. Assuming four per cent of dust is made it would reduce the total crop quite eight per cent, because 1 lb. of dust makes about 120 cups of tea, whereas 1 lb. of pekoe souchong makes about 60 cups.

A great deal of dust is brought by natives in the bazaars, and if they could not get it they would buy twice the weight of pekoe souchong or other cheap teas.

The dust need not be thrown away; it could be sold at nearly an anna per lb. for making Caffeine, etc., and packed in bags or other old boxes without lead.

It costs quite one rupee and four annas per maund to pack dust in leaded chests. This would be saved so that the loss to producers would roughly be, say:—

	Rs. As. P.	Rs. As. P.
1 maund of dust worth		12 8 0
Less packing charges saved ...	1 4 0	
Less received for dust sold as tea waste	4 0 0	5 4 0
Nett loss		Rs. 7 4 0

per maund of crop or a little less than 1½ anna per lb.

In any scheme for abandoning acreage, not pruning or not plucking certain areas, or throwing away a percentage of crop, a garden would lose income on so much crop, at the average price realised for the remainder of the crop.

Say for instance it was determined to temporarily abandon eight per cent of the area of yielding tea. Take the case of a 1,000-acre garden making seven maunds per acre and getting a five-annas average.

	Rs. As. P.
A garden making seven maunds per acre and an average of five annas per lb. would abandon 80 acres at seven maunds equals 560 maunds tea at five annas per lb. and lose an income of ...	14,000 0 0
By the scheme I suggest eight per cent of the reduction would equal 280 maunds dust, *i.e.*, four per cent on a crop of 7,000 maunds at a loss of 1½ anna per lb. ...	2,100 0 0
Amount of income saved	Rs. 11,900 0 0

Although the quantity of the crop is practically reduced by the same amount of tea.

In America if teas contain dust the customs won't pass them I believe. Perhaps our customs might do the same for us; that is, if the Agents and Tea Brokers could not prevent dust being mixed in and sold.—*Englishman* (*Cor.*), June 30.

THE NEW "PARA RUBBER" FROM THE EAST: CEYLON'S HIGH PRICES.

At a recent auction sale in London six cases of fine rubber from Ceylon, the product of cultivated trees from Para seed, brought 3s 4½d, or about 81·4 cents, whereas the highest price for real Para rubber reported during the week was only 3s 0½d per

pound. This is not the first instance of exceptionally high prices obtained in the London market for "Para rubber" from plantations in the East. The declining profits of coffee growing have forced the planters in that part of the world to seek some more remunerative planting, and already thousands of acres are covered with rubber trees under cultivation. Not unnaturally attention has been turned chiefly to Para rubber, on account of the universally higher price which it commands, and now that the first trees planted are becoming productive the result of the sale of every little lot exported seems to the planters to confirm their choice. There is no computing how much planting of Para rubber since 1900 has been due to the sale of 327 pounds, sent from Perak to London in that year, at 3s 10d.

It is not impossible that these planters may yet be disappointed, for the reason that it remains to be seen whether what they are producing is reallly "Para rubber." The tendency in nature is for all species to be influenced by a change of habitat. It appears, for example, that trees of the genus *Hevea* —the source of Para rubber—when grown in the East, become productive at an earlier age than in the Amazon valley; again, it is stated that, while in the Amazon forests the seed pods of the *Hevea* uniformly contain three seeds, the number is irregular on the trees in the Malay States, and there are other indications of a tendency to "sport." It is possible that, under cultivation, the tree might in time develop different characteristics even in Brazil, where thus far it has existed only under natnral forest conditions. Ultimately new species of *Hevea* may exist, as a result of change of soil and climate, and of transfer from forests to plantations.

We have already expressed our opinion of samples of the cultivated rubber from the Malay States, which, while attractive in appearance, do not really resemble the fine Para rubber now in use. It is much softer than the Brazilian product, and of much shorter "fibre." It could not be used, for example, in thread, elastic bands, or any fine pure gum goods. In solution it quickly loses its tenacity, so that it would not do for high grade cements. And it readily softens with age. Perhaps some of these defects might be removed by the introduction in the East of the methods of coagulation employed in the Amazon rubber camps, but we are disposed to believe that the Eastern planters have really produced a new grade of rubber, and that the Para article can never be wholly duplicated by them. It is to be understood, of course, that the rubber is valuable and will find a ready market at a price which is likely to yield a profit, but such samples as have reached us, valued from the manufacturer's standpoint, would rank at least 25 per cent below fine Para.

The good prices realised in London, doubtless, have been due to the cleanly appearance of the new rubber; and they have been based on the judgment of brokers, rather than results of practical tests in the factory. It would seem that the better course for the planters' associations would be, not to try to find how much money can be obtained in the open markets for their sample lots—which then become lost to sight—but to send them direct to a well-equipped factory, to be made up in various forms of goods. The manufacturers' test is the one by which the value of this rubber will be judged finally, regardless of what may be the judgment of brokers today. We do not mean to damp the enthusiasm of the planters, but there is such a thing as basing their plans upon estimates of profits that are impossible.—*India Rubber World*, June 1.

INDIAN TEA PATENTS.

Specification in respect of the undermentioned invention has been filed, under the provisions of the Inventions and Designs Act of 1888, in the office of the Secretary appointed under that Act:—No 179 of 1901.—Frank Edmund Winsland and George Ernest Moore, Engineers, both of Joyhing tea estate, North Lakhimpur, Upper Assam, India. Improvements in apparatus suitable for packing tea. (Specification filed 30th November 1901.)

Application in respect of the undermentioned invention has been filed, under the provisions of the Inventions and Designs Act of 1888, in the office of the Secretary appointed under that Act:—No. 20 of 1902.—William Martin Glynn, tea planter, at present residing at the Adelphi hotel, Calcutta, British India. A new or improved process for equalising tea leaf, and apparatus therefor. —*Indian Engineering*, June 28.

INDIAN TEA ASSOCIATION.

THE RESTRICTION AND EXPANSION RESOLUTION.

Calcutta, July 1.—Read copy of Minutes of a Meeting of the Advisory Committee of the Indian Tea Markets Expansion Commission held on 24th June, forwarded for information by Messrs Andrew Yule & Co. At this meeting the follow- Resolution had been adopted:—

"That with reference to the recent suggestion from London that growers should stop manufacture of their crop from 1st to 21st August inclusive, so that the anticipated over-production may not cause a slump in prices this Committee after reading the report of the Indian Tea Markets Expansion Commission now before them, are more than ever convinced that the relief for the Industry in the matter of over-production can be found in India, and they strongly urge Proprietors, Managing Agents, and every one connected with the Tea Industry to contribute the Tea it is proposed to destroy to the Indian Tea Markets Expansion Commission, so that no portion of India need be left untapped in the matter of pushing sales of tea."

The Commissioner (Messrs Andrew Yule & Co.) had been requested to forward a copy of the Resolution to the General Committee of the Indian Tea Association and to urge that the matter should be laid before the Indian Tea Association, London, and also before the signatories to the suggested restriction scheme. Further consideration of the matter in a modified form was postponed until receipt of a reply from London as to the exact position in regard to the restriction scheme.

ADVERTISING IN AMERICA.

A short discussion then took place regarding the effect on the American trade of the stoppage of advertising of Indian Tea. From all accounts it appeared that while the demand for Indian Tea in the United States had fallen off in a marked degree, Ceylon teas which were advertised freely, were steadily increasing in favor. It was recognised that the whole question turned upon the want of funds to advertise freely and continuously. Spasmodic efforts for advertising on a small scale were of little avail, and matters, it seemed likely, would go from bad to worse unless ample funds were forthcoming to enable a vigorous campaign to be opened. Relief could only be looked for from the sanctioning by Govern-

ment of the Tea Cess Scheme, and, as the area supporting the proposal now amounted to about 80 per cent of the total acreage under tea, it was decided to again invite the attention of the Government of India to the memorial submitted in March last.—*I. T. A. Minutes.*

TEA EXPERIMENTS IN THE PHILIPPINES.

An experment in tea culture is being made by Mr. T H Donaldson-Sim at Benguet in the Philippines.—*Overland China Mail*, June 30.

CEYLON PATENT.

A list of fourteen patents is given in the *Gazette* as having been granted under the Inventions Ordinance during the half-year ended 30th June last. Of these no less than six are of immediate interest to us in Ceylon, and they have been granted to the following:—

698.—Montague Kelway Bamber, of the Laboratory, Hyde Park Corner, Colombo, Ceylon, Agricultural Chemist, and John Roger, of 6, Coningsby road, Finsbury Park, London.—An improved method of filtering and the separation of suspended solids from a fluid.—February 4th, 1902.

699.—Montague Kelway Bamber, of the Laboratory, Hyde Park Corner, Colombo, Ceylon, and John Roger, of 6, Coningsby Road, Finsbury Park, London.—Improvements in producing a pure and soluble extract of tea.—February 6th, 1902.

712.—James Begg, of Heeleakajorie Tea Estate, Assam, British India.—A New and Improved Machine for artificially withering tea leaf.—February 22nd, 1902.

286 of 1896.—Alfred Brown.—Invention for improvements in machinery for rolling tea teaf.—Extended for a further term of 14 years.—February 27th, 1902.

725.—Alfred Baur, of Colombo.—Disintegrating fish and other articles.—April 5th, 1902.

719.—John Thomas Mitchener, of 33 T, Juniper Street, Shadwell, London, England, and William Stanning Ross, of 10, Church Court, Wapping, London, England.—Improvements in chests for tea and other substances.—May 13th, 1902.

THE PINE-APPLE AS A DIGESTIVE AID.

The partaking of a slice of pine-apple after a meal is quite in accordance with physiological indications, since though it may not be generally known, fresh pine, apple juice contains a remarkably active digestive principle similar to pepsin. This principle has been termed "bromelin," and so powerful is its action upon proteids that it will digest as much as 1,000 times its weight within a few hours. Its digestive activity varies in accordance with the kind of proteid to which it is subjected. Fibrin disappears entirely after a time. With the coagulated albumin of eggs the digestive process is slow, while with the albumin of meat its action seems first to produce a pulpy gelatinous mass which, however, completely dissolves after a short time. When a slice of fresh pine-apple is placed upon a raw beef-steak the surface of the steak becomes gradually gelatiuous owing to the digestive action of the enzyme of the juice. Of course it is well-known that digestive agents exist also in other fruits, but when it is considered that an average sized pine-apple will yield nearly two pints of juice it wil be seen that the digestive action of the whole it must be enormous. The activity of this peculiar digestive agent is destroyed in the cooked pine-apple, but unless the pine-apple is preserved by eat there is no reason why the tinned fruit should not retain the digestive power. The active digestive principle may be obtained from the juice by dissolving a large quantity of common salt in it, when a precipitate is obtained possessing the remarkable digestive powers just described. Unlike pepsin, the digestive principle of the pine-apple will operate in an acid, neutral, or even alkaline medium, according to the kind of proteid to which it is presented. It may therefore be assumed that the pine-apple enzyme would not only aid the work of digestion in the stomach but would continue that action in the intestinal tract. Pine-apple, it may be added, contains much indigestible matter of the nature of woody fibre, but it is quite possible that the decidedly digestive properties of the juice compensate for this fact.—*Lancet.*

NEW CEYLON COMPANIES.

The following are registered in the *Investors' Guardian* of June 21:—

Ceylon and Indian Tea Co., Ltd., (74,001).—Registered June 10, with capital £5,000, in £1 shares (2,000 pref) to carry on the business of refreshment room proprietors, caterers and contractors, tea, coffee and cocoa dealers, bakers, confectioners, milk and butter sellers, dairymen, tobacconists, wine and spirit and beer merchants, ice merchants, etc. No initial public issue. Registered without articles of association by Dunn and Duncan, 87, Chancery Lane, W.C.

Henry Jenkins, Ltd., (74,043).—Registered June 13, with capital £10,000, in £5 shares, to acquire properties in Ceylon or elsewhere and any plant, machinery, stock in trade, book debts and other assessments connected therewith, to carry on the business of tea, sugar, cocoa, cinchona and coffee planters, manufacturers of and dealers in vegetable products, etc., and to adopt an agreement with Henry Jenkins. Minimum cash subscription £1,000. The number of directors is not to be less than 3 nor more than 5; the first are E G Hill, H Jenkins and W H Short; qualification £100; remuneration £100 per annum, dividend. Registered by Tilleards 10, Gracechurch St., E.C.

COCONUT PLANTATIONS IN THE MALAY STATES.

DEPREDATIONS BY RATS AND BEETLES.

In his annual report for the year 1901, on the Federated Malay States, just published, the Resident General, Mr. W H Trencher, C.M.G., says:—Coconut plantations are said to have a bright future and the yield of fruit from palms on the alluvial flats is very large. Rats are proving almost as damaging to coconuts as to padi, and I regret to say that the hopes held out in my last report that Dr. Hamilton Wright would be able to cope with the rat plague by a system of inoculation have not been fulfilled. Beetles, likewise, are most destructive to coconuts. The provisions of the existing "Coconut Trees Preservation Enactment" must be more energetically enforced and if necessary strengthened.

BROOKE, BOND, AND CO., LTD.

THE ANNUAL MEETING.

The ordinary general meeting was held at Winchester-house yesterday. Mr. Hector M. Forbes presided, and moved the adoption of the report and the payment of the dividend and bonus therein recommended. He observed that the company had existed for ten years, and during that time had earned a net profit of £344,476, distributed to the shareholders in dividends and bonuses £176,126, built up a reserve fund, including premium on new shares, of £140,000, wiped out £100,000 goodwill, accumulated a provident

fund of £2,500, established an insurance and contingency fund of £5,000, and written down machinery, fittings, &c., at 15 per cent. per annum. A considerable amount of the reserve fund was in gilt-edged securities. The output had grown immensely during the ten years, but the percentage of net profits had decreased. The grocery trade had not been in the most satisfactory position during the past year. Competition was severe and continuous, and it was only by rigid economy, prudence, and forethought that a cash business could prosper. Notwithstanding the depressed trade of the country and the keen competition, the board came before the shareholders with a record balance-sheet. They proposed to pay a dividend of 15 per cent. and a bonus of 2½ per cent. per annum, to transfer to the provident fund £500, to put £13,000 to reserve, to allocate £441 to insurance and contingency fund, and to carry forward £2,241. It was his wish, as the second largest shareholder, to persevere in increasing the reserve fund until it amounted to £150,000 (the total amount of the capital of the company), invested in gilt-edged securities. For the past three years the trade had been agitated by the problem of increased duty. He thought that the company's grocer customers might safely dismiss from their minds all fears that any Chancellor of the Exchequer would again increase the duty on tea, and the conviction of the board was that the present Chancellor or his successors would bring that duty down to 4d., the amount at which it stood before the first war Budget was introduced. Tea was a necessity of life to the great majority of the toiling millions of the British Empire, and the consumption per head was steadily growing. The Indian and Ceylon tea-growing industries were suffering from the increased taxation. It seemed unreasonable that tea should pay an impost of nearly £6,000,000 upon a value of £7,500,000. In Indian and Ceylon producing circles there were rumours of combinations and restricted output, but the board believed that these were doomed to failure. Mr. A. Richardson seconded the motion, which was adopted.—London *Times*, June 21.

PLANTING NOTES.

QUEENSLAND SUGAR PLANTATION: SOLD AT £5 AN ACRE.—Brisbane, June 19.—The Fairleigh sugar plantation at Mackay has been sold to a syndicate, representing Maryborough and Bundaberg investors, at a price variously stated from £40,000 to £45,000. The estate comprises 9,000 acres. It has nearly twenty miles of tramways and a mill capable of making ten thousand tons of sugar per annum.—*Australian paper*.

THE GREAT WESTERN TEA ESTATE COMPANY.—All concerned in the Great Western Tea Estate Company of Ceylon are to be congratulated on the rosy tale which Mr. J. C. Dunbar, the Chairman, was able to tell at the annual general meeting. A dividend of 11 per cent was declared, a result which in the present state of the industry must be considered remarkable. R74,283·75 were available for distribution. A sum of R6,833·70 was set aside for depreciation; R7,500 was placed to reserve account and a balance of R2,543·75 and the remaining R64,240 is absorbed by the dividend. The Chairman's remarks make interesting, and to the shareholders in the Company, delectable reading.

GREEN TEA-MAKERS—should note the account of the Drummond Deane process, given by "The Agent" and quoted in our daily and *T.A.*

CEYLON TREES AND FLOWERING PLANTS.—We have to acknowledge receipt of a copy of a descriptive catalogue of the more useful trees and flowering plants of the Western and Sabaragamuwa Provinces by Mr. F Lewis, F.L.S., of the Forest Department. It has been reprinted, at the Government Printing Office, from the Asiatic Society's Journal.

A COLLECTION OF DWARF TREES IMPORTED FROM JAPAN—by Messrs Barr and Sons—is exhibited at the Royal Botanic Society's Gardens, Regent's-park. Several of them are of great age, a fine 'thuja obtusa' being stated to be a century old, and all have been carefully trained with that skill and patience which the Japanese bring to bear on this novel form of arboriculture. There was quite a forest of pigmy trees. These trees can be successfully kept in health, despite the vagaries of our climate, with very little trouble. —*L. and C. Express*, June 20.

PRICKLY HEAT.—This, in some cases, is a troublesome affection during the hot season. The writer has found the following treatment effective, especially in the early stages. First, moisten the parts affected with water, then dust over with a small quantity of white oxide of zinc and rub gently with wet fingers until it forms a paste. This will soon dry and leave the appearance of a white wash. Repeat night and morning until the itching and red appearance have entirely disappeared. Sometimes the ointment of white oxide of zinc is used, but this is greasy and disagreeable. Where there is a general tendency to prickly heat, immediately after the morning bath dust over with powder composed of one-third parts of each of the following, viz: white oxide of zinc, boric or boracic acid in powder and starch powder well shaken together. —*Agricultural News*, June 7.

"MUIR" TEA COMPANY REPORTS.—The report of the Amalgamated Tea Estates Company, Ltd., for the year ending 30th November, which appears in our daily and *T. A.* is fairly satisfactory. The crop gathered from the Company's estates was some 180,917 lb. in excess of the previous year; but the prices obtained fell ·63d per lb. This is attributed to the general "low range of values for Darjeeling tea in the London market." The Managing Agents and the London Agents have renounced the emoluments due to them which has somewhat relieved the revenue account. Dividend at the rate of 5 per cent per annum is paid on the first 6 months of the year; but in the latter half they have had to content themselves with re-invigorating the Reserve account by £5,000 and carrying forward to next year £8,002 15s 3d. The Consolidated Tea and Lands Company, Ltd., whose report we published also had a considerable shortage of crop having plucked finer and secured a rise in their prices of ¼d per lb. Notwithstanding they were unable to pay a dividend, but placed £41,634 0s 7d to Reserve, and a sum of £2,055 9s 5d to the preliminary expenses account. The report, however, predicts good times to come.

Correspondence.

To the Editor.

CEYLON MEN IN SOUTH AFRICA:— LANTANA AND ITS PEST.

Heidelberg, Transvaal, May 31.

DEAR SIR,—I have had the enclosed cutting in my pocket for many weeks, intending to send it to Ceylon (my old home). You will see that at the Cape they are very much afraid that the lantana "hedges" may be destroyed by the scale insect. Perhaps this same insect might be of some use to you in Ceylon.—The only thing is, will it enjoy the tea more than the lantana? Experiments might be made by some specialist:—

Growers of coleus plants and gardeners generally may recollect articles which appeared in the *Agricultural Journal* and the public press during the year 1898, calling attention to the discovery of the scale insect pest, known as the Orthezia insignis, in the suburbs of Cape Town. It was hoped that through the active measures then taken, the outbreak had been nipped in the bud, more especially as an inspection of the various floral establishments in town had failed to reveal the presence of the pest. Unfortunately this hope has not been realised, and the insect has now again made its appearance in a Lantana hedge near the Camp Ground, Rondebosch, and in several similar hedges on an old estate in Mowbray, and it is probable that it has already become widespread. Much of the young growth of the Lantana is killed by the Orthezia, and the wood and remaining foliage becomes discoloured by a soot-like fungus that grows on an exudation from the insect, entirely spoiling the appearance of the hedge. Orthezia insignis is particularly partial to the lantana, but is also frequently found on other garden plants, such as verbena, lavender, fuschias, etc., and is death to the coleus. With a view to prevent, as far as possible, the spread of the pest, the public are recommended not to plant hedges of lantana, and are urged to take active measures for checking the spread of the scale by rooting up and destroying a hedge as soon as the appearance of the scale insect therein is noticed.

We are expecting peace daily, but in the meantime our search-light plays around here every night as usual.—Yours truly,

H. BAYLEY.

[Tea has enough to fight with; and lantana near Peradeniya and Gampola has been freely destroyed to prevent the scale insect pest spreading. —ED. *T.A.*]

THE NEW MANURE.

London, E.C., June 13th, 1902.

SIR,—I enclose a copy of a reprint of my paper in the "Bath and West of England Journal," and on page 14 you will see an account of the experiments with radishes dressed respectively with ordinary superphosphate and with the new manure, basic super.—Yours truly,

JOHN HUGHES.

[We quote as follows:—

The manure has been sold during the last season in 187 places in England, 72 in Scotland, and 13 in Ireland. Many of the deliveries were in quantities of ten to thirty tons, so that the actual trials must have been more numerous even than these figures suggest. Notwithstanding the late application of the manure, due to the short time during which it has been on the market and also to the very dry season, the reports received have been generally satisfactory and most encouraging. The first experiment made public was conducted by Mr William E Bear, of Hailsham, Sussex, and though only on a small scale deserves to be noticed on account of the care with which the comparative trials were carried out, and because the soil had previously been fully analysed by Dr. Dyer, whose results add very much to the value of the experiment. It is unfortunate that such soil analyses are too often omitted in manurial experiments.

DR. DYER'S ANALYSES OF THE SOIL IN WHICH THE RADISHES WERE GROWING.

	Top-soil.	Sub-soil.
Silicious matter insoluble in strong hydrochloric acid ...	87260	84·560
Alumina	3260	5·580
Oxide of iron	3477	5·141
Lime	683	·216
Magnesia	260	·200
Potash	179	·285
Soda	082	·121
Phosphoric acid	083	·059
Sulphuric acid	024	·024
*a*Organic matter, carbonic acid water of combination, etc. ...	4·692	3·784
	100·000	100·000
*a*Containing nitrogen ...	·141	·048
The potash includes—		
Potash dissolved by a dilute (1 per cent) solution of critic acid, (probably "available" potash)	·003	·001
The phosphoric acid includes—		
Phosphoric acid dissolved by a dilute (1 per cent) solution of citric acid (probably "available" phosphoric acid) ..	·006	·001

Mr. Bear, who has kindly allowed the analyses to be used for the purpose of this paper, in a communication in the *Agricultural Gazette* of July 15th, 1901, headed "An Experiment with Basic Superphosphates," over the letters W E B, wrote as follows:—

"Soil from a field somewhat deficient in lime was placed in two 4½-inch flower pots, and in one ⅓ oz of basic superphosphate was placed, while an equal quantity of ordinary superphosphate (30 per cent soluble phosphate guaranteed) was put in the other. On June 8th, thirteen seeds of French breakfast radish were sown in each pot. Nine grew in the basic pot, and seven in the other. From the first the radishes in the basic pot grew away from the others; and, on being pulled and washed, seven (taken as they came out of the basic pot) weighed 2½ oz, tops included, while the seven out of the other pot weighed only 1½ oz. In each case the scale (a letter-weigher) plumped down well, so that there may have been an eighth of an ounce more of each. However, seven of the radishes grown with basic superphosphate weighed 66 per cent more than an equal number grown with ordinary superphosphate in the same kind of soil, although the soil and manure of the basic pot had to support two more plants than those of the other pot." The proportions of manure employed in the above experiments calculated per acre are certainly much more than would be applied in ordinary farming. but as the same quantities of the two manures were used in each case it is evident that basic super was the more suitable manure for the soil. The important point to notice in connection with these results is that the soil represents exactly the description of land upon which the new manure is most likely to produce an improved yield. for it contains considerably less than 1 per cent of lime, the figures being ·683 in the surface and ·216 in the sub-soil.

—ED. *T.A.*]

GREVILLEAS (THEIR VALUE AS TIMBER) AND WHAT THEY ARE SUFFERING FROM.

Maskeliya, June 16.

(*To the Editor*, "*Tropical Agriculturist.*")

SIR,—I enclose copy of a letter I wrote to Mr. Carruthers about the Grevillea tree which may or may not be of use to you.—Yours faithfully,

R. MACLURE.

(*Copy.*) Maskeliya, June 9, 1902.

DEAR MR. CARRUTHERS,—I am sending one of my young Grevillea trees with the symptoms (rustiness of the foliage) which are so common amongst them here. I shall be glad to know if this tree has any canker or fungus, or whether you think it is merely a case of uncongenial surroundings. I have isolated pronounced cases of canker among my older trees. There is no mistaking them. I suppose it is better, when they are very far gone, to uproot these trees to prevent the spread of the canker. You said you came to our meeting the other day to get information. I am afraid you did not get much, but I will try and give you all the information, such as it is, I possess about the tree. A good many men think it is not worth growing, or taking any steps to combat disease. On some places, in this district and elsewhere, the growth is certainly poor, but even in such cases I think a good deal can be done by cultivation. Here they have been a source of great profit to the estate. I have sawn up over 30,000 feet of planking out of the older trees, and hope to saw at least 20,000 feet more in the next two years. The planking makes excellent withering tats, and, if planed and polished, the wood makes beautiful furniture. I reckon a Grevillea tree at 15 years old is worth R3·40 in ordinary soil, less in poorer soil, and much more in richer soil, such as they have in some parts of Dimbula. I arrive at this valuation as follows:—

Value of planking which a tree of 15 years will give, 60 feet at R8 per 100 feet, advertised price	R4·80
Less cost of sawing at R4 per 100 feet outside rate	R2·40
	R2·40
Value of balance of tree as firewood, ½ cubic yard at R2 per cubic yard	R1·00
	R3·40

There is then the value of the Grevillea tree:

1. For timber and firewood.

2. To improve the soil it takes from the subsoil and adds to the surface soil by the deposit of leaves.

3. This deposit not only adds to the soil but prevents wash and the growth of weeds.

4. As a windbelt in exposed places.

5. To diversify the cultivation. We were told, when leaf disease attacked and ruined our coffee, that—in planting it up, as we did, in one unbroken sheet, with no trees or belts of timber interspersed,—we transgressed the laws of nature, and suffered in consequence. We were careful to avoid this mistake when planting Tea.

My idea is that, although canker is certainly prevalent, and perhaps increasing, with the great majority of the trees with this "shuck" appearance, it is simply a case of the "survival of the fittest." The tea, as it is getting older, is taking more from the soil at the expense of the Grevilleas. In some places the latter are far too thick, a judicious thinning out of the weaker trees would improve matters. Where a Grevillea tree is being crowded out by the tea growing too close for its comfort, I would not hesitate to sacrifice the tea. A tea bush is worth at the outside 4 cents. Then a little application of cattle manure or artificial manure, or even silt from the drains, forked in, would help the trees.

I do not know whether all this will be of any value to you; it does not bear much on disease, but my idea was more to try and demonstrate that Grevilleas are worth some care and attention and not to be despised.—Yours very truly, &c.

R. MACLURE.

"THE ALLEYN SYSTEM OF PLUCKING."

July 1.

SIR,—"Old Harry"'s letter does not call for an answer on my part, for your footnote is already quite a sufficient refutation of his somewhat confused ideas. Yet at the same time I cannot refrain from protesting against his insinuation that a saving of thirty per cent in cost of plucking, as compared with neighbouring estates, is explainable by a casual reference to superior management or to over-manuring.

The first statement is decidedly uncalled-for and is, I consider, in the worst possible taste. It reflects not only on the planters of this district, but also on the general planting community, and would imply that, unless a superintendent can pluck at the Merria Cotta rates, he is incompetent to manage an estate. For on a property of average size the difference in the majority of cases varies from R3,000 to R6,000 on the year's working; and if by better management it is possible to show a saving such as this, the sooner a change in the superintendence is made the better for all concerned.

It might surely have occurred even to "Old Harry" that such a theory as the above is much more difficult to credit than the simple and actual explanation, viz., that the system of plucking advertised is "per se" *novel, and a great improvement on existing methods.* As regards the second statement, that the results obtained are due to over-manuring, it may be mentioned that a considerable proportion of Merria Cotta has not so far been treated. Further it is worthy of notice that some of the neighbouring estates in the district spend over 6½ cents per lb. of made tea in cultivation. Yet the cost of their plucking varies from 8½ to 9½ cents or more. Our actual increased expenditure on artificial manure for the past two seasons averages *under* R13 per acre per annum, excluding cost of experimental work.

That such experimental work will prove itself not only of benefit to our Company, but also of advantage to the tea industry in general, I have no hesitation in affirming. Later on, when certain arrangements are completed, your readers will have full opportunity to judge of the truth of this statement.

Again, if your unusually low cost of plucking is capable of such a simple explanation as your correspondent would have one believe, it is to say the least of it remarkable that the system should be in such general demand by the leading firms in Colombo and by the majority of the most experienced and practical planters in the island.

Those who have the best opportunity to judge of the value of our results—that is to say the agents of the estate, Messrs. Geo. Steuart & Co., and Mr. Joseph Fraser, who visits the property—have been among the foremost to accord me a full measure of support. Further proof of the utility of the methods advocated, if such were needed, is to be found in the fact that estates aggregating over 75,000 acres in tea have already applied for particulars of my "system of plucking."—I am, sir, etc,

HENRY M. ALLEYN.

TEA SALES—LOCAL AND LONDON—AND THE "AVERAGES" AS REPORTED.

July 1.

Dear Sir,—In looking over last week's Sale list and your paragraph showing the highest averages secured in the previous week's local sale, I notice that some estates' tea averages were mentioned, that I am rather inclined to think should not have been, for the following reasons:—I see (omitting names) *A.* was mentioned with *36 cts.* average for *four grades* sold; *B.* was mentioned with 45 cts. average with three grades; *C.*, 41 cts. with three grades; *D.*, 41 cts. with two grades; *E.*, *not* mentioned with five grades and 40 cts. I think you will agree with me on consideration of this point that it would be well in future to start something quite new with regard to mentioning estates' averages weekly, *i.e.* to mention the Estate Name, No. of Grades in the Tea Sale, and the Average Price of the Invoice sold calculated on the number of grades in, which would then be seen at a glance by the public. It would not as now lead to the conclusion often jumped at that such or such an estate has a good average without looking into the matter to see whether that estate or this has more grades or less than the other; which is not quite as it should be in my opinion. I should, therefore, be pleased if you could see your way to effect this alteration in future from this week forward, as I think it would be a capital arrangement and quite fair to all: which in my humble opinion is not the case with the London announcements.

It would be well if London Brokers could have this matter suggested to them by the local press. Often an estate is criticised on the fact that they are not on the "line" of prices in averages, because on the one hand an estate sends all grades, whereas another estate sends its best grades for sale and is mentioned as having secured such fine prices. This report is a misleading account of the true state of the average for that estate, properly speaking, and other estates should be mentioned that are not, for the reasons stated. The Superintendents again are often questioned as to why they cannot secure such fine prices as so and so. I think you will readily see the force of my arguments, that all should share on their true merits and not calculations based on artificial averages. —I am, Dear Sir, yours truly,

A PLANTER.

[We made a reference back in connection with the foregoing letter, and "Planter" writes further:—

"The inclination is to crack up an estate or its Manager, because his estate is on the "line" of averages, whereas that same estate might sell only its best grades in order to be mentioned and its worst grades under an assumed name or another time. Many estates sell what is termed, I believe, regular sampling breaks with everything in, and if their average was weighed on its merits, in all probability would be found a much better criterion as to what an estate, only selling its upper grades, is accomplishing. To put the matter in a nutshell, the present system is misleading in the majority of cases and therefore serves no good purpose in my humble opinion; but merely shows up at a glance those on the board, while you constantly hear so-and-so is on the gallery this week, whereas probably someone else should have been there instead. Many do not take the trouble in these hurried days to look through the number of grades and therefore jump at the conclusion that as such or such an estate is on the board, it is necessarily the best sale. The inside often reveals otherwise. If the mentioning of estate averages is not conducted on sound principles, do not you agree with me that it would be best to discontinue the mentioning of any estate on the outside leaf of either London or local sales? The Press or the Brokers, I feel sure, only wish to play fair to all and not to a select few,—which is not transacting business in the impartial way—which the press have the character of doing. I hope you agree with my view, for I feel rather strongly on the matter—not for myself, but I have so frequently heard estates and its Managers criticised on the merit of being mentioned, with perhaps three grades in, and another with double the number, or say two more, a half-penny less in average, passed over."
—Ed. *T.A.*]

OVERPRODUCTION AND MANURES.

July 7th.

Sir,—It seems to me absurd and irrational to advocate at this time of day—as a correspondent to your contemporary does—the exclusion from the island of so-called "forcing manures." How are they to be defined as contrasted with the sustaining manures which are to be admitted *free*! I suppose rotten fish, castor cake and bones are *forcing* as well as *sustaining* manures; but they are simply indispensable to the maintenance of our industry. I doubt if there is any manure imported that "Science," as represented by Mr. Kelway Bamber, would condemn as injurious to the tea bush.—Yours truly,

PROPRIETOR NO. 2.

CEYLON LANDS SUITABLE FOR GREEN TEA.

Cochin, July 8.

Sir,—With reference to your comments on my remarks when interviewed by *Indian Gardening and Planting*, in yours of 2nd July, by my saying Ceylon had no very large amount of land suitable for green teas I intended to imply that it was probable that with the increase in price of high-grown teas, resulting from export of say 10 millions green tea in that country, and perhaps a larger quantity for India, only low-elevation gardens would continue green tea manufacture. By suitable lands, therefore, I mean land at low elevations in forcing climate where the flushes are very heavy and rapid and quantity rather than quality is of necessity the result.—I am. Sir, yours faithfully,

H. DRUMMOND DEANE.

CEYLON COCOA AND ITS WANT OF AROMA.

Kandy, July 14.

Sir,—The annexed memorandum regarding Ceylon cocoa is sent for publication as of interest to cocoa growers and others.—I am, Sir, yours faithfully,

A. PHILIP.

Secretary, Ceylon Planters' Association.

CEYLON COCOA

is objected to by manufacturers in Germany on account of its want of aroma. One manufacturer told me some time ago he feared we washed it before drying and thus all the mucilage on the pod was taken off. He now advises me he has induced a Java firm to give up the washing of the bean both before and after fermentation. It is dried in the pod and he maintains that the first consignment treated in this manner gives a quality vastly superior to any sent hitherto from Java. He recommends the Ceylon planter to give up all and every washing of the bean.

(Signed) J. H. RENTON.

GREEN TEAS AND —— GREEN TEAS

The Watte, July 15.

Dear Sir,—Is it, or is it not, a fact that medium and high-grown Ceylon "green teas," if treated according to the Japanese plan, —which does not impair the purity of the tea, —will fetch a price far above that got for common green teas ?—Truly yours,

WILLING TO LEARN.

[We think our answer may be in the affirmative, judging by the prices already got for the greens manufactured at Ambewatte Mills. But then it is not open to the ordinary planter to import an expert, or to get a hold of the secret at present monopolised in Ceylon in the aforesaid mills, whereas ordinary greens by Mr. Drummond Deane's method can be made with little trouble in any ordinary factory. This is how we understand the matter at present.—Ed. *T.A.*]

GREAT WESTERN TEA COMPANY.

REPORT OF THE DIRECTORS.

The Directors submit their annual Report and Accounts for the season ending March 31st, 1902.

The yield of Tea has been 440,978 lb being an increase of 12,468 lb on last season's crop: the price realised on 406,485 lb for which account sales have been received at 46·91 cents per lb., against 48·91 cents last season and 48·96 cents in 1899-1900 ; but telegraphic advices shew that the balance of the crop has sold at a net average of 8·61 pence, making the average for the whole crop about 47·37 cents, which in view of the lower range of prices is satisfactory.

The cost F O B Colombo is 29·05 cents per lb. (including 3·80 cents for manuring) against 31·71 cents (including 4·77 cents for manuring) last season.

The amount available for distribution, after setting aside R6,833 70 for depreciation, is	R 74.283·75
out of which the Directors recommend the payment of a dividend of 11 per cent absorbing	64,240 00
To place to Reserve Account a sum of	7,500 00
And to carry forward the balance of ..	2,543·75
	R74,283·75

The result of the year's working is better than that of the previous season in spite of a lower market, while the general condition of the Estate is at the present time still further improved, and the Directors wish to record their appreciation of the good work done by the Superintendent.

The Estimated Crop for the current season is 430,000 lb to cost R128.689·38 being at the rate of 29·92 cents per lb. tea inclusive of 3·10 cents for manuring, and this the Directors consider a safe Estimate.

The acreage of the Estate is :—

A.	R.	P.	
921	2	12	Tea in bearing.
39	0	0	Fuel Clearing.
38	2	4	Ravines.
17	1	12	Grass Field.
11	3	13	Building and Gardens.
30	0	14	Cart Road and Roads.
23	2	25	Railway
Total 1,082	0	0	

During the year Messrs. A Cantlay and James Ryan retired on leaving the Island, and Mr. John Anderson was appointed on the Board.—In terms of the Articles of Association Mr. J C Dunbar retires by rotation and being eligible offers himself for re-election.—It will be necessary to appoint an Auditor for season 1902-1903.

By order of the Board of Directors,

THE DECLARATION OF A DIVIDEND : 11 PER CENT.

J M Robertson & Co.

Colombo, June 11. Agents & Secretaries.

AMALGAMATED TEA ESTATES COMPANY, LIMITED.

Report for the year ending 30th November, 1901, to be submitted to the sixth annual ordinary general meeting of Shareholders of the Amalgamated Tea Estates Company, Limited, to be held in the Registered Office of the Company, 22, West Nile Street, Glasgow, on Thursday the 19th day of June, 1902, at 2 o'clock p.m.

Directors :—Mr A K Muir, Chairman, Sir Robert D Moncreiffe, Bart, Mr A B Murray, Mr A M Brown, Mr Robert Scott, Mr R H Sinclair and Mr J F Muir.

The Directors beg to submit the accounts for the year ending 30th November, 1901.

The crop gathered from the Company's estates was 2,763,574 lb compared with 2,582,657 lb in 1900. The average price obtained was very disappointing, being only 9·27d against 9·90d and 10·29d respectively in the

two previous years. Unfavourable weather in the Darjeeling district, which seriously affected the quality, and an unusually low range of values for Darjeeling Tea, generally, in the London market, were the main causes of this regrettable fall in price Adverse weather similarly affected the results of the Anglo-American and Kanan Devan Companies, in which this Company is largely interested.

For some considerable time past, in view of the adverse circumstances affecting the Tea-growing Industry, the directors have had under consideration the terms of the agreement between the Managing Agents and the Company. While it was recognised that at the time the agreement was entered into its terms were reasonable, the Agents, on being approached, expressed themselves as perfectly willing to consider a re-arrangement, and they voluntarily offered in future, during the continuance of the present depression in tea, and, while reserving their rights under the agreement, to restrict their charges as Agents of this Company to their actual outlay, plus a commission of 3 per cent on the nett profits.

The Managing Agents have also, in view of the disappointing results of last season's working, voluntarily agreed to give up to the Company, for the benefit of the Revenue Account of 1901, the whole of their Commissions for that year; and the London Agents have also agreed to return one-half of their Commissions.

Giving effect to the above concessions, so far as they affect the year under review, the Accounts now submitted show a balance at credit of Profit and Loss account of £31,900 : 10 : 4, against which are chargeable:—Commission on Profits to Estate Managers and Secretaries, Interest, Discount on Bills, &c., and Dividend at the rate of 5 per cent. per annum for six months ended 31st May 1901, paid to the Preference Shareholders on 15th June 1901, which total £18,897 : 15 : 1, leaving a balance of £13,002 : 15 : 3. The Directors propose to transfer £5,000 to Reserve Account, leaving £8,002 : 15 : 3 to be carried forward to next year.

The planted area of the Company's properties is now 13,494 acres. No extensions are in hand or contemplated.

The estimate of yield for the current season is 3,175,280 lb of Tea. The increase expected is mainly from the Company's young Estates in Assam which are now coming into bearing, and which being planted with a high-class jat of Tea should help to improve the average price of the Company's produce.

[Here follow paragraphs identical with those in the "Consolidated" Company's report quoted yesterday, alluding to foreign markets consumption and Mr A K Muir succeeding Sir John Muir as Chairman.—Ed. *T.A.*]

In terms of the Articles of Association, one of the Directors, Mr Robert Scott, retires at this time, and is eligible for re-election. The Directors regret that Mr A B Murray finds it necessary to retire on account of his health, and they have considered the question of filling his place. They approached Mr D M Hannay, of Messrs Kelly & Co., Exchange Square, Glasgow, and he has expressed his willingness to be nominated for a seat on the Board.

The Auditors, Messrs. Alexander Sloan & Co., C A, retire, and offer themselves for re-election. By order of the Directors. JAMES FINLAY & Co.,

Glasgow, 11th June, 1902. *Secretaries.*

THE ANGLO-CEYLON AND GENERAL ESTATES COMPANY, LTD.

REPORT OF THE BOARD OF DIRECTORS.

To be presented to the stockholders at the sixteenth annual meeting to be held at 20, Eastcheap, London, E.C., at noon on Thursday, July 10th, 1902.

The Directors herewith submit their report, and the accounts for the year ending 31st March, 1902.

The net profit, with the balance of profit carried forward from the previous year, after debiting the debenture interest, as shewn in the audited accounts annexed hereto, amounts to £21,311 19s 7d, and the Directors recommend a payment thereout of a dividend of four per cent on the Consolidated Stock of the Company, leaving a balance of £11,311 19s 7d, to be carried forward. It is proposed to pay the dividend on the 11th July, 1902.

The year in Ceylon was by no means favourable to the tea industry. The crop, which in the previous year amounted to 2,180,675 lb. from the estate leaf, and 133,672 lb. from the bought leaf, consisted in the present year of 2,269,718 lb. of estate, and 87,384 lb. of bought leaf. The crop of cocoa was a short one, owing to drought, and amounted to 1,570 cwts. as against 2,285 cwts. in 1900-1901. The gross price of the Company's tea was equal to 7·39 pence per lb in the London market, as against 7·68 pence per lb in the year 1900-1901; but it compares well with the Ceylon average. The price realised for cocoa was 58s 6d per cwt, as against 74s 3d in the previous year.

In Mauritius the crop of canes was somewhat disappointing and difficult to work, and this combined with the exceptionally low prices, which resulted from the excessive supplies of beet sugar, made the year comparatively unremunerative. In all 76,698 tons of cane were handled on the estates in which the Company is interested, and produced a crop of 7,553 tons of sugar, as against 8,565 tons in the year 1900-1901.

The result of the working of the estates in Ceylon and Mauritius, respectively, is given in the profit and loss account, calculated at the average rate of exchange of 1s 4 3-16d, as against 1s 4¼d in the year 1900-1901.

The crop prospects of the current year, and the condition of the estates, both in Ceylon and Mauritius, are reported to be good; and a favourable feature in the outlook of Mauritius is the recent imposition of additional duties on beet sugar imported into India, with a view to countervail the large kartel bounties of Germany and Austria. From Selangor the reports of the progress made by rubber, coconuts, and other products, continue satisfactory. A statement of the acreages is given in the schedule annexed hereto.

Mr. Stuart C Mackenzie, K.C., under the provisions of the Articles of Association, retires from the Board, and, being eligible, offers himself for re-election.

The auditors, Messrs. Welton, Jones & Co., also retire from office, and have expressed their readiness to act, if re-elected.

BOGAWANTALAWA DISTRICT TEA COMPANY, LIMITED.

Report.—To be presented at the fifth ordinary annual general meeting of the Company, 2nd July.

The Directors have the pleasure to submit the balance sheet and accounts of the Company for the year ending 31st March, 1902, duly audited.

The yield of tea fell short of the estimated quantity by 53,414 lb., the shortfall being attributable to the great deficiency in rainfall as compared with the average. The profits for the year were also affected by the further fall in the price of tea, the market having continued in a very unsatisfactory state. The expenditure was as low as could be expected under the circumstances, and includes the amount spent on new clearings, buildings and machinery.

The total yield was 1,134.586 lb. tea plucked off 2,185 acres, being at the rate of 519 lb. per acre all round, costing free on board at Colombo 24 cents or 4d per lb.. The gross average price of the 1,118,555 lb. sold in London was 7.22 per lb,

The crops for the current season are estimated at 1,206,000 lb. tea.

The gross average at which drafts were negociated was 1s 4 3-16d per rupee against 1s 4¼d in the previous year.

The Directors desire to place on record their appreciation of the services of their Manager and his Staff in Ceylon.

STATEMENT SHOWING RESULTS OF WORKING FOR THE FOUR YEARS ENDING 31ST MARCH, 1902.

Season.	Acreage plucked	Total Tea Crop.	Yield per Acre.	Cost of Crop per lb. f. o.b. Colombo.	Gross Avg. per lb. Tea sold in London	Average rate of Exchange per Rupee.	Dividends. Preference.	Dividends. Ordinary.
	Acres.	lb.	lb.	d.	d.			
1898-1899	2,081	1,031,782	495	4·12	8·71	1/4 5-32	6	7½
1899-1900	2,185	1,209,451	553	3·69	7·98	1/4 5·16	6	7½
1900 1901	2,185	1,236,272	565	3·93	7·51	1/4¼	6	6
1901-1902	2,185	1,134,586	519	4·00	7·22	1/4 3-16	6	4

The profit for the year amounts to £10,354 3s; To which has to be added Interest £160 2s 1d; And the Balance from last year of £753 2s 3d. Total £11,267 7s 4d.

Interested on the Mortgage Debentures has been paid, *less* Income Tax £395 10s; Dividends on the 6 per cent Preference Sharos for the 12 months were paid on the 1st Oct. 1901, and 2nd April. 1902, *less* Tax £5,254 10s; Income Tax to April 1902 has becu paid £848 8s: It is Proposed—To pay a Dividead of 4 per cent on the Ordinary Shares, which will require *less* Tax £3,766 13 4d; To transfer to Reserve (increasing this account to £5,000) £500; And to carry forward to next year the balance of £502 6s. Total £11,267 7s 4d.

The Director retiring on this occasion is Mr Henry Bois, and being eligible he offers himself for re-election.

Mr. John Smith, the Auditor, also retires and offers himself for re-election.—By Order of the Board,

ROBERTSON BOIS & Co, Agents and Secretaries.

12, Fenchurch St., London, E.C., 20th June, 1900.

SCHEDULE OF THE COMPANY'S ESTATES.

Estates.	Tea, full bearing.	Tea, not in bearing.	Forest.	Grass.	Chena and Patena.	Total.
Kirkoswald	756	35	74	12	—	877
Bridwell	382	36	35	5	15	473
Elbedde	705	—	27	15	—	747
Bogawana	341	26	44	6	18	436
Total	2,185	97	180	38	33	2,533 acres

THE CONSOLIDATED TEA AND LANDS COMPANY, LIMITED.

REPORT for the year ending 30th November, 1901, to be snbmitted to the Sixth Annual Ordinary General Meeting of Shareholders of the Consolidated Tea and Lands Company, Limited, to be held in the Registered Office of the Company, 22, West Nile Street, Glasgow, *on Friday, the 20th day of June, 1902*, at Two o'clock p.m.

DIRECTORS:—A. K. Muir, Esq., *Chairman*, Sir Robert D. Moncreiffe, Bart., A. B. Murray, Esq., A. M. Brown, Esq., Robert Scott, Esq., R. H. Sinclair, Esq., D. M. Hannay, Esq., J. F. Muir, Esq.

The Directors beg to submit the Accounts for the year ending 30th November, 1901.

The crop of tea from the company's estates was 11,742,418 lb, or 1,590,836 lb less than that gathered in 1900. A rather finer class of leaf was taken off the bushes, but the main cause of the shortage was the severe drought experienced chiefly in Sylhet at the beginning of the season under review. A slightly higher price has been obtained for the produce, viz., 6 67d per lb, against 6·43d per lb in 1900, or an improvement in price of about ¼d per lb, but in view of the shortage in the general output from India and Ceylon, it is disappointing that better prices have not been forthcoming. Unfavourable weather similarly affected the crop returns of the Kanan Devan and Anglo-American companies, in which this company is largely interested. For some considerable time past, in view of the adverse circumstances affecting the tea-growing industry, the directors have had under consideration the terms of the agreement between the company and its managing agents in Calcutta and Colombo. While it was recognised that, at the time the agreement was entered into, its terms were reasonable, the agents, on being approached, expressed themselves as perfectly willing to consider a re-arrangement and they voluntarily offered in future, during the continuance of the present depression in tea, and while reserving their rights under the agreement, to restrict their charges as agents of this company, and of the other tea companies in which this company is interested, to their actual outlay plus a commission of 3 per cent. on the nett profits. This offer. which the directors regard as a most favourable one for the company, would, of course, supersede the arrangement with the Calcutta and Colombo Agents roferred to in the directors' report for yoar ended November 30, 1899. With the view of enabling the directors to make up the full sum drawn from the reserve account, and place the company again in a dividend-paying position as soon as possible, the managing agents have voluntarily agreed to give up to the company, for the benefit of the revenue account of 1901, the whole of their commissions for that year. The directors have returned one-half of their fees, and the London agents have also returned one-half of their commission. Giving effect to the concessions referred to in the preceding paragraph, the accounts show a balance at credit of profit and loss account of £79,053 1s 9d. Against this sum are chargeable: Commission on profits to managers of estates and secretaries, interest and discount on bills, &c., interest and proportion of charges on debenture stock and income-tax, amounting together to £35,363 11s 9d. This will leave a balance of £43,689 10s, of which £41,634 0s 7d will fall to be replaced to the reserve fund in accordance with the resolntion to that effect passed at the annual general meeting of the compauy held on August 30, 1901. The reserve fund will, with that addition, stand at £65,000. The balance remaining at credit of profit and loss account —namely, £2,055 9s 5d—the directors propose should be applied in reduction of the amount standing at the debit of preliminary expenses account. No extensions are in progress or contemplated, and the planted area of the estates of the company, which have now been practically all surveyed by European Surveyors, aggregates 28,473 acres. The estimate of yield for the current season is 13,572,880 lb. The weather upon the whole has, so far, been generally favourable to growth, in consequence of which an improvement is already noticeable in the out-turn. The estates of the company are in excellent condition, and when the present crisis is over they will undoubtedly again earn good profits, especially as, in spite of hard times, they are being cultivated and upheld as liberally as ever. Efforts continue to be made to increase the consumption of Indian and Ceylon teas in oountries other than the United Kingdom, and espeoially in America and Russia; while a strenuous endeavour is being made by producers in India, including this company, to encourage tea drinking amongst the native poulation, and it is hoped that in time an appreciable quantity of tea

will be consumed there. Moreover, there are signs that Indian and Ceylon growers in addition to realising the necessity of opening up new markets, are also now more inclined to look with favour on a combination for, amongst other things, a general restriction of output for a year or two. The directors are hopeful that some scheme may be brought forward which will bring together the greater part of the industry, and they are prepared to send their cordial support to any feasible proposal. Such a combination would undoubtedly tend to at once raise the price of tea. The directors regret to state that Sir John Muir, who has acted as na chairman of the Company since its formatio, has been obliged to resign as a member of the board on account of the state of his health. They hope that after a time he may be able to again preside at their meetings. In the meantime. Mr A K Muir, who was offered and accepted a seat on the board, has agreed to act as chairman. Mr Muir has been in India for the last eleven years, latterly as senior manager of the Calcutta agents' firm, and during the greater part of that time has been connected with the management of the company's estates. In terms of the Articles of Association two of the directors, Mr A B Murray and Mr R H Sinclair, retire at this time. The directors regret that Mr Murray finds it necessary to retire on account of his health, and they have considered the question of filling his place. They approached Mr J T Tullis, of Messrs John Tullis and Son, Limited, Glasgow, and he expressed his willingness to be nominated for a seat on the board. Mr Sinclair is eligible for re-election.

The Auditors, Messrs. Alexander Sloan & Co., C.A., and Messrs. Jackson, Pixley, Browning, Husey & Co., C.A., retire and offer themselves for re-election.

JAMES FINLAY & Co.,
Secretaries.

Glasgow, *12th June, 1902.*

PLANTING NOTES.

HONOLULU IN THE HAWAIIAN ISLANDS—as the result of 13 years' Observations shows an average temperature in the shade of 74·11, the extremes being 57 deg. in February and 87 deg. in August. The rainfall is very low—only 28·39 inches as the annual average of 18 years: the maximum 49·82 and the minimum 13·46 inches. The place of observation is 50 feet above sea level. All this we learn from tables in the "Hawaiian Planters' Monthly."

SCIENTIFIC PRODUCTION AND MANUFACTURE.—Commenting on the Review of the Trade of India by J E O'Conor, Director-General of Statistics, the *Pioneer* of July 10th says:—In all the great staple industries of India—in tea, indigo, cotton, sugar, etc.—the time has come for the application of up-to-date scientific production and manufacture, and India can only hope to hold her own in so far as she makes use of labour saving methods and of the advantages which science places at her disposal. In discussing the export of animal bones, which averages about 100,000 tons annually. Mr. O'Conor says that Indian bones are also sent to Ceylon, where they fertilise the fields on which is grown the Ceylon tea that undersells Indian tea—not only out of India, but in India itself. This statement of the facts seems to point to the absence of capital, skill, and enterprise in undertakings dependent on agricultural operations.

THIRTY THOUSAND YOUNG TROUT—this season's hatch at the Matlock Fishing Association's hatcheries, have been destroyed. The cause is attributed to poisoning by river pollution. The association has appealed to the Government for an official inquiry to be held.—*Morning Leader*, June 14.

THE HOLTA TEA COMPANY OF KANGRA VALLEY report that encouraging results followed in the manufacture of 20,000 lb. green tea for the American market last year. This year it is proposed to make 60,000 lb. of the same. For this purpose the Company have installed the Drummond Deane system and machinery, which is a good testimonial, coming as it does from a Kangra garden.—*Indian Gardening and Planting*, June 26th.

SUGAR GROWING IN THE EAST INDIES.—Mr. R. W. Egerton Eastwick, lately secretary to the Penang Chamber of Commerce and Agriculture, writes to the London *Times* of May 21st on the subject of the existing depression in the sugar industry in the West Indies. At the very outset he denies that the depression will cease when the bounties have been abolished. To support his assertion he points out that although the prosecution of the industry has ceased to pay in the West, yet in the Eastern part of the Empire sugar-growing is regarded as a profitable undertaking. "In British Malaya" he goes on, "encouraging results have long since been succeeded by permanent prosperity." He points out that the conditions under which the industry is followed in the West Indies and in Malaya are very similar. Both countries, he allows, will benefit by the abolition of the bounties but not to any appreciable extent, "but the change which would materially benefit the West Indies is one of currency. A silver currency prevails In British Malaya, where labour is paid in silver. Might not the gold standard be dropped in the West Indies, and might not British and Mexican dollars take the place of sovereigns, with a varying rate of exchange?

THE REAL RUBBER TREE.—The so-called rubber tree, with its thick, glossy, green leaves, common in hot-houses and gardens, is that which produces the gutta percha. It is little like the great tree from which comes the best rubber of commerce. The real rubber tree is not unlike other forest trees, resembling the English ash and growing to a height of more than sixty feet. Its bark is silvery gray, where it has not become black from being tapped. Its trunk is about as big as a man's waist. Where it has been tapped it often swells out at the base, so that it is much larger. It blossoms in August, being then covered with little white flowers. It bears nuts and in December and January, when they are ripe, the shells burst with a noise like a fire-cracker, throwing the nuts some distance. There are so many nuts on each tree that a man could easily gather enough in a day to plant a hundred acres of land. The tree can be easily grown in the right soil, and they thrive without cultivation; but to yield rubber they must be 15 years old. Fifteen years is too long a time for a man to wait in Australia, and at present the trees which produce rubber are wild.—*Journal of Department of Agriculture, W.A.*

A Record Banana Export.—The Jamaica *Gleaner* reports that the exportation of bananas for the year ending March last is likely to amount to a total of over ten millions of bunches, a record for Jamaica. The returns are compiled according to the computation of the companies, so that two small bunches are counted as one bunch. The total number of actual bunches therefore greatly exceeds ten millions.—*W. I. Agricultural News*, June 7.

Budding Oranges.—The practice of budding oranges is becoming a part of the regular routine at all the Botanic establishments in the West Indies. In the interesting *Bulletin* of the Botanic Gardens at Trinidad, January 1902, Mr. Hart writes :—" Some advance has been made in the propagation of the imported kinds of oranges during the present year, and a fairly good stock of strong budded plants is now on hand. This, it is trusted, will do away with the complaint, so frequently heard, of oranges proving sour when raised from seed, a case of which occurred during the present week. The stock used is that of the Seville orange which does not suffer in our climate from stem-rot or mal-di-gomma, as do the best of our St. Michael's and Tangerine kinds. The 'Washington Navel' is among the varieties successfully budded. I learn that in some instances the pupils who attended the recent Agricultural Lectures are meeting with fair success in budding and grafting.—*W. I. Agricultural News*, June 7.

Coconut Butter.—The Journal of the Roya Horticultural Society for April contains this note on an article by Mr. J R Jackson, which appeared in the *Gardeners' Chronicle* for December 1901 :—This substance has lately attracted a good deal of attention ; its manufacture in this country [England] and on the Continent is now very considerable. It is manufactured from the kernels of coconuts, and is used as a substitute for butter or lard in cooking. It is sold in Germany at about 8d. per lb. It is claimed that it contains more than 90 per cent of vegetable fat, and that it is more wholesome and easier digested than the ordinary fat used for baking and cooking. It is said to be much in demand amongst vegetarians, Jews and Mahommedans. In English trade it is known as '*Nucoline*.'—We might add that coconut suet also figures in the English market under the name of '*Vejsu*.'—*W. I. Agricultural News*, June 7.

Preserving Eggs.—The following methods of preserving eggs are given in the July Part of "Work":—Add 1 pt. of unslaked lime to 1 gal. of water, boil, stirring it well, then pour it into a bucket and allow to cool, and the lime to settle at the bottom. Now fill some glazed earthenware jars with new-laid eggs, then pour on the clear lime water to cover the eggs, tie a piece of bladder or some non-porous material over the top of the jars, and store away in a cool place. This is an old-fashioned method and it has the objection of making the shells brittle, and to some extent gives the eggs an unpleasant taste. Anything that will seal up the pores of the shell will preserve the eggs, and coating with white of egg, or painting with gum-water, or greasing, will keep them fresh for a time. At a recent show in Birmingham, some eggs were preserved by rubbing with vaseline and packing in bran, and some were rubbed with lard and packed in peat mould. Water glass is now often used for preserving eggs. Water is boiled and allowed to cool, then one-tenth of its bulk of water glass is added, and this is used in a manner similar to that employed with the lime-water described above.

Flowering of the Victoria Regia at Kew.—Notwithstanding the late season and the absence of bright sunlight, writes the head gardener, Mr Hawes, the Victoria Regia growing here opened its first flower on the 14th instant, Saturday last, and nearly a month ahead of last year. The leaves are already 5 feet 6 inches in diameter, and another flower will open in a few days.—*Gardeners' Chronicle*, June 21.

Lagos Silk Rubber.—The tree yielding this rubber is being gradually established in the West Indies. The name *Kickxia* has now been replaced by *Funtumia*, derived from the West African name of the tree. It is noticed that the young plants, if left to themselves, are liable to form a bushy habit and thus rendered less valuable for rubber-yielding qualities. To correct this it is recommended that the trees be pruned by gradually taking off all the lower branches and that one central, clean stem be encouraged. Even when the trees are tolerably large this is still required to be done if they are to be tested, as they should be, for yield of rubber. The Central American rubber tree (*Castilloa*) and the Lagos silk rubber tree (*Funtumia*) evidently are the most promising rubber trees for cultivation in the West Indies.—*W. I. Agricultural News*, June 7.

The Navel Orange in California.—Referring to Mr Tidmarsh's note on p. 225 of your issue of April 5, I write to say that the Bahia, or as it is here called the Washington Navel, is the principal shipping Orange of California, furnishing over three-fourths of, 20,000 train-car loads of Oranges exported from California in the season of 1899-1900. With us it is a good bearer, but in Florida it is said to produce but shyly. It is by no means an infrequent occurrence to find a second Orange at the apex of the first, and all stages of development between the ordinary "Navel" and the well-developed second Orange are often found. Writing in *Meehan's Monthly* some time ago (the reference is not accessible to me), Prof. W W Bailey, of Brown University, says :—" We take it that in the Navel Orange the branch or shoot continues to grow, producing another tier of carpels above or within the first set. The lower set is more vigorous, presses upon and crowds the inner, forming, at last, the characteristic dimple or navel which gives the fruit its name. Such prolification of a flower-branch is seen any day in the two or more storeyed inflorescence of Chinese Primroses ; or in the still more striking cases where a Cherry, Rose, or Apple-blossom continues a leafy shoot through its middle." The figures refered to by Mr Tidmarsh are to be found on p. 56 of a publication of the California State Board of Horticulture, entitled *Culture of the Citrus in Calfornia*, by the late B M Lelong, Secretary, "assisted by experienced horticulturists" ; it was published in 1900. Another illustration will be found in Dr H J Webber's article on "Citrus" in Bailey's *Cyclopœdia of American Horticulture*, p. 322. Another account of the Bahia occurs in the same work under "Orange," pp. 1152 to 1160, together with other information of interest and value to Orange-growers. A more extended and thoroughly reliable account of the Orange industry in California is contained in Wickson's *Californian fruits and How to Grow them*, ed. 3, San Francisco, Pacific Rural Press, *Joseph Burtt Davy, Assistant Botanist, Agricultural Experiment Station, Berkeley, California.*—*Gardeners' Chronicle*, June 21.

CEYLON PLANTING AND COMMERCIAL COMPANIES.

RISE AND FALL IN THE SECOND QUARTER OF 1902.

RUPEE PRODUCE COMPANIES.

	Ordinary Capital. R	Market Value of Shares, Mar. 31. R	Market Value of Shares, June 30. R	Rise or Fall R
Agra Ouvah ...	375,000	600,000	626,250	+26,250
Castlereagh ...	240,000	228,000	204,000	—24,000
Ceylon Provincials	666,000	666,000	672,660	+6,660
Ceylon Tea and Coconuts ...	348,000	348,000‡	348,000‡	—
Claremont ...	65,000	— ‡	— ‡	—
Clunes ...	332,000	166,000	166,000	—
Clyde ...	270,000	81,000	81,000‡	—
Doomoo ..	400,000	280,000	270,000	+10,000
Drayton ...	715,000	1,072,500‡	1,072,500‡	—
Ella ...	300,000	82,500	75,000	—7,500
Estates of Uva...	710,500	269,990	291,305	+21,310
Gangawatte ...	178,500	178,500	178,500	—
Glasgow ...	325,000	614,250	617,500	+3,250
Great Western...	584,000	712,480‡	712,480*	—
Hapugahalande	170,000	170,000‡	106,250*	—63,750
High Forests ...	750,000	750,000	675,000	—75,000
Do. Part Paid	200,000	225,000	225,000‡	—
Horrekelly ..	400,000	225,000	320,000	—
Kalutara ...	400,000	200,000	160,000	—40,000
Kanapediwattie...	334,000	283,900	167,000†	—116,900
Kandyan Hills ...	125,000	56,250	50,000	—6,250
Kelani T.Garden	300,000	105,000	105,000	—
Kirklees ..	100,000	50,000	50,000*	—
Knavesmire ...	415,000	166,000	186,750	+20,750
Maha Uva ...	300,000	210,000	210,000	—
Mocha ...	404,000	565,600	626,200	+60,600
Nahavilla ..	396,500	237,900	237,900	—
Neboda ...	265,000	265,000	265,000†	—
Palmerston ...	410,000	328,000	328,000	—
Patiagama ...	80,000	—	—	—
Penrhos ...	150,000	127,500	112,500	—15,000
Pine Hill ...	208,740	139,160	139,160	—
Pitakande ..	310,000	310,000‡	310,000‡	—
Putupaula ...	200,000	240,000‡	240,000‡	—
Ratwatte ...	150,000	36,000‡	36,000‡	—
Rayigam ...	600,000	195,000	240,000	+45,000
Roeberry ...	300,000	210,000*	255,000	+45,000
Ruanwella ...	265,000	106,000	86,125	—19,875
St. Helier's ...	50,000	50,000†	50,000‡	—
Talgaswela ...	200,000	40,000	30,000†	—10,000
Tonacombe ...	280,000	168,000	182,000†	+14,000
Udabage ...	170,000	68,000‡	34,000‡	—34,000
Udugama ...	315,000	63,000‡	63,000‡	—
Union ...	320,000	70,400	70,400	—
Upper Maskeliya	350,000	350,000†	350,000‡	—
Uvakellie ...	240,000	144,000	144,000†	—
Vogan ...	720,000	270,000	360,000	+90,000
Wanarajah ...	378,000	756,000†	680,400	—75,600
Yataderia ...	190,000	541,500	570,000	+28,500
Total ...	15955240	13112430	12975880	—136550

RUPEE COMMERCIAL COMPANIES.

	Ordinary Capital R.	Market Value of Shares, Mar. 31. R.	Market Value of Shares, June 30. R.	Rise or Fall. R.
Adam's Peak Hotel ..	118,900	35,670	35,670	—
Bristol Hotel...	382,600	344,340	382,600	+38,260
Ceylon General Steam Navigation ...	75,000	165,000	157,500†	—7,500
Ceylon Ice & Cold Storage	450,000	450,000	517,500	+67,500
Colombo Apothecaries ...	400,000	580,000	530,000	—50,000
Colombo Assembly Rooms	27,520	20,640*	20,640*	—
Colombo Brick & Tile Co. ...	150,000	150,000	150,000‡	—

RUPEE COMMERCIAL COMPANIES.—(Contd.)

	Ordinary Capital. R	Market value of Shares, Mar. 31 R	Market value of Shares, June 30. R	Rise or Fall. R
Colombo Fort Land & Building ...	360,000	306,000	306,000	—
Colombo Hotels	500,000	1,375,000	1,400,000	+25,000
Galle Face Hotel	650,000	1,300,000	1,267,500	—32,500
Kaluganga Navigation ...	50,000	50,000	50,000‡	—
Kandy Hotels...	250,000	300,000*	325,000	+25,000
Mount Lavinia Hotel ...	350,000	210,000	210,000	—
New Colombo Ice ...	210,000	330,750	262,500	—68,250
Nuwara Eliya Hotels ...	42,000	42,000	46,200†	+4,200
Public Hall ..	35,000	21,000	17,500	—3,500
Total ...	4,051,020	5,630,400	5,678,610	—1,790

* Buyers' prices have been taken in the absence of transactions or sellers' quotations.

† Latest price during quarter, on quotation in latest list.

‡ No quotation during quarter.

We continue below the table we commenced on 30th June, 1900, showing the fluctuations in our investments since 1895, which will continue to prove of interest:—

TEA COMPANIES.

Appreciation and Depreciation since 31st December, 1895.

		Face Value of Shares. R.	Market Value of Shares. R.
31st December ..	1895	...13,529,114	21,522,921
31st December ...	1896	..13,529,114	22,954,372
31st December ...	1897	...15,938,040	17,115,435
31st March ...	1898	..15,938,040	16,485,310
30th June ...	,,	..16,143,040	15,617,490
30th September ...	,,	...16,230,540	14,799,860
31st December ..	,,	...16,230,540	14,810,730
31st March ..	1899	..16,275,240	14,807,665
30th June ...	,,	...16,580,240	15,155,345
30th September ..	,,	...16,841,240	16,180,790
31st December ...	,,	...16,621,240	16,600,585
31st March ...	1900	..16,621,240	15,853,831
30th June ...	,,	...16,621,240	15,514,993
30th September ...	,,	...16,621,240	15,677,132
31st December ...	,,	..16,621,240	15,425,635
31st March ...	1901	..16,646,240	14,862,204
30th June ...	,,	...16,219,240	14,233,205
30th September ..	,,	...15,921,240	13,507,235
31st December ...	,,	..15,921,240	13,774,043
31st March ..	1902	..15,951,240	13,112,430
30th June ...	,,	...15,955,240	12,975,880

COMMERCIAL COMPANIES.

Appreciation and Depreciation since 31st December, 1897.

		Face Value of Shares. R.	Market Value of Shares. R.
31st December ...	1897	... 3,911,760	5,086,775
31st December ..	1898	... 3,911,760	4,329,390
31st March ...	1899	.. 3,502,560	4,543,295
30th June ...	,,	... 3,502,560	4,948,092
30th September ..	,,	... 3,603,060	4,618,055
31st December ..	,,	... 3,408,060	4,589,395
31st March ..	1900	... 3,408,060	4,429,670
30th June ...	,,	.. 3,408,060	4,419,635
30th September ...	,,	... 3,408,060	4,678,445
31st December ...	,,	... 3,480,060	4,567,795
31st March ..	1901	... 3,179,560	4,668,835
30th June ...	,,	... 3,179,560	4,588,910
30th September ..	,,	... 3,179,560	4,663,810
31st December ...	,,	.. 3,179,560	4,749,210
31st March ..	1902	... 4,051,020	5,630,400
30th June ...	,,	.. 4,051,020	5,678,610

CEYLON COCOA IN GERMANY.

A HINT FROM MR. RENTON.

Ceylon cocoa growers will feel grateful for the keen interest displayed in their interests by Mr. Renton. Today through the courtesy of Mr. Philip we are enabled to publish a hint which Mr. Renton sends to cocoa growers in Ceylon and which is specially applicable to those who export their produce to Germany. A valued correspondent with considerable knowledge of the subject gives us the following information of interest:—"The washing of cocoa and consequent removal of mucilage is pretty general in Ceylon, though there are, I understand, two or three estates where cocoa is not washed and mucilage is allowed to dry on the bean. I sent a sample of cocoa home some weeks ago, with mucilage dried on. Brokers reported "dark stained skin, good brownish *break*, well fermented and of even colour. The dark stain on skin would prevent its sale on type. Bright fiery skin is preferred, and, if this can be obtained, couple with 'break' same as sample, a fancy price might be secured." I do not suppose it is possible to get the bright appearance when the slimy mucilage is dried on the bean. Of course, if buyers generally began to realise that the "break" of the dark-skinned beans was always better, the fiery skin would cease to attract. Fiery skin has hitherto, I expect, generally indicated probable good "break." Enclosed are 2 samples: A, washed, B, unwashed. The latter has suffered in the keeping somewhat but not a great deal." (To the unpractised eye at any rate the washed beans look the most attractive.) What Germany wants, it is evident from the above, is not wanted at home. It would be interesting, however, and would save others experimenting, if some of those who export "unwashed" cocoa would give their opinion on the extract sent by Mr. Renton.

THE CEYLON, JUNGLE-FOWL.

Gallus lafayettii, Blanford, Faun. Brit. India' Birds, Vol. IV.

Native names:—*Weli kukula* (the male) *Welikikil* (the female) Cingalese, *katu koli*, Tamils of Ceylon.

The cock of this species bears a strong general resemblance to the red jungle-cock, but is orange red below as well as above, the breast feathers being glossy and pointed—very like hackles, in fact. The secondary quills of the wing are also purple black instead of chestnut. The throat and most of the rump-feathers, which are not so long and hackled as in the continental bird, are glossy violet, and the tail has a purple rather than a green gloss. The comb also in this species has a yellow patch in the middle; the face and wattles are darker, and the legs are yellow instead of slate colour. The hen is quite as different in her way from the red jungle-fowl hen; she is of much the same partridge-brown hue above but has no distinct hackle on the neck; her wings are boldly barred with black, and her underparts not cinnamon but mottled black, brown and white, becoming lighter further back. Her legs are yellow like the cock's. She has no wattles, and is feathered on the face. Young cocks are redder above and darker below than hens. The size of this species is about the same as that of the red jungle-fowl, except that the cock's tail is longer; the hens, on the other hand, appear to be shorter in the species.

The Ceylon Jungle-fowl is confined to the island "where every prospect pleases"; but the parts thereof that especially gratify the tastes of the bird are the northern jungle and the southern hills. There seems to be a good deal of variation in the breeding season and also in the number of eggs laid, which is given as from two to twelve by different authors. There is nothing noteworthy about the appearance of these eggs. The crow of the Ceylon cock is very different from that of the rival chanticleer of India, being two-syllabled and commonly rendered as a call to one "George Joyce." A Ceylon planter, however, told me recently that the general opinion now-a-days was that the bird's friend's name was "John." The cock is a gentleman of somewhat Don Juan-like instincts and apt to intrude on the domestic happiness of village roosters, without the excuse that the red junglefowl can offer of community of descent. But there is as yet no proof that the offsprings of these *mesallianoes* is fertile, much as the present species resembles the Indian ancestor of the domestic fowl.—"The Indian Forester," July.

RUBBER CULTIVATION IN CEYLON: CASTILLOA (AND PARA): VALUABLE RESULTS FOR THE FORMER IN MATALE DISTRICT.

We are well-pleased to stand corrected in the following letter from Major Gordon Reeves, which affords such practical and valuable information as we feel sure must lead to a new departure in regard to rubber cultivation in the drier districts not suitable for "Para" which can only be grown in a limited area in Ceylon. Undoubtedly we were wrong in saying in general terms that "Para" was the safer species to plant. Our warning should rather have been to take care about imported seed or plants of Castilloa being of the right kind. But let Major Reeves give his experience:—"I read your leading article on rubber in a recent issue with interest, but I am at issue with you when you state generally that Para is the kind to cultivate. The cultivation of rubber must, I imagine, be governed by climatical conditions. Para rubber will flourish in a moist climate even in marshy land, where Castilloa and Ceara would refuse to grow at all. Because there may be even a dozen species of Castilloa that are practically worthless, is that any reason why the species that is really valuable should be rejected by those owning land suitable for its cultivation? Planters were wise enough in their generation not to base their action on that argument, in the case of cinchona.

"The good species of Castilloa are doubtless as well-known and distinguished as those of the cinchona. My own experience is most decidedly in favour of Castilloa as against Para in such districts as Matale. Experiments carefully carried out at Wiharegama by Mr. G. H. Gibson, extending over *six months* proved that a yield of 1½ lb. of rubber, valued

in Liverpool by Messrs. W. Wright & Co. at from 2s 11d to 3s 6½d per lb., could be secured off trees with a diameter of from 10 to 12 inches.

"I will refer to the subject of growth later. In the meantime it should be noted that the above experiments were carried out in the absence of any scientific knowledge of the principle of tapping and curing as at present obtain, and that the rubber was partly sun-dried. Messrs. Wright & Co. remark: 'We think the rubber, if equal to the samples, would meet a steady sale in the market; No. 1 is very like good scrappy Negro Head (Para) No. 2 like Peruvian Slab.'

"In a recent issue of your paper, an extract appeared in which Mr. Morris speaks very highly on the yield of Castilloa and Mr. Morris is a man whose testimony cannot be lightly rejected. The general opinion went to show that an average yield of about 2 lb. of rubber per tree per acre could be expected, although instances of a very much greater yield were proved. You will note that the Wiharegama experiments support these views for, although they extended over six months only, it is probable that during the drier season, January to July, the quantity yielded would be comparatively small. We shall, however, have further evidence to present on the subject.

"As regards growth here again in the Matale Valley, as in yield, the Castilloa has the advantage over the Para rubber. 8-year-old trees at Wiharegama, planted under cacao and dadaps, show a height of about 30 to 40 feet with girth of 30 to 36 inches. The statement below which has been furnished by Mr. B. H. Jenkyns as regards the growth of Castilloa on our new clearings at Ambanganga, North Matale, where the Cacao and Castilloa have been put out simultaneously, seems to show that the older trees in Wiharegama have been at a disadvantage in being put out under established Cacao:—

No.	Height Ft.	Height In.	Girth In.		No.	Height Ft.	Height In.	Girth In.
1	12		17	...	6	12	2	16
2	14		18	...	7	13	1	17
3	13		17	...	8	12	3	13
4	11	7	19	...	9	12	1	18
5	13	4	18	...	10	12	2	18

—girths measured at 1 foot above ground level. The trees from which the above measurements are taken are just over 2 years old, and although they have come through a prolonged and trying drought show no sign of distress. The advantage of the Castilloa in dry climates over the Para tree lies chiefly in cost of production, the flow of latex at all times being much freer. I make this statement without prejudice, inasmuch as the Para rubber has so far a large representation, and I should be only too pleased to record of it equally good results. At the present time the price of rubber allows a profit, even a handsome profit, along with a very heavy cost of production, but most of us have to look forward some 6 to 8 years. When that period has passed the man who possesses the species of rubber yielder suited to his climate and soil will undoubtedly score. *Note.*—According to Messrs. W. Wright & Co. the difference in value between our unscientifically-cured Castilloa. No. 1 sample, and *fine Para* was 6½d per lb."

TEA PLANTING IN NATAL.

Tea planting in Natal is in an exceedingly prosperous condition, according to Reuter's. Upon Messrs. W R Hindson and Co's estates, the second in importance in Natal, there is an aggregate of about 800 acres under tea of all ages. The output in 1901 was given as 400,000 lb, and this year it is hoped it will be increased by 50 per cent. Wholesale prices obtained by Natal tea estates upon the South African market run from 7d and 7½d per pound for the lowest quality to 1s 6½d per pound for the highest quality.—*Daily Mail*, June 28.

PRICE RANGES OF CEYLON COCONUT OIL.

The subjoined table shows the highest and lowest price quoted for Ceylon coconut oil in the New York market each month during the past five years, and also the highest and lowest points touched each year. The figures are based on the closing quotations of each successive week:—

CEYLON COCONUT OIL.

	1901.		1900.		1899.	
	H.	L.	H.	L.	H.	L.
January	$5\frac{3}{4}$	$5\frac{3}{4}$	$5\frac{7}{8}$	$5\frac{3}{4}$	$6\frac{1}{8}$	$5\frac{3}{4}$
February	5.65	5.60	$5\frac{7}{8}$	$5\frac{7}{8}$	$5\frac{3}{4}$	$5\frac{3}{4}$
March	5.60	$5\frac{1}{2}$	$5\frac{7}{8}$	$5\frac{7}{8}$	$5\frac{3}{4}$	$5\frac{3}{4}$
April	$5\frac{3}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$	$5\frac{3}{4}$	$5\frac{3}{4}$	$5\frac{3}{4}$
May	6	$5\frac{5}{8}$	$5\frac{3}{4}$	$5\frac{3}{4}$	6	$5\frac{3}{4}$
June	6	$5\frac{7}{8}$	$5\frac{7}{8}$	$5\frac{5}{8}$	$5\frac{7}{8}$	$5\frac{3}{4}$
July	6	$5\frac{7}{8}$	$5\frac{7}{8}$	$5\frac{5}{8}$	$5\frac{7}{8}$	$5\frac{1}{2}$
August	6	$5\frac{3}{4}$	$5\frac{7}{8}$	$5\frac{7}{8}$	$5\frac{1}{2}$	$5\frac{3}{8}$
September	6	$5\frac{7}{8}$	$5\frac{3}{4}$	$5\frac{1}{2}$	$5\frac{5}{8}$	$5\frac{1}{2}$
October	7	$6\frac{5}{8}$	$5\frac{3}{4}$	$5\frac{5}{8}$	6	$5\frac{5}{8}$
November	$7\frac{1}{4}$	$6\frac{5}{8}$	6	$5\frac{3}{4}$	$6\frac{1}{2}$	6
December	$7\frac{7}{8}$	$7\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{3}{4}$	$6\frac{1}{4}$	6
Year	$7\frac{7}{8}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{3}{8}$

		1898.		1897.	
		H.	L.	H.	L.
January	..	$4\frac{7}{8}$	$4\frac{7}{8}$	5	$5\frac{1}{8}$
February	..	5	$4\frac{7}{8}$	$5\frac{1}{8}$	5
March	...	5	$4\frac{7}{8}$	$5\frac{1}{8}$	5
April	..	$5\frac{1}{2}$	$4\frac{7}{8}$	$5\frac{1}{8}$	5
May	..	$5\frac{1}{2}$	$5\frac{3}{8}$	$5\frac{1}{8}$	$4\frac{5}{8}$
June	..	$5\frac{3}{8}$	$5\frac{3}{8}$	5	4.95
July	..	$5\frac{1}{4}$	$5\frac{1}{8}$	6	5
August	..	$5\frac{1}{4}$	$5\frac{1}{8}$	$5\frac{1}{4}$	$4\frac{3}{4}$
September	..	$5\frac{3}{8}$	$5\frac{1}{4}$	$5\frac{1}{4}$	5
October	..	$5\frac{1}{2}$	$5\frac{3}{8}$	$5\frac{1}{8}$	5
November	..	6	$5\frac{3}{4}$	$5\frac{1}{8}$	5
December	..	$6\frac{1}{4}$	$6\frac{1}{8}$	5	$4\frac{7}{8}$
Year	..	$6\frac{1}{4}$	$4\frac{7}{8}$	6	$4\frac{5}{8}$

—*Oil, Paint and Druger Reporter*, June 16.

INDIA-RUBBER INDUSTRY.

PERU—BOLIVIA.

H.M Consul-General at Callao also remarks that the india-rubber industry is likely to progress, as, from all accounts, the forests of Peru contain innumerable rubber trees. From 1st July, 1900, to 30th July, 1901, grants amounting in the aggregate to 1,240,000 acres of forest land, said to contain valuable rubber trees, have been made by the Government. These lands lie in the Departments of Huanuco and Cuzco. The periods of the grants are ither five or ten years. The royalty claimed by

the Government is 2s for every quintal of rubber which is exported. During the same period six other concessions were granted under somewhat different conditions. One of the grants comprised 4,942 acres and the others 1,235 acres each. These grants are divided into plots called "estradas." Each "estrada" contains within its boundaries 150 rubber trees. The royalties levied in this case are 20 cents annually for each "estrada" and 20 cents for each hectare of land which the estradas cover. Here it may be mentioned that vast tracts of land, known as the Acre or Aquiry territory, forming the hinterland to Peru from the 7 deg. to 12 deg. of south latitude, have quite recently been made over by Bolivia to a syndicate. The syndicate have been granted extensive powers, such as the right to administer the territories in question and to organise an armed force. However, their chief object appears to be the extraction of rubber. The territories thus placed in possession of the syndicate are vaguely described as being bounded on the north-east by Brazil, on the west by Peru, and on the south by the River Abuna and a line drawn from that river to the confluence of the Inambari with the Madre de Dios. Matters are so far advanced that a scientific commission sent out by the syndicate is already engaged in exploring a portion of that district.—*Foreign Office, Annual Series.*

CEYLON GREEN TEAS GRANT, 1901-1902.

Memo showing number of lb. on which payment was made monthly during 1901 and 1902 respectively.

FOR THE YEAR 1902

January	152,873	lb
February	139,124	do
March	170,050	do
April	284,137	do
May	293,671	do
June	368,536	do
	1,414,391	lb

TO SAME DATE 1901 AS UNDER.

January	252,582	lb
February	116,592	do
March	105,644	do
April	70,614	do
May	24,438	do
June	40,017	do
	609,887	lb—804,504 increase

JULY-DECEMBER 1901 AS UNDER.

July	163,967	lb
August	177,079	do
September	112,244	do
October	205,137	do
November	117,275	do
December	136,411	do
	912,113	lb

NOTE.—In July 1901, 71 lb was added for a further claim making the total for six months 912,113 and not 912,042 lb as per previous statement.

A. PHILIP.

Kandy, 1st July, 1902.

THE TEA TAX AND THE TEA TRADE

NEW MARKETS AND GREEN TEAS.

The story of the tea trade for the past season is not a very hopeful one on which to base optimistic forecasts of the future, and it is not surprising to find that Messrs. W J & H Thompson, in their annual review, have not been able to pump up over much enthusiasm over the outlook. We would gladly see the tax on tea removed if it were possible, but it seems a very poor policy to suggest that, because one industry is suffering from the oppression of a tax, others should be similarly burdened; and they fail in the first place, to prove that the tea trade is oppressed in this manner, probably because they do not really feel sure themselves that such is the case. These gentlemen assert that the theory that the tax is paid wholly by consumers has broken down under the practical experience of those engaged in trade; that every grower abroad, every shareholder at home, pays part of the sixpence levied here; shippers of China and Japan teas have suffered from the 10 cents war tax in the United States, and traders all the world over are hampered by duties almost everywhere imposed, and to this they attribute the lower prices obtained. But, if the producer pays the tax, how is the following statement to be explained? Opponents to this pet theory of the Protectionist, we are told, seem hardly to realise that when more of the buyers' capital is taken for payment of tax, less of it remains for purchase of tea, an argument which would appear to demolish the previous one entirely. The truth of the matter is that, although planters have now realised the folly of the reckless extension indulged in in the past, and are endeavouring to counteract the evil results as much as possible by restricting their outturn, that outturn is still too large to be absorbed through existing channels, and the inexorable law of supply and demand is the sole cause of the present depression. As for the finding of new outlets, little progress has been made in the United States, chiefly, we believe, because our planters will not accept the suggestions so often made to them and go in for producing green tea instead of black. Indian teas shipped to that market have grown gradually less and less, and although the quantity of Ceylon tea has risen, the gain has not been in proportion to the loss in Indian, and considering the opportunity afforded by the interruption to the China trade, cannot be regarded as at all satisfactory. The outlook for India for the immediate future at least, is disappointing. Once more an Indian industry seems destined to share the fate of so many others that have preceded it—flourishing and full of promise for a time, and then glut or decay.—*Investors' Review*, June 28.

GOLD-MINING ON THE NILGIRIS.

AN APPLICATION TO PROSPECT.

Mr. J C C Herklots, proprietor of Benhope Estate on the Nilgiris, has applied to Government for a gold prospecting license for about 40 acres of land. The application comprises private lands, as well as Government reserved forests, and is over a mile in length and 300 feet in width. The District Officer, to whom the application was referred, considered that any slight derangement of the soil might occasion landslips. Mr C M Mullaly, the Acting Collector of the Nilgiris, considered that the application was of considerable importance for several reasons, viz, (1) Indications existed of a reef running in the block, and the object of the application was to obtain a sufficient length to induce a leading firm, (Messrs Taylor & Co.) to take up the work of prospecting. While duly safegarding other interests, every encouragement should, he thought, be given to *boná fide* prospectors for gold. (2) Safety of the Railway and the two Ghaut roads. (3) Beauty of the landscape and preservation of the forest. The Board of Revenue upheld the Collector's

views and recommended that facilities for prospecting in the tract, which exhibits indications of an auriferous reef, may safely be given by assigning a plot near the Coonoor River and another at the top of the Burliar Valley. The Government has accordingly sanctioned a license being granted to Mr Herklots on the terms proposed by the Board of Revenue.—*M. Mail*, July 15.

TEA IN FORMOSA.

The Osaka *Asahi* publishes an interesting letter from Taipeh, as follows :

Seven years have now elapsed since Formosa was acquired by Japan. The first three or four years were spent in investigations, and it is only recently that practical experiments were made and public works started in earnest. Experiments for the improvement of the tea plants are still being made. The examination of manure was taken in November last. Tea-culture experimental stations are established at Bunsanbo and Tokanbo, under the charge of Mr Fujie, an expert. Last year 1,880 yen was appropriated to this department, and all the arrangements required were completed. This year 3,500 yen has been granted, and the testing of manure has been commenced. People of the island who are interested in tea cultivation say that the plants, given manure, produce more leaves, but they lose the natural flavour of the Formosa tea, so that they are unfit for making the best Oolong variety. If the results of the experiment be as anticipated, the production of tea can be doubled, and as it is intended to use machines for preparing the leaf, the result will be a reduction in the price and in the manufacturing expenses. Formosa tea may compete in price with the tea market of the world. The expenses appropriated to the four agricultural experimental stations in the island amount to 24,259 yen.—*Hongkong* July 16.

PLANTING NOTES.

A Blue Rose—grown by a head gardener named Macdonald, in the United States—has been sent to Kew Gardens. As a rarity it may claim rank with the choicest new orchid, and it is therefore not surprising to learn that on the way over the Atlantic it received the most careful attention, and was protected in a specially-constructed miniature greenhouse—a care which was rewarded by its arrival with blooms in excellent condition. —*B Weekly*, June 26.

Cyprus—is one of the most beautiful and interesting of our possessions, and at one time it was the richest and most luxurious spot of the classical world. It is even yet exceedingly fertile, and possesses, moreover, a fair climate ; but, for all its natural advantages, it seems to be held of little account by the Government, which, however, has recently constructed some excellent roads between the principal towns along the coast, whereby travelling is rendered much easier than it used to be twenty years ago. At present, unfortunately, there is only one decent hotel in the island—that at Larnaca, which, by the way, Mr Haggard says (in "A winter pilgrimage through Palestine, Italy, and Cyprus," just published) is "absurdly cheap," a distinct advantage in these times. Larnaca, where we have our Consulate, might be made the headquarters for an interesting tour of the island, including Famagusta, and the Ruins of Colossi, Amathus, Curium, Nicosia, and Kyrenia.—*Home paper*.

Ensilage.—The Board of Agriculture desire to acquaint persons desirious of making silage that copies of a leaflet containing information on the subject of ensilage may be obtained, post free and free of charge, on application to the Secretary, Board of Agriculture, 4, Whitehall-place, London, S.W. Letters of application so addressed need not be stamped.—London *Times*, June 27.

Brooke Bond & Co.—This famous tea distributing Company's annual meeting will be found reported in on page 121. A dividend of 15 per cent, with 2½ per cent bonus—and another £13,000 to the reserve which is to be brought up to £150,000, the original capital ! —shows how little it has been affected by trade depression. Mr. Hector Forbes, the Chairman, protested against producers having to pay £6,000,000 in duty on a total value of £7,500,000 ; but he had no confidence in any 'reduction of output' scheme.

The Manufacture of Papain.—In the course of a notice on the paper on this subject, which appeared on page 4 of the *Agricultural News*, the *Montserrat Herald* says ;—This article is pretty well exported from here. There are not less than three drying stoves in the island of Mr. Watts' description, so the mode of preparation is not new to those who are engaged in its manufacture. But we do not think that it is generally known by those who sell the juice that "it is essential that no iron knife or iron utensils should be brought into contact with the milk. Wood and bone should be employed, and the milk should be collected in earthenware basins or cups, or in glass vessels, and not in tins which are sure to blacken it."—*W. I. Agricultural News*, June 7.

Synthetic Rubber.—A process for the manufacture of "synthetic rubber" from cotton-seed oil and fibre has been invented by Messrs John Burdon & Company, which should, if it proves to be commercially of the value claimed for it, do much towards cheapening the cost of all manufactures involving the use of rubber in any shape or form. The inventors assert that a mixture containing 25 per cent. of pure rubber produces at a considerably lower cost an article of equal value for almost all commercial purposes, and if this assertion can be made good by the test of actual working there is certainly room for the new industry which will arise. At present the cost of pure rubber is 4s per lb, or £20 per 100 lb, whereas it is estimated that the new discovery can be produced for £6 17s 6d. per 100 lb, including £5 for 25 lb of Para rubber.—*Investors' Review*, June 21.

Vanilla in Tahiti.—The Journal of the Board of Trade for January 23, 1902, reports that the French Government has fixed '1,000 Kilograms [22,046 lb] as the quantity of vanilla produced in French establishments in Oceania (Tahiti and its Dependencies) which during the period from July 1, 1901, to June 30, 1902, is to be allowed a reduction of 50 per cent of the ordinary import duty on importation with France. In 1899 Tahiti exported 130,113 lb of Vanilla. The price realised was very low, only 4s 5½d per lb, owing largely to faulty preparation. The Consular Report on the Trade of the Society Islands for 1899 says that 'Tahiti vanilla properly cured before shipment generally finds a fair market, although it cannot compete in quality with that from Bourbon, Seychelles, Fiji and the West Indies.—*Agricutural News*, May 24.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Agra Ouvah Estates Co., Ltd.	500	...	850	850
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	80	90	—
Ceylon Provincial Estates Co. Ltd.	500	490xD	..	—
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	...	40	—
Clyde Estates Co., Ltd.	100	—	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	..	65	...
Drayton Estate Co., Ltd.	100	—	..	—
Eila Tea Co., of Ceylon, Ltd.	100	—	25	—
Estates Co of Uva, Ltd.	500	190	205	..
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	565	—	—
Hapugahalande Tea Estate Co.	200	125	—	—
High Forests Estates Co., Ltd	500	..	500	475
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	70	—	—
Kalutara Co., Ltd.,	500	—	150	125
Kandyan Hills Co., Ltd	100	—	40	—
Kanapediwatte Ltd.	100	—	50	..
Kelani Tea Garden Co., Ltd.	100	..	35	—
Kirklees Estate Co., Ltd.	100	60	—	—
Knavesmire Estates Co., Ltd.	100	42½	45	...
Maha Uva Estates Co., Ltd.	500	—	350	...
Mocha Tea Co., of Ceylon, Ltd.	500	--	775	—
Nahavilla Estate Co., Ltd.	500	..	300	—
Neboda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co, Ltd.	100	—	75	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	...	40	—
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd	500	.	—	—
Rayigam Tea Co., Ltd.	100	...	40	—
Roeberry Tea Co., Ltd.	100	—	85	—
Ruanwella Tea Co., Ltd	100	...	30	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	15	—	—
Do 7 per cent Prefs.	100	..	—	...
Tonacombe Estate Co., Ltd,	500	..	...	250
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	...	—	—
Uvakellie Tea Co., of Ceylon, Ltd	100	...	—	—
Vogan Tea Co., Ltd.,	100	...	50	—
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	—	275	..

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Adam's Peak Hotel Co., Ltd.	100	...	30	...
Bristol Hotel Co., Ltd.	100	105	110	...
Do 7 per cent Debts	100	107	—	..
Ceylon Gen. Steam Navigation Co., Ltd	100	—	...	—
Ceylon Ice & Cold Storage Co. Ltd.	100	—	115	..
Ceylon Superaeration Ltd.	100	—	40	—
Colombo Apothecaries' Co. Ltd.	100	—	135	135
Colombo Assembly Rooms Co., Ltd.	20	15	..	—
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	—	82½	...
Colombo Hotels Company	100	...	290	—
Galle Face Hotel Co., Ltd.	100	190	—	—
Kandy Hotels Co., Ltd.	100	..	130	—
Kaluganga Nav. Co. Ltd.	60	...	—	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	..	100	..
Nuwara Eliya Hotels Co., Ltd.	30	—	33	...
Do 7 per cent prefs.	100	—	115	—
Public Hall Co., Ltd.	20	...	—	8·50

LONDON COMPANIES

Company	paid. p. sh.	Buy-ers.	Sell-ers.	Tran-saction.
Alliance Tea Co., of Ceylon, Ltd.	10	..	8—9	..
Anglo-Ceylon General Estates Co	100	...	55—60	—
Associated Estates Co., of Ceylon	10	...	1½—2½	—
Do. 6 per cent prefs	10	...	3—5	—
Ceylon Proprietary Co.	1	.	¼—½	..
Ceylon Tea Plantation Co., Ltd.	10	..	23¼—24	...
Dimbula Valley Co., Ltd.	5	..	5—5½	—
Do prefs	5	—	5—6	...
Eastern Produce & Estates Co. Ltd.	5	...	3¼—3¾	-
Ederapolla Tea Co., Ltd	10	...	6—8	...
Imperial Tea Estates Co., Ltd.	10	...	4 4½	—
Kelani Valley Tea Assen., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	6-8	—
Lanka Plantations Co., Ltd	10	..	4	—
Nahalma Estates Co.,Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	9¾	—
Ouvah Coffee Co., Ltd.	10	..	6—7	—
Ragalla Tea Estates Co., Ltd.	10	.	11-13	—
Scottish Ceylon Tea Co.,Ltd.	10	.	10—15	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	10—12	..
The Shell Transport and Trading Company, Ltd.	1	...	2⅞—3⅛	—
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¼	..
Do. pref. 6 o/o	10	..	9—10	...

BY ORDER OF THE COMMITTEE.

Colombo, Aug 1st, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1897.	1898.	1899.	1900	Av. of 32yrs.	1901	1902
	Inch	Inch	Inch.	Inch.	Inch.	Inch.	Inch
January ..	3·81	2·32	6·98	3·72	3·24	11·91	1·95
February ..	1·68	1·98	2·78	0·63	1·89	3·55	4·57
March ..	3·66	4·21	0·88	3·71	4·75	5·12	6·85
April ..	10·97	22·81	6·66	15·12	11·43	8·71	10·01
May ..	8·30	5·80	17·73	10·63	12·04	6·28	11·89
June ..	10·14	10·94	9·23	7·83	8·35	5·93	9·84
July ..	5·24	6·15	1·11	6·77	4·30	4·52	4·63*
August ..	9·09	0·97	0·62	7·35	3·79	0·46	
September ..	4·58	6·90	1·48	4·00	4·98	3·93	
October ...	4·71	20·60	12·99	9·47	14·26	3·91	
November ..	11·66	17·38	8·58	9·25	12·55	19·84	
December ..	8·89	3·05	4·44	5·20	6·35	1·70	
Total..	82·73	103·11	73·48	83·68	88·03	75·86	49·86

* From 1st to 30th July 4·63 inch, that is up to 9-30 a.m on the 31st July.—Ed. *CO.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for July 1902—9½ to 10 mil. lb.
Total Shipments Do 1902—10¾ mil. lb.
Do Do Do 1901—8,488,409 lb.
Do Do Do 1900—11,993,600 lb.
[Estimate for Aug. 1902—7 to 7½ million lb.]

The Deaf Hear.—No. 479 of *the Illustrated World* of 626, Chiswick High Road, London, W., England contains a description of a remarkable Cure for Deafness and Head Noises which may be carried out at the patient's home, and which is said to be a certain cure. This number will be sent free to any deaf persons sending their address to the Editor.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, July 28th, 1902.

CARDAMOMS :—
All round parcel, well bleached per lb. R1·15
Do. dull medium do. R0·95
Special assortment, 0 and 1 only do. R1·30
Seeds do. R1·05

CINCHONA BARK :—
Per unit of Sulphate of Quinine 8c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 51c.
Nos. 1 and 2 only per lb. 53c,
Nos. 3 and 4 only per lb. 46c.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R70·00

COCOA :—
Finest estate red; unpicked per cwt R45·00
Medium do do do R38·00
Bright native unpicked and undried R37·00
Ordinary do do do R28·00
} Local supplies scarce

COCONUTS—(husked).
Selected per thousand R50·00
Ordinary ,, R42·00
Smalls ,, R37·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 20c

COCONUT OIL—
Dealers' Oil per cwt R19·00.
Coconut Oil in ordinary packages f. o. b. per ton R415 00.—Sales at higher figure.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—62·50.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—47c Steady.

COPRA—
Boat Copra per candy of 560 lb. R62·00
Calpentyn Copra do do R62·50
Cart do do do R58·00
Estate do do do R62·75

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot—R180·00.—Next sales fixed for 4th August.
Inferior R90·00.—Next sales fixed for 4th August.

FIBRES—
Coconut Bristle No. 1 per cwt None.
Do ,, 2 None
Do mattress ,, 1 None
Do ,, 2 None
Coir Yarn, Kogalla ,, 1 to 8 15·00
Do Colombo ,, 1 to 8 R11·00.—Fine qualities steady, others lower.
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R650
Ordinary lumps do R625
Chips do R425
Dust do R275 Prices nominal
Fine qualities scarce.
Do (Flying) do R150

SAPANWOOD— per ton R40·00

SATINWOOD (ordinary) per cubic ft. R4·00
Do (Flowered) per cubic ft. R17·00

TEA—	High Grown Average	Medium Average.	Low Grown Average.
	cts	cts	cts
Broken Pekoe and Broken Orange Pekoe per lb	54	42	33
Orange Pekoe do	44	34	31
Pekoe do	39	31	25
Pekoe Souchong do	37	26	23
Pekoe Fannings do	31	28	27
Broken mixed—dust, &c	27	27	26

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1901 AND 1902.

COUNTRIES	Black Tea. 1902 lbs.	Black Tea. 1901 lbs.	Green Tea. 1902 lbs.	Green Tea. 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1902 cwt	Coconut Oil. 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago. 1902 cwts	Plumbago. 1901 cwts.
To U K. ..	63292589	63840591	308905	139800	3865	..	3865	20976	222939	206149	123395	110419	119365	9708	4615314	21	7163708	96028	95587
,, Austria ..	21049	26455	..	..	1	..	1	...	...	5600	36400	7321	1178	...	120550	...	5510	...	..
,, Belgium ..	39216	13166	...	..	64	..	64	475	...	65500	100240	1793	2495	12403	110615	48816	78040	6361	9370
,, France ..	118820	181496	...	..	2	...	2	409	448	33200	5792	238	..	53643	14000	...	56020	618	186
,, Germany ..	326813	234526	...	..	23	..	23	3106	84714	337581	344134	4464	903	62340	1007675	44305	520830	38274	26524
,, Holland ...	4434	15489	...	..	...	..	..	..	..	17000	124600	..	..	..	155220	..	..	203	...
,, Italy ...	8695	7711	.	..	...	..	..	32	435	111600	77112	1310	499	...	...	10	11285	..	...
,, Russia ..	7751205	5567489	106135	..	8	...	8	100	448	130	..	60	..	21036	..	..	...	1546	3713
,, Spain ..	3281	...	..	..	...	..	..	..	..	170500	53632	..	..	...	10250	..	...	...	...
,, Sweden ..	39373	26874	...	..	..	..	..	400	...	..	..	617	199	...	..	..	..	263	...
,, Turkey ..	19124	26669	..	.	...	...	..	..	..	..	...	...	...	..	...	...	..	..	...
,, India ...	481224	817097	17331	16124	63	...	63	2	61382	...	2296	41251	54246	...	...	...	19400	1691	192
,, Australia ..	10341036	11850875	..	1714	1772	14	1786	415	...	2924	15208	..	94	...	339561	21	..	156	132
,, America ...	2327057	1183897	394600	405364	820	...	820	...	2326	81000	6275	34827	7007	...	730095	...	...	145285	82833
,, Africa ..	310228	166196	1200	..	6	..	6	..	2226	..	..	60	76	..	17300	1	661481	..	...
,, China ...	2101356	1852356	...	4853	19	..	19	100	5745	6200	112	339	707	..	1918	..	-	797	..
,, Singapore ...	101832	81000	...	...	1	...	1	4717	1900	...	..	71	...	...	..	...	...	...	...
,, Mauritius .	45900	20820	..	...	230	..	230	..	..	..	..	...	..	...	..	..	..	..	..
,, Malta .	207131	213258	..	...	...	...	..	...	..	...	..	..	..	..	...	..	..	...	..
Total export from 1st Jan to 28th July 1902.	87001464	80126065	828471	567855	6874	14	6888	30732	382613	1037384	889196	202770	186769	159131	7122493	93174	8516274	281168	215537

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, July 16th, 1902.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay White ,,	Good to fine	£6 a £7 10s
Yellow ,,	Fair ,,	£6 a £7 5s
Madagascar ,,	Dark to good palish	£6 12s 6d a £7 10s
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 180s.
Japan ,,	Fair average quality ..	160s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon. Mysore ,,	Fair to fine plump ..	1s a 3s 2d
	Seeds ..	1s 3d a 1s 7d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish ..	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s 3d a 3s 3d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2⅛d a 2⅞d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	32s 6d a 40s
CINCHONA BARK.— lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3½d a 7d
	Red Org. Stem	3⅜d a 4¼d
	Renewed	3d a 5¾d
	Root	3⅜d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	4½d a 6d
Zanzibar and Pemba	Good and fine bright	3 13-16d a 4¼d
	Common dull to fair	3⅝d a 3¾d
Stems ..	Fair	1d
COFFEE Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 120s
	Middling to fine mid ...	80s a 106s
	Smalls	40s a 60s
Native	Good ordinary	40s a 55s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	66s a 80s
	Medium and fair	58s a 65s
	Native	49s a 60s
COLOMBO ROOT ,,	Middling to good	8s a 13s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 90s
B & C ,,	Small and medium	48s a 70s
Cochin Rough ,,	Common to fine bold	37s a 41s
	Small and D's	35s a 38s
Japan ,,	Unsplit	32s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £18
	Part yellow and mixed	£7 a £9
	Bean and Pea size ditto	70s a £9 2s 6d
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar ,,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 40s
Turkey sorts ,,		30s a 37s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 21s
Kurrachee ,,	Good and fine pale	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ..	15s a 25s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 30s
KINO ,,	Fine bright	6d a 8d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	50s a 70s
OLIBANUM, drop ,,	Good to fine white	42s a 50s
	Middling to fair	28s a 42s 6d
pickings ,,	Low to good pale	20s a 26s 6d
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon ,,	Fine (grwn. fr. Para seed)	2s 3d a 3s 6¾d
Assam	Good to fine	2s a 2s 3d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 4d
Borneo	Common to fine	6d a 2s 2d

	QUALITY.	QUOTATIONS.
INDIARUBBER (Contd.)		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 2s 1d
Mozambique ,,	Good to fine Ball ...	2s 6d a 2s 9d
	Ordinary to fair Ball ...	1s 10d a 2s 2d
	Low sandy Ball ...	6d a 1s 6d
	Sausage, fair to good ..	1s 10d a 2s 4d
	Liver and Livery Ball ..	1s 9d a 2s 2d
Nyassaland	Fair to fine ball	2s 3d a 2s 6¾d
Madagascar	Fr to fine pinky & white	2s a 2s 3d
	Fair to good black ..	1s 3d a 1s 9d
	Niggers, low to fine ..	7d a 1s 9d
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 5d a 3s 9d
	Consuming mid. to gd.	2s 11d a 3s 3d
	Ordinary to mid.	2s 6d a 2s 10d
	Mid. to good Kurpah	1s 6d a 2s
	Low to ordinary	9d a 1s 3d
	Mid. to good Madra	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 6d a 5s
Bombay ,,	Jubblepore	4s 6d a 5s 6d
	Bhimlies	4s a 6s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 5½d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	6s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 2d
CASSIA ,,	According to analysis	2s 1d a 2s 6d
LEMONGRASS ,,	Good flavour & colour	5d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 3d
CITRONELLE ,,	Bright & good flavour	9½d a 10d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	5¼d a 5½d
Singapore ...	Fair	5 9-16d
Acheen & W. C. Penang	Dull to fine	4¾d a 5¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good bold smooth...	£4 10s a £5 15s
Siam ,,		£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	115s a 120s
SENNA, Tinnevelly lb.	Good to fine bold green	5d a 8d
	Fair greenish	3½d a 4d
	Common dark and small	½d a 3d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's; D's and B's; Small ...	48s a 120s
Mergui ,,	Small to bold ..	£7 15s a £9 15s
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 22s
TURMERIC, Bengal cwt.	Fair ...	14s a 16s
Madras ,,	Finger fair to fine bold bright	10s a 14s
Do. ,,	Bulbs ..	10s a 12s
Cochin ,,	Finger ..	10s a 12s
	Bulbs ..	9s a 9 6d
VANILLOES— lb.		
Mauritius .. 1sts	Gd. crysallized 3½ a 9 in	6s 6d a 22s 6d
Bourbon ... 2nds	Foxy & reddish 3½ a 8 ,,	5s a 15s
Seychelles 3rds	Lean and inferior ...	3s a 7s 9d
VERMILION lb.	Fine, pure, bright ...	2s 1d a 3s 2d
WAX, Japan, squares cwt	Good white hard ...	43s 6d a 45s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for August :—

Vol. XIV.] AUGUST, 1902. [No. 2.

KEPPETIYA AND BETEL.

MR. George Weerakoon, Mudaliyar of Wellabodde Pattu, writes :—"All vegetable substances are no doubt useful for manurial purposes, but some Ceylon plants are more greatly favoured than others for fertilising the soil. One of these is Keppetiya. As you know, it is a favourite manure, and almost the only fertiliser used for Betel and Chillies. It is also used in paddy-fields, and I have tried it myself with very good results. I have no doubt if examined by the Chemist it will be found to prove its reputation as a manure.

Speaking of betel, it is as your are aware, a *sine qua non* with the villager—almost a part of his diet, so to speak,—though not much in vogue as a masticatory among the anglicised portion of the Sinhalese community. As for myself, though I do not indulge in betel chewing, I see no harm in countenancing the habit which, in my opinion, is to be preferred as less objectionable and deleterious than the "fragrant weed" of Ceylon, provided it is done at the proper time and place without offending the eye. Apart from the regular cultivation of betel in "kottuwas," there is hardly a plot of ground near a dwelling-house that has not got its casual betel vine. As a cultivated product it is decidedly remunerative, and enormous quantities of leaves are sent to upcountry stations, such as Nawalapitiya, by rail. The betel, according to the Sages, has such extraordinary virtues that it is in demand even in the abode of the gods!"

Keppetiya (*Croton lacciferus*) apart from its value for manurial purposes and as a medicinal agent, is a source of lac, as its name implies. Trimen in his Flora, referring to the plant, says :—A small red coccid occurs on the bark of the older trees, and is collected in districts where it is abundant to mix with the colours used in lacquer work. This lac is collected in the dry season near Matale for the Kandyans lacquer industry. It is melted in a metal pot over the fire and is then called Keppitiya resin.

As regards betel (*Piper betle*) we agree with our correspondent that the practise of chewing is "in loco" by no means objectionable or deleterious, and is even to be encouraged among those who have a *penchant* for the habit; for when mixed with the usual concommitants it is undoubtedly useful as a digestive, corrective, and (for the teeth) as a preservative agent. The leaf contains an invaluable oil, which is employed with great success in many ways. In this connection we doubt not our readers, including our correspondent, will be interested and perhaps also amused, by an account of betel-cultivation in India which we give on another page.

OCCASIONAL NOTES.

Since the issue of our last number a great event has been prevented by the stern decree of Nature, under circumstances solemn and almost tragic. We refer to the enforced postponement of the Coronation of King Edward VII, which was to have taken place at Westminster on the 26th June, 1902, owing to the sudden and serious illness of His Majesty. All present danger to the person of the King has now passed, and before the month is out, the great ceremony will, we doubt not, have been consummated.

On July 22nd Dr. Willey, the Director of the Colombo Museum, visited the School of Agriculture, and spent some time working with Mr. Drieberg in the apiary, where the hives were examined and overhauled, and the bees (*Apis indica*) handled without accident.

Quot homines tot sententiæ. One very successful coconut planter lately stated to us that he would not have any of the sensitive plant (*Mimosa pudica*) on his estate for all the nitrogen it imports into the soil. But he was an æsthete and kept his property almost as clean as the Galle Face *Maidan*. Another planter was an ardent admirer of the "modest mimosa" which had only to be kept down and taken full advantage of. His sole objection to the plant was that it made things a bit inconvenient when the plucking

and gathering of the nuts had to be done, but he would sooner supply the pluckers with protection for their feet than go without "nidikumba."

The Florida velvet bean is credited with containing a deleterious principle which is said to be the cause of colic in consumers of this prolific legume, and many people have given the vegetable a wide berth in making up their daily bill of fare. The truth is that the velvet bean requires rather more careful preparation than most vegetables, though even the ubiquitous potato demands some care to make it as wholesome a food as it is. The manioc—at least one variety of it—has to be very well cooked to rid it of the volatile poison (no other than the deadly prussic acid) with which it is associated. A reliable authority informs us that there is now quite a run on Florida beans for vegetable curry, and that the natives have overcome their prejudice against the vegetable by discovering that the beans when first boiled in water with turmeric and salt, lose any noxious properties they may possess. To prepare the curry the whole beans (with of course the hairs all rubbed off) are, after boiling in the way referred to, fried with onions, &c., and then mixed with the ordinary curry ingredients. If any bean is worthy of being called the "poor man's vegetable" we think it is this hardy and prolific legume, and we are glad to hear that its use is likely to extend. We shall be glad to supply seeds on application.

In our June issue we speculated as to what tree could be traced the peculiar odour of chlorine. We have now found a tree, the wood of which when freshly cut emits a decided and strong odour of iodine or iodoform.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF JULY, 1902.

1	Tuesday ...	·06	17	Thursday ..	·10
2	Wednesday ..	·32	18	Friday ...	·06
3	Thursday ...	·45	19	Saturday ..	Nil
4	Friday ...	·12	20	Sunday ...	Nil
5	Saturday ..	·75	21	Monday ...	Nil
6	Sunday ..	·62	22	Tuesday ...	Nil
7	Monday ...	1·36	23	Wednesday	Nil
8	Tuesday ...	Nil	24	Thursday ...	Nil
9	Wednesday ...	Nil	25	Friday ...	·72
10	Thursday ...	Nil	26	Saturday ..	·15
11	Friday ...	·60	27	Sunday ..	Nil
12	Saturday ..	·70	28	Monday ...	Nil
13	Sunday ...	·40	29	Tuesday ...	1·46
14	Monday ..	Nil	30	Wednesday ..	·23
15	Tuesday ..	Nil	31	Thursday ...	·02
16	Wednesday ...	Nil	1	Friday ..	Nil

Total...8·06
Mean...·26

Greatest amount of rainfall registered in 24 hours, on the 29th Tuesday 1902, 1·46 inches.

Recorded by ALEX. PERERA.

PLANT LIFE.

[A SERIES OF SIMPLE LECTURES INTENDED FOR A CLASS OF JUNIOR STUDENTS.]

LECTURE VI.

From what I have already said you will infer that the greater part of the food of plants is got from the soil. We have been considering the nature of the atmosphere and the important element of plant food which it supplied. We might therefore make some enquiry into the nature of soil and its relation to plants. The soil we said is the medium in which the plant grows. Soils differ in texture, that is they may be loose in texture or more or less close or firm. Soils are generally classified according to the proportion of sand, clay, organic and calcareous matter which go to compose them. These substances are familiar enough to you. Now a soil consisting almost entirely of any one of them will, as you must admit, be an unsatisfactory soil for the growth of plants. Good soils consists of a mixture of sand, clay and decayed organic matter with some proportion of lime (carbonate of lime). Experience proves that a soil is best adapted for purposes of cultivation when it contains from

50 to 70	per cent	Sand
20 ,, 30	,, ,,	Clay
5 ,, 10	,, ,,	Humus
5 ,, 10	,, ,,	Carbonate of Lime.

Such a soil contains enough sand to make it warm and permeable to air and moisture; enough clay to render it tenacious or cohesive and retentive of manures; enough humus to keep it moist and porous and to assist in supplying the nitrogenous food of plants, as well as to keep up the supply of carbonic acid in the soil; and lastly, sufficient lime to meet the requirements of plants and help in the decomposition of organic matter.

The reason why alluvial soils (found near rivers) are so fertile, is the mixed character they possess, having been so mixed by the action of running water. Most soils, however, are not of such a perfect character, and have generally an excess of one or more of the constituents above named.

A pure sandy soil is deficient both in physical and chemical properties. On such a soil plants are unable to get a hold for their roots, they would have little or no moisture supplied to them, and derive nothing in the way of nutriment from it. But as an ingredient of soils sand is of the greatest importance, since it gives them a loose texture so that they are permeable to air, moisture and warmth.

Clay has properties very different to those of sand. A soil of pure clay would be as unsatisfactory as one of pure sand. Such a soil would be too cohesive and impermeable to water, cold and damp, and in dry seasons would bake as hard as a brick, while from a chemical point of view it is of no value as a source of plant food. But as one of the constituents of soil clay is of the greatest value, absorbing gases from the atmosphere, keeping a soil moist and cool, giving tenacity to it, and retaining useful plant food which would otherwise be washed out of the soil.

But there are always associated with sand and clay (or, to use their scientific names, silica and hydrated silicate of alumina) certain impurities which are of the utmost importance, and it is to these impurities, viz., potassium magnesium, calcium, iron, &c., derived from the original rocks from which the soils were formed) that the plant must look for its mineral food.

Sand and clay are the ingredients which form the bulk of soils. Lime or limestone is useful as supplying an element of plant food, but it also aids in the decomposition of organic matter, and thus helps to prepare the nitrogenous food of plants. Limestone generally contains as impurities phosphates or sulphate of lime, magnesia, &c., which are valuable as plant food, while it also has the effect of keeping soils in a friable (*i.e.*, in an easily worked) condition. Humus or decayed organic matter is very important from a chemical point of view. As a mechanical agent it keeps soil open which would otherwise be stiff and gives body to light soils, while it is also an absorber and retainer of moisture. The ultimate products of the decomposition of humus are carbonic acid, ammonia and water, all valuable agents in the nutrition of plants. A soil wholly composed of organic matter is as you well know [an unsatisfactory one for the cultivator.

I have already given you an idea of what a typical soil should be, and it should be the aim of every cultivator to bring his soil as near as possible to this type. Of the four most important ingredients of plant food (the available supply of which is liable to run short) viz., nitrogen, phosphoric acid, potash and lime: nitrogen is at its highest in peaty soils and at its lowest in sandy soils; phosphoric acid is found most in a clay soil and least in a sandy soil; potash is at its highest in clay and lime in calcareous soils, while both are very deficient in sandy soils.

We have to look upon the bulk of soil as the element in which the roots of plants live—as fish live in water—and travel about in search of food and moisture. The actual nutriment is present in comparatively very small proportions, as will be seen from the following statement showing the percentage composition of a loamy soil:—

* Organic matter and loss on heating	5·07
Oxide of Iron	3·63
Alumina	3·51
Carbonate of Lime	1·48
Sulphate of Lime	·34
Magnesia	·42
Potash	·30
Soda	·01
Phosphoric acid	·10
Insoluble Silicates and Sand ...	85·14
	100·00

* Containing Nitrogen ...	·23
Equal to ammonia	·19

THE AGRICULTURAL OUTLOOK IN SOUTH AFRICA.

Mr. W. Willcocks, C.M.G., M.I.C.E., in a report on irrigation in South Africa addressed to H.E. Lord Milner remarks that the permanent developement of the country will depend on irrigation and irrigation alone. The Colony, it is said, has remained strangely stationary, apart from the developement of its gold, diamond and coal mines. Fifty years ago it was a pastoral country importing cereal and dairy produce and even hay from foreign countries; and it is the same to-day. Half a century ago it needed a farm of 5,000 acres to keep a family in decent comfort, and things are not altered since then. This is the picture drawn by the writer of the report. Except in the south-west corner of Cape Colony, we are told, agriculture has scarcely been attempted except on the most primitive lines and on insignificant areas. Farmers trek from the high velt to the low velt and back again with the seasons. And the reason of this want of developement of the agricultural resources of the country is said to lie in the fact that the rainfall of the three colonies, with the exception of the south-west corner, is uncertain and erratic: it is constant and heavy in autumn, which is followed by a severe winter without any moisture in the air. As Mr. Willcocks pithily puts it—when rainfall is wanted it is not there, when it is not wanted it is invariably present! For countries so situated the only possible means of developement lie, he thinks, is storage of water and irrigation. If these countries are ever to develope their immense agricultural wealth, we are told that they must be proclaimed a semi-arid region, and legislation framed accordingly.

Mr. Willcocks goes on to refer to his experience in the Indian and Egyptian Irrigation Departments, and points to the immense benefits derived from irrigation in these countries and in Italy. Referring to the Transvaal he remarks:—There the mineral wealth is extraordinarily great, but it is exhaustible—some say in 50, some in 100 years. It would be a disaster indeed if none of the wealth were devoted to the developement of agriculture. If the companies working the various mines were by decree required to devote a percentage of their gain to the execution of irrigation works, then when the mineral wealth of the county had disappeared, its agricultural resources would have been put on such a solid basis that the country will not have to fall from the height of prosperity to the depth of poverty. "The permanent developement of the agriculture of South Africa will depend on Irrigation and Irrigation alone."

The plea is a strong one, and the prospect it hints at is bright, and we have no doubt that the wise men at the head of the new administration will not lose sight of the possibilities which irrigation can secure for the country.

BETEL CULTIVATION IN INDIA.

In cultivating betel in the Madras Presidency the land is first planted with *Sesbania grandiflora* (Sin. Katurumurunga), and the cuttings of

betel from a two-year old garden are planted between, two to each tree, to which they are tied with plantain fibre when sufficiently grown. There the vines are apparently well supplied with animal manure half-yearly. At the end of the first year the leaves are picked daily for about 16 months in good and well-manured soil. The best monthly yield per acre is put down at 25 bundles (of hundred leaves each) worth Rs. 30, or for the 16 months of the crop Rs. 480.

It would appear that in the N. C. Province betel cultivation is confined to a special class or "brotherhood of old standing," forming an independent section in the village who pay their rent to the landowner through the head of their body. A portion of the village lands is recognised as belonging to this caste, and in this they dig wells, make their gardens, and, being careful and steady cultivators, contribute much to the general prosperity of the neighbourhood.

The cultivation of betel would thus be considered an honourable pursuit over in India; but wonderful to relate there are dangers to be faced, for we read that in the Central Province, tigers fully appreciate the cool and grateful shade afforded by a betel garden in the hot months, and the cultivators on going to work, not unfrequently find one of these animals entangled in the maze of creepers.

But even the Ceylon villager will smile when he is told that in the neighbouring Continent, when the plant is young and delicate, it is sometimes fed with milk which is found to be an "excellent manure." No doubt!

Regarding the "betel brotherhood" we are told they are so industries and so respected, that landholders allow them many privileges. Thus custom has prescribed that no rent is to be demanded during the time the land remains uncultivated. Rent, too, is only paid in the exact quantity of land sown. Though all the members of the caste give their labour towards the construction of the garden, and share in expenses of watering, weeding, watching, &c., yet each individual is the owner of a portion of the garden, the produce of which he himself gathers and disposes of on his own account, and each has an independent interest in the undertaking. In the Central Province the vines are not kept after the second year when the ground is allowed to go fallow for from 2 to 3 years according to the soil. But in Nimar a garden well established is said to yield steadily for 10 or 12 years. Here the shade trees to which the vines are attached consist of *Sesbania Ægyptica* (Tamil, Chittakatti) a tree which shoots up rapidly and affords good shade for 2 or 3 years, while the plantation is surrounded not, as in other parts, with plantains, but with poles of *Eythrina indica* Erabodu) When the Sesbania trees die down, they are replaced by poles of *Boswellia serrata* of which the bark is believed to give a specially favourable hold to the climber. Every year after the leaves have been gathered the creeper is coiled down at the root until only some 3 feet of it are left above the ground; a fresh root is thus struck and the old coil is next year cut away altogether. Except during the rains the crop is steadily irrigated, and at the beginning of each hot season the plant is pruned, manured and freshened up with transported soil. The level of the land thus become raised about 2 feet in the 10 or 12 years.

The above system is said to be preferable to the ordinary method, entailing less labour, less retardation of profit, and with the annual supply of fresh earth should produce as good a yield. It is practically the same method, combined with artificial shade, followed in Bengal and other places where cultivation is extensively carried on.

In many parts the betel plantation is covered on all sides with bamboo and mat work.

We shall have more to say on this subject in subsequent issues.

THE PROPER METHOD OF PLANTING TREES.

In an article on "Planting" by Mr. A. Despeissis, to the Journal of the Department of Agriculture, Western Australia, the writer gives many useful hints on the subject, which we reproduce for the benefit of our readers.

After marking off to ensure straight planting the holes are dug at the required distances. Holes for fruit-trees should be wide enough to admit of the spread of the roots: the wider the better. In heavy and retentive soil the holing should not be deeper than the drained layer of soil, otherwise the hole would act as a basin. Many trees are killed through the roots decaying instead of growing in a healthy condition.

Before digging the holes, and to insure that the tree will occupy the exact spot the stakes were in, a simple contrivance known as the "tree-setter" is of great use. It consists of a light piece of board 1 inch thick, 4 inches wide, and 4 to 5 feet long. Cut a V-shaped notch in the centre and either bore a hole 1½ inches in diameter 3 inches from each end, or instead of the holes cut notches at each end of the board.

To use the tree-setter, the V-shaped notch is put against the stake which marks the spot the tree is to occupy. Through the hole at each end or in the notches, drive into the ground pegs 1 to 1½ inches in diameter and 12 to 15 inches long that will easily pass through the holes. This being done, remove the central stake, lift the board over the terminal pegs which are left in the ground and dig the hole. When planting replace the tree-setter over the two pegs, and place the stem so that it will occupy exactly the spot the stake occupied before.

The hole should be three feet square, convex in the centre or of the shape of an inverted saucer. This is done by heaping up some loose surface soil, so that when the tree is planted its base stands a little higher than the roots which spread out evenly round, radiating outwards with a slight dip downwards.

In the case of a hard impenetrable bed it is recommended that the bottom layer in the hole should be shattered by means of cartridges of dynamite or 1½ lb. charges of black blasting powder rammed into holes two inches in diameter bored through the hard pan. By this

means numerous crevices will be formed which will promote the drainage of the land and permit the roots of the plants penetrating and gaining access to the subsoil beneath.

Every tree to be planted should be carefully examined for any indication of root galls, scale insects, borers or fungoid growth, to ensure immunity from which it should be dipped either in warm whale-oil soap suds or in kerosene emulsion for a couple of minutes in the case of insect pests, or in Bordeaux solution in the case of fungoid disease.

Trees that have to be kept till required for planting should be put slantwise into a trench in moist well-drained soil, and loose well-pulverized earth banked up round the roots and every part of the stem. The trees should stand thus till required for planting.

It happens that they are sometimes bark-bound, showing a leathery shrivelled bark. In that case they should be thoroughly drenched first and then covered up with moist loose earth or sand, stem and branches, for a couple of days or so, when, unless, too far gone, they assume their healthy look again.

Before planting in the hole make with a sharp knife a clean cut of any bruised root, and with a few shovelsful of earth raise the bottom of the hole so that the collar is level with the surface of the ground. The tendency hitherto has been to plant trees too deep, with the idea that in dry seasons there may be no lack of moisture. Collar rot, rotting of roots, stunted growth, are all due to this, and to the same cause must be attributed the loss of many fruit trees. Deep planting, insufficient pruning, deficient cultivation, neglect of pests all bring about failure.

In planting note that with heavy soils trees should be planted a trifle shallower than usual and *vice versa.*

In careless planting a deep narrow hole is sunk into the ground, the tree is let down with its roots twisted any how, and covered with soil, or, worst of all, soil with stable manure poured over them. If the ground is at all heavy the roots with difficulty penetrate through the wall of such a hole, the earth packed round the bark will prevent the bulk of the tree expanding, the bark will lose its elasticity and will set tight round the tree which will either die of collar-rot or will always be stunted and live a miserable life.

On the other hand too shallow planting results in the tree being blown down or its roots affected by the heat of the sun which in dry weather will effectually desiccate them.

Between the two extremes lies the right way of setting a tree.

If the weather be dry at the time of planting, it is advisable to pour a bucket of water around the stem to settle the earth well on the roots.

Mulch the ground about the newly-planted trees with a light coating of stable manure or of straw.

Manures are sometimes used at the time of planting for giving a good start to the trees, but avoid putting farmyard manure under the roots of the plants, as it would in many cases attack insects and favour the growth of parasitic moulds that would be injurious to the tree. Whenever farmyard manure is used, it should be in the form of a mulch on the top of the soil as its benefits will then be twofold: the plant food it contains will be washed from the surface down to where the roorts are established, and it will act as a screen to prevent evaporation of moisture and smother weeds round the trees. A couple handfuls of phosphates and potash manures mixed well with the earth round the roots prove of great value.

On freshly-cleared ground it is an excellent plan to spread 6 or 7 lbs. of lime round the stakes marking the places for the trees. This will correct the sourness and stiffness of the soil and induce a healthy growth.

An important operation that now remains to be performed is the cutting back, or shortening in, of the newly-planted tree, which would otherwise be checked in its growth and often perish. No matter how carefully a plant is lifted, many of the fine feeding rootlets are torn and bruised, and the feeding capacity of the tree is no longer in keeping with the amount of shoots it carries, and unless the superabundance of these is cut back and the balance re-established between the feeding and the breathing and evaporating organs of the plant, it will make a miserable struggle for existence and in many cases perish.

THREE CHENA CROPS.

[The following extract is from a lecture by Mr. J. M. Orpen, Administering Agricultural Department at Salisbury, Rhodesia, on "The Diet of Native Labour," published in the *Agricultural Journal* of Cape Colony. The three chena crops referred to are *Andropogon sorghum* (Karal-iringu), *Eleusine coracana* (Kurakkan), and *Penisetum typhoideum* (Kambu).]

Kaffir corn or great millet is known in Science as *Andropogon sorghum.* It is less used in Mashona land than some smaller grains presently to be mentioned. It may be used, as it is used by Kaffirs and Basutos, both boiled whole or after ridding it of the husk by stamping; the meal is generally used boiled as porridge or sometimes in a much thicker tough mass which may be called bread; or it is made into "leting," a fermented non-intoxicant or again into the intoxicating "Kaffir beer." The grain is much grown through a great part of Africa and Asia, and more or less in Europe and America.

There is one other way of making a very light, easily digestible, nourishing food from Kaffir corn which I had better mention. It is the food which the Bosutos always use on long tramps. I have used it myself. They call it "dipabi." To make it, Kaffir corn is parched in a pot highly heated over a strong fire. The grains generally burst open with a jump and turn themselves more or less inside out. Colonists call this "springing," and they call such grain *sprung* grain, *i.e.*, sprung Kaffir corn or sprung mealies. In America it is called "popping

corn." This the Basutos grind with a very little salt; they carry it in small kid-skins on their backs when travelling, or in leather bags on pack animals. It is simply chewed with an occasional sip of water.

In December, 1873, having suddenly received orders to that effect, I called out a little army of about 200 native mounted infantry to co-operate with other forces against Langalibalele. We had it in prospect that, before reaching other food supply, we should have a fortnight's march up and down the highest mountains in South Africa, the Maluti of Basutoland, a then uninhabited part of that country. I ordered all the women in the neighbourhood to prepare "dipabi" that night, and I provided a little salt to grind with some of it, and a little sugar with the rest. It was cheap; the whole expedition of six weeks' duration cost the Government £1 per man, with his food, horse and ammunition. On this "dipabi," and meat killed on the road, and but sparingly used, we marched, generally leading our horses, and walking and running as mounted infantry should, till we got into the inhabited part of the north of Basutoland. The men did excellent marching, and could have done so without the meat. I mention this to show another way of giving variety with the same article of food. I have heard of Basutos marching hundreds of miles on "dipabi" alone, carried on their backs. I have often wished our sometimes stinted soldiers marching near Basutoland could have had it. In any case it gives variety. I am sure there is considerable chemical change in the parched and burst grain, and that analysis would easily show the reason of its nutritiousness.

Rukweza, or Rapoko (known in science as *Eleusine coracana*), is a very small, *hard*, red grain, looking like Kaffir corn, but from a wholly different, low-growing plant. It is said the Mashonas have six varieties of it differently named. I learned from Mr. George Watt, a Government officer stationed in the Indian Museum, Calcutta, whose special duty it is, as Government "reporter," to investigate matters connected with economic products, that this grain and munga (of which presently) are both largely grown and used in India as articles of food, but are supposed to have been introduced from Africa. They are probably the original food grain of Mashona-like tribes of Central Africa, and, like other grain, developed from a grass. I learn also that *Eleusine coracana* is now much grown in Japan, so it is extending its range, and suits a wide range of climate. Under European cultivation "rukweza" grows much later, tillers much better, bears more and develops larger grain than when cultivated by natives. Probably, like maize and "pedigree wheat," it might, by repeated selection and careful cultivation, be bred to have a less flinty and a thinner husk, while its size might be progressively increased. At present its diminutive size and hardness give it an advantage in one respect:—it is impenetrable by weevils. It appears to me the most nitrogenous of farinaceous grains. Natives consider food prepared from it more nutritious and satisfying than that from any other grain. Rice-eating natives from other countries quickly learn to prefer food prepared from "rukweza." It and "munga" can be sown late, after other native grain crops show they will fail from drought, locusts, etc., so they are anti-famine crops. As yet, a disadvantage in these two crops and Kaffir corn is that winnowing them is a slow, laborious, difficult process. They do not lend themselves to present methods of machine-threshing or milling. I propose to submit to the Scientific and Technical Department of the Imperial Institute specimens of these three, in the grain and in the ear and straw, for examination and advice as to the possibility of machinery being adapted or devised for threshing, grinding, husking and other treatment. I propose to place before that very strong and well-equipped Department which has been instituted to aid and advise all parts of the Empire, the following questions:—

(*a*) Have any systematic efforts yet been made to improve these grains, and for the above objects, and, if so, with what results?

(*b*) Is it probable that by careful and continuous selection for a few years with improved cultivation, the hard husk of Kaffir corn, rapoko and "munga" could be reduced to a minimum and the grain enlarged, as has been done with mealies and wheat, and with quicker maturity?

(*c*) Is it probable that by devolpements of machinery, these grains could respectively, in an improved manner, be harvested, cleaned, husked and milled, and this on a commercial scale, and that they could be cooked in a simple way on a large scale?

(*d*) Would it be well to have them analysed to ascertain their relative value in food constituents?

(*e*) How would the desired results best be promoted: by departmental experiments, or by stimulating scientific investigation, cultivation and invention by offers of rewards by Governments or Departments?

My impression is that Agricultural Departments of England, America, India and Africa and other countries, and the Imperial and Smithsonian Institutes, should cause these enquiries and experiments to be made, for individual efforts can effect little, and only slow, improvement.

When I was administering Basutoland some twenty years ago I found that for years early rains had been failing and that the staple crop, Kaffir corn, had not time to grow, so partial famine was produced. I made such enquiries as I could as to quicker maturing varieties of that slow-growing grain, and obtained in consequence, at my own expense, one variety of Kaffir corn from Abyssinia, and "amber cane" from Missouri; but I left, and could not press on the experiments.

What is wanted is to see whether this quick maturing, etc., cannot be accomplished, and whether rapoko and munga may not have serious value as, at least, a supplementary crop to save the situation when rains will not fall in time. These grains appear not only to have come to stay, but to be extending in the world's cultivation, and it would seem worth while to improve them.

It may possibly aid the Institute's department in its enquiries if I mention that I was once shown, and ate, at an isolated American Mission, a very light cake made of rapoko, and advantageously used by a person whose indigestion had been impaired by illness. The rapoko was "sprung," then well ground, and then "bolted" through some fine stuff so as only to leave a fine flour of which the cake was made. I do not mean to suggest that native labourers are to be fed on cakes.

Natives complain, perhaps with some little truth, that all their grain is rendered disagreeable or injurious to them by European methods of grinding. It must be remembered, however, that Basuto and others grind Kaffir corn without husking it, and even eat it boiled whole. At home, as I have said, the Mashona women always stamp "rukweza," etc., in stamp blocks to get rid of the hard husk before they grind it into a fine meal. They mix it with sufficient water, and boil it about half-an hour, continually stirring it with a stick, to make their porridge. With it they use salt, which they now obtain from Europeans. They used to obtain it by burning a certain grass growing besides the rivers, putting the ashes in water, filtering it through sand, and boiling the water till a sediment of salt was produced. Each village used to have its salt manufacturer. (Native labourers will require to be well provided with salt.)

"Munga," or "nyautzi," as the Zulus call it, is *penisetum typhoideum.* It is a small whitish millet-like grain growing on a head or cob something like a large bulrush, at the head of a stalk something like that of Kaffir corn. Natives *particularly dislike* the meal made from *this* grain by grinding it in European mills; they say the porridge from it gives them internal pains and dysentery, from the presence in it of particles of the flinty husk. They only eat it at home after this husk is got rid of by stamping, and it has been finely ground and made into porridge.

THE PACKING OF FRUITS AND SEEDS

BY J. H. HART, F.L.S.,

Superintendent, Royal Botanic Gardens, Trinidad.

(1.) FRUIT.

My first experience of packing fruit for ocean transit was in October, 1873. In that year I sent a box of Nova Scotia apples from that country to England. I ventured to mention at the time to Dr. Masters "I think Nova Scotia bids fair to become the apple-producing country of the future." How far this has been realised is within the knowledge of many who have seen these apples in the English market. My consignment was a successful one; Dr. Masters reported: "They were packed in coarse sawdust and came to hand almost without a bruise." These apples were among the first, if not the first, sent to England from Nova Scotia. To-day the trade is of considerable dimensions. I mention this to show that by good packing much may be done in the way of exciting interest in new productions in suitable markets.

Some people hold that only valuable goods are worthy of good packing, and that cheap things will not pay to pack well. Such arguments are fallacious. So far as my own experience goes, whatever is worth packing at all is worth packing well, for even if the packing costs more than the article itself it should nevertheless be put upon the market in the best possible condition. Cheap and ineffective packing is dear at any price. It is clear that it is better to expend 20 per cent. on packing, rather than lose 40 per cent. or 50 per cent. of the returns owing to defective packing. West Indian orange growers have been heard to say: "We cannot afford to pack the same as the Mediterranean people." The reply is clear. "Then do not expect to get a market for your goods." There can be little doubt that in the fruit trade the profit comes chiefly in the economy with which the packing is carried out. By economy, I do not mean cheapness. It is certainly false economy to pack *fully ripe oranges* in barrels for cheapness.

With fruit, as with plants the material must be in good order. It will never pay to shake down the oranges from the tree to the ground' carry them for miles in a cart and then shunt them into a barrel. Success can never attend such handling, for all fruit must be handled as carefully as eggs. A blow that would crack an egg, will certainly destroy a fruit; and if such fruit is packed, no matter how carefully, it will assuredly arrive at its destination in bad order. To secure arrival in good condition all fruit must have been carefully gathered, and, without exception, treated in the most careful manner to prevent bruising.

Fruit also requires certain treatment previous to packing, to assist in securing safe transit. This treatment is what I would call "hardening." No fruit should ever be packed when freshly gathered, but how long it should remain must be learnt by experience, as a great deals depends upon the state of the weather. Oranges should be picked at least three or four days before packing, and laid out in single layers until all the moisture or what is known as the "sweat" of the fruit ha disappeared. To pack fruit when wet or damp is to court certain failure. The full details of packing are too long to include in a paper of this kind.

There is one point in connection with temperature which must be taken into account. If fruit, such as bananas are kept at too low a temperature they become "chilled" and will rot before they will ripen. It has been frequently stated that to carry fruit successfully, it is necessary to use ice chambers. I believe this idea to be a mischievous one, and it has hindered in no little degree the problem of the safe transit of fruit. The Jamaica No. 11 mango was safely sent to England from Jamaica in 1873, when the transit took 21 days from port to port. In 1875, and again in 1891 the mangosteen reached home from Trinidad in good condition. In no case was cold storage used. Apples which reach the West Indies in ice vessels, if packed near the ice are valueless for flavour, while those brought over in well ventilated packages, stowed properly in a cool part of the ship arrive in

excellent condition, and keep their flavour for a great length of time.

The exact degree of temperature suitable for the cold storage of fruit is not sufficiently well understood. Some people take it to be at or near freezing point, while others adopt temperatures of say 40° or 50° Fah. This latter, I believe, would be a good temperature for fruits grown in a temperate climate, but if we are dealing with tropical fruits it is probably too low. Cold storage at freezing point may do for dead meat, &c., but it is not suitable for the preservation of fruit. Still, we must have *cool* storage, and how to obtain the desired temperature must be decided by ship owners and by shippers of fruit.

What is required is a well ventilated hold, maintained at a certain minimum temperature which should be some 10° or 15° below that at which the fruit matures. Fruit will stand considerable hardship, provided it is carefully gathered, well dried and well packed. It is not easy to say, however, which of these three conditions is essential. If a fruit is bruised in the picking, it is inevitably doomed to rot. If not carefully dried, it will almost as surely ferment and rot, and if squeezed or heated in the packing, it must arrive in a bad condition.

The best cases for packing oranges are those furnished with trays admitting one layer only, with bars to take the weight when set on end. A very good and serviceable case is one having a capacity of two cubic feet and divided in the centre. In a barrel the lowest row has to sustain the weight of all those above it, which may amount to something like three to four pounds per orange. *The continued use of the barrel for oranges and similar fruit helps to bring our beautiful West Indian fruit into grave discredit.*

The package of pine-apples has to be conducted on the same principle. They should never be packed in barrels but in light crates, each fruit having a separate compartment. Small and indifferent fruits are rarely worth shipping, and if in abundance should be preserved or sold locally.

Mangoes can be safely sent, if picked in the condition known as "full," so as to gradually ripen during transit. In this case, it is also necessary to separate the individual fruits, and high class fruit should be packed in the manner adopted for apricots and peaches by European growers, namely in single compartments with soft packing material.

The actual business of packing fruit is an art which only practice can perfect, and most of the failures are due to imperfect knowledge of the conditions which are necessary to success.

A common idea exists that cultivators can, by planting at certain times of the year, get fruit such as mangoes and pineapples to ripen at certain seasons. This may sometimes be possible, but I am of opinion, after a quarter of a century's experience, that the control which can be exercised by the grower over the time of ripening is small, and cannot be depended upon for successive seasons. If we could control wet and dry weather, in the same way as under glass cultivation, something might be done; but until we are in a position to do this, the mango and pine-apple season will be in June, July and August, the coffee crop will come in November and December, and cacao will ripen in June and November, with variations of dates in accordance with the season.

There is great need for study of the possible means to get a crop of fruit out of season, for fruit out of season is well known to pay. I think however that more success will come, if the attack is carried on from a different direction. It is true that we might by withholding water imitate the dry season, and by giving water imitate the wet season; but still uncontrollable differences would yet remain, for it is clear that we could not control the state of the atmosphere surrounding the branches even if we kept the roots dry, and we could not give the dry air coincident with the dry season, during rainy weather, and if we kept a plant well watered, its branches would still be affected by the drought.

The best means to obtain the end in view, would be to seek plants which ripen earlier or later than the general crop, and by selection obtain varieties which come in extremely early, or conveniently late, and thus meet the demands of the "out of season" markets. Selection of this kind is carried out in Europe and America, and might equally well answer in the tropics if a little attention was devoted to the subject.

I have digressed somewhat from packing and transport of fruit but, I must plead the excuse, that we must know how to get our fruit before we can pack or transport it.—*West Indian Bulletin.*

(*To be Concluded.*)

NATURE STUDY LESSONS.

First Course in the Study of Plant Life.

Introductory.

This first course is intended to induce school children to observe the external features of plants, as seen in stem, roots and leaves, and the modifications of leaves including the flower and fruit.

The second course will necessitate a fuller study of the structure and functions of the parts of plants.

The soil, water and air will form the subjects of a later course.

N.B.—It must be borne in mind that every fact here mentioned should be verified by actual observation. Examples are given for the sake of convenience, but where these are not at hand, others must be sought for in order to prove each statement and fix it on the memory.

In looking at any collection of trees in Nature, you will observe that they differ considerably one from another. This is due to differences in the development of the parts of the trees.

A tree may be said to consist of (1) a stem bearing, (2) roots below, and (3) leaves above. Take any tree or plant in your school garden and see if you cannot divide it thus.

Let us take the stem as the most convenient part to start with and note certain facts about it.

THE STEM.

A stem may be erect, that is it may stand upright from the ground. Most large trees have stems of this kind.

An erect stem may be unbranched as in the coconut or branched as in the mango. In the coconut observe that all the leaves are borne at the top of the unbranched stem; in the mango the stem divides and sub-divides into branches of decreasing size, and the leaves are borne by the smallest twigs. Notice the unbranched and branched stems of trees near your school; observe that some trees are more branched than others, that the method of branching regulates the shape of the tree (compare the ironwood with the banyan tree), and that some trees, like the wild breadfruit, form a denser shade than others like the suriya tree.

A stem may be hard and woody. This is the case in trees which last a long time, as most forest trees. Many of these hard stems consist of wood yielding useful timber for building and other purposes. The Forest Department looks after such trees in our forests, and sees that the supply of useful wood does not become exhausted. Make a list of as many useful woods as you know, and say what they are used for.]

A stem may be very tall as in the red-flowered cotton tree, or inclined to be short as in the cashew-nut tree; it may be thin as in the arecanut or thick as in the coconut, or very thick as in some timber trees as Hora; it may have a rough bark as in mango or smooth as in the gauva.

But there are many stems which are more or less soft and pliable. In the young stage the stems of all trees are of this character, while plants which last only for a short time, and do not grow to any size, have also soft stems. Most of the vegetables you grow in your school garden are instances of the latter, *e.g.*, spinach.

A stem may be contracted, that is undeveloped in length, so that the leaves are more or less brought together, as in lettuce, or the common "aloe." Observe the plants with contracted stems near the school, and notice that before they flower their stems become elongated and bear leaves separated from one another. This is well seen in the lettuce.

Some stems are so slender that they cannot grow erect. Such stems may creep along the ground, as in the case of the sweet potato, or support themselves by twining round other trees as does the common long bean.

The long bean, like most twining plants twines from left to right. [Do you know of a plant that twines from right to left? If not, try and find one.] The grape vine has got some of its branches specially adapted for supporting itself. These branches sre in the form of coils which atach themselves to any support. In the common creeping Bignonia the branch is modified to form a claw-like structure consisting of hooks for climbing, [Hence the specific name of the plant, viz., unguis-cati, signifying the claw of a cat.] All these structures should be carefully exmained. Leaves are also modified to enable stems to support themselves, but of these we shall speak later. Some trees (like the Allamanda) have no special arrangements for climbing but scramble up other trees for support.

The stem of a tree sometimes bears sharp structures which are modifications of parts of the stem. The thorn of the orange is a strong woody structure, which, much as you may try, you cannot break off with your hand. The prickle of the rose on the other hand is a superficial outgrowth that can be removed without very great difficulty.

Stems do not vary much in colour, being generally green when young and brownish when old, but we have a red stemmed spinach. Do you know of other exceptional cases?

Stems are usually cylindrical. Some are square (madurutala), or triangular as in many sedges (*e.g.*, Tunhiriya). Exceptionally it is very irregular in form as may be seen in the different varieties of Prickly Pear (Katupathok) which takes very strange forms, being flat and leaf-like in the common variety.

The stem is, as a rule solid, but some stems are hollow as in the bamboo (una-gas).

Besides the stems that we find above ground, we have also underground stems, some thin and long as in the common couch grass (etora); others thick and short as in ginger (inguru); others again much swollen and sometimes forming large masses as in the yams. Such swollen underground stems can be distinguished from swollen underground roots like the radish (rabu) or manioc (manyoka) by the former having scaly leaves as in arrowroot (hulunkiriya) or minute buds as in the potato (arthapal). In the onion the stem is reduced to a very small structure round which the succulent leaves which envelope it are closely packed.

THE ROOT.

The parts of a plant which grow underground are generally spoken of as the roots. I have told you, however, that there are cases of underground stems such as the common conch grass (etora) which is such a troublesome weed because every piece of the underground stem left in the soil gives rise to a new plant. True roots have not this power of growing.

But there are also cases of roots which are produced above ground. Such are the hanging roots of the banyan (maha-nuga) and the thick roots given out by the screw pine (wetakeyia), which tend to reach the ground and become fixed in it. Notice that the hanging roots of the banyan eventually become woody and stem-like, so that the tree appears to be supported by a number of columnar stems. The old underground roots of large trees also become hard and woody like the stem, and give rise to new plants, like the breadfruit tree and other trees that you may know of. Hard woody roots sometimes grow ont of the ground almond plank-like structures as in the Java forming (kekuna).

When speaking of plants with climbing stems I told you that there were other arrangements for climbing besides those I mentioned in the lesson on the stem. Well, plants sometimes climb with the aid of roots. Pothos (potawel) commonly found on jungle trees, climbs by means of its roots which attach themselves to the back of trees. The

main roots, however, are in the ground, while the climbing roots—which are quite distinct and different in appearance are specially adapted for clinging on to other trees. But there are plants which have no need to have their roots in the ground at all. Certain plants are known as parasites because they live on other plants. An instance of this is Loranthus (Pilila) so common on old mango and other trees. Plants such as this allow their roots to penetrate into the stems and branches of other trees on which they depend to a great extent for their nourishment. These useless parasites which rob useful plants of their food, and so weaken them, should be always carefully removed as soon as they are found.

Plants like orchids (*e.g.*, wesakmal) are spoken of as "air plants," because though they grow on other trees they get their food from the air and the solid particles brought to them by the wind.

Some underground roots become thickened and swollen, *e.g.*, the radish (rabu) and manioc (manyokka).

There is a very large class of trees which when young have one main root from which all other roots spring. Pull up a young jak (kos) plant and you will see that this is the case. The main root will appear as a continuation of the stem. There is another large class of plants which start with a number of distinct roots at the bottom of the stem. Pull up a paddy plant and compare the roots with those of the young jak. Plants like the paddy have no main root.

[Native names of plants not given above: Coconut, pol; mango, amba; ironwood, na; red-flowered cotton-tree, katu-imbul; cashew-nut, caju; arecanut, puwak; spinach, niviti; lettuce, salada; aloe (American) goni-gas; long-bean, mékaral; grape, mudarapala; allamanda, wel-rukattuna; orange, dodan; wildbread-fruit, del; sweet potato, batala.]

GENERAL ITEMS.

The following is a hint worth the attention of growers of the Cauliflower:—tying up is the main thing, for no matter how large they are, they will not sell well unless snow white; but it is not only tying up that does it, but vigorous growth and plenty of leaves shading the head. There is quite a knack about tying up. If done too soon or close they become stunted; if not tied close enough they become discoloured and look bad. The best way is this. Take a ball of string and wind it round from hand to elbow, then cut open the skeins, when the cut portions will be found of the required length. Gather just enough leaves to shade the head perfectly and no more than necessary, and tie them as low down as possible, just so low that the string is a trifle above the head, thus allowing the tops of the leaves to spread out somewhat in the air and not retard the growth of the plant. Tying should not be done till the Cauliflowers are about the size of an egg, or larger if the plant is extra heavy and the head well covered with leaves. The beds should be gone over about thrice a week.

In Edinburgh city a cattle dealer named Robert Stewart was fined £50 for "being the owner or consignee of a live cow and live heifer with the intention of disposing of them for food, while they were diseased and unfit for food."

How many of our local cattle-dealers desave a similar fine!

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PLANTING IN TRINIDAD.

(Extracts from Annual Report of the Superintendent Royal Botanic Gardens for the year 1901-2.)

BEE KEEPING.

By desire of His Excellency the Governor the Superintendent undertook to form an Apiary on the Station, and with a view of securing for the Colony a good class of Bee, tested Italian Queens were introduced from Jamaica; the majority of which were distributed amongst local bee keepers, sufficient only being retained at St. Clair for the formation of breeding Colonies. These have done well, and there are now several good strong Colonies of the introduced kinds, from which it is hoped shortly to raise sufficient Queens for local distribution. The common or black bee was used as a *nucleus* for the young Colonies raised with the imported Queens. When strong enough the latter were removed to suitable protection at the old Garden to prevent hybridization. Some excellent "sections" of honey have been obtained during the flowering season of the logwood, and the honey pronounced of fine quality, but the supply of honey is far from being abundant as the bees do not bring in large quantities. The young men in training at the Station assist the Superintendent in the management, and take great interest in the work. A short report on bee keeping was prepared by the Superintendent at the request of the Agricultural Society.

ECONOMIC PLANTS (RUBBER).

Castillo elastica, planted in 1898, is now over 25 feet in height, and some of the trees have stems 5 inches in diameter. It has been found on test that Rubber fluids or *latex* from these young trees produce rubber, inferior in quality to older trees. Some few years ago, I published an informal account of an analysis of a year old tree, made by a gentleman who had undertaken the study of the *latex* of Castilloa, and he reported finding 8 per cent. of rubber; but it is now evident that although rubber material may have been found, it was of inferior quality, and only the larger trees eight or ten years old, can be depended upon to furnish rubber of good quality. It was anticipated that rubber material could have been extracted from one year old trees, but this has proved illusory, for although chemically, the rubber is there, yet it is not in such a condition as to make it of market value and up to the present no chemical process has been devised which will change the soft and sticky material obtained from young trees into the hard and elastic produce afforded by mature trees.

Plantations of this rubber in Trinidad and Tobago are now yielding large quantities of seed annually, and consequently the demand at the Experiment Station, has largely decreased. Good seed can be obtained according to season from March to June of each year. The seed has, however, a very fugitive vitality, and even with the best packing, it is very difficult to send it long distances in good order.

PARA RUBBER.—*Hevea brasiliensis.*—Our plants, put out in 1898, at the same time as the Castilloa trees, fully equal the latter in height, but have not so large a stem circumference. They are, however, doing well, and will certainly thrive in our climate. Our crop of seed from original trees was very small during the official year 1901-2. From recent literature it is gathered that this tree thrives in South America in interior districts, and not only on flooded river sides as has been formerly understood. The occurrence of these trees in the deltas of large rivers is said to be due to the wash of the seeds from higher grounds. If this is actual fact (and the authority appears reliable) it will give considerable encouragement for inland planting. Confirmation of this report is afforded by Dr. Bovallius who brought down seed of trees found on the upper reaches of the Orinoco, plants of which are now at St. Clair and growing freely. It may be stated however that the seed, as received, was much smaller than that grown at lower altitudes and therefore it is possible, that the high land *Hevea* may prove to be a new variety.

WEST AFRICAN, "IRE," OR LAGOS, "SILK RUBBER."—"Funtumia elastica." Staph. These trees have made splendid growth during the year. Some are

now over 20 feet in height with a stem diameter of four inches though not yet four years old. Considerable variation has been noticed in the form of the seed vessels among the trees of our plantation, but it may be, that is only normal seed variation, but at the same time there appears some reason to suspect that two or more species may be found to be present. One of the forms, has its follicles long, narrow, and pointed ; while the commoner form has follicles stout and thickened at the apex. The quality of the Rubber afforded by each kind has not been, as yet, well tested ; but it appears on superficial examination to be of equal value. Latter tests will decide this. The trees have given a fine crop of seed during the past season, and a large quantity of plants have been raised. From present appearances it is a tree that will stand, probably, more hardship than any of the other Rubbers, as it can bear exposure to the sun although it does not grow fast in such situations. In my paper on Rubber Planting published in the West Indian Bulletin (Dulau & Co., London, this rubber is more fully discussed. A section of this rubber has been planted at three feet apart and in the full sun, in order to test its growth under the conditions of close planting and growth without shade.

Ceara Rubber—" Manihot Glaziovii." Our soil at the experiment Station appears quite unsuitable for the growth of this tree, as it makes little progress. In some districts of the Colony however, it is reported to be growing well.

Landolphia Species—Landolphias give exeellent rubber fluids which easily coagulate. At the experiment Station several species are growing well, planted against trees of ' Pithecolobium Saman.' Several kinds are under cultivation, but it will be some time yet before any quantitative returns can be given, as is the case with many tropical products.

Fibre plants.—A stock of Fibre plants have been kept on hand. This includes " Agave rigida var, sisalana,' the " Sisal Hemp " which grows quickly and well. This plant is established in Several Stations in Trinidad and Tobago, but as yet, there is no output of Fibre. Several species of Sansevieria are also in cultivation. This affords the Bowstring hemp of Commerce " S. Longiflora is well acclimatized, and is now in some demand for planting. " Musa textillis or " Manilla Hemp ". is grown in small quantity only.

Citronella Grass.—" Andropogon Nardus." This is seen to differ much from the common " Lemon grass " "(Andropogon Schoenanthus)" usually found in the West Indies and its oil is also found to differ considerably from that obtained from the latter grass. Specimens of each were manufactured in illustration of the paper read by the Superintendent at the Annual Conference, Barbados, previously mentioned. The grass grows readily here, and flowers freely while the Common " Lemon grass," seldom produces flowers.

Camphor.—*Cinnamomum Camphora, Nees.*—The interest arising in Camphor production, owing to certain monopolies in Formosa, has caused enquiry to be made, as to the possibility of growing Camphor on a commercial scale, in other places. In Trinidad it grows rapidly but never makes a large tree. The wood contains a fair amount of camphor, and some camphor oil, specimens of which were lately manufactured at St. Clair, an account of which was included in a paper read at the Annual Agricultural Conference held in Barbados, January, 1902. The Camphor was of good quality, and the Camphor oil was excellent, more of the latter being produced from the young wood than from the older stems. The sample made, is probably the first on record of West Indian manufacture. It is intended to grow a plot, with a view of testing the feasibility of growing it on a commercial scale for camphor and for oil. Trees planted three years ago are now ten feet in height. It propagates readily by layers.*

* *A recent account of Ceylon experiments appears to show reasonable hope of establishing a remunerative Industry in Camphor.*

Mulberry.—*Morus rubra.*—This tree grows into bushes of several feet in diameter and ten or twelve feet in height. It may be of future importance, were silkworm culture taken up in this island.

Long Pepper.—*Piper longum.*—This pepper grows well and rapidly covers the ground, coming into bearing very quickly.

Black Pepper.—*Piper nigrum.*—The section devoted to this plant has made fair progress, but the plants have not as yet reached their fruiting stage. The small plantation at the old gardens have however given annual crops, and the fresh seed has been in demand by European seedmen for raising plants intended for West and Central African plantation. It is not readily obtainable elsewhere than in Trinidad where it was first fruited, on this side of the world.

Vanilla.—*Vanilla planifolia.*—The Vanilla is planted to cover trees of *Erythrina Corallodendron* a dwarf growing Immortel. It has made fair progress, but has not yet reached its flowering stage.

Pimento.—*Pimento officinalis.*—The plants of this spice tree, are over ten feet high, at three years old, and are evidently true. The seed was procured from Jamaica. The popular idea that seed will not grow unless first eaten by birds has therefore been disproved. It is curious to note that while Pimento acris (the West Indian " Bay Tree ") is common on the Island, the true Pimento appears to have been unknown here until the recent importation. The plants are doing well, and are very healthy and vigorous and may be expected to fruit in a year or two.

Immortel.—*Erythrina Sp.*—A small and irregular section on the boundary of the Station has been devoted to the growth of the two species of *Immortel* which are used almost exclusively for shading Cacao estates. One is known as the, Anauca suitable for highlands, and the other as the *Bocare*, suitable for low lands; Botanically known as *Erythrina umbrosa* and *Erythrina velutina.* Discussion has been current on the nitrogenous value of the flowers of this tree during the year, and the manurial value of the flowers has been placed by the Government Analyst of Trinidad at the very high figure of 6%.* This has however not yet been confirmed by independent analysis. As shade trees there can be no possible doubt of the value of the *Immortel* for Cacao estates, and no apology is needed for their use, but the fact remains, that good cacao is grown under other shade; and moreover we constantly receive enquiries for substitutes that will give a remunerative return, as the wood of the *Immortel* tree is useless even for fuel. The *Saman* or *Zaman*, a Central and South American tree, is coming gradually into use on some estates, as it is not so liable to fall and damage the cacao. The Nicaraguan tree—*Gilricidia maculata* has been planted at the station, and grown after a certain plan, it forms an efficient shade for cacao, as may be seen from the results obtained by its use. *E. Corallodendron* is in use as shade for Piper nigrum, and Vanilla, as mentioned in another paragraph. In a recent letter, a prominent planter regrets his inability to manure Cacao, shaded with Immortel ; owing to the shade tree abstracting the value of the manure before the cacao tree has time to benefit by its application.

Clove.—*Caryophyllus aromaticus* L.—one tenth of an acre is devoted to the growth of Cloves. The same difficulty found with the Mangosteen, is experienced with the Clove. They grow well when established, but are very difficult to rear through their juvenile stages. Our section has several plants growing fairly well, but it needs many supplies.

Cinnamon.—*Cinnamomum Zelanicum Breyn.*—The Cinnamon plot is now well established and the trees are growing freely.

Tobacco.—*Nicotiana Tabacum,* L.—Several varieties have been grown, but as the crop is now undergoing fermentation, it is too early to report on its quality. The leaves of some varieties are of good

*Since reduced to 4·03 per cent.

size and texture, and if it cures well will serve for good Cigar Tobacco. The crop of 1901 season, which finished curing in the early part of the year was a small one. It was of the Virginia variety, which appears to stand our climate better than the finer leaved kinds, the leaves of the latter becoming spotted by the weather.

TUMERIC.—*Curcuma longa*—A plot of this yielded at the rate of over two tons per acre, of the green tubers.

BHABUR GRASS.—*Ischmœum angustifolium*—The crop of plant harvested, showed produce at the rate of 6,000 lb. per acre of the dried grass.

GINGER.—*Zingiber officinalis.*—A plot devoted to this product yielded at the rate of ten tons per acre, of the undried rhizomes are of excellent size. There can be little doubt, as Mr. Meaden proved long ago at the Convict Depot at Chaguanas; that Ginger can be very successfully cultivated in Trinidad. It must however be harvested and cured in the dry season.

COLA.—*Sterculia acuminata.*—this plant grows fairly well at the station but as it takes some years to come into bearing, no results have yet been obtained.

FRUIT TREES.

MANGOES.—*Mangifora indica.*—I reported last year that a consignment of Mango trees had been received from the East Indies. Subsequently, an additional consignment was received. which arrived in good order. Those plants which were healthy on arrival made good progress, and fourteen trees are now planted out to the North of the office in permanent positions, and making vigorous growth. Eleven more are now ready for the open ground. These consignments, coming as they have from several different provinces, are expected to give us varieties differing from our West Indian seedling kinds. The sale of the varieties of named Mangoes has been large, and a decided choice has been made of the grafted varieties in preference to seedlings, which cannot be depended upon. Some of our best young trees three years planted gave a few fruit last season, which showed them true to name. It is to be hoped that the Mango trees will prove more prolific in the St. Clair soil than at the old garden where many trees exist which have not fruited for years. The trees are old and the soil worn out, as might be expected, cultivated as they are on land which has been planted since 1824 or 78 years. A large number of stocks were grafted during the year, and plants may be obtained of most of the best named varieties formerly described in *Bulletin* reports. The section devoted to the growth of seedling varieties, raised from the best imported kinds, has made good progress; and it is hoped will give fruit one year hence.

ORANGES.—The imported kinds of Orange secured some few years since from Florida and planted at Experiment Station in 1898, gave a good crop for their size, during 1901; enabled their quality to be correctly estimated. Many of the trees have borne Oranges of excellent quality, suitable for market in any part of the world. Those known as "Pine Apple" Rubby and St. Michael's being especially good. An Orange of the Tangerine type, and evidently a variety of *Citrus nobilis* has a beautiful coloured Interior and is of excellent flavour, but appears to be less vigorous than others. The variety of Tangerine imported at the same time, is far from being equal to the Trinidad kinds. Our latest Orange to ripen is a variety called "Mandarin," a small fruit with a deep coloured rind. When imature, this is very acid, but if allowed to hang upon the trees, it becomes a most delicious morsel. As mentioned in previous reports the words "Mandarin" and "Tangerine" are applied to a numerous variety of seedling fruits, and similar fruits are named differently in the various districts, A seedling Orange produced from a Grenada variety of *Citrus Nobilis*, gives very large fruit with a thick spongy skin, but the interior parts are simply "bags of juice" sweet, with a slight, though not unpleasant taste of the bittter flavour of the ordinary Shaddock, which the fruit is actually resembles in form. Several of the named kinds have been successfully budded on sour Orange stocks, and are now strong plants, for which we have more applications than we can at present supply; but measures are been taken to meet the demand, Many of our growers appears to doubt the feasibility of sending Oranges to distance markets from Trinidad. Oranges have however been successfully sent to England in ordinary packages by Royal Mail Steamer for several years in succession, and there can be no doubt that properly prepared and packed they can be safely transported in good order.

The following rules in packing should be complied with to ensure this result:—

1. Pick on a dry day, without bruising, "stem cutting" the Orange from the tree, not pulling or shaking down the fruit. Any Orange which falls, should be rejected, as it will assuredly spoil others.

2. Dry for two or three days by spreading carefully in a single layer on a boarded floor, where there is plenty of air—until the skin becomes slightly leathery.

3. Wrap each Orange singly, and pack in boxes containing not more than a single cubic foot in each division, and pack tightly so that they do not bruise each other in transit. The boxes should be made with air spaces between the slats. It is important to remember that "*Oranges are as tender as eggs*" and should be handled as carefully,

SHADDOCK - *Citrus decumana L*—Some years since the Department obtained grafts of the pink fruited Shaddock. These were grafted on seedling stocks and two plants were obtained. These have fruited the first time during the past season. Mr. McGillvray of Tobago, was good enough to present these, and sent us at the same time a fruit which was certainly the finest of its kind in size and flavour which has been seen here. We have been successful in getting some budded plants from these trees during the year which are now on sale in the nurseries in limited quantity.

CITRON.—*Citrus medica.*—A few years ago seed was presented to the Department, of the "Cedrat" or true Citron of Commerce. These were sown and the plants have fruited. Only one however is true to the original. It is intended shortly to take buds from this plant, so as to obtain the best fruit possible, as it is seen that seedling varities are unreliable.

BERGAMOT ORANGE.—*Citrus Bergamia, Risso.*—Seed was obtained of this Orange several years ago from Southern Europe, and plants were raised sufficient to plant one-tenth of an acre. These appear to vary largsly, and it is probable that but few will be found to produce fruit of the required character. To obviate this, a small consigument of rafted Bergamot plants was imported, which it is hoped will afford the true *perfume producing* fruits. These will be propagated by budding and grafting as soon as the quality of fruit is determined.

LIMES.—A section of our best seedling Limes was planted in 1898, and the trees are now coming into bearing, selected varieties will be propagated by budding for distribution as stocks are available.

THE TRINIDINE LIME.—*Citrus medica. var. acida.*—This is a variety of the lime, as large as an ordinary Sicily lemon, of like flavour, but slightly different from the ordinary Lime, and containing over twice the quantity of juice. This variety is one which appears to have originated at the old Gardens, where it was found established some fifteen years since. I am of opinion that this would become an extremely popular fruit in English and American markets once well known. A tenth of an acre has been established but here again was found the impracticability of reproducing Citrus fruits true from seed. Variation is considerable, and a selection of the best must be made, before propagation by budding is attempted.

LEMONS.—*Citrus medica, var. Limonum.*—A section devoted to SicilyLemous has shown but slow growth and considerable variety, and the practice of budding and grafting, must be again applied to ensure the production of good marketable fruit. In the operations of budding and grafting, the seville or Sour Orange stock has been exclusively used; as this is said to resist the attack the fungus commonly known as the "*Mal-de-Gomma*" or "*Root rot,*" from which many trees of the Genus suffer very considerably notably the seedling "Tangerine," of which over 25% have succumbed during the present dry season notwithstanding treatment with copper solution. Some plants were imported budded on stocks of *Citrus trifoliata,* a stock hardy in a cool climate. This stock itself is tender here, and the growth of the plants show that it is unsuitable for our work,

MANGOSTEEN — *Garcinia mangostana, Linn.*—In some places this fruit is confused with the Mango; a variety of the latter fruit without fertile seeds being actually known as the Mangosteen. *Spondias dulcis* the "*Pomme d'or*" or Golden Apple, is also known as Mangosteen, in some of the West Indies. The true Mangosteen however belongs to the order *Guttiferæ,* while the mango belongs to *Anacardiaceæ.* The Mangosteen is given in Index Kewensis as a native of Indian and Malay States. It was introduced to Trinidad many years ago, and there is now a large tree which bears annual crops of fruit, more or less, in accordance with the seasons; sometimes several hundreds, other years only a few dozens. The fruit has been estimated to be quite equal in size and flavour to produce found in the markets of the East, by those who have been resident in both countries.

COFFEE.

HYBRIDS.—The distinct varieties, described in my last report as having been raised from home grown seed of *Coffea stenophylla,* having fruited this year. The berries differ much in size from the type, but are of the same purple colour. The beans when cleaned are about the same size as ordinary *C. Arabica* while the type is much smaller than the variety. The berries are fairly large, with a thin skin, but the interior parts have some characters in common with Liberian, but intermediate between that species and *C. Arabica.* The beans are dark in colour but their inner or "silver skin" distinctly resembles that of Liberian though considerably modified. Roasted and tested for flavour, it was found to be indistinguishable from good Arabian. The varieties raised, vary somewhat in size of bean, and in the prominence of the Liberian character. There can now be little doubt that these Coffee plants are natural Hybrids between *Coffea stenophylla* and *C. Liberica,* as previously anticipated, but there is no direct proof that they are really so. Some of the varieties are more fruitful than others and it is intended to give the best varieties local names, and propagate them by grafting. One has been named "Commissioner" Coffee, and several successful grafts have been taken from this kind. The stock used being the strong growing Liberian. This strain is of course unknown upon the London market as the trees are special individuals, selected from seedlings, having characters differing from any known kind. They are in fact, NEW COFFEES, which it appear highly desirable to grow on for experiment. The value of the coffee from a grower's point of view is that it grows faster and better and fruit earlier than any variety of Coffea Arabica and does not require so much shade, while it is not so tall growing as the liberian, that is to say, the varieties appear to promise a hardy and easily cultivated strain of considerable value.

"CREOLE COFFEE" *Coffea Arabica varieties.*

1. Mocha.
2. "Hybrid" Mocha.
3. Maragogipe.
4. Minerva, or narrow leaved.
5. Ordinary "*Arabica*" or *Creole.*

These plants have grown well where sufficient shade has been available but in some sections where there was not sufficient shade at certain times of the day the growth has been much retarded.

As the experiment stands at St. Clair, it is readily seen that whenever the sun obtains access at the hours mentioned, the growth is feeble, weak and wanting in vitality, and proves that coffee requires a certain amount of shade at this elevation. The more robust Hybrids and Liberian can stand much more sun than the Arabian varieties. The most fruitful of our Arabian varieties are the 'Hybrid Mocha' and 'Minerva' coffees. The 'Marag gipe' is a large beaned coffee, but is wanting in colour in ordinary seasons. The type trees of *Coffea stenophylla* produced good crops, and the trees are healthy, and appear well adapted for cultivation.

COFFEA ROUSTRA, *Linden.*—This is a new species of coffee from The Congo. It has flowered and fruited during the year. It produced large clusters of pure white flowers having an exquisite perfume, and bears small globular red berries. The crop produced has all been used for seed. The tree has somewhat the habit and size of leaf of Liberian coffee, but is quite distinct from that variety. It is reported that the flavour of this coffee is superior to many other species This trees have again flowered, and a larger crop is anticipated during the coming season,

CACAO.—*Theobroma Cacao* and other species.—The section devoted to Cacao has done remarkably well, and several Cacao planters have expressed a high opinion on the method of cultivation pursued. Plants of pure Criollo are now bearing for the first time, and are giving excellent fruit. Distinguishing characters of this variety are, the white interior of the seeds, and the bottle shaped neck of the fruit. It has been found that 'outside colour,' red or yellow, has little or nothing to do with variety, as red comes from the seed of yellow, and yellow from the seed of red pods. A Venezuelan variety has done extremely well and is also carrying its first crop.

Theobroma pentagona is also in fruit. This plot was planted in December, 1898, and is consequently just over three years planted. It is shaded partly by *Pithecolobium Saman* and partly by *Gliricidia maculata* the Nicaraguan shade tree. Our soil being a dry one, it is necessary to give some protection to the roots. This has been effected by covering the ground with vegetable refuse as a mulching. which has been effective in preserving the trees during a lengthy dry season. Grafting has been successful with all of the varieties, and there are now on hand, plants grafted upon stocks of *Thebroma bicolor* and *Herrania albiflora,* a *genus* nearly allied to Cacao; and a further attempt is now being made to graft upon stocks of *Cola accuminata.* The future must decide whether any advantage will accrue from the use of these stocks but the experiment so far is a successful one. I am more convinced daily that the practice of grafting Cacao of the best kinds will result in the production of samples for market, far superior to any now harvested. The process followed is to select trees having 1st, plenty of vitality, 2nd, of good size, 3rd. good croppers, 4th, bearing beans of the best quality. Plenty of such trees exist on many of the Trinidad estates, and it stands to reason that if a plantation of this kind is raised by using grafted plants a uniform sample of produce would be obtained of the highest excellence.

RAMIE. *

A. RIVIERE.

DURING the last fifty years Ramie and China-grass have been regularly cultivated in the French colonies, as well as in other countries, particularly in India and the Dutch colonies. During the American war the European manufacturers tried this textile material, but the production being insufficient, and the treatment difficult, the use of it soon came to

* Extracts from the *Report of the International Conference* held in Paris in 1900, M, Maxime, Pairs, 1901.

an end. The Universal Exhibition of 1878 gave it a new start, however, but the trade was still stopped by the inherent difficulties of decorticating and degumming the plant. It was thought that the Exhibition of 1889 would provide a solution of the difficulty,, but the results of the international Congress did not modify the position of the subject which was interesting the whole Colonial world. It is evident that the peculiar glutinous and insoluble matters which surround the fibres in the cortical layers present great obstacles to the mechanical and chemical treatment necessary for degumming. It made one fear that because the Ramie could not be prepared in a perfect and economical manner it could take no particular place in the textile industry, which was already well supplied with the principal known fibres—hemp, flax, and cotton. In other words, a new textile, dear and difficult to use, equal perhaps to flax but inferior to silk, was not wanted.

This was the situation in the French industry, particularly as our production of hemp and flax sufficed for its requirements. But this opinion altered sensibly in Europe when our crops were in danger of failure, and people began to ask if some day we should not be unable to obtain cotton, which our colonial possessions do not produce. The supply of textile raw material might fail from some cause or other, and already the cultivation of flax and hemp has nearly ceased in France, in spite of the premiums offered, which, in 1889, amounted to 2,500,000 francs (£100,000), equal to 92fr. 50c. per hectare about 30s. per acre.) France would then have to obtain from abroad all the raw materials used in her manufactures, and the question arose whether her colonies could not furnish to the home factories Ramie fibre, which seemed to be an excellent material, and could be largely used. Similar opinions seemed to influence other nations in their attempts to utilise Ramie. All colonial agriculturists seemed to think the easy cultivation of this perennial plant would admit of its competition in certain cases with cotton, while the manufacturers also hoped to find in its textile fabric an exceptional quality and firmness. The situation has thus changed. Ramie is really wanted by the textile trade, and its use cannot be prevented merely by some difficulty in its defibration—as that will be overcome.

The case is as follows:—The China-grass supplied by the Chinese to European manufacturers is insufficient for their needs. Its price is very variable—often very high. This raw material is sent to our market in the form of strips, which have been obtained by sundry manual operations.—scraping, soaking, drying,—which have caused it to lose a large quantity of the gum.

The manufacturers ask:—

(1.) If the culture of Ramie, which is at present confined to part of Central Asia, cannot be extended to other localities having similar or more favourable climate.

(2.) If the manual labour of the Chinese can be replaced by mechanical or chemical processes, so as to produce a cheap article, and at the same time preserve the quality of the fibre.

(3.) If the cultivation and manufacture of Ramie would pay, based on a similar price to that of China-grass, or even higher than the later, according to the state of preparation.

DIFFERENT KINDS OF RAMIE.

There are two kinds of Ramie plants which, if properly grown and prepared, would be bought by the textile trades in Europe in any quantity and at a very remunerative price,—

(1st) *Urtica* (*Bœhmeria*) *nivea*, or white China-grass.

(2nd) *Urtica utilis*, or *tenacissima*, green Ramie from Java and the Indian Archipelago.

The first will grow in temperate zones, but the second only in tropical or semi-tropical climates.

White Ramie.

One of the characteristics of this plant is the annual up-growth of the stems, which disappear in the autumn after having fructified. Another is the white down covering the undersides of the leaves.

This plant originates in China and Oriental Asia having been cultivated for centuries by the Chinese for their own use, the excess of production being exported to England under the name of China grass. It grows in temperate zones like the olive and orange, and flowers in the autumn, after which the stems dry up, showing apparently no life until the following Spring. It is of importance to cut the stems befor the flowering, or the fibre is spoil d. After experiments made in different climates it has been found that the *Urtica nivea* is unsuitable for tropical or semi-tropical countries, as the abnormal growth and constant flowering prevent the stems from maturing, and reduces both the quality and quantity of the fibre. It thrives, however, very well in temperate zones, where the heat is not excessive in the Spring and Autumn, and where only slight frosts occur in the Winter. It may be laid down as a general rule that the growing of *Urtica nivea* will not give good economical results in any but a temperate zone, the extreme limit of which is to where sugar-cane and bananas can be grown. This plant fructifies abundantly and the seeds are fertile; in the experimental farm in Algiers, very large crops have been obtained during the last 40 years.

Green Ramie.

This species, *Urtica tenacissima* or *utilis*, is distinctly, characterised by having perennial stems and the undersides of its leaves almost green, but sometimes very slightly covered with white down. It is a native of Java and the Indian Archipelago, and for industrial purposes ranks equal, if not superior, to China-grass. It grows like a shrub; the stems speedily throw out branches and become ligneous, rapidly increasing in height and diameter. It lives for several years, and the flowering is not followed by the drying of the stems, as is the case with the white ramie. The flowering periods are not numerous, and it rarely produces any seed. In good moist soil, this nettle will take the form of a shrub up to 16 feet high, but in poorer dry soil it becomes a mere bush. The green ramie with its enormous growth is thus most suitable for tropical districts having constant rains or irrigation in periods of drought. Under such conditions this plant rapidly produces stems 6 to 7 feet in height, which should be cut for treatment in the green state, before the appearance of the side-shoots, but when having arrived at a certain degree of maturity. A peculiar characteristic of this ramie is that when a stem is cut, leaving a fair size stump, this stump will throw out side shoots which develop into high stems. This, on the contrary, never happens with the white ramie, the stems of which are annual, while the shoots spring from the root. There was for some time a doubt as to the industrial value of green ramie, though its richness is magnificent, strong fibres was well known; but lately the difficulty in its mechanical and chemical treatment has been overcome, and many manufacturers now prefer it to the white ramie.

This is of importance to the cultivator operating in warm climates, as the constant and exuberant growth of this species enables him to get several crops and a correspondingly better financial return.

This ramie is now sufficiently well known in the trade and should give any grower an excellent result in suitable localities, that is, in warm, moist climates, where the vegetation is not interrupted by insufficiency of rain, or where irrigation can be applied during dry periods.

TREATMENT OF RAMIE IN A DRY OR A GREEN STATE.

The methods of treating the stems are of great importance to the grower, as the price obtained

depends on delivering to the manufacturers the article most suitable for their machinery.

The treatment when in a dry state necessitates full grown stems, which in temperate zones will only permit of two crops per annum; while, on the contrary, when treated in a green state the stems need not be so fully developed, and several crops can be obtained.

Treatment in the dry state.—It is difficult to explain why so much attention has been paid to this mode of treatment. No earlier records give any indication of it; in fact the people of Asia, notably the Chinese, who for many centuries have used the nettle fibres, have never prepared them in a dry state like flax and hemps are treated; on the contrary, they decorticate them absolutely green, and remove the bark while the stems are growing. It would be a false economical basis for one to compare ramie with flax and hemp; believing that unique advantage of the dry treatment consists in the ability to store it in stacks or sheds, until an opportune time for decorticating. The grower might then perform this work in the winter time when other labor is slack. In France, and even in those parts of Europe most favoured by the climate, it would be almost impossible to dry the stems in the open air. Moreover as regards France, the growing of ramie does not seem to have given very satisfactory results. Even in the colonies the moisture of the air is too great to enable us to obtain, by open-air drying, stems sufficiently dry to suit the decorticating machines at present in use. In India and China where the growth of ramie is very abundant, and labour very cheap, it is impossible to get the stems, even comparatively, dry in the open air, and any attempt at storage will lead to fermentation, and consequantly the fibre will be spoiled.

The dry stem is also hygrometrical, and rapidly absorbs the moisture in the air, as has been proved by experiments with stove-dried plants.

Insufficiently dried stems cannot be decorticated satisfactorily, as the beaters and scrapers of the machines acting upon a soft spongy matter, weaken, and soil the fibres, without fully removing the woody part, or even the cuticle. When exposed to the air this latter becomes of a brownish colour, hard and horny, resisting all efforts to remove it by machinery

The strips thus obtained can only be cleaned and deprived of cuticle and gum by means of chemical baths, which often have to be so strong that they damage the quality and strength of the fibre.

The machines for dry work require to be fed with well-grown stems of fairly uniform diameter, in order to produce good strips.

If the stems are cut before maturity they often becomes flat and out of shape in drying, and the machine does not act uniformly on all the surfaces, but leaves a good deal of woody substance in the strips. With well grown and perfectly dried stems, certain machines do good work in removing the bark and woody part, but the strips retain the cuticle, which is very difficult to get rid of by the chemical baths used for the purpose at present. All these objections apply when the stems are passed through the machines as a first operation after being dried; but we hear of a new method of first submitting them to chemical action, and then decorticating.

So far the decorticating has been found very difficult, particularly in tropical humid climates, where the crops are very heavy.

It often involves manipulations very costly to the cultivator, and is some times impossible if he has to cut the crop and spread it over large areas to dry.

Some authorities contened that drying in stoves is the only effectual mode of getting rid of the moisture but that is impracticable, and would greatly increase expenses.

Treatment in the Green State.—It is very easy to decorticate the ramie stems in a green state, and the Asiatics use only this method in treating their fibre nettles. Immediately after the stem is cut there is no difficulty in removing the bark and woody part, on account of their moist state, without many fibres adhering to them. The Chinese, in fact, often decorticate the plant while growing. Many decorticating machines have failed to give satisfactory results because they have been fed with only comparatively green stems, which have already lost a good deal of their vegetable moisture. This leads to a question important for both cultivators and manufacturers. At what stage of its growth ought the ramie to be cut, or in other words what is meant by green stems? Recent experiments demonstrate that the best time is just after the stems have reached their full height, when still herbaceous, soft, and succulent, and when the bark has formed, but not become brown. At this period, before the appearance of the eyes at the axils of the leaves, the primary useful fibres are already formed, and have sufficient strength; but afterwards only layers of useless fibre are produced. It is therefore clearly a mistake to let the bark thicken, hardening the epidermis and increasing the woody part. In time the fibres lose their fineness, flexibility, and whiteness, in short, their most valuable quantities, and become more and more surrounded by the hardened cuticle and gum, two substances which are very difficult to get rid of when ancient.

To minimise the formation of these deleterious substances the plants should be pretty close-set and well watered, to induce a rapid lengthening of the stems. In a thick plantation, there are very few leaves at the base of the stem, the ramifications are not developed, and the atmospheric influences act less directly on the cuticle, which consequently remains softer and thinner.

In warm and temperate climates, with good irrigation, as many as five successive full-grown crops have been obtained per annum; and in tropical climates with regular and abundant rains, still more. The use and value of green ramie stems depends entirely on their treatment, and if by certain instruments or machines, the bark, woody matter, and cuticle can be removed without damaging the fibre, and the liquid gum pressed out, strips of fibre will be obtained divided in numerous filaments, and free from a great portion of the useless elements. Care must be taken, however, that the beating and scraping be not too violent or the fibre will be injured.

In order to prevent the hardening of the remaining gummy matter, some authorities recommend that the strips should be placed in a chemical bath, immediately after being taken from the machines. Other authorities would soak the green stems first, or subject them to the action of a certain gas, then dry and work them mechanically. This preliminary treatment by liquids or gas would change the gummy matter to a powder, and when the stems were afterwards well dried, decortication would be easy, by means of beaters or stripping machinery.

These operations refer to the green stems, which do not require to reach maturity in order to provide good fibre, and taking everything into consideration are much easier to treat than the dried ones. The fibres are of a superior quality, and one may cut four times the number of crops—which point is of vast economical importance in warm climates where the stems reach a height of about 5 feet in thirty-five to forty days, when well watered by regular rain, or irrigated.

THE WEIGHT AND VALUE OF THE CROPS.

The results of the crops vary according to the localities, the number of cuttings per annum, the system of treatment, and the skill of the labourers, which makes it impossible to fix a general standard revenue per acre. In taking the gross weight of the yield per acre of green or dried stems, we only obtain a very aproximate estimate of the initial value of the crop, as the quantity of useful fibre is not in proportion. The weight of the green

stems is generally taken by the purchaser as a basis for his calculations; but this is subject to great variations, and often a great loss of vegetable liquid takes place in an incredibly short time, when the atmosphre is dry. Then the stems have more or less leaves and are more or less compact, according to the season, which causes the weight to vary. In fact, some stems grown in the summer have been found of inferior weight to those grown in the spring, though of the same demensions. In a carefully cultivated hectare (2½ acres) we find from thirty to forty stems per square yard, about 64 inches high, which means 400,000 stems per hectare each crop. The average weight of free fibres is about 3 to 3½ grammes per stem. or 1,200 kilos (one kilo=2$\frac{1}{5}$ lb.) for 400,000 stems, and for four crops per per annum 4,800 kilos of "filasse" (fibres not quite completely degummed). Supposing, in round numbers, a yield of 4,000 kilos of degummed fibre per hectare, the sum realised at the present price of 850 fr, per ton would he 3,400 fr. (£135, or £45 per acre). It is impossible to estimate the exact profit to the grower on account of the varying conditions of production in different localities, but an average minimum of £10 per acre may be counted on, and though the first cost of planting is considerable, the maintenance of the plantation is very simple and inexpensive. To estimate the value of the crop by the gross weight of the stems often leads to serious discrepancies. Though 400,000 green stems weigh, as a rule, 18 to 22 tons, they lose rapidly in weight by evaporation and falling of leaves, and sometimes the same number of stems only weigh 15 to 18 tons, though containing no less weight of fibre than the heavier ones, This depends on the season, the quantity of moisture they hold, and the number of leaves. The profits on ramie growing depond on—

(1) Whethor the cultivator sells his crop growing.
(2) Whether he prepares it more or less by decortication or other means, when he will have the profit also on this supplementary work.

In the latter case it is the production in fibre which must be considered, but this varies in quality and cost, according to the processes it passes through, and which are more or less costly.

Those interested in ramie seem to have constantly tried to obtain, by mechanical treatment, an article equal to China-grass, and have not thought it necessary to preserve the original great length of the fibres or their parallelism. Some of the decorticating machines, which operate quickly and have a large production, cut the fibres. This, however, makes it more convenient for the manufacturer, as, when entangled, the long filaments are difficult to comb.

It is quite clear that if we, by a simple preliminary process can eliminate the expense and risk of degumming the raw material later, the product from this treatment will have a very different value to the manufacturer from that of the ordinary coarse strips, and a large daily production does not necessarily mean a larger profit. The growers and manufacturers have, perhaps, hitherto been wrong in seeking only to produce a rich and superior article, and the description of ramie, as a *vegetable silk*, has done harm. The large textile factories seem really to require a fibre of good quality, but ordinary preparation, which they, by ulterior manipulation, can convert into superior goods. The aim should be to produce ramie fibre at a price between that of cotton and linen, when, according to certain economists, the consumption would be unlimited.

THE CLIMATE MOST SUITABLE FOR RAMIE GROWING.

A warm climate with frequent rains, amounting to a total of 8 feet or more per annum, or abundant irrigation in places where there are dry periods, suits the ramie plant best, and where the temperature does not fall below freezing point.

MODE OF CULTIVATION.

There is no doubt that plantations on a large scale, where machinery can be used for cutting and decorticating, will pay best, as the manufacturers require large quantities of a uniform quality, which can not be assured when buying small lots grown in different parts. Decorticating and degumming should be done on the spot to prevent fermentation, as it is almost impossible to avoid damage—at any rate to the interior of bales of gummy fibres when shipped long distances. China-grass can be transported safely because it only contains about 25 to 30 per cent. of the original gum.

The cultivation of ramie is very simple, and consists principally in a thorough preparation of the soil. It should be planted in good deep soil, tho clayey, silicate, calcareous, and that rich in humus being the best for the rapid production of good crops. In regions where there is not a regular rainfall irrigation must be resorted to.

The preparation of the soil consists in—

1. A deep ploughing (by stream plough preferably).
2. Working the surface light.
3. Making irrigation channels spaced according to the volume of water at disposal.

The land should be level, and the plants or roots placed 10 to 12 inches apart in shallow furrows, spaced about 12 inches. After closing the furrows the plants must be watered. Planting in ridges is not to be recommended. After the soil becomes dry it should be worked over again twice.

In a plantation spaced as above it will be found impossible to dig after a lapse of two months, and irrigating only has to be attended to. In a few months the growth will have become so compact that all labour is impossible and useless. The annual work is then limited to irrigation and to applying periodically artificial fertilisers, such as nitrates and superphosphates. In fact, the principal cost of growing ramie is at the commencement, and may be calculated according to the price of labour in the locality—

1. Deep ploughing.
2. Keeping the soil light.
3. Planting 1 hectare (2½ acres)=two or three days' labour.
4. Cost of plants.
5. Digging up several times.

The price of plants in a locality where ramie is grown is about 4s. per 1,000, but of course in other places one may have to pay considerably more.

A good European mower can cut by hand and put in small bundles about 2,500 stems per hour; but the mechanical reaper is quite suitable for green ramie. If the process of treatment necessitates tho stripping of the leaves, an adult woman can do about 400 stems per hour, and it is best to do it before cutting.

A good ramie field should show close and even growth like a field of wheat when the stems will be straight, have few leaves at the base, and the sun less tendency to harden the cuticle. On an average, one should have about forty stems per square metre (=33 per square yard) as a minimum, but we often find as many as fifty-eight large and twenty small stems of white ramie and forty-five large and fifteen small ones of green ramie per square metre.

The diameter of the stems of the green ramie is generally larger than that of the white.

If cultivated under favourable conditions, the annual fibre production per acre is superior in quantity and quality to the high-priced *abaca* and *sisal*. This will give an important place to ramie in the textile industries, if the preparation is economical.—*Agricultural Gazette of New South Wales.*

GOVERNMENT HELP TO SELANGOR PLANTERS.

THE BEE HAWK MOTH.

SIR,—So many of your readers are now either directly or indirectly interested in the Malay Peninsula, that I make no apology for asking you to allow me to utilise your columns to record another of

the many instances of Government assistance which has been extended to planters and others in the Federated Malay States, when cases of real urgency have arisen.

About six months ago, an estate which I visited, the property of a Company which has large Ceylon interests also was attacked by the caterpillars of the bee hawk moth; for some time we were able, though only at a heavy expenditure, to keep pace with the pest, and to an inexperienced eye, the coffee showed scarcely any signs of being denuded of leaf. In June last, however, owing probably to some climatic change favourable to the rapid development of the insects, there was a terrible increase in their numbers and it became apparent that, unless a large force of coolies could be at once concentrated on the spot, the most serious result must ensue.

Neighbouring planters came to the rescue, and lent every coolie they could spare, but still we could not keep up with the carterpillars. I then appealed to the Government and at once a special train was put on and nearly 200 coolies daily were sent down. These men had to walk, in some cases, a long distance to the railway station, and on arrival at their journeys end, nearly four miles more to the estate lay before them. After work they had to go all the way back again. There was no suggestion that such a day's labour was an impossible task, and the men all worked cheerfully and well. With this help we were able to get the pest in hand and in the end were only called upon to pay half the cost, the Government defraying the rest.

You will agree, I feel sure, that such ready sympathy and liberal and prompt assistance are not to be met with in official quarters all the world over, and deserve to be made known, especially in quarters where the proper significance of the thing can be appreciated.

Mr. Ernest Green, with whom I have been in communication, tells me that the bee hawk moth is well-known in Ceylon, but is not epidemic over with you owing to some fungal or bacterial infection, and this it is to be hoped may in time become an established condition here too; but, meanwhile, we can do nothing but "hand pick" eggs, caterpillars and chrysalids, and meet every flight of moths (which are day insects and therefore not to be caught in the meduse acetylene lamps) with as many butterfly nets as we can muster coolies to use them.

Somewhere about 1885, many of your readers will remember how the cinchona was absolutely stripped of leaf by a huge hawk moth caterpillar, which appeared in such numbers that one even found them crawling over the bungalow walls. The Badulla district in particular had a bad time of it, but finally thousands and thousands of crows came to the rescue, and absolutely cleared the caterpillars out. Having this in my mind, I approached the Resident-General with the object of seeing whether the Government would negotiate with Ceylon for the supply of a few thousand of crows, these useful birds being very few and far between over here unfortunately; and I am glad to say that, instead of treating this suggestion as a huge joke, as many men might have done, Mr. Treacher has at once put himself in communication with your Government on the subject.

I hope, Sir, if you notice the matter at all, you will accord your support. You might send us over 100,000 crows and never miss them; in fact, the effect would probably be as beneficial to the remaining stock as shooting over a moor which has for years remained undisturbed—Yours, &c., E. V. CAREY,

Kiang, Selangor, Federated Malay States, August 3rd 1902.

FEVER IN PLANTS.

Although animals and plants seem, at first sight, to be two absolutely distinct groups, and to have little in common, closer investigation points unmistakably to the fact that they are very similar and very closely related to one another. Further, many organisms are known which it is impossible to class with certainty as plants or animals. Let us confine our attention for a moment to one of the ordinary recognised signs of life, namely, breathing or respiration. Both animals and plants breathe. In both oxygen is taken in from the air, and after certain changes carbon dioxide is given out. This process, it is true, is masked in green plants, during exposure to sunlight by another process in which carbon dioxide is taken in and oxygen given out. It goes on, however, in a plant as steadily as in an animal, and there is no essential difference between the respiration of man and that of the humblest vegetable he cultivates. In man it is not uncommon to find that when the health is affected his temperature rises; in other words, he becomes feverish. At the same time the rate of breathing is often increased. Is this true of plants also? Can we throw a Potato or an Onion into a fever? The idea seems absurd. Yet it is an ascertained fact. It was shown by Mr. H. M. Richards (*Annals of Botany*, vol. xi., p. 30) that if Potatos or Onions were sliced—that is to say, wounded—their temperature rose, and their breathing became more vigorous. They exhibited in fact two of the characteristic symptoms of a feverish person. The rise of temperature was carefully measured; in some cases it was as much as 3° C. The course of the fever was followed, and was found to reach its height usually about twenty-four hours after the injury, the temperature then began to fall, and reached the normal again on the fourth or fifth day. Experiments such as these help to bring home to one in a striking manner the fundamental relationship between animals and plants.—*Agricultural News, Barbados.*

PLANTING NOTES.

Sweet Peas in Quantity.—We are informed by Messrs. E W. King and Co., Coggeshall, Essex, that they have now in flower 6 acres of Sweet Peas, including seventy-two choice varieties cultivated for seedling purposes.—*Gardeners' Chronicle.*

Manure for Roses.—Artificial manure, says a German contemporary, if properly chosen and applied, are the most useful, as by their use vigorous growth and fine flowers are obtained. Raw bone-meal, in point of usefulness, is preperable to manures containing phospheric acid; but the manure most to be recommended is potash, and two dressings afforded during the summer have all the favourable results which one can desire from a manure.—*Ibid.*

A New use for the Onion.—The onion has been recommended as a beneficent remedy for diseases in poultry on account of the essential oil, which causes tears to flow from the eyes; hence therapeutic qualities of great value are attributed to it in the case of throat affections in said poultry, which, as we well know, is the disease which decimates our poultry yards. The administration is very simple: Once or twice a week cut up the onion into very small pieces, and feed it to the poultry. It will keep them in excellent condition for fattening and producing plenty of eggs.—*La Industri*, Nicaragua.—*Ibid.*

"Agricultural News."—We have before us the first number of a fortnightly periodical, published at one penny at Barbados. It is one of the many evidences of the activity of Dr. Morris in all that concerns the development of the agricultural resources of the West Indies, and lays no claim to public recognition beyond an earnest desire on the part of the Imperial Department of Agriculture to instruct and assist all classes of the community, and to promote the agricultural interests of these colonies. The contents, though naturally devoted almost exclusively to colonial affairs, are varied and interesting.—*Ibid.*

VANILLA.

CULTIVATION IN THE SEYCHELLES.

In various localities in the West Indies attention is being directed to the cultivation of Vanilla. Experiments on the growth of the plants and curing of the pods are being conducted at some of the Botanic Stations, and planters are also putting the question of the possibility of the industry in the West Indies to a practical test. We have already referred in these columns to the vanilla industry of the Seychelles (*Agricultural News*, p. 60.) The most complete and exhaustive account of the cultivation as practised in those islands is that of Mr. S. J. Galbraith, published in 1895, as *Bulletin No. 21*, Division of Botany, of the U.S.A. Department of Agriculture. Mr. Galbraith was 'for many years a successful planter in the Seychelles and in a most favourable position to write on the subject.'

We propose to reproduce the greater portion of this valuable publication in these pages. The present article contains a summary of the general conditions of the industry in the Seychelles and the directions for the arrangement of trees on which to train the vines:—

GENERAL CONDITIONS.

"If kept free from disease the vanilla is a plant of extraordinary vitality; and in the Seychelles, where moisture and heat, its main requirements, are both ample, the sort of soil it is grown seems to be of no great importance, provided that, if it be very poor, the roots are kept well supplied with manure. It is cultivated in the Seychelles from near sea level to 1,800 feet altitude, and does well (except for disease) at all altitudes between those extremes.'

The rainfall is about 100 inches in the low lands and 10 to 30 per cent. greater in the hills. The fall is fairly evenly distributed throughout the year, but a dry spell, which is necessary to bring vanilla into flower, is to be looked for in July, August, or September, while the heaviest rains most frequently come in December. The range of shade temperature for day and night, from sea level to 1,800 feet, may be put at 90° to 70° F. The former is exceptional, the latter frequent. The plant does well in three very different types of soil,—a rich vegetable mould, a greasy red clay, and a coarse quartz sand. Though so unpromising to look at, the latter is, perhaps the best of all. It gives free drainage to the roots, and in wet years plants fixed on it are more likely to crop than those on closer soils, while with ample manuring they grow remarkably well.

ARRANGEMENT OF PLANTATION.

The manner of setting out plantations in the Seychelles has undergone changes within the last years. Formerly plantations were seen with the rows of vines planted so close together as scarce to leave room for workers to pass between them. The yield per acre under such conditions was sometimes enormous, but when disease once started in a vanillery thus arranged, its destruction was rapid and complete, so this system has been mostly given up. Since the loss of so many close-lined plantations, the distance between the rows has been increased. Living wood, i.e., small trees, are used as supports for the vines, these being festooned from fork to fork, but many planters have made use of hard wood posts and bars, the former being notched on top and the latter laid in the notches resting thus from 4 to 6 feet from the ground, according to fancy. Over these bars the plants are hung being looped up as growth is put on. Wire is sometimes also used instead of horizontal bars. It is much cheaper, but otherwise has disadvantages notable among which is that it sways with wind and is liable to break the vines, the curvature being too sharp over such a small round surface. However, when plants thicken into a mass this last drawback mostly disappears.

A third, and, as the writer believes, much better way of growing vanilla, is now more generally coming into practice. This is to plant each creeper on a tree of its own, and where land is cheap it is an advantage if these are well apart. So arranged, the general maintenance of a vanillery is certainly more expensive, inasmuch as isolated plants require more manure than when the same number are closely grouped together. The work of flower pollination and crop gathering is also more laborious. But more than a counterpoise to these disadvantages in the increased security this method of planting gives against wholesale destruction from disease; for when so arranged a sick plant can be removed and destroyed with greater chance of this being done before any of its neighbours become affected; whereas when growths of different plants are interwoven, either in their roots or shoots, it is difficult to know when enough has been taken up and there is every likelihood of the disease becoming established beyond control.

USE OF TREES AS SUPPORTS.

To give some notion of how a vanilla plantation is set out and carried on in this Colony, it will be convenient to assume that the tree method of planting is the one adopted. A great variety of trees will serve the purpose. Here, on most properties, there is an abundance ready for the work; but of course where this is not the case, suitable trees must first be planted. In selecting trees those should be chosen which do not grow too large, but give moderate foliage (about half shade) without ever losing all their leaves at once, and having plenty of branches from 5 to 7 feet from the ground, affording forks enough to train the vines through.

No hard and fast rule can be laid down as to the distance trees should be kept apart. Here, formerly as above stated, vanilla was grown in dense masses with great success for a time. Elsewhere it may be advantageously so grown now. However, it is safe to state that overcrowding in any kind of planting invites disease, and the farther plants are kept apart the more likely are they to remain healthy. A 4-foot radius would be a moderate allowance for the roots of a vigorous vanilla plant, and if 1 foot is kept clear around the circle allowed to each plant's roots this would give 9 feet as the distance between the trees. It would be difficult to insure the plants being kept distinct in less space. Where suitable trees are already growing on the land to be planted these can be thinned out if too close, or they may be left in small lots of three or four or more together, a sufficient clear space intervening between each lot; but in that case if one vine of a group showed disease the whole would have to be removed. Many trees stand topping, and it is a great advantage when they do, for on being cut 7 feet or so from the ground branches spring from near the cut part at a convenient height, and the best situated of those can be chosen to train the vines through, the rest that grow awkwardly being removed. About 5 feet from the base is low enough to allow any to grow.

PLANTING.

Trees being in readiness, planting may be done at any time of year here. If during a wet spell, vanilla will sprout all the quicker; should it be dry, the plants will delay a little, but there is no fear of their missing if properly planted, and the one danger point to guard is where the vine leaves the earth. This part of the vine is burnt through if not shaded with grass or leaves. However, this also would only mean a little delay in the start of growth; for though they take some time longer about it, vanilla cuttings will grow well enough if merely tied to the trees with their lower ends some inches clear of the ground. Illustrative of the extreme vitality of plants under adverse conditions, it may be mentioned that in neglected plantations, where the vines have been allowed to climb well up into the branches of good-sized trees, and then been broken in attempting to get them down, the broken portions, sometimes partly swinging free, have remained green and capable of

growth for upwards of a year, sending down long aerial roots 15 or 20 feet in length, and in some cases where these have escaped injury the broken plant may re-establish connexion with the soil and start to grow again. If planted clear of the ground and merely tied to the supporting tree, it is advisable to tie two or three large leaves round each vine for the distance of 3 feet up; thus shaded the aerial roots quickly burst through the stem, and getting something to cling to at once, soon make their way to earth without injury.

LENGTH CUTTINGS TO USE.

In starting a new vanillery, where the estate has no plants these are readily purchased here at small cost. from 2 to 3 rupees (55 to 90 cents) per 100 fathoms is the usual rate for cuttings, the fathom being what a man can span with outspread arms, a good sweep of the vine hanging in a curve between his hands. Where choice is possible, although oldish cuttings will grow pretty well, it is best to have the plants of recent growth; in fact, growing shoots, cut off close to where they spring from the parent vine, are preferable At their point of origin the nodes for some distance are close together, and though roots will strike from any joints, they have a natural tendency to do so quicker at the shoot's base. As to the length of cuttings to plant, opinions differ; but there can be no question that the longer cuttings produce cropping plants sooner than the short ones. If a 2 or 3-foot branch is planted, the shoot it gives is invariably more slender and slower of growth than would be that from a 6-foot cutting, and up to 10 or 12 feet every advantage lies with the longer plants, except the additional expense

The question as to whether cuttings of that length are to be planted whole or divided into two or three plants should be settled by their cost. It is usual here to loosen the soil with a hoe where vanilla is to be planted, and bury the end, laid horizontally, an inch or two in the earth. Quite as good a way is merely to press the lower part of the plant into the soft soil until it is flush with the surface, On sloping land loosened soil washes away sooner with heavy rain, and in such situations it is better to leave the ground quite undisturbed. In any case the leaves on that part of the vine which rests in or on the ground are cut off fairly close to the stem, and an arm full of leaves, fern, grass, or forest sweepings laid on the top to the depth of 3 or 4 inches, for a couple of feet around the plant. Its roots will not need to be mulched for a greater distance than that for some months to come, and to cover a larger area would be useless As new top dressings are laid on, which must be done when the first supply rots down and becomes thin, these can be gradually extended to allow of more root spread, till the limit of 4 feet radius is reached, If well covered, the roots do not run much; only starved vines run far with their roots, seeking nourishment; where this is plentiful they mat in and beneath it. Being entirely surface feeders, should any make their way beyond the cover they can be gently lifted and tucked under the decaying leaves, etc.; but this is a hint that the plant needs a new supply of top dressing. The number of joints laid on or in the soil will vary with the length of the plant, but should not be less than three for this mode of planting, while for long cuttings six or seven joints are needed for a quick start.

SUPPORT FOR THE YOUNG PLANTS.

If of sufficient length, the free end of the planted vine is hung through a fork of the supporting tree, but it is also advisable to tie it in two or three places to the tree to hinder swinging and chafing. The material used for these ties here is a fibre called *Vacoa** which rots in about a year, by which time the plants should have tendril-like roots enough to steady themselves. When once properly planted the cuttings will need little or no attention for some months, but when the growth becomes vigorous the shoots must be looked after. Such of them as have grown clear of their supports are hitched up and if long enough, hung through one of the forks. An occasional tie here may also be necessary, but in general, a leaf or two of the growing part can be hooked on to some other fixed part of the vine, and in a few days unless blown loose, the tendrils will have fastened to the leaf, and thus support the plant. Shoots must not be allowed to climb very high among branches of the supporting tree, especially if there be many and close together, or there will be breakages in getting them down. For this purpose, when they get beyond hand reach, a forked stick 6 or 7 feet long is useful. The fork is worked between the tree and climbing vine, and its tendrills in succession are broken by pushing and twisting the stick when they are within the fork. The last two or three tendrils are easily broken or leave the tree without breaking, and care should be taken when the vine is nearly clear to catch the stem of it high up, within the stick's fork; it can then be lowered gently without fear of breaking.

Some judgement is necessary in selecting the fork of the tree through which each shoot is to hang, a fork whose height fits in with a natural bend of the vine, if it has one, being chosen; otherwise one whose height takes the vine between joints is best, since if bent at a joint the vine is apt to snap, especially so when in vigorous growth, being then full of sap and brittle. In good growing weather—i.e., warm, still, and moist—healthy, well-nourished vanilla vines grow very rapidly, an inch per day being no uncommon rate.

PREPARING THE VINES FOR CROPPING.

If the plants have done well they should be ready for such preparation in about eighteen months, more or less, according to the season. Formerly in in this colony they were allowed to grow on until a spell of dry weather set in prior to the usual blossoming time. The growing ends were then cut off and all new shoots removed as they showed till flowers began to come or till the season for them was past. When the dry spell proved a long one, this seemed to answer pretty well; and, indeed, under these circumstances flowers would come in any case, whether growth was checked or not. But now it is more usual to stop the growing ends some nine or ten months, in the first instance, before flowering time. In the majority of cases the terminal bud will push, and this new shoot should also be removed when 5 or 6 inches long not earlier, else the next to the last bud is apt to grow.

After the second checking most vines will shoot far enough back to allow of the shoots being left These grow on for the next year, and then stopped branches hang down with their lower ends a good foot or more from the ground, being generally from 4 to 6 feet in length, according to the height of the forks through which they are hung and the positions of the new shoots, though these generally spring just before the last bends of the checked branches, which are to be the cropping parts. The new growths behind these are supposed to drain them of their sap, and thus conduce to flowering. However that may be, these checked hanging branches, have certainly more tendency to flower than other parts of the vines. Flowers take some six weeks to develop from the moment they burst through the buds to their time of opening, but this period varies in length with the weather, continuous dryness retarding and moderate showers hastening their development when once started.

The growing branches of vines should now be checked again for the following year's crop. These will be less troublesome in putting out inconvenient shoots, as the plant's sap is more apt to go into flowering branches, when nourishment is now more needed, Could the whole work be performed in a few

*Obtained from a species of screw pine, *Pandanus utilis*.

days, this change in the direction of sap flow should be done preferably ten days or a fortnight before flowers begin to open. In a large plantation, unless the hands are very numerous or the shoots have been arranged beforehand so that there is little else to do than cnt their ends, it will take some weeks to accomplish this, and therefore work must begin earlier or finish later. If the dry spell necessary for flowering has lasted a good while and can fairly be depended upon to continue long enongh, the growing ends may be out earlier; but it must be borne in mind that if rain in quantity comes too soon and, in addition to the stimulus given by it, the branches intended for flowering have also the sap from previonsly growing shoots poured into them, the chance of their cropping well will be much diminished. Many a promise of a fine crop is ruined by too early rain here. The country, climate, and the planter's skill as a weather prophet must govern this nndertaking.

An abundant snpply of leaf mould shonld be in readiness for laying on the roots at this season, and shonld be applied when flowers begin to open, or a little before. If previous dressings have be so timed that vines are in a somewhat starved condition when flowering is expected, the chances of a good blossoming are increased, but the practice needs judgement, or a poor quality of pods will be the resnlt.

There used to be a story current here, no doubt with some grain of truth in it, to the effect that in a very wet season the only vanilla planter who had any crop was one whose pigs had got adrift in his plantation and spent the night in grubbing up vanilla roots. This method of producing flowers is not recommended but it is quite possible that carefnl and systematic root pruning might be carried on with advantage in wet years, if one could tell beforehand when these were coming.

POLLINATION OF THE FLOWERS.

The work of flower fertilization (pollination)—for they have all to be fertilized by hand, and than on the day they open—is mostly done by women and children. The operation is a very simple one, and an average negro will acquire the knack after being shown a few examples.

[The illnstration on the opposite page, reproduced from the *Kew Bulletin*, with its descriptive letter press will allow readers to follow clearly, Mr. Galbraith's description.—Ed. *A. N.*]

The flower is taken in left hand, three fingers been placed at its back and the thumb in front the column with organs of fertilization on top being supported against the middle speal behind. A bit of hard wood, cut to the size of a toothpick and scraped smooth and flat at one end, is the only tool required; this is held in the right hand. To get at the organs of fertilization easily, the sack which grows from the side of the column enveloping its front and marking the sexnal organs is pressed down by the bit of wood, or this is run through its base, and the sack torn up, or the whole sack may be plucked off with finger and thumb, it matters not how it is laid open, so long as this is done quickly and without injnry to any other part of the flower. The smooth end of the fecundating instrnment is then laid flat on the front of the column jnst beneath the organs of fertilization, and being pushed up it catches under the flap which keeps the pollen from coming into contact with the stigma. The flap is raised along with the stick till it lies flat against upper part of the column, being held in that position by the bit of wood. The stamen, at first raised along with the flap, now falls down again in its original position, and the flap being out of the way the pollen comes into contact with the stigma, and a slight pressnre of the thnmb on the stamen lodges pollen in the position required; the bit of stick being then quickly but gently withdrawn, the operation is complete.

The whole affair is very much easier done than described, and with flowers fairly numerous, an ordinary hand will fecundate a hundred or so per hour. Early morning, from 7 to 9, is the best time for fertilizing; but the work may be started with snnrise and carried on well into the afternoon, though about mid-day flowers begin to close some and the work goes slower. Most plants in fnll crop prodnce many more flowers than it is advisable to fertilize, for other parts of the vines, besides the checked hanging branches, blossom in favonrable seasons and the nnmber of pods which a vine is able to mature properly must be estimated from the plants size and condition. In the course of four or five years, though by that time the plant cutting willl be spent, if well cared for it will have grown a large quantity of vine; and as each new shoot, when long enongh, sends down aerial roots in its own behalf, it becomes, so to speak, an independent plant and the parent of others. If none of the shoots from a strong growing vine have been removed the mass of growth in time becomes enormous, and may be equal to maturing a hundred or more good pods. When the snpporting tree is stout and fnrnishes forks enough to admit of the vine being spread out so as to let plenty of air through it the vine may be allowed to accumulate to this extent, and if it gives, twenty clusters, each yielding ten or more flowers, five or six might be fertillzed on each.

But, generally speaking, about 30 pods to a vine is as many as should be left, and he would be a lncky planter who should average that number. In selecting flowers to fertilize those shonld be chosen which spring from the lower part and from the sides of the flower stalks, from which position they grow straighter pods than those coming ont on top. In favourable weather, i. e. moist but not heavy rain (which latter often washes the pollen grains away before they germinate), only a small percentage of flowers will fail of fecundation. In case of failure, the flower drops off in three days or less, bnt otherwise remains attached to its stalk and slowly withers; the *gynostemium* adheres to most pods till they begin to ripen; thus it is easy to see the number successfully fecundated in each bunch, and where enough are secured the rest can be broken off. Later it is advisable to cnt clean off with a knife the flower stalk a quarter of an inch or so beyond the last fertilized flower. Some planters plaster a bit of sticky clay on the cut snrface to prevent it rotting back. Dry lime is perhaps better; this may be dabbed on with a piece of cloth dipped in the powder

Pods grow to their full size in five or six weeks, but take some eight months, more or less, according to the altitude at which they are grown, or the amount of shade over them, before they ripen. The indication of ripening is a slight yellowing of the whole pod, which is more marked near its free end. When under too much shade the change in colonr is less noticeable, and many pods grown in such places split before they are gathered, and for that reason lose in value. To guard against splitting, and yet gather them at perfect ripeness, they shonld be gone every other day, In removing them from the flower stalks the pods are grasped one by one near their attached ends, very slightly twisted, and at the same time pressed aside with the thumb. They mnst be taken off quite clean. If a bit of the flower stalk comes away with a pod, as sometimes will happen it should be cut off smoothly. Any break or crack in the pod itself, however near its butt, ranks it is as an inferior quality. Buyers are very particular in this respect. After each day's gathering, before the pods are started on their first stage of curing, it is well to sort them roughly into four classes: 1, long 2, medinm; 3, short and 4, split.

1—portion of stem of Vanilla plant, with leaf, aerial root, and cluster of flowers; *a*, front view of Vanilla flower; *b*, side view; *c*, aerial root, with root hairs. 2—Single flower of Vanilla, exhibiting the first stage in the process of artificial fertilization. The operator, provided with a finely-pointed piece of bamboo, divides the lip or labellum medially, so that the central lobe is seperated from the two side lobes. This exposes

the column and organ of fecundation. The instrument is represented as placed against the column, ready to press upwards the anther *a*, and bring the pollinia in contact with the stigma *b*.

3—Single flower of Vanilla, exhibiting the second stage in the process of artificial fertilization; *b* shows position of column exposed by division of the lip [the middle lobe of lip is pulled forward and curled upon itself to show the position of the column; the side lobes of lips, seperated as shown in Fig. 2, are represented at back of the column]; *a*, the position of pollen masses, taken from the anther and placed on the stigma.

4—Enlarged front view of top of the column; *a*, the anther.

5—Enlarged side view of top of the column; *a*, the anther; *b*, the stigma or visced surface on which the pollen masses must be placed to ensure fertilization,

6—Enlarged section through top of the column; *a* one of the pollen masses *in situ*; *b*, the stigmatic cavity.

7—Enlarged section through top of the column; *a*, the pollen masses, having been transferred from *a*, Fig. 6, are now represented in contact with the stigmatic surface. [Although diagrammatically shown, these figures give a tolerably good idea of what is actually necessary in order to produce fertilization in a Vanilla flower.]—*Agricultural News.*

TEA, COFFEE, AND OTHER PRODUCTS IN ZANZIBAR.

THE FIRST LB. OF TEA.—COFFEE LEAF DISEASE.—RUBBER AND FIBRE.—CEYLON PINE APPLES.

We have received a copy of the Annual Report (1901) of the Agricultural Department of Zanzibar, and it is interesting to read of the results of the experimental cultivation of various commercial products, most of them only recently introduced into the coun ry. The subjects dealt with in the Report range fromt tea to the minor products, everything grown in Ceyl on flourishing with more or less success in Zanzibar. The cultivation of vanilla seems to be progressing, and the fertilization of the flowers is attended to by native boys who have learned the work. Cocoa and Kola have not made satisfactory progress, the trees having suffered from some blighting influence which attacks the growing points. Coffee, which is also a new product, is now experiencing the leaf disease. The plantation of Liberian Coffee laid in 1899 was growing vigorously and the trees were carrying their first crop. The Arabian Coffee trees, planted in 1900, also had a light crop. Leaf disease (*Hemeleia Vastatrix*) had appeared among the trees, though it had not yet done them any serious harm. The disease is not new to the island, it having been observed on some Liberian Coffee trees at Mbweni in 1898. The Arabian coffee had also been infected by a borer and by an insect which attacked the leaves and spun upon their interior surface a white downy webbing, which curled them up into the form of a big pen at the ends. The tea—raised from seed imported from Ceylon—appears to have been attacked by a pest, while the growth of the plant has proved erratic. We extract a part of the Report which affords interesting reading:—

"We made our first plucking on January 10th, but obtained little more than a pound of made tea. On May 29th we plucked a second time, previous to topping. Growth then remained stagnant till September when light flushes began to appear. By the end of November we were plucking every ten days, and this continued till Januay 16th (1902) when flushes again stopped owing to dry weather. We plucked nine times during 1901 and obtained 46/2 lb. of made tea. During the cool months, when flushes ceased, the trees showed great tendency to run to seed, and we were frequently compelled to send the boys through the garden to pluck off the buds and flowers. The trees have not escaped infection. A blister blight appeared which curled and dried up the leaves. Some specimens were in 1900 sent home to Kew and the authorities there stated that 'The blistering and crumpling of the leaves is caused by a parasite fungus called *Exobasidium vexans*, Massee, which is stated by Watt to have done a large amount of injury to the tea plantations in Assam. It would be interesting to learn how this disease reached Zanzibar. Have the plants been imported from Assam?' Our tea seed came from Ceylon, but it is an Assam-hybrid variety. The attack declined with the survival of growth. At the beginning of 1901 we sent home some more diseased tea leaves which were stated to be infected with 'Gray blight fungus, *Pestalozzia Guepini*, Desm.' But on the whole we can report fair progress with this product."

With regard to rubber, the experimental clearing at Dunga are progressing satisfactorily. Four varieties were cultivated, viz., Para (*Havea Braziliensis*); Ceara, (*Manihot Glaziovii*); Central American (*Castilloa elastica*), and Assam (*Ficus elastica.*) Fibre cultivation was also receiving attention, and the plants in cultivation at Dunga and Mpapa were the American Aloe (*Agave Americana*); Sisal hemp (*A rigida*, var *Sisalana*); Mauritius hemp (*Fourcroya gigantea*); *F. Macrophylla*; *F. Lindeni*; *Sansivieria* sp.; and China grass (*Bohemeria nivea*), all these grew well with the exception of China grass, which barely holds its own. Chillies, cloves and coconuts are next dealt with as also fruit cultivation.

In May last the Department obtained from Ceylon 144 plants of Kew pineapple which had been planted at Dunga and Mpapa. It is hoped in the course of the year to exhibit from these plants pines that will be some improvement upon the native product. Pineapples sell for a pice each in the plantation; the season begins in December. Bananas were thriving and were largely planted for shade; jack fruit was bearing well; arecanut had proved unprofitable; the mango crop had turned out a poor variety; the silk cotton tree (*Eriodendron anfractuosum*) bore satisfactory annual harvest; Cassava cultivation was paying, and sugar-cane was planted to feed the cattle; a few trees of cinnamon and cocaine had maintained a healthy, though leisurely, growth; anatto was growing like a weed; silver oak (*grevillea robusta*) had been set out for shade for vanilla, tea and coffee; *Eucalyptus citrodora*: *E. viminalis*, and *E. teriticornis* were all doing well at Dunga; Bois immortelle (*Erythrinia umbrosa*) grew rapidly, but was one of the few trees subject to scale attack; kus kus grass (*Andropogon muricatus*) was one of the most useful of the minor plants; lemon grass (*A. Schaenanthus*) is also planted, but it dies out after four years. The interesting publication concludes with a report on a labour bureau which had been organized at Dunga.

GUTTA PERCHA FROM A CHINESE TREE.

(*Eucommia ulmoides*, Olive.)

Between 1887 and 1890, from several localities on the middle Yangtze-Kiang river, Dr. A. Henry sent to Kew fruiting specimens of a peculiar Chinese plant, with the statement that its bark is a most valued medicine in China, where it is named "Tu-chung," and that the tree is cultivated for it. "I have never seen it wild," he adds, "but I was informed it occurs so in Fang and other districts to the north." Fang is the name of a reigon near the middle part of the Yangtze-Kiang in the province of Hupeh.

This plant Prof. D. Oliver described (*Hooker's Icones Plantarum*, t. 1950) as *Eucommia ulmoides*.

Flowers not being available, and what material he had so peculiar that its relationships were not obvious, Prof. Oliver left the determination of the order of *Eucommia* open, merely adding that the tribe Phyllantheæ of Euphorbiaceæ occurred to him as of probable affinity.

The interest to us lies not so much in this as in his indication of the presence in the tissues of gutta percba. The discovery he made known in the following words :—

'The most singular feature about the plant is the extraordinary abundance of an elastic gum in all the younger tissues—excepting perhaps the wood proper,—in the bark (in the usual sense of the word), the leaves and petioles, and pericarp; any of these, snapped across, and the parts drawn asunder, exhibit the silvery sheen of innumerable threads of this gum."

His account continues: "The morphological relations and general histology of the cells which give rise to the substance, we hope to have the opportunity of describing from specimens in fluid or living, which, through Dr. Henry's kind offices, there is probability we may soon receive."

When the promised specimens arrived Mr. (now Prof.) F. E. Weiss undertook the examination of them, and from the account of his investigations, published in the Transaction of the Linnean Society (Series 2, Botany, iii., p. 243), the following sentences are drawn :—

"The threads of *Eucommia* consist of caoutchouc, for they are insoluble in alcohol, acids and alkalis, though they become soft when treated with ammonia. They dissolve in chloroform and turpentine, and swell up in ether. When heated they melt, and they burn with the characteristic smell of burning rubber.

From the bark the rubber can very readily be extracted. If the bark be broken in pieces and pounded in a mortar, the mass can be roughly separated into two parts, one consisting of the tangled elastic threads, with small bits of broken bark adhering to them, the other chiefly of bits of bark containing, no doubt, smaller pieces of the threads. From both parts chlorofom will dissolve out caoutchouc, a larger amount naturally from the portion which consists chiefly of the threads. Thus, a sample of the threads and bark weighing 443 mg. gave as much as 25 mg. of caoutchouc, while the remaining bark, weighing 607 mg., yielded only 6 mg. Taking the two quantities together, the yield of caoutchouc was 3 per cent. of the weight of the dry bark, and the same figure was arrived at independently by Prof. F. W. Oliver with another sample. The threads are clear and homogenous, and the only impurity in the chloroform extract seems to be a little resin, which can be washed out with alcohol. Whether the bark can be made use of commercially I must leave to those who are more experienced in technical matters. The distribution of the caoutchouc-containing cells I had been able to determine from the dry material which I first examined, and these observations were confirmed by the examination of the material preserved in alcohol. They occur in the inner portions of the cortex, very much in the position in which the latex cells of *Euphorbia* are found, but are even more frequent in the secondary phloem, where they run between the companion cells, and in both cases present the appearance of very long narrow cells, attaining such a length that one only occasionally finds their ends. In the leaf a group of caoutchouc-containing cells accompanies the ramifying fibro-vascular bundles, running just below the phlœm, while in the petiole and all along the bundle of the midrib they form two groups at the sides of the bundle, and do not run below it. The pericarp of *Eucommia*, which resembles in appearance that of the elmn is especially rich in these caoutchouc-containing cells. Below the epidermis we find a few layers of large chlorophyll-containing cortical cells, which become very much compressed in the dry fruit. Within these are the fibro-vascular bundles, the main trunks running longitudinally, and connected by branching and anastomosing lesser bundles. The longitudinal bundles have a strong group of caoutchouc-containing cells accompanying them on their inner side, and immediately beneath them we find a large mass of circularly running cells of the same nature, forming quite a dense coat of hyphæ-like thin-walled cells, showing their cell-walls very distinctly when the caoutchouc has been dissolved out by chloroform."

These investigations did not settle the position of the genus, and Mr. Weiss left the matter with the remark that perhaps the tribe Crotoneæ might include *Eucommia* in prefereuce to Phyllanthæ of the same order—Euphorbiaceæ.

Since these first researches, made on imperfect material, further knowledge has been due to the success of scientific and horticultural establishments in Paris in obtaining first dried flowering specimens and now living plants. From the museum of the Jardin des Plantes came the material whereby Prof. Oliver was enabled to publish a second figure (*Hooker's Icones plantarum*, t. 2361) and Dr. Solereder's researches (*Berichte der Deutschen botanischen Gesellschaft*, xvii, 1899, p. 387) were made upon flowers sent to him from Paris and fruits supplied from Kew; while the living plants in cultivation at the Jardin Colonial in the garden of the Faculty of Medicine, and by the firm of Vilmorin, Andrieux, & Co., have supplied material for the anatomical investigations of M. Barthelat (*Journal de Botanique*, xiv., 1900, p. 55) and the economic inquiry of MM. Dybowski and Fron (*Comptes Rendus de l' Academie des Sciences, Paris*, cxxix., p. 558).

Examination of the dried flowering specimens which had been received in 1894 from a French missionary —Pere Farges—and were taken from trees cultivated in Szechuen, caused Professors Oliver and Baillon to agree in placing *Eucommia* in the order Trochodendraceæ. Solereder refers it to Hamamelidaceæ. It is impossible to discuss here the cause of this difference of opinion; let it suffice to say that it indicates the difficulty experienced in assigning to its true position this peculiar genus. Wherever from external morphological characters we place it, the allied plants are not rubber-or gutta-yielding plants. Solereder observes this, and compares in justification of his view the Hippocrateaceæ, in which caoutchouc cells are found in certain species.

There are great differences between the caoutchouc cells of *Eucommia* and of the Euphorbiaceæ. In the latter the whole system is one complicated network arising from the branching of cells which are present in the embryo, which grow with the growing plant, ramifying and uniting, so that the outflow of one cut vessel is more than its contents, because other vssels feed it as it bleeds. In *Eucommia* the caoutchouc vessels do not branch and unite, nor are they present, according to Barthelat, in the embryo. Their contents, too, are more of the nature of gutta percha than indiarubber; and in structure they are much more similar to the cells which yield the gutta percha in *Dichopsis* than to the laticiferous vessels of *Hevea*, *Manihot*, *Sapium*, and other Euphorbiaceous plants.

To Weiss' description of the anatomy Barthelat adds somewhat. He found that the cortical parenchyma of the young stem contained abundant caoutchouc cells, sometimes running singly, sometimes two or three together. In the roots he found the same cells in the phloem, and in the petioles both in and below the phloem; while in the leaf-blades they were very plentiful, running with the nerves and branching from them to end in a swollen extremity under the palisade parenchyma of the upper surface.

Caoutchouc is thus seen to be present in every part of the plant except the wood and the outer layer of parenchyma of the young roots.

We may now leave the anatomy of the plant to quote from the paper by MM. Dybowski and Fron of the economic possibilities which *Eucommia* may possess. The following statements are translated from pp. 559-560 of their paper :—

Our attention was called to the similar way in which the contents of the laticiferous vessels of *Palaquium* and *Eucommia* become evident when the

leaves are carefully broken; and so we were led to apply to the different organs of the latter plant the procedure recommended by M. Jungfleisch for extracting gutta-percha from the leaves of the former. We experimented first on some fresh leaves of a plant of *Eucommia* grown in the Jardin Colonial. The leaves are 3 to 3½ inches long and 1½ to 2 inches wide. They are oval, pointed at the end, finely dentate, have short stalks, and in length resemble those of our common elm. Operating upon 20 grammes of dried leaves, we obtained 0·45 gr. of product soluble in toluene which corresponds to a return of 2·25 gr. per cent. This return is poor, remembering that the fresh leaves contain 70 per cent. of water. The bark is full of laticiferous vessels. But the plant which we possess being still very young, we have not been able to take any branches away for examination.

A second series of observations was made upon the fruits. The fruit is a samara, the length of it being 1¼-1¾ inches, and the width nearly ½ inch. Two hundred fruits weigh about 13 to 14 grammes. The extraction of matter soluble in toluene has given us the following results :—

1st attempt, 15 grammes yielded 4·09 gr. soluble in toluene

2nd attempt, 15 grammes yielded 4·12 gr. soluble in toluene.

i.e., 8·20 gr. from 30 grammes of matter, or a yield of 27·34 per cent. We worked with fruits not dried. The fruit contains a small proportion of water, equal to 7·4 per cent.

The product obtained is of a brown colour with metallic reflections on the surface. Plunged into hot water it becomes soft again, stretches out in thin flakes like goldbeater's skin and under pressure will take the impress of metal. In cooling it loses its suppleness and becomes quite hard.

"We have submitted the samples to M. Leaute, an authority on the subject, and he has been so kind as to authorise us to say that he considers the gutta percha of good quality. We have but one plant under observation in the Jardin Colonial, but experiments are being made as to the methods of propagating. As at present *Eucommia ulmoides* is only known to exist in China, it is not easy to get a quantity of seed; and further, germination seems slow and irregular. One sowing produced a single seedling after the lapse of six weeks, a second after five months, and others later. Fortunately cuttings seem to give better results. They will strike root at any season, and give vigorous plants ; but spring, when the branches are still leafless, seems to be the most favourable time for taking them.

Eucommia ulmoides promises to be hardy at Kew. In November 1897, M. Maurice L de de Vilmorin presented a plant to the Royal Botanic Gardens, where it has been grown successfully in the open without protection.

In Paris, where the winters are more severe than at Kew, the plant has survived through them, as testified by the following answer dated November, 18, 1899, kindly sent by M. M. de Vilmorin to a question from Kew:—

"Two plants of *Eucommia ulmoides* remained unprotected against a wall in our Paris garden during the two last mild winters, and stood uninjured through as low a temperature as 18° or 19° F."

The Jardin Colonial has already experiment in hand in Annam, Tonkin, and North Africa.

The bark of *Tu chung* had attracted attention long before the discovery of the tree to which it belonged. The following notice appeared in the Kew Report for 1881, p. 47 :—

Chinese collections of Materia Medica often contain specimens of a drug consisting of blackened fragments of bark and small pieces of twigs. These when broken across are seen to contain an abundance of caoutchouc which can be drawn out in fine elastic threads as in the East African Landolphias. Specimens have reached the Kew Museum from the Paris Exhibition of 1878 (with the Chinese name *Tu chung*), and from the Smithsonian Institution, Washington. The botanical origin has been hitherto altogether uncertain. It seems, however, probable from a notice by M. L. Pierre, Director of the Botanic Gardens, Saigon (*Excursions et Reconnaissances*, No 11, Saigon), that this drug is the produce of *Parameria glandulifera*. This is an apocynaceous climber, ascending to the summits of the highest trees; it is common in the forests of Cochin China. Specimens which M. Pierre has obligingly communicated to Kew prove that the plant is identical with a species which abounds in Southern India. M. Pierre states that "the sap which flows from the stem has exactly the appearance of milk, and may even be used as a substitute for it; and it has a slight nutty flavour. In the liquid state it is often employed in medicine by the Annamites and the Cambodians. The bark, after being dried ordinarily in smoke, is sold at 20 to 25 francs the picul=133⅓ lbs.), and exported to China. The bark is a medicinal product esteemed by the Chinese."

The real source of the drug was cleared up when the specimen of *Eucommia*, collected in Hupeh in 1887 by Dr. A. Henry, was described in 1890 by Prof. Oliver in the *Icones Plantarum*. Dr. Henry's specimens were accompanied by the following note :—

The *Tu chung* tree 20-30 feet. The bark of this tree is a most valued medicine with the Chinese, selling at 4s to 8s a lb.

Mons. Pierre concurred that the suggested identification with *Parmeria* must be abandoned.

Subsequently further specimens were received from the Museum d'Historie Naturelle, Paris. These had been collected in Szechuen in 1874 by Rev. Père Farges. They were accompanied by the following note :—

Lorsqu'on brise l'écorce les vaisseaux cortieaux s'etirent comme des fils de soies ; c'est pour cela qu'il est appele aussi vulgairement *se mien*. Ecorce officinale usitée dans les maladies des reins et comme une charpie dans les blessures.

Eucommia is a tree of mountainous districts. The name *Tu chung* is, however, applied by the Chinese to a tree of the plains, which is almost certainly a *Euonymus* and not improbably *E. hamiltonianus*, Wall. (See *Kew Bulletin*, 1899, p. 219 .

RUBBER CULTURE IN NICARAGUA.

The following report on the cultivation of rubber on the old Mosquito Coast by Mr. Gordon Waldron is interesting because of the conflicting opinions of those interested with regard to the possibility of successful and profitable growing rubber in this district.

Before 1898 there had been no rubber planting beyond a few fruitless experiments on the Atlantic coast of Nicaragua. In 1898, the work began on what may be called a large scale, and each year since the number of planters has increased. It is safe to say that in this vicinity about £10,000 in gold value is now being expended yearly in growing rubber exclusively.

PLANTING.

The method of planting followed here by all who have achieved any success has been to grow rubber entirely without shade. The best practice is to fell the primeval forest early in the dry season, viz., during March and April – to lop the branches and brush closely, and, when the whole has become dry enough, to fire it, with the result that everything is burnt but the trunks and large branches. Stakes are then set out at regular intervals over the burnt field. From the 1st or 15th of May to the 15th of June, the land is planted by setting a rubber seed to each stake, or, if seed is plentiful, two seeds, so that if one fails there may still be a tree. Where two plants come up at a stake, one is removed, and the other is left to grow permanently.

There has not been uniformity of practice as to the distance between stakes or trees. Some have planted as far as 20 feet apart, while others advocate 5 or 6 feet, the trees to be tinned out by excessive bleeding when they may be found too close together to grow fast. Opinion seems to be fixing on 10 feet as the best distance for a permanent plantation. Land measure here is in manzanas of 100 varas square*—that is to say, an area of 10,000 yards or 320 square yards more than 2 acres. The number of trees, therefore, which may be planted 10 feet apart each way on a manzana is 900. No further attempt is made at logging or clearing away the remains of the forest. Decay is extremely rapid. The land is not plowed or cultivated in any way, except by repeatedly cutting down the weeds and vegetation, so as to allow the foliage of the young rubber to be completely exposed to the agency of the sun.

The trees planted in 1898 are now three years old, and their growth has been enormous. A large number of trees grown from the seed planted in June, 1898, measured in August, 1900, on an average, 17½ inches in circumference. A few of these trees measured in July, 1901, shew an increased diameter of from 1 to 2½ inches. All the trees here spoken of are probably above the average of the whole. As to the average size of all the trees of the same age on a large area, it is enough to say that where there has been no difference of soil or attention, they have a regular and even appearence. A few planters believe that trees carefully grown and cared for will be large enough to bleed safely and profitably at five years of age. At all events, it is now established that the rubber trees can be grown to a large size in a few years.

It still remains for experience to prove the yield of the cultivated tree. That the bark of the tree is full of milk from the time it is capped by half a dozen leaves is beyond question, and why it should not yield as well as the wild tree, neither science nor ingenuity can suggest. A few months, or a year at most will settle the question in this locality.

As to cost, opinions naturally differ. It may be asserted safely that a careful planter, working a large area, may bring his trees to five years for 50 cents each, taking account of land, administration, labour, buildings, and equipment. The chief difficulty in the way of the foreigner planting rubber in this country is likely to be his inability to realize the need and cost of cleaning. This inability may lose him his first year's outlay. He may also stumble in trying to do too much. All the first planters suffered heavy loss, because they were unable to find seed, for love or money, to plant the land they had prepared. The young cultivated trees are now seed bearing, and in this locality there is now, in this respect to trouble.

In 1898, £200,000 would not have availed to plant successfully 200 acres. Minor troubles (which may become major, if one's, temper be not serene) are the labour question and the deposition to leisure, which affects all natives.

WARNING TO INTENDING RUBBER PLANTERS.

Sane and modest planting enterprises promise well but a weather eyes should be kept on stock jobbers, who have out prospectuses for the development of large tracts of forest land, on which wild rubber trees of great value are said to be growing.

This warning is based only on knowledge of this coast, and it is not pretended to make it apply beyond, though it would not be bad judgement to conclude that similar conditions prevail all over Central America.

The bleeding of rubber began here in 1855. From the mountains to the Atlantic there existed vast numbers of rubber trees. A man could go out in the morning and come back at night with 100 lb. of rubber. The wealth and commerce of the coast was built up on rubber; but the rubber tree was practically destroyed by the ignorant and greedy hulero. Comparatively speaking, but a few scattered trees survive. These are hidden in the depths of an almost impassable forest. However valuable they might be, if accessible, neither skill nor money could make them an important asset of a rubber company.

To prepare the land upon which they grow for rubber planting and save these trees is practically impossible The trees are pretty sure to be torn down by the felling of others, or burned in the clearing fire. It may be added, in support of this estimate of wild trees, that the huleros, or rubber cutters, preferred to work in the camps of the rubber planters for about £2 4s. per month than to seek vast wealth in the forest —*India-Rubber and Gutta-Percha Trades' Journal.*

CARDAMOM CULTIVATION IN COORG.

A correspondent writes to the *Madras Mail*:—The familiar cardamom of commerce is the produce of a plant which is botanically known at *Elettaria Cardamomum*, and is indigenous to the hilly parts of Cochin China, Travancore, Malabar, Coorg, Munjerabad and Nugur. It grows abundantly, both wild and under cultivation, in the moist shady mountain forests of North Canara, Coorg, and Wynaad, at an elevation of from 2 580 to 5,000 feet above sea level. It is found truly wild in Canara, and in the Anamali, Cochin and Travancore forests. On the lower range of the Pulney hills, near Dindigul, at an elevation of 5,000 feet above the sea, it is systematically cultivated in the shade. There is also a small Cardamom Island in the Laccadive group of atolls. The plant grows as a spontaneous seedling in woods of high land, the cultivation consisting merely of clearing the ground from trees. Fructification occurs in the fourth year as a rule, after which the plant produces fruit for five or six years. A rich moist soil in a bracing hill climate, within reach of sea breezes and favoured by deep shade and partial sunshine, is most congenial to the plant, while it attains perfection in a light layer of vegetable mould, resting on decayed primary rock. In the vicinity of streams and in localities subject to mists and fogs it also thrives remarkably well.

Its cultivation by the natives of Coorg presents several interesting features. The people firmly believe that the plant will only grow in places where the ground has been shaken and opened up by the fall of large trees. In February or March, the cultivators proceed to the forest and map out the boundaries of gardens. Having selected some large trees for felling, all the undergrowth near them is promptly cleared away. A platform is erected near the foot of the tree selected to be cut down. All this has to be accomplished in a day. The following morning the felling begins, and is completed by noon—for to prolong the work further is considered unlucky. Several gardens are thus prepared, with spaces of jungle between each of them. Within three months of the felling, or during the first monsoon rains, the young plants shoot up on all sides, chiefly round the stems of the fallen trees. By the second year they are two feet high. Now regular weeding operations are carried out. Each plant is allowed six feet of clear ground around it, the weaklings being removed. Early in the third year long shoots bearing the cardamom pods shoot forth from the ground. They are marked with beautiful pale white solitary flowers. The fruit is an ovate triangular three-celled three-valved capsule of a dirty yellow colour, enclosing numerous angular seeds, which form the valuable part of the plant, and which, if bruised, yield a pungent aromatic taste.

By September or October of the third year, the capsules ripen, and the first crop is gathered, a portion of it being offered to the deity. The next year a full harvest is collected, and then the plants go on yielding for about six or seven years. After this, they begin to weaken down, when large trees are again felled so

as to fall across the sickly plants. Young plants then spring up, while fresh stems shoot out from the roots of the old ones, and the new comers bear fruit in due course, dying down after five or six years, to be again succeeded by another generation produced by the process above described. The hill cultivators have their own superstitious notions, of course, but it is not difficult to explain rationally the good effects of the process of felling. The removal of the large trees admits a certain amount of sunlight; their heavy fall loosens the soil and opens it up to the action of the air. The cutting down of the undergrowth, which decays and dies where it drops, helps to fertilise the soil and to prevent its nutritive properties from being exhausted. The crushing of the plants at intervals of six or seven years by means of further felling merely serves to give them much-needed rest, after which they come up again, rejuvenated and vigorous.

Harvesting operations begin in September or October, and they present a really picturesque scene, though it is undoubtedly hard work for the harvesters, who have to put up with many discomforts and be prepared any moment for unpropitious showers of rain They build little huts in the jungle, and in the centre of the floor a large pit is dug, about three feet deep, that will hold about eight or ten maunds of cardamoms. The sides of the pit are covered with leaves, and a circle of stones is arranged round the top to prevent dirt from falling in. At early dawn, one group of harvesters sets out to clear the gardens of weeds and undergrowth, and a little later, a second group follows. These pluck the clusters of cardamoms by hand, breaking off the racemes very close to the stems and dropping them into baskets made of leaves. At sunset, all return, bearing their precious loads. At night, after a simple meal, the capsules are picked from the branches and thrown into the pit—a task which is sometimes carried on late into the night. After a little sleep, the men rise betimes and proceed to the gardens, and the whole programme is repeated until the harvest has been fully collected.

Meanwhile, the women come from the villages to the huts, and measuring the cardamoms into bags, carry them to the drying ground. They are best dried by exposure to the sun, being spread out for the purpose on large mats, and taken in at night. Four days' good sun dries them properly, but too much exposure would result in the bursting of the capsules. After being dried, they assume a yellowish white colour. If rains comes down, the drying is effected by means of the smoke of wood fires, but by this process the cardamoms turn a darkish colour, which reduces their value. The last process, before the dried capsules are packed in close baskets and made ready for market, consists in removing the fruit stalks and all impurities. Precautions are also taken to keep dry and green capsules apart; besides which, different qualities of capsules are carefully separated, those having the largest number of fruit bearing racemes on one stem fetching the best price and being technically known as "full crop."

The Coorgs have several superstitions regarding the cultivation of cardamoms. The felling of the big trees must be completed by noon, for it is deemed unlucky to fell in the afternoon. Tuesday and Friday are considered very auspicious days for beginning cultivation, whereas Sunday is always avoided as unlucky. The presence of certain plants, such as ebony, dammer, wild nutmeg and wild pepper, near the felled trees, is looked upon as a sure sign that the site cleared for new gardens is favourable for a rich crop. To ascertain this, a few big trees are sometimes felled one year and the following year, the presence or absence of the lucky trees just named is looked for, and only if they are found is the site used for a garden

Cardamoms serve a great variety of purposes, and possess, therefore, considerable commercial value. In commerce, several varieties are distinguished according to their size and flavour. The most esteemed are known as "shorts," being from a quarter to half an inch long and about a quarter broad. Following those come "short longs" and "long longs," also distinguished by their size, the largest reaching about an inch in length. The "shorts" are more coarsely ribbed and of a brown colour. They are commercially called Malabar cardamoms or Wynaad cardamoms and reckoned the best of the tree. The "long longs" are more finely ribbed and of a paler colour, the seeds being white and shrivelled. The "short longs" differ from the latter only in being shorter or less pointed. Large cardamoms, distinct from these, are furnished by a different species of *amomum*.

In Travancore, where the cardamom grows spontaneously in the hills, in the deep shade of the forest, the cultivation has hitherto been almost entirely in native hands. The cultivators early in the season go up from the low country, cut the brushwood, burn the creepers and otherwise clear the soil for the growth of the plants as soon as the rains fall. The rainy months are terribly malarious, so the cultivators hurry back, to return at crop time. Till a few years ago, cardamoms were State monopoly, but this system has been almost totally abolished and a system of land-tax introduced instead, with considerable profit to the Sirkar. In Coorg and Wynaad also, the industry is almost entirely in native hands, though the cultivators can always obtain remunerative prices from planters and European merchants. On the Anjer Kandy Settlement, near Tellichery, there are fine gardens, which yield very satisfactory returns.

The cardamom is not very largely used in English cookery, but in Northern Europe it is extensively consumed, being much in requisition for flavouring pastry. In India it is greatly prized, and is an article of almost daily use, being substituted for tobacco as well as for betel and pan, as well as partaken of in conjunction with these articles. The capsules are used by natives in flavouring sweetmeats and certain cooked dishes, while, when tender, they are pickled. The use of the spice both as a medicine and a luxury has gone up steadily, so that cardamom cultivation, systematically conducted, would be a suitable industry especially for native capitalists and planters. The cost of cultivation does not amount to much, while by the adoption of improved methods, such as timely transplantation, trenching, manuring and irrigation, quantity and quality of crop could both be substantially improved. The plant easily repays care bestowed upon it, almost the only necessary conditions being that it should be raised on congenial soil and harvested and cured with due regard to the needs of buyers and consumers.—*Indian Agriculturist*

VALUE OF WOOD ASHES.—The three valuable fertilising elements found in wood ashes are potash, phosphoric acid, and lime. The value of a sample of wood ashes was formerly measured by the amount of potash it contained, but now that the value of lime is more generally recognised, that element is considered. The value of any sample of ash will depend on the wood which was burned to produce it, and on the way it was burned. If exposed to the weather heavy rains will leach out some of the potash. It is probably safe to assume that the average ton of wood ashes kept under cover contains 5 per cent. of potash, 1½ per cent. of phosphoric acid, and 33 per cent. of lime. The phosphoric acid in ashes is insoluble, but the potash and the lime are both in good form for plant feeding. Wood ashes have a mechanical effect on soils. They bind the lighter sandy loams more closely together, thus making them better able to hold water. The lime acts beneficially on clay soils by pulversing them. The potash lye from the ashes, in solution, has power to dissolve organic matter, and thus making nitrogen in the soil available. Wherever wood is burned on the land very rank growth is sure to follow. This is not all due to the potash left in the ashes from the burning, but because that potash helped to make the nitrogen in the soil available for plant food.—*Journal of the Department of Agricualture of Western Australia.*

AIRBORNE TYPHOID.

BY LIEUT.-COLONEL R.H. QUILL, R.A.M.C.,

[LATE] SENIOR MEDICAL OFFICER, CEYLON.

At the late meeting of our Association, Dr Leigh Canney read a very interesting paper on the Etiology of Typhoid Fever, in which, while strenuously supporting the proposition that epidemics of typhoid fever are always waterborne, he vigorously denounced those who ventured to believe that such epidemics could sometimes be traced to an airborne origin. I should like to say, at the outset of the remarks I have to offer on Dr Canney's proposition, that I, in common, as I believe, with the officers of the R A M C, as a body, hold that epidemics of typhoid fever are chiefly waterborne, and it is to the water supply we first turn our attention, when investigating the origin of typhoid cases, occurring sporadically or epidemically. But I am entirely at issue with Dr Canney when he lays down the hard-and-fast proposition that typhoid epidemics are invariably waterborne—never airborne. The subject is one of far-reaching importance, well deserving of full discussion. I will therefore, as briefly as possible, adduce evidence to prove that the wateroorne theory will not *always* account for the occurrence of a typhoid epidemic. My facts will be drawn from our experience in connexion with the large camp in this Island where Boer prisoners of war are confined. In August, 1900, a large camp was formed at

DIYATALAWA,

in the hills of Ceylon, for the Boer prisoners of war. The first batch of prisoners arrived on August 9th, and succeeding batches quickly followed, until by the end of December 96 officers and some 5,000 men were under confinement. On September 21st, 1900, one of the prisoners who had arrived on September 5th reported sick. He was found to be suffering from typhoid fever of probably ten or more days' duration. This was the commencement of an epidemic of typhoid among the prisoners, which soon assumed formidable proportions. By the end of December 600 cases had been diagnosed as typhoid fever, and during the same period some 200 cases of simple continued fever occurred, many of which, it is highly probable, were mild cases of typhoid. We fully satisfied ourselves that this epidemic of typhoid among the prisoners had been imported from South Africa, but in that connexion I refrain from further remarks, as it has nothing to do with the proposition I have set myself to prove. It is here necessary for my argument that I should briefly describe the relationship which exists between the prisoners' camp and that of the surrounding camp, where is located the military guard. The prisoners' camp, situated on an undulating slope, is surrounded with a strong fence of barbed wire; outside that fence are inner and military guard lines. The "inner guard" consists of a number of sentry boxes at intervals of 100 yards, and placed only some 20 yards from the barbed-wire fence. The "outer guard" consists of guard huts occupied by strong guards, placed on rising ground some 200 yards further back. The latrines, urinals, washhouses, and hospitals for the prisoners are all situated close to the barbed-wire fence which surrounds the prisoners' camp as a whole. The guard for the prisoners was formed by the 2nd Battalion, King's Royal Rifles, who were a fine healthy body of men. No suspicious fever of any kind, prior to the outbreak among the prisoners, existed among them. The battalion remained in a thoroughly satisfactory healthy condition until October 18th, 1900—that is, for over two months after its arrival at Diyatalawa, and for a month after the first case of typhoid occurred among the prisoners

On October 18th a man reported sick; he was found to be suffering from fever, which quickly proved to be typhoid. From that date admissions for typhoid among the battalion occurred at short intervals, until by the end of December there had been altogether 24 admissions and 5 deaths. Now in attempting

TO ACCOUNT FOR THIS OUTBREAK OF TYPHOID FEVER AMONG THE MILITARY GUARD

at Diyatalawa Camp I commence by advancing the following evidence against the outbreak having been in any sense waterborne:—

1. The water supply was obtained from a mountain stream some three miles distant, and was brought into camp by underground iron pipes. The intake in the hills was so isolated that its pollution was, indeed, very remote. On the arrival in camp of the main iron pipes, smaller ones passed directly into four large Pasteur tank filters disposed about the camp in suitable positions, while in each barrack hut portable Pasteur or Berkefeld filters were placed and kept under careful supervision; thus all water used in the camp before its distribution invariably passed through a thoroughly reliable filtering medium. The water prior to filtration was subjected to a weekly chemical analysis, and the report always gave the water a high character; a similar verdict followed frequent bacteriologicol examinations, There has been no alteratión in the water supply or filtering arrangements since the camp was opened, and no case of typhoid fever has occurred among the troops since December, 1900—that is, since the practical cessation of the epidemic among the prisoners of war.

2. No fresh milk was allowed within the camp precincts. When milk was required condensed milk (Milkmaid Brand) was used.

3. All aerated waters used in camp came from the Ceylon Brewery at Nuwara Eliya, and were identical with those used at that sanatorium. There has been no enteric fever at Nuwara Eliya.

4. No uncooked food or uncooked vegetables were used in camp.

5. No native hawkers of any kind were allowed to enter the camp.

6. Within the camp there were five or six native shops; these were under strict military supervision. No native drinks of any kind were sold in them. The aerated waters sold in them were invariably procured from the Ceylon Brewery at Nuwara Eliya.

7. All men leaving the camp for purposes of duty or pleasure were obliged to take with them a water bottle filled with filtered water.

8. It is to be remembered that for obvious military reasons the camp was situated in an isolated position in the hills, far removed from habitations of any kind.

As the foregoing considerations, in my judgment, completely put out of court a waterborne cause as being responsible for the typhoid outbreak in the military camp, I was driven to the conclusion that the infection was airborne, being derived from the adjoining prisoners-of-war camp, where at the time an epidemic of typhoid fever was raging. In support of that opinion I submit the following observations:

1. Guard huts, accommodating strong guards, surround the prisoners' lines, and are close to them. This for military reasons is unavoidable.

2. The men on sentry duty are during day and night posted at short intervals almost immediately outside the barbed wire enclosure which separates he prisoners from the military camp. Thus those on sentry duty (a numerous body of men) are in close contact not only with the prisoners, but with their latrines, urinals, and washhouses, all of which, as I have already stated, are situated close to the barbed-wire fence. The undesirability on health grounds of the line of sentries being placed so close to the prisoners' camp was fully recognised, but for military reasons it was not found possibleto alter the arrangement. From the foregoing remarks it will be obvious that those on duty in the guard huts and sentry boxes must be to a very appreciable extent exposed to the emanations arising from the latrines used by the prisoners of war, especially during the time when the latrines are emptied—a frequent necessity. Now assuming that such emanations contained typhoid organisms—not a very far-fetched hypothesis when we remember that at the time typhoid fever was very rife in the prisoners' camp, and further assuming that typhoid infection can be airborne—the possibility, nay the probability of the infection being thus conveyed from the prisoners' camp to the military guards appears to be well-founded.

3. But in addition to the assumption that the emanations from the prisoners' latrines may have conveyed infection to the military guard, it has to be recorded that the soil of the prisoners' camp gave peculiar facilities for the spread of the infection. The rank grass which originally covered the slope upon which the previous camp was arranged very soon disappeared, giving place to a reddish soil, so friable that dust was much in evidence, notwithstanding that it was the rainy season of the year. Now it is not unreasonable to reject as pure the dust of a camp in which at the time a formidable epidemic of typhoid fever was prevailing.

4. Lastly, the possibility of the infection being conveyed to some extent by flies must be considered. During the whole period that typhoid fever was prevailing in the prisoners' camp, flies in that camp amounted almost to a plague, the military camp being also infested, but to a lesser extent. Now flies being well adapted for the carriage of infection it is plain that, under the conditions existing in the prisoners' camp, there would be nothing to prevent flies laden with typhoid bacilli migrating from the prisoners' to the military camp, and thereby conveying to the latter camp the poison they carried.

I have endeavoured in this paper to review dispassionately the evidence bearing on the causation of the typhoid outbreak which occurred among the military guard at Diyatalawa Camp, Ceylon, during the closing month of 1900. I submit that I have shown—

(*a*) That all water avenues through which typhoid fever could have been conveyed to the military camp at Diyatalawa, were efficiently guarded, and therefore that a waterborne origin must be abandoned.

(*b*) That the infection was airborne, resulting from emanations from specifically infected latrines, infected dust, or bacilli-laden flies.—*British Medical Journal*, Feb. 15.

ENGLISH MERCHANTS IN THE FRENCH CONGO.

RUBBER AND OTHER PRODTCTS.

(*To the Editor of the "Times."*)

Sir,—I have read with considerable surprise a paragraph in your issue of May 29 setting forth a communication from the French Colonial Minister relative to the position of the English merchants in the French Congo. I propose to deal briefly with this communication and to refer to the character and gravity of the conflicts of private interests, without misrepresentation or exaggeration.

It is quite true that the litigation has been between private firms; but this has arisen entirely from the action of the French Government in granting concessions to certain new companies in Paris, to the detriment of the old firms who have been established and trading in the colony for over 40 years. In my own case my experience extends over a longer period, and my firm has paid many thousands of pounds to the French colonial authorities for duties, patents, &c. The greatest cordiality existed between the Government and the merchants until the granting of these concessions. The trading was also uniformly carried on, without litigation or trouble, and, I venture to assert, to the benefit of the colony and the natives of the country.

To those unacquainted with the nature of the trade it may be interesting to state that the produce of the soil, indiarubber, palm oil, palm kernels, ebony, and the ivory tusks of the wild elephants, comprise what the native has to give in exchange for cotton manufactured goods and other imports. The commercial intercourse of the *Hinterland* is by a system of barter between what the native has to offer and the Europeans to give in exchange.

The French Government by the granting of these concessions has handed over large tracts of country to certain companies, who claim the produce of the soil which the native innocently believed belonged to him and which he is now prevented offering to the English firms, though most anxious to do so. The freedom of trade to which reference has been made used to exist, but does so no longer. It cannot be called "freely carrying on their business" to be shut up in a factory, on a piece of land about 100 yards square, and not allowed to buy any produce from the natives; yet that is the position these concessions have placed us in today. The monopolists have closed the trading routes against us, seized our produce, and by the course of litigation, already referred to, obtained damages against us, presumably for trespass and illegal trading. Some of these trading centres are in the conceded area, and the situation of others is uncertain, because, so far as I know, no complete boundaries have been defined, except on paper. In proof of the uncertainty to which I refer, I may instance a dispute which arose not long ago between two of the concessionaire companies, also a case in March last, when a seizure of a quantity of indiarubber was made from one of our traders at M'Beka. I do not know the exact position of this place, and although I have made inquiry, have not succeeded in getting the information, but am informed that there is a doubt as to which concession it belongs to. What the English firms complain of is that, having traded in the country so many years, before the advent of the French authorities in the *Hinterland*, subsequently under French rule by licenses

granted and paid for, and having invested labour and capital, they consider they have acquired certain invested interests which are now being taken from them without any consideration whatever. What the English firms say is, if you are determined to drive us out of the country, pay us for our factories and goods, also a fair sum for disturbance, and we are ready to leave the colony. We have endeavoured to do our duty as good colonists. Let the French Minister for the colonies inquire from the natives of the Ogowé and N'Gomie, far and wide, what they think of Hatton and Cookson, and then let the Minister realise that in relinquishing our position we are saying good-bye to very old and faithful adherents among the native population with sincere regret. I am, Sir, yours faithfully,

EDWARD H. COOKSON,
Managing Director, Hatton and Cookson Limited. Liverpool.—London *Times*, June 16.

PLANTING IN B. C. AFRIGA.

(*From our Correspondent.*)

Mlanje, British Central Africa, June 24.

I have been up for a change to our mountain sanatorium, and had to run from it owing to the cold. My house is at 6,800 ft. elevation. The thermometer registered 44 deg. at 6 a.m., 60 deg. at noon, and 50 deg. at 6 p.m. during the week I was there. How does that temperature compare with Nuwara Eliya?

COFFEE CULTIVATION IN BRITISH CENTRAL AFRICA

is not proving the successful enterprise that was anticipated some years ago. Much land was planted with coffee (like scrub or chena lands in Ceylon) which only gave a crop and pegged out. Even on good forest clearing with or without shade crops it cannot be depended on to come up to estimates owing to various causes, principally insect pests, thripps, bug, &c. &c. Labour is abundant now. The hut tax has been raised to 6s. I am turning away people daily who come for work, and I have none to give them, as I am as clean as a new pin, tea cut down, and coffee crop finished and despatched. Many planters, who have given up coffee, have gone to transport and trading work. Others are going in for tobacco planting which should yield them a good profit. I have got some 30 acres in cultivation this year. A very good market for tobacco is found in S Rhodesia, and if we get into the South African Customs Union there ought to be an unlimited market for us, which at present, is practically shut, owing to the protective duty. Food and labour are becoming cheaper instead of dearer. I know one man who paid his last gang of people off with Calico at the rate of 1s 6d for men, 1s for women and 6d for children, per month, last week. I am paying 2s for men, 1s 6d for women, and 1s for children.

OUR RAILWAY

seems as far off as ever, no start made yet. I hear that, owing to the war (which, thank, goodness, is now concluded) the whole amount of capital was not subscribed, and that the Government would not allow Messrs. Sharrers' Zambesi Traffic Company to begin work till all the capital was secured. Mr Stephen Robins, who was on Laelumza, the Nyassland Company estate, has secured a billet in the B C A administration and has gone to Fort Johnston, coffee ventures not having proved an Eldorado to him.—H. B.

P.S.—I enclose some photos. I regret my plates were spoiled with the damp during the rainy season. So no good results to show.—H. B.

TEA CULTIVATION IN NATAL.

Reuter's correspondent in Natal, who, we believe, is Mr Charles H Lepper, formerly a tea planter in India, in describing the industries of the colony, devotes some space to tea. He says: "The more important tea estates are situated on the north coast in the vicinity of Stanger, a small village in the warmest corner of Natal, not very far from the mouth of the Tugela River, dividing Natal from the Province of Zululand. The estates are a few miles inland from Stanger, and have been connected with that place by a narrow gauge (24 inch) steam tramway, eight miles in length, by the enterprise of the local managing director of the most important of the tea companies. The two leading companies hold adjoining estates, the larger known as Kearsney, and the other belonging to Messrs W R Hindson and Co.; Limited, proprietors of four gardens forming one property. The Kearsney is considerably the larger of the two, and has about 1,750 acres under tea of all ages. The 'jat' upon this estate is a good strong Assam hybrid. The output of 1901 was close upon one million pounds. The soil is friable, sandy in places, and of the red loam class in others. The bushes in parts of the estate are very well grown and equal to those one sees in Assam and Cachar, and considerably better than the average in Dehra Dhun. The vacancies are chiefly upon old sites of Kaffir huts, upon which tea cannot be got to grow, owing to the excess of potash in the soil. The bushes come into bearing in their fourth year, and are expected to yield in that year 400lb to the acre, or under favourable circumstances 500lb. When in full bearing, in the fifth year, the average yield is about 600lb, and in a good season reaches an average of 700lb. To bring an acre into its fourth year is estimated to cost £30, but there are considerable risks; as after seedlings have come on well during the first portion of their growth, should a hot wind come it will sometimes kill off every seedling of that season's planting, in spite of any shelter which can be provided. Happily the labour employed is almost exclusively that of Indian coolies, imported under 'indentures' for five years. The class of coolies imported into Natal, chiefly from Madras, the rest from Bengal and the North-West Provinces, is not to be compared, either in physique or in character, with those employed in Assam or Cachar. Like all the coolies imported into Natal, they are of a very inferior type, and most of them would not be able to earn their living upon an Assam estate. I also visited W R Hindson & Co.'s estates. These, the second in importance in Natal, possess an aggregate of about 800 acres under tea of all ages. The output in 1901 was given me as 400,000 lb, and this year it is hoped that it will be increased by 50 per cent. The wholesale prices obtained by Natal tea estates upon the South African market run from 7½d per lb for the lowest (very coarse) quality called 'extra fine Souchong' in metallic paper packets, or 7d per lb in boxes of 14 lb and upwards, up to 1s 6½d per lb for the highest quality (Orange Pekoe) in 1lb packets, or 1s 6d in boxes. A half-penny per lb extra is charged if purchases are of less aggregate weight than 600 lb."—*H and C Mail*, July 4th.

PLANTING NOTES FROM THE SEYCHELLES.

Specially written for the "Ceylon Observer.)

Seychelles, July 10.

MR. R. W. SMITH OF THE CEYLON P. W. D.

arrived here about a month ago from Ceylon *via* Mauritius. Why he was sent this round-about way, when there are direct steamers every eight

weeks between Colombo and Seychelles, is a secret known only to those who rule in your part of the world. He was accompanied by Mrs. Smith, a Sinhalese clerk and several coolies. After a day or two, arranging matters with our Administrator, the party went over in the Government cutter "Wave" to Félicité Island. Mr. Smith had left Ceylon under the impression that Félicité had only its name to recommend it and that he and his party would have a pretty rough time of it when they got there. However, being well supplied with tents and camping gear, they hoped to get along somehow. They were considerably and rather agreeably surprised on reaching Félicité to find a nice little stone bungalow, newly whitewashed and painted, awaiting them. The coolies were lodged in the island hospital where they also soon made themselves thoroughly at home.

FELICITE

is an island of about 700 acres. It is Government property, but leased on a long term to Messrs. Baty, Bergne and Co. of Victoria. This firm are the principal holders of islands in this part of the world, they being lessees of the Aldabra and Cosmoledo and most of the Admiranté Archipelagoes. Félicité is a very mountainous island and planted partly in

VANILLA AND COCONUTS.

It produces at present about 50,000 nuts a month, but will soon produce considerably more when the younger plantations of coconut trees come into bearing. A large quantity of vanilla was planted on Félicité some years ago, but for some unknown reason it has never done well there.

This is not the first time that Félicité has been used as a

PLACE OF DETENTION FOR POLITICAL OFFENDERS.

The ex-Rajah of Perak (Strait Settlements) was confined at Félicité for nearly two years before he was allowed to reside at Mahé. In the good old days, before the French occupation, Félicité seems to have been a rendezvous for pirates. At the north end of the island there are several old walls and other signs of a former occupation. Several Spanish coins of about 1650-1700 have been from time to time picked up in the neighbourhood and this gives colour to the belief that it was a pirate haunt. *Quién sabè*?

Mr. Smith was naturally very interested in seeing our

SEYCHELLES METHODS OF WORKING COCONUTS

and comparing them with what is customary in Ceylon. To begin with, nuts are never picked off the trees. In fact, if even a labourer were caught doing so he would be severely punished. Coconuts here are largely converted into oil, and we believe that the longer a nut is ripening the larger the oil cells in the copra. Here nothing is done with the coconut husks, no coir is manufactured. Mr. Smith was also very interested in our methods of drying copra. All over the Seychelles we have what is known as *secheries* (drying houses). These are of two kinds, either fixed trays and sliding roofs or sliding trays and fixed roofs. The sliding trays or roofs are on wheels so that one or two people employed about the headquarters of an oil estate can protect in a few moments many tons of drying copra from a sudden shower of rain.

THE EXPORTS OF GUANO

from Seychelles are steadily increasing. The barque "Cape Race" sailed a few days ago with 1,000 tons for Falmouth for orders. A large Norwegian barque is loading a cargo for Antwerp, and the Colonial three-masted schooner "Ebenezer" is about to load 800 tons for Port Louis, Mauritius. Our Seychelles guano is a dark brown impalpable powder, something like cocoa, but without any smell. It is poor—very poor—in all manurial qualities except phosphates. It is not worth much in itself but a splendid stuff with which to mix other manures.

VANILLA PLANTING AND CULTIVTION.

The following memorandum has been issued from the Government House, Seychelles :—

MEMORANDUM.

No vanilla plantation should be started in Seychelles with a capital of less than £1,000, seeing that it takes three years to bring in a crop. Land suitable for vanilla, cacao, coffee and other tropical products cannot be secured for much under R300 per acre, and even at this price, it is not easily obtainable. The ordinary rate of interest in Seychelles is twelve per cent per annum. The local currency is the Rupee, the value of which may be taken as 1s. 4d. Under the old system (planting on bars, wires, etc.) from 1900 to 1300 vines were planted per acre. Vanilla is now planted on live trees, and the number of vines planted depends upon the number of trees existting on the land brought under cultivation. Cuttings of quick-growing shrubs are now often planted in vacant spots, and vines are grown thereon in the absence of trees, and within three months of the planting of the cuttings. Vines are planted 6 in. long, and began to bear three years after planting, but will only come into full bearing in three years more. Vines are worth per 100 from R3 to R5 according to district. Wages: men R14 to R16, and women R8 to R12 a month, without rations. On hill estates labourers are not easy to get, and most of the Africans prefer working on the share system. A man can plant 350 cuttings or vines per day, and can keep in good order, throughout the year, 2,500 plants. Women are employed for marrying the flowers *i. e.* removing the pollen from the anther of the flower and applying it to the stigma (fertilisation), without which operation the flower is lost. A woman can marry from 600 to 800 flowers per day. No flowers can be married after midday. Each vine can produce from 25 to 30 pods of different sizes, from 4 in. to 8 in. long. On an average 130 green pods go to 1 lb. of dry prepared vanilla. Pods shrink considerably in preparation, losing a quarter of their weight. Local prices: last year (1901) fine pods prepared fetched R6 to R10 per lb. Green pods are now being sold at R3 to R5 per hundred pods. The regular flowering season is from August to December. The cost of preparation varies from R1 to R1·25 per pound. The pods are gathered about nine months after the flowers have been married, and curing the pods takes from three to four months. In Seychelles, as elsewhere, there are bad seasons (too much rain), in which case the yield is poor. The climate of Seychelles is very healthy. The population on the 31st May, 1901, was 19,257. The death rate in 1901 was 18·77 per 1,000. The Seychelles are in direct steam communication with Aden and Mauritius by a monthly service of steamers of the Messageries Maritimes Company, and with Colombo and Mombassa by a bi-monthly service of steamers of the Imperial German East Africa Co. Steamers belonging to the British India Company call, from time to time, at Seychelles. The Eastern Telegraph Company has a station at Victoria.

The rainfall in 1901 in Victoria was 101·83 inches. The maximum shade temperature registered was 88·5, and the minimum 68·4; the mean for the year being 78·50.

Total revenue for 1901	...	R486,323·98
„ Expenditure for 1901	..	401,821·57
„ Surplus for 1901	...	R84,502·41
Declared Value of Exports, 1901	...	R1,417,515·19
„ „ Imports, „	..	R1,149,646·21

Hotels.—Only one, small and uncomfortable.

No cyclones.

Principal merchants: Affoi & Co.; Boustead, Sons & Co.; Baty, Bergne & Co.; D' Emmerez & Co.; E. Lanier & Co., Said & Co.; L Deltel, Son & Co.; P. Marvanji & Co.; Temooljee & Co.; K C Chetty & Co.; and K S K Naiken & Co.

TEA BOXES:—VENESTA, LIMITED.

(Extracts from Proceedings at Fourth Annual General Meeting.)

It requires many tons or millions of feet of Venesta boards to amount to the total turnover of last year, namely £54,500, as well as a great deal of hard work in the manufacture, disposal, and shipment of the goods. Perhaps I may here point out that this turnover has been created on an available working capital of about £3,000—which may possibly convey to you some idea of the care and close attention that has been necessary in the management of the business. I am glad to be able to add that the six months now closing show further proportionate increases, and unless any unforseen circumstance arise the totals for 1902, both in export and home trade, should show a larger turnover than in any previous year. The export department has been affected by the general conditions of the tea industry. Several of our buyers of tea chests held over rather large stocks of chests from 1900, and the restrictions in the picking of teas reduced the quantity of chests required for the season. As you will see by the report, our total shipment of tea chests for the year 1901 was 296,000 while for this year in this first six months I am glad to tell you we have sold 258,000 tea chests, and expect by the close of the year to finish with sales of about 350,000. Mr Penny, who has recently returned from Ceylon and Australia, has, as might be expected by his energy and ability, done good service for the company, and cleared up some important points of difficulty, and while visiting several of the tea gardens has brought the advantages of our tea chests practically before the managers and growers, from which good results may be looked for. I regret to have to tell you that the lead mill, which ought to have been completed last June, did not get to work until November, and then not successfully, and therefore did not contribute to the profits of the year. The reason for this was that our consulting engineer made some errors in his design of the mill, and consequently alterations have had to be made in the machinery, which has caused considerable delay in completing the plant, together with some loss of profit. You will, however, be pleased to hear that these difficulties have been overcome and that the mill is now in good working order and capable of turning out all the lead we require for all our trade. The working of this lead mill and the convenience we experience by being able to ship all the necessary parts and fittings of our tea chests from our own factory will greatly facilitate the working and contribute to the profits of the business. We have now a staff of experienced work-people (about 100), who have acquired an expert knowlege of how to put our boxes, cases, and fittings together, and we are also fortunate in possessing an efficient foreman of each department, all of whom are controlled by our able and excellent works manager, Mr Whitt, who has always shown considerable interest and intelligence in the performance of his duties. The Russian business has shown further increase in the department of furniture, seating, hat boxes, &c. The works at Reval, which occupy a space of about thirteen acres, part of 54¼ acres owned by the company, and employ about 1,500 hands, are well maintained, and consist of some of the most modern machinery suitable for the purposes of the business, worked by electricity of about 900 to 1,000 h.-p. The factory specially erected for the manufacture of Venesta boards is capable of producing about 30,000,000 ft a year.—*Home and Colonial Mail*, July 4.

TREE-GROWING AT A HIGH ELEVATION IN CEYLON:

THE BEST-WOODED PLANTATION IN THE ISLAND:

ABBOTSFORD REVISITED.

We suppose we may, without presumption, speak of the Tea and Cinchona plantation identified with the name of the late Mr. A. M. Ferguson—and with that of his son, the present proprietor,—as, without exception, "the best-wooded" private estate in the island. The late proprietor took a special delight in getting seed and plants of trees likely to grow in the soil and at the elevation of Abbotsford from every quarter he could hear of in India, Australia, Java, the Straits and England or Scotland. There were, of course, many failures; but also many successes in his introductions and for the last six years of his life he had the great advantage of the counsel and aid of the present Manager of the Estate who knew a great deal about Forestry before ever he came to Ceylon. The result is that, so far as the introduction and cultivation of a great variety of Australian Eucalypts and Acacias, Javanese "Albizzias," Himalayan Toons, Birches and other trees, Japanese and English Firs, with pines and oaks; and a considerable variety besides,—Abbotsford presents an "experimental plantation" in Upper Dimbula, comparable —*longo intervallo*— to even the "Hakgala Gardens" on the other side of the range facing Uva. Indeed the experienced and enthusiastic Superintendent of Hakgala was, some time ago, astonished and delighted to see the conjunction in Lower Abbotsford of so many palms—Australian *Coryphas* and even *Caryota* flourishing: difficult if not impossible to grow in his colder climate—along with English, Himalayan and Japanese introductions. One of the finest English oaks we have seen in the island is here—a tree of, perhaps, 25 feet high; but, curiously enough, it practically stopped growing six years ago and does not now make an inch a year in growth. An oak and a palm, within a few yards of each, form an interesting conjunction. We have not seen the Gangaroowa "Albizzias"—which are realising R15 each, no doubt greatly because of their proximity to the Kandy timber market—but it would be hard, we think, to beat the trees of this description on Abbots-

ford, some of them 17 to 18 years old and great giants. *Auracarias* here and there diversify the outlook. One of the most strikingly handsome trees, scattered over the plantation, is the Himalayan Birch-tree (*Betula Acuminata*)* which, though not tested yet, must offer a very substantial timber, perhaps too hard to work by the carpenter (in a land where bobbins are not in request)—but at any rate invaluable for rough building work on an estate and for firewood if the necessity should arise.*

EUCALYPTS.

Along the roadside, too, there are some magnificent trees of *Eucalyptus pauciflora*; while there is one specimen of the attractive *E. Ficifolia* (rare in Ceylon) with its peculiar scarlet blossom; while higher up we noted grand specimens of *E. Calophylla.* Very striking also is the giant Eucalypt—*E Amygdalina* or white gum—to which species in Australia belong the highest trees in the world. Here they grow to, perhaps, 100 feet; and the contrast is interesting between the red (*E Rostrata*), and the other two gums growing alongside :—

THE RED, WHITE AND BLUE!

Of blue gum (*globulus*) not many trees remain; for the reason that they have chiefly supplied firewood for the Factory tea driers (power is got from the river fortunately) during the past ten years, so that there has been no trenching on the forest reserve.† A curious discovery about the blue gum was that, while flourishing apace on the lower division up to 5,500 feet, it did not grow at all well on Upper Abbotsford—although strangely enough there are magnificent trees in and around Nuwara Eliya still higher up. The late Mr. Ferguson and his Manager were so convinced as to the comparative failure of this tree that they gave special warning to the Government Forest Officers not to waste time and money by trying plantations of it in the adjacent jungle clearings; but their advice was not heeded, with the result that today the five-acre clearings planted with blue gums in the jungle by the old road to Nuwara Eliya are poor affairs—and stand as exhibitions of stunted failures. The blue gum tree serves well for factory (fuel) purposes save that the exuded gum is apt to fix on the flues and in the case of steam-engine boiler flues, especially, to choke up the channels. Even in a domestic stove, the flue has been found blocked up after a time and has required hammer and chisel to cut out the adhering gum which had become almost as solidly fixed as if it were part of the iron!

One of the most attractive of the Eucalypts is *E. citriodora* (the lemon-scented gum tree, from the pleasant odour of the crushed leaves or broken stems). Several fine specimens (as indeed of all the Eucalypts) are to be seen at Hakgala, and with us at Nuwara Eliya; but we hear that the finest show of the lemon scented, perhaps, on a private estate, is found at Mr Gordon's bungalow on Rappahannock, Udapusellawa Altogether there must be over a score of different Eucalypts—many of them strikingly handsome trees—in the plantation; but curiously enough there is no specimen of *E Pilularis* which attracted attention some time ago on Carlabeck, for its size and good timber. —It is curious to notice the resemblance and the difference between the barks of three prominent Eucalypts—Jarrah (*E. Marginata*) Red gum (*Rostrata*) and Iron Bark (*E. Crebra*) —all doing well as growing trees.

Some of the Grevilleas here vie in size with the other large trees mentioned, and they and the "toons" (*Cedrela toona* of the Himalayas) are freely scattered over the property. But the former (the "silky oak" of Queensland) may be taken to have reached the limit of successful cultivation if regard be had to its full growth as a timber tree, on the neighbouring estates—Maha Eliya and Calsay—and again on Tangakelle, Ouvahkelle and Elgin which present a wonderful sight in the uniform and numerous interesting belts of grevilleas, where we can recall the wide expanse of cultivation being without a tree some years ago. Perhaps *E. Robusta*—which has become a favourite in these parts as at Nuwara Eliya—is a quicker grower than the Grevillea; while it also supplies a substantial timber. A grove of these between Abbotsford and Tangakelle shows very regular and successful growth; but the striking fact here is the way in which self-sown cinchonas have sprung up among the gums, groups of fine healthy plants showing how well shade agrees with the far-famed Peruvian

* We only identified the tree on our return to Colombo and from what is said by Dr. Watt in his "Economic Products," it will be seen that we are a little wide of the mark as to the value of the timber :—

"Betula acuminata, Wall; Brandis, For. Fl., 458; Gamble. Man. Timb., 372. Habitat.—A large tree, met with in the Himalaya, from 6,000 to 8,000 feet, in the Khasia Hills, the mountains of Manipur and the Naga Hills to Martaban.

"*Properties and Uses*:—Fibre.—The bark when mature peels off in larger slabs than in any of the other species, and is therefore not so serviceable for the purposes to which the others are put.

"Food.—On the mountain tracts of North-East Manipur, bordering on the Naga Hills, the Lahupas cut off the bark in large slabs just before the leaves appear. The inner layer of these slabs is carefully separated from the liber and sun-dried. This is either eaten like biscuits, or it is reduced to flour and cooked as an article of food. The tree is much prized by these naked savages, and in early spring yields a considerable portion of their diet. This remarkable fact does not appear to have been observed by any traveller, previous to my exploration in 1880 of the hill tracts of Manipur, and apparently the nutritious properties of the bark have not been discovered by other Indian hill tribes. (See remarks under B. alba.)

"Structure of the Wood.—White, moderately hard, close-grained. Weight 41 lb. per cubic foot.

"It is very little used, but Wallich says it is hard and esteemed in Nepal for all purposes where strength and durability are required. "The wood is close-grained and takes a fine satin polish. It is particularly good for door panels, and the examples in the Government House at Naini Tal show that it is a valuable acquisition for ornamental work." (Atkinson's Him. Dist. X., N.-W.-P. Gaz., 818.)"

† This is as true in regard to timber, planking, &c., as for fuel—all the timber required for buildings, lines, &c., has been got for many years by cutting and sawing introduced trees without touching original reserves and we fancy the Abbotsford Manager could more than confirm the useful figures sent for publication lately by Mr. Maclure of Maskeliya.

introduction. Had cinchona originally been grown under shade in Ceylon, we might even now rival Java in our exports.

A SPECIAL FAVOURITE.

But we must not forget to notice what is, in our experience, the best timber tree to grow in and around Nuwara Eliya and perhaps (judging by the specimens here) lower down, namely *Acacia Melanoxylon*. It is really a valuable cabinet wood, when fully grown ; and we recall the late Rev. W. Oakley, the veteran Church Missionary, showing us with pride a book-case and other cabinet-work he had made out of some Melanoxylon trees, having all the markings and dark colouring of Nadoon or Walnut. No straighter or more handsome tree in our opinion grows about Nuwara Eliya, nor one which better resists monsoon bursts and wind-storms, apt to level or break the tops off, a good many gums and other trees. On Abbotsford, and especially on adjacent Dessford, there is a large number of the finest specimens (for growth) we have seen of Melanoxylon : but, alas for the exigencies of the situation—as well as because of distance from market and absence of demand—a good many are being levelled and cut up for fuel purposes. It is a fact, however, that this tree, like most of the Acacias, is not a favorite with tea planters, because of its tendency to spread and throw up suckers, especially where the soil is stirred for cultivation purposes. On a piece of land reserved for timber trees this propensity does not so much matter: in fact it constitutes an economical means of planting up waste bits of land in or near the Sanatarium, where the tree flourishes apace, and in its lofty as well as symmetrical, pyramidal shape, it offers an attractive feature as an avenue tree, or in groups at certain vantage points.

ORNAMENTAL AND FRUIT TREES.

A very attractive-looking tree in its youthful prime—seed got from Java—is *Acrocarpus grandis* ; as also *Swietenia macrophylla*, Mahogany plants from Peradeniya; but of slow growth up here ; while Dr. Thwaites' favourite *Pehimbiya* (Sinhalese name of *Filicium decipiens* which he used to recommend to planters is not much more than a shrub at an elevation which not only sees certain palms but a fine *jak-tree* come to fruit ; as also mango-trees in full bearing !

Of "Cupressus," and "Cryptomeria" there are many fine specimens on Abbotsford—though Hakgalla Gardens are the true show-place for giant trees in great variety of these. A tree which is encouraged as a good and handsome grower, especially suited as a windbelt, is the Himalayan *Bucklandia*, splendid specimens of which in huge well-formed trees (80 feet high or so), we observed on our way to Darjeeling from the *terai* upwards. It is very much used at Darjeeling for planking and for doors and windows.

BAMBOOS.

A feature on Abbotsford—and one which could be turned to mercantile account if a town like Colombo were near at hand—is the numerous groups of bamboos, of the giant variety especially, along the riverside and in many of the ravines, varied with the tiny (and medium) varieties useful for basket making. The present Manager had to clear out a great many clumps of bamboos from ravines as not so useful as water or Mauritius grass.

CINCHONAS.

Revisiting Abbotsford after an interval of two or three years, one of the most pleasant sights was the number of healthy, vigorous-looking cinchona stems rising above and diversifying the tea fields, chiefly Succirubra and Hybrid. The smoother velvety leaves in some cases denote an approach to the more delicate and richer varieties. Altogether there must be quite 100,000 of these healthy stems from the old roots and from self-sown plants; while one of the original plants left to grow by the roadside, which was measured in our presence, is 72 feet high by 36 inches in girth at a foot above the ground. The age of this giant is 19 years.

CINCHONA PLANTING NORTH OF KANDY.

I am planting some cinchona : seedlings from old Ledger. I don't find that they make much progress in old soil—sides of drains and roads—but on new land they do come away. I have been planting for fuel and it is between the lines I put the Cinchona, and I hope it will give back the outlay and leave the trees free.—*Planter.*

PLANTING NOTES.

Capacity of Cisterns.—When calculating the capacity of cisterns (or tanks) 31½ gallons are estimated to one barrel and 63 gallons to one hogshead.

A CIRCULAR CISTERN ONE FOOT IN DEPTH.

Five feet diameter holds		...	122½ galls.
Six	do	..	176½ do
Seven	do	...	240½ do
Eight	do	..	314 do
Nine	do	...	397½ do
Ten	do	...	490½ do

A gallon of water weighs 10 lb, and measures 277·274 cubic inches ; a cubic foot of water contains 6·23 gallons, and weighs 62·35 lb ; 1 cwt of water contains 11·2 gallons, and measures 1·8 cubic feet ; 1 ton of water contains 224 gallons, and measures 35·9 cubic feet.—*Home paper.*

Yarn from Peat Fibre.—The honour of inventing the first successful process to utilise peat fibre in the textile industry cannot be claimed by the German inventor whose achievements in this direction were recently recorded. A London wool merchant writes to say that a home industry is the pioneer in the industrial application of this new fibre, the various products of which are already on the market. "The finer yarns composed of peat fibre mixed with wool, which appear to be the dream of the German inventor, have not only been successfully produced, but the hosiery made therefrom is already manufactured by a leading Leicester firm. Further than this, yarns have been made fine enough for the manufacture of flannel equal in texture to the finest French cashmeres, and also cloths for athletic costumes, &c.

Cacao Preparation.—Is it because each Manager thinks he knows best and has some secret of his own. that there is so little interchange of opinions in regard to this product? In any case we are glad to have one planter breaking "the conspiracy of silence"—if such it be—although, possibly, all that is of much practical value is given already in Mr. Hart's useful little Manual?

Fish Culture (the Mahseer) and the Rainbow Trout.—We direct the attention of all interested to an interesting letter and other remarks on the above subject to be found in our daily and *T.A.* We suppose the hardy and ubiquitous "rainbow" trout will flourish right along in the Mahaweliganga, almost from its source to its several mouths near to, and South of Trincomalee.

Sequoia Gigantea Pendula.—There exists in the pinetum at Bicton a specimen of this Conifer, 33 feet in height, the bole girthing 26 inches at 2 feet from the ground. A tree of this variety may not be out of place in a collection of Conifers, but as an isolated specimen it is, in my opinion, not a beautiful object. The plant was put into commerce in 1871, so that it is highly probable taller specimens are to be found in this country than the one alluded to above. J. Mayne Bicton.—*Gardeners' Chronicle*, July 12.

Tea Cultivation in India.—Some interesting figures published last month by Mr. O'Conor, Director-General of Statistics for India, will be found on page 174. The most important fact relates to the area of tea planted since 1898. For that year it is given at 31,561; 1899 is put at 13,978 acres; 1900 at 6,829 and 1901 at 2,234—or a total in four years of 54,602 acres. Ceylon compares much more favourably, thus:—1898=14,000 acres; 1899=6,000; 1900=3,000; 1901=500 (?); or a total of 23,000 acres; while 6,000 to 8,000 acres have been abandoned in 1900-2. The total capital of the joint stock Companies engaged in Indian tea is close on R160,000,000.—Some curious information regarding "extensions" in India are given elsewhere.

Rainbow Trout—are thus referred to by 'J. B." in his 5-page paper on Angling in the Supplementary New Volume of the "Encyclopædia Britannica:"—

Rainbow trout (*Salmo iridens*) have now been so largely introduced into England that they certainly claim attention. As regards their beauty, sport-giving and edible qualities they rival the sea-trout, while they grow with astonishing rapidity when well furnished with food. They are easily reared, and are certainly a great acquisition. They have not yet had time to become acquainted with the methods of English fly-fishers, and rise freely at any fly and take all the ordinary trout baits. They succeed particularly well in lochs and other enclosed sheets of water. They appear to have migratory tendencies, but it has not yet been definitely ascertained whether this migration is simply in search of food from streams and rivers where they find themselves starved, or whether it is an instinct. A quantity which were placed in the Dove have, to the knowledge of the writer, remained there three years. They have disappeared from many streams.

Rubber Cultivation.—The full and interesting information supplied by Major Reeves in a recent issue, respecting the culture of Castilloa Rubber is exciting much interest, to judge by enquiries made to us. Unfortunately, there is none of the seed of this valuable Rubber tree available locally for sale. We hear of a good deal more land being planted with this Rubber in Matale

Composition of Arrowroot.—The *Journal of the Chemical Society* for May records the following analysis of arrowroot rhizomes from Jamaica:—

Water	63·42	per cent.
Starch	27·84	,,
Dextrin and Sugar ...	2·68	,,
Crude fibre	3·94	,,
Ether extract ..	0·19	,,
Proteid	1·64	,,
Ash	0·89	,,

The ash consists chiefly of phosphoric acid and potassium carbonate. The pulped root, when steam distilled, yields a volatile oil.—*Agricultural News*, July 21.

The Tea Production of Japan.—In regard to the production of tea, another of the principal resources of Japan, the prospect is no brighter, as far as the foreigner is concerned. "There would be trouble about wages, strikes and disturbances and the foreigner would be generally shown that he was not wanted." What is required to increase the market value of the tea is the introduction of improved machinery for its manufacture, but the lack of capital, together with the indifference and indolence of the people, do not give much hope that this step will be taken. The melancholy conclusion, from a Western commercial point of view is, that "whatever value as a national resource the production of tea in Japan has, ... for better or worse it must remain in the hands of the Japanese, to be developed at their own gait, and that it offers no inducement for the investment of foreign capital.' *N.C. Herald*, June 18.

Green Tea in Ceylon and where it is Made.—We are obliged to Mr. Deane for his explanation elsewhere. There is, it is true a very large area of low to medium elevation tea, which gets no better prices than the dead lowcountry estates, about 70,000 acres in all, and it is the former which, for a time at least, would make green teas by preference. Higher-grown estates would scarcely go on making greens, if the market for finer qualities and flavours hardened considerably and the better demand for them assumed some permanence. At the present moment practically all lowcountry estates could manufacture green teas—say, a total outturn of 30,000,000 lbs. with the prospect of better results than by the manufacture of blacks, provided such general action on the part of proprietors did not swamp the green tea market. The 10,000,000 lbs. limit, put by Mr. Drummond Deane on Ceylon lowcountry greens, is much too low. The question is largely one of supply and demand. If 20 million pounds of Ceylon greens are manufactured, prices of blacks may be expected to advance to such a point as to make it desirable to resume the manufacture of black teas.

THE ÆTIOLOGY OF TYPHOID FEVER.

Dr. Thomas Cherry, Lecturer on Bacteriology in the University of Melbourne, gave an address on the Ætiology of Typhoid before the sixth session of the Inter-colonial Medical Congress of Australasia, held in Hobart last February, in the course of which he observed that the study of the bacteriology of typhoid was rendered difficult from the fact that the disease was not readily transmissible to any of the lower animals. The bacillus coli communis and the typhoid bacillus had so many points in common that they produced similar reactions, and were to be regarded as members of the same group of bacteria. One of the marked characteristics of the group was the extent to which variation took place amongst the descendants of a single bacterial cell. Although there were several tests by which typical typhoid and colon bacilli might be distinguished from one another, the gap between the two was completely bridged over by a series of intermediate forms, amongst which was the B. enteriditis, or Gaertner's bacillus. Many cases were on record which went to show the long periods of time that typhoid bacilli could exist without causing symptoms. All recent work tended to show that many mild cases of fever, often classed as febricula, were really typhoid, and might be an unsuspected means of spreading the disease. The direct evidence as to the mode of entry of the infection into the body was scanty. From a recent analysis by Schüder of 650 epidemics, occurring chiefly in Germany and England, it appeared that 462 epidemics were due to water, 110 to milk, 23 to other food stuffs, 12 to clothing or bedding, and 43 to other causes. Dr. Cherry stated that, whilst there could be no question as to the origin of the great majority of epidemics of the disease, there was often difficulty in accounting for isolated cases. Some of these were so peculiar that it must either be assumed that the bacillus could exist in a virulent form in water or soil for several years, or else that the colon organism in the intestine became transformed into typhoid, or, at all events, into the intermediate form, and thus the disease arose *de novo*, as Murchison taught. Several such difficult cases were quoted and discussed. The actual mode of conveyance of the bacilli to the patient might be by means of minute particles of fœcal matter containing great numbers of bacilli which might get into water, or be carried on the feet of the flies on to articles of food, or be carried about in the dust. Dr. Cherry's general conclusions were as follows: (1) Many mild cases of fever, often classed as febricula, were slight attacks of typhoid, and might serve to distribute the contagion; (2) typhoid fever itself might be a composite disease, or series of diseases, caused by closely-allied organisms; (3) while from the bacteriological evidence the *de-novo* origin of the disease was not disproved, still a general survey of all the known facts enabled most cases to be explained without having recourse to this hypothesis; (4) typhoid fever at once disappeared from a community with the introduction of a proper system of disposal of excrement and household refuse; in towns this could best be done by a properly-constructed water-carriage system of sewage; (5) the disease was spread chiefly by the contamination of water, milk, and other articles of food; in hot countries, at least, flies and dust had a considerable share in bringing about this contamination; (6) the length of time during which the bacilli could exist outside the body was unknown; there was evidence to show that the contagion hung about old cesspits and contaminated soil for several years.—*British Medical Journal*, May 17.

RUBIES AND GOLD.

Sir Lepel H. Griffin presided at the meeting oi the Burma Ruby Mines, Limited, on June 14. He said the directors had hoped to have been able to pay something on the founders' shares, and to provide for the commencement of a reserve fund, which was exceedingly desirable, as no mining operations could be conducted with full security without a reserve fund; but they had not seen their way to do so. It might seem from the dividend proposed that they had had a very prosperous year. From one point of view that was no doubt the case, and they had at last reached the point—which he had prophesied for two years—of washing over 1,000,000 trucks of ruby earth during the year. On the other hand, it had not been a satisfactory year from many considerations. As business men the shareholders would be aware of the difficulties which industrial institutions of all kinds had met with during the past two years. India had passed through, and was still passing through, a time of great distress and anxiety. It had suffered very largely from plague, famine, and the influences of the war. The consequence had been, and this was the reason why they were not declaring a dividend on the founders' shares, that the local trade in rubies had almost entirely ceased. There were large stocks in hand which, if they had all been sold, would have enabled the company to pay a dividend of 20 per cent. But they remained on hand, and no doubt as matters improved, with the wearisome war at an end, and with things looking more flourishing in India, the company might hope to share in the prosperity which he could foresee and prophesy for all English industrial institutions. The company had not been successful with regard to its experiments in plumbago mining. They had not spent very much on it, and having taken expert advice, had decided that as they were a ruby-mining company principally, they would stop working for plumbago. There was plenty of plumbago, but it was not of that flake character which was of the highest value, and amorphous plumbago at present prices would hardly pay to extract and export. Perhaps in the future, when they had more leisure and more money, they might try again in other places, and perhaps get better results. They were making some experiments without much expense in the matter of gold mining. There was a good deal of gold in Burma, and though he did not wish to raise any hopes, he could say that the experiments they had made were satisfactory. It was thought necessary before any great expense was incurred to get a new lease from the Government, as their lease had only a few years to run. Application had heen made for a new lease for 30 years, and, bearing in mind the attitude of the Governor-General in favouring English companies, they had every reason to anticipate that their application would be successful Until that was settled they must delay any large and extensive works. In conclusion he had to tell the meeting that they had received a telegram from the manager stating that the returns from the new mine at Choungzone were now very satisfactory, and that the returns were very much improving. Mr Carl Meyer seconded the resolution for the adoption of the report, which was carried unanimously.—*Overland Mail*, July 4.

FISH CULTURE IN CEYLON.

We call the attention of the Ceylon Fishing Club Committee to the following important letter addressed to the Editor of the

London *Spectator*—and especially to the reference made to "the rainbow trout" which s expected to flourish in nearly all our Ceylon streams :—

"Sir,—In the *Spectator* of June 14th you draw attention most usefully to the vast uncultivated waste of water, both fresh and salt, in these islands. In Germany today there is hardly a pool, however insignificant, but is stocked with the fish suited to it. The Government popularises fish culture by exhibitions of hatcheries in the Zoological Gardens at Dresden, Frankfort and elsewhere, and also by public lectures. At Wittengau, in Bohemia, Prince Schwartzenberg is said to spend annually a quarter of a million florins on food for his carp ponds. In the German system the carp pond is dried every third year, and the residual fertilisers result in an immense yield of vegetables. In the United States the Department of Fisheries conveyed both the shade and the striped bass from the Atlantic to the waters of the Pacific. The Report of the Department for 1896 (p. 141) states that "the aggregate expense of introducing these fish to the Pacific Coast was under 5,000 dollars ; the market value to the fishermen of the Pacific Coast of these fish taken between 1888 and 1896 was about 192,000 dollars." When in Washington this year I called with a friend upon Professor Smith at the Department of Fisheries, and he informed us that it cost the Department at their Pacific nurseries a dollar per thousand to "strip," hatch, and rear for six months young salmon ; that at Clackamas, on the Columbia, they had marked five thousand "fingerlings" by shaving off the adipose dorsal fin with a razor ; that the third and fourth year after four hundred and twenty-five of these marked smelts had returned from the ocean and had been captured of an aggregate weight of over ten thousand pounds. I am glad you draw attention to that splendid visitor from California, the rainbow trout ; there is no fish so easy to rear, so rapid in growth, and so adaptable. The rainbow, unlike any other of the *Salmonidae*, thrives in lakes and ponds where the summer temperature rises to even eighty degrees.—I am, Sir, &c., Moreton Frewen.

25, Chesham Place, S. W."

We have been asked as to the climates of California and Florida : they are both on the whole semi-tropical, the mean temperature of San Francisco being 56°; but California extends over a vast range of latitude. In Florida, again, freezing-point is sometimes touched in winter, though in summer it is quite hot. Curiously enough in the account of both States in the *Encyclopædia* there is no mention of the "rainbow trout," though many other fish in California are mentioned.

In connection with local Fish culture, we may quote what a military officer formerly in Ceylon has to say, writing from Northern India on 10th July :—

"Kumaon is a lovely district and Bhim Tal is in the middle of the lakes. There are three lakes within a few miles of each other—Bhim Tal, Nankuchia Tal and Sath Tal. All are pretty, but Nankuchia is my favourite. It is quite like Loch Lomond near Luss. Sath Tal is lovely too, but has not the breadth or feeling of freedom there is about Nankuchia. The hills (all fir-clad) rise abruptly from the water round Sath Tal which nestles in their shadow. The waters of all the lakes are clear as crystal and they are full of Mahseer which take the fly or baste freely. I caught over 200 lb. of fish while I was there, biggest 3¼ lb.—1 lb., 1½ lb. and 2 lb. fish are very common and give excellent sport. I am not sure, if it would not have paid better, from a fisherman's point of view, to stock the Nuwara Eliya waters with Mahseer instead of trout: they are quite as sporting a fish and much easier to establish properly. The lake at Nuwara Eliya would have suited them perfectly."

PRODUCTION OF TEA IN INDIA.

Area.—The area under tea at the end of 1901 extended over 524,767 acres, nearly two-thirds (65·4 per cent) being in the valleys of the Brahmaputra and Surma, which contain as much as 338,186 acres, namely, 205,352 in Assam (the Brahmaputra valley) and 132,834 in Cachar and Sylhet (the Surma valley). In Bengal the area under tea is 135,129 acres, or 25·7 per cent of the whole.

The number of acres added to the tea-growing area each year since 1897 has been :—

1897 ...	36,838	1900 ..	6,829
1898 ..	31,561	1901 ..	2,284
1899 ..	13,975		

Under the discouragement of the low prices obtained for tea placed on the markets in excess of consuming capacity, endeavours have been made to restrict cultivation and production, and to supply the consumer with tea of better quality in smaller quantity. The nett addition to the tea area made in the last two years was comparatively small, considerable areas on which tea cannot be grown with profit at the present range of prices having been abandoned.

In Assam reports were received from 805 estates, with an area under tea of 338,186 acres, the average area of an estate being about 420 acres. In Bengal 300 acres was the average for 452 estates, and in Travancore the average for 75 estates was 337 acres. In other localities the average area of an estate is much smaller: 137 acres in Madras, 110 acres in the United Provinces, and only about three acres in the Panjab, where natives grow tea in a very small way. These figures refer only to tea-bearing areas.

Production.—The quantity of tea produced has increased in about double the ratio of increase in the area under cultivation ; for, while the area has increased since 1885 by 85 per cent, the increase in production has been 167 per cent. Last year the restriction of the area under tea was accompanied by endeavours to reduce the quantity of leaf taken from the plant and improve the quality. These endeavours were aided by climatic influences, and there was a material restriction in the quantity produced.

The actual production in 1901 is reported to have been about 191¼ million pounds, which is 57 per cent larger than the reported production of 122 million pounds ten years previously, in 1892.

On the average of the last five years, the yield to the acre, dividing the total yield by the area of the land bearing mature plants, has been as follows in Assam and Bengal :—

		lb.
Assam—		
Brahmaputra Valley	..	383
Surma Valley	..	478
Bengal—		
Duars	...	488
Darjeeling	...	278

CAPITAL EMPLOYED.—According to the published accounts, the paid-up capital of the joint-stock companies engaged in the production of tea approximates to sixteen crores (R15,82,44,000), namely—

		R.
Companies registered in India		2,01,69,000
" " London	£9,205,000=	13,80,75,000

Thus between 87 and 88 per cent of the capital belongs to shareholders in companies whose head offices are in London.

Divided into the area actually under tea this capital stands at about R300 (£20) per acre. There is a further unknown sum engaged in the industry, representing the capital of individual owners, while on the other hand, the acreage includes areas worked by such private owners, including natives. On the whole, however, making allowances on both sides of the account, probably the capital value per acre stated above is not very far wrong.

PERSONS EMPLOYED.—The number of persons employed in the industry in 1901 is returned at 606,835 (permanently) and 90,946 (temporarily) or altogether a little more than two-thirds of a million (697,781 persons), which would work out to about 1·33 persons to the acre.

EXPORTS AND CONSUMPTION.—The tea produced in India is exported, mainly to the United Kingdom, to the extent of nearly 97 per cent of the average production. The subjoined figures give approximately the quantity of tea consumed in India, the figures representing the average of the last five years :—

		lb.
INDIAN TEA	Produced ...	176,349,300
	Exported ...	170,790,208
	Left in India ...	5,559,092
FOREIGN FEA	Imported ...	4,961,607
	Re-exported ...	1,898,271
	Left in India ...	3,063,336

Thus more than eight and a half million pounds were left in India on the average, 5½ millions Indian and three millions foreign, the bulk of the foreign tea being Chinese, though a substantial quantity consists of Ceylon tea.

1895 ...	97	1899 ...	58
1896 ...	84	1900 ...	64
1897 ...	64	1901 ...	45
1898 ..	61	1902 ...	22

The production of tea in India and Ceylon has increased so much more rapidly than the consumption in the United Kingdom, which is the principal market for these teas, that there has been a heavy fall in price and the tea industry in 1901 passed through a critical period, but prospects at present are much less gloomy. The restriction of output to which reference has been made, and the reduction of the quantity exported, had the effect of elevating prices to some extent last season from the low level to which they fell in the preceding season.

J. E. O'CONOR, Director-General of Statistics.

INDIAN TEA.

DIFFICULTIES WITH LABOUR AND EXTENSIONS:

MODERATE ESTIMATES AND LARGELY INCREASED CROPS!

Some curious facts came out at the General Meeting in London of the Makum (Assam) Tea Company the other day. The Chairman stated (*inter alia*) :—

It is almost impossible now to get coolies, except when they are recruited by our own Sirdars, and the difficulty of recruiting labour has been found of late so very serious that a large company, the Assam Frontier Company, have just purchased an old tea Company in the recruiting districts in order to have a basis—in order to have a recruiting depot in the midst of recruiting districts. They have bought this company not to make tea, but simply to make coolies.

Mr. Thompson stated :—

There seems to have been £2,457 spent on the North Bank garden, and out of it we have only got something like £1,000 worth of tea under the present condition of affairs. I should therefore, think it would be wise on the part of the directors to abandon the North Bank garden to stick to the Margherita ground A great deal of worry in the tea market is, not that there is not enough tea produced, but that there is a jolly sight too much produced. Therefor, if we produced more, it would make matters worse than they are.

But Mr. Densham (Mazawatte Company) thought otherwise :—

Growing, as we do, some of the finest tea that comes into the country, and whilst I am as strong as anybody—I spoke at a meeting yesterday on the same subject—for the abandonment of land that does not pay, yet our company is so very heavily capitalised—I might almost say grossly over-capitalised—that we are absolutely dependent upon extensions for making dividends. Inasmuch as we are growing some of the finest tea that comes into the country, I think it would be a most woful mistake to abandon a beautiful virgin soil like that. His (Mr Thompson's) remarks would be most forcible if applied to some other companies, but to my mind here they are not in keeping with the facts. I should say let us go on planting out tea every year; it is our only chance of getting dividends; it is money sunk in the business. Over in the North Bank garden it is all young tea, and we cannot match Makum tea, we want as much Makum tea as we can get into the country.

Mr. Seton :—The Chairman has indicated to us that the main reason why we are not succeding now is the great difficulty of getting labour; and yet, Gentlemen, although that is a patent fact, we are going on opening another garden, for which we have of course, still less labour, and are consequently deprived of a sufficient amount of labour for our Margherita estate.

I would remind Mr Densham that he is not taking account of the large amount of tea put in cultivation, the enormous additions of area which have been made comparatively recently. I should like to know whether you have decided at the present moment to stop making further extensions.

The CHAIRMAN :—Absolutely. It is quite settled. You may be easy in your mind about that.

Mr SETON :—Of course, the North Bank is too small to pay as a separate garden. That throws us back on the fact that we have got 400 or 500 acres only, and I am repeatedly told by people who have gardens in Assam that it is practically impossible to make 400 or 500 acres pay.

The Chairman regretted the small outcome from the garden, and said he anticipated it would increase. I hope it won't, for if it does we shall be in a still worse position than we are in now. I will give you some idea of why I say so. In the course of my business I have to examine nearly all the Companies' reports; and I have not taken up any report in the past year in which the directors do not hope, anticipate, and estimate a larger crop for the next year. If their predictions are realised we shall probably see ten or twenty million pounds more tea. . . . I may appear to be talking a little strongly, but with a large number of friends, who have invested considerable sums in tea, and whose £10 are not worth £2 today, we feel, naturally, a little hurt. I have still to tell my friends that tea is a good thing, but that on all sides it is completely overdone, and that foolish and absurd competition increases the output. I can only defend myself in that way, and in a

company like this I can only try and beseech you that you will not put out any more area, and, if you can by any chance, throw some of the ground out of cultivation—throw it into the Brahmapootra, if you like.

Mr Sanderson: And let other companies extend theirs!

Mr Seton: I am speaking in the interests of all the shareholders, and what is the mind of the great leaders of the industry who are actually meeting together in solemn conclave to find out a scheme whereby they can take a certain amount of their tea off the market.

Mr Densham:—You are comparing sovereigns to pennies.

Mr Seton:—I hold that there is too much tea at a certain period of the year; but we have had a rude awakening in the last six months as to the extraordinary price to which good Assam tea can fall. In 1901-2 we had an extraordinary fall in fine Assam tea to tenpence, and now Assam is selling at sevenpence. That is a worse fall relatively, because the cost is so much greater.

Then came a question, to which no answer was given:—

Colonel Nowell: I want to ask one question. Is it not a fact that the quality of Assam teas has not deteriorated during the last few years, but that the quality of the Ceylon teas has deteriorated, and is deteriorating year after year?

A practical planter, Mr. Jackson, stated:—

No doubt, while the difficulty of obtaining labour is so great, and the price of tea so low, it would be wise to stop all extension for a bit, but as soon as the opportunity offers extensions should be gone on with on that side in preference to the other side. I think that the present position of the company is chiefly owing to the fact that the difficulties of opening up in such a place as Makum were under-estimated at the very start. (Hear, hear.) The original scheme of the company was 2,200 acres for about £63,000; or £30 an acre; the actual scheme has been 1,860 acres for £150,000, or £80 per acre. On £80 an acre it is difficult to make tea pay, and if any tea could pay it would be Makum tea. Then, again, I think the extensions were originally pushed on so fast that instead of being able annually to fill up all occurring vacancies, young plants have been taken afterwards to fill up the vacancies left. The young plants are taken from the nursery; they are taken from virgin soil to virgin soil, but when you take them from virgin soil to five-year old tea ground and fill in, they never get up to the tea originally put in, and to a great measure that accounts for the small outlay . . . The old garden, I consider, is unwieldy. As a rule we find that 1,000 acres is big enough for any garden, and on flat land there are generally two factories. In Makum matters are considerably worse, because it is cut up by small ravines and streams. Even 1,000 acres would be unwieldy, but on one block we have there 1,400 acres, and the distance the coolies have to go causes tremendous waste.

All this is instructive; and finally the Chairman explained the over-supply of tea:—

It is entirely the result of the enormous extensions that were made four or five years ago when there was a 13d rupee. At that time tea was very profitable and extensions cost very much less than they would cost now. The result was that tea was put out to the extent of thousands and thousands of acres, and these thousands of acres are only coming into bearing now, and therefore the market for tea, I am afraid, will be gorged for the next two or three years, and that the weak companies will have to go to the wall. . . . There is plenty of Ceylon tea, but the quantity of Makum tea—tea of the quality of the Makum garden—is comparatively small, and we got a very good price for it last year.

And so the meeting no doubt got the idea that *all* Ceylon tea is inferior: a very foolish notion,

PEARL DIVING ON THE NORTHWEST AUSTRALIAN COAST.

One of our soldier readers, Mr Alexander Macdonald, late lieutenant of the Australian Bushmen, writes:—There are still a few corners of the earth which remain but little known to those who are content to glean their information of far-off lands from tourist guide-books and out-of-date geographies, and for a long time to come they are likely to remain immune from the visits of the orthodox traveller. One of the most interesting of these remote districts is that part of the North-West Australian coast which runs north-north-east from Cossack, under the 20th parallel towards Port Darwin, and thence further to eastward into the Gulf of Carpentaria. This vast "corner" of the Globe is but the fringe of the great Terra Incognita of Australia, whose grim mountains and trackless deserts have lured many an explorer to his doom. The shadowy Leopold Ranges in the north are known to contain much gold and other mineral treasure, but fiercely hostile tribes of aborigines infest the mountains and rigorously guard their domain, so that only strong parties dare venture near their chosen haunts. But if this dangerous division of the Island Continent demands only the reckless pioneer's attention its seaboard is comparatively free from the besetting risks of the interior and here a fascinating industry is carried on, the very existence of which is probably unknown to most people.

WHERE THE PEARL DIVERS WORK.

Seldom do strangers journey so far distant from civilisation as this lucrative coast of which I particularly write; even in the great Australian cities little knowledge can be gained of the North-West, and those who periodically return from that region are never inclined to be communicative regarding their work. And yet, along this mangrove-lined beach, extending seawards in some places for many miles, some of the world's finest gems are found. The rich "shallows" stretch right round the coast and into the Gulf, but the main area of operations lies between Cossack and King Sound; and Roebuck Bay, about midway between these boundaries, is recognised as the pearling centre for all the fleets engaged. The largest settlement on these waters is that of Broome, which is situated at the opening of a mangrove-fringed creek at the head of Roebuck Bay, and though my description of it will doubtless give much offence to those who have grown to love their reeking and evil-smelling "metropolis," still I cannot but say that it is one of the most "God-forgotten" camps it has ever been my lot to strike, and I speak as one who knows the world well.

THE PEARL-DIVERS' TOWNSHIP OF BROOME.

The population of this township is composed for the most part of Malays, Japanese and Manilamen, who form the crews of the various lugger craft. The Manilamen, as the natives of the Philippine Islands are termed, make good divers, and their wonderful vitality has been proved on many occasions when accidents to the pumps and diving-gear made their existence below water rather doubtful. When many ships come into port at one time, or when the Monsoon season renders diving work impracticable, the various nationalities combine in making day and night—especially the night—hideous with their drunken squabbles, and not infrequently knives are drawn and brutal

murders committed among themselves, though details of such occurrences rarely reach the outside world. The white members of the community are small in numbers, and totally unable to cope with any serious disturbance that might arise; and, besides, they are mainly responsible for the demoniacal state of affairs usually existing. With one or two notable exceptions, the master pearler, be he captain of a schooner or lugger, does not remain on shore at this settlement any longer than is necessary for him to tran-act his business and engage his crews for the season, for any trip he may be comtemplating. These exceptions, and one of them is very notoriously notable indeed, run the vile beer saloons, or "stagger juice factories," as they are often called, for the nature of the fluid vended is villainous in the extreme.

A TWO-MASTED PEARLING LUGGER.

The pearling lugger is a small two-masted craft, or schooner, varying from 30 to 35 feet in length, and having a beam of about twelve feet. It is specially peculiar in having a very low freeboard, so low, in fact, as to render its life on a choppy sea somewhat precarious; but this design is brought about because of the heavy-weighted diver's inability to climb or descend over a high gunwale without considerable assistance, which assistance can rarely be forthcoming, owing to the few men considered necessary for the proper manning of such boats. At one time aboriginal divers were in the habit of descending in the shallower waters without the aid of either helmet or diving dress, but the numerous sharks and octopoda have just put an end to that practice, though many lives were lost before any precaution was considered necessary. The average depth at which the pearl-shell beds are found is twelve fathoms, but now and again a rich strike may be made at the fifteen or even twenty fathoms level, though no diver cares to work for any time in these deeper waters, and with the present form of diving-dress the pressure on the limbs is very severe even when but a few fathoms down. It is often stated that divers occasionally explore the coral deeps at thirty and forty fathoms, but such assertions are utterly absurd and the writer may say with truth that a colossal fortune awaits the inventor of a diving dress by which the lower shell levels of North-West Australia may be exploited.

HOW PEARL DIVERS WORK.

When above "a patch" the diver is lowered overboard with little ceremony, and commences his work when he recovers himself at the bottom, after first examining the plunger line, which has been his sole guide in the descent, and making sure that it has not sagged against the myriad coral cups surrounding him, for he may have to depend his weight on this line, should any chasms intervene in his course. The vessel above glides slowly onward with all sail furled, moving by the force of the various currents or the water's ripple only. The anchor is never used, for the pearl oysters are few and far between, and a score of yards and more may divide each pair of shells. So the diver follows below in the lugger's wake collecting his finds into a small net he carries attached to his left arm, and when this receptacle is filled he signals to be raised to the surface, where he is quickly relieved of his precious load. With luck a good diver may raise several hundredweight of shell in a day, but more often he has to be content with very much less. The owner of a lugger pays the diver by results, so that he is assured of the latter's conscientious effort, but sometimes days may pass without much return when new levels are being prospected. The shell is a very valuable commodity, and forms indeed the backbone of the fascinating industry, for pearls are scarce, and though commanding fabulous prices, they would not in themselves pay for the labour expended in searching for them. When it is calculated that mother-of-pearl is worth about £150 a ton, it is at once evident that the pearler pursues quite a lucrative profession even if he should never be fortunate enough to find a single pearl.

PEARL HUNTING IS SOMETIMES DANGEROUS.

The life, as may be imagined, is one strangely attractive, but at times a gloom falls over the entire fleet when some of the luggers' crews mutiny, and in their fiendish rage wreak a dire vengeance on the one or two white men at their mercy; for these coloured crews have a long simmering hatred against their employers, whom they judge by the standard of the renegade whites who, while dispensing their villainous intoxicants, cheat the poor wretches out of their savings. The Ninety-Miles Beach, in the summer season, is a favorite haunt of the pearlers. This coast extends from Cape Bossut southwards to Pot Headland, and scores of luggers then make Lagrange Bay their headquarters instead of Broome; and the supply schooners, also, rather than remain anchored at sea, seek the shelter of the numerous salt water creeks inshore, and thus they form a township of stranded vessels, which would strike the stranger as being a most peculiar sight indeed.

A MOSQUITO-INFESTED REGION.

It is no exaggeration to say that the mosquitoes of this region make one of the principal objections to the country. A "new chum" appearing in their midst would be positively eaten alive. The air is black with them, and at night their vague hum is intensified to a vicious shriek, which sounds as a long sharp note on the quivering air. Even the toughest whisky sodden specimens of humanity cannot withstand their attacks. I have known men imbibe an enormous amount of the afore-mentioned "stagger-juice" in order to remain unconscious of the "torpedoes'" onslaughts, but I have also seen them wake up before midnight, sober as judges, cursing the torturing pests as only such men can.

"THE LEGION THAT NEVER WAS 'LISTED."

There are some very fine men engaged in the pearling traffic, as well as some of the worst products of humanity, but the former are well in the majority, and by them the whole industry is influenced. One well-known individual on the "grounds" at the present time is known as "Gentleman George." He has been for twenty years a self-exile from civilisation, and the probability is that he will never return to his native land; but many men with strange histories are encountered in the far remote corners of our Empire, and such cases arouse little surprise in the wanderer. This man, however, leads an active and useful life; he was the pioneer of the north-west coast, and has ever been a reckless dare devil, feared by many, yet respected by all around. His name was given him spontaneously many years ago, and he deserves his title in its true sense.—*New Zealand Mail*, June 25.

PLANTING IN THE STRAITS: COCONUTS.

We are in receipt (rather late in the day ?) of the minutes of the annual general meeting of the United Planters' Association, F M S, held at the Selangor Club, Kuala Lumpur, on Saturday, 3rd May. *Present*,—Messrs. E V Carey (Chairman), T H Hill, C Meikle, W R Rowland, E B Prior. P W Parkinson, J G Glassford, O B Pfenningwerth, J M Halliday, A M Barnwell, A Irving, H M Darby, M S Parry, E B Skinner, *Visitor*: —Mr J L Anstruther. *By Proxy*:—S Moorhouse. The only matter of interest to us is the following in regard to coconuts:—

COCONUT BEETLE.—The following resolution was proposed by Mr C Meikle and seconded by Mr H M Darby:—"That the condition of the coconut cultivation is seriously endangered by the ravages of the coconut beetle and that the Government be asked to take such steps as will eradicate the pest as far as possible." Mr Meikle said that the condition of the trees in Kuala Lumpur and Klang was disgraceful and he thought the sooner Government started to adopt stringent measures the better it would be. Mr Darby said that the beetles down at Klang were very bad amongst trees ranging from 18 months to 2½ years old and in many cases trees were riddled by them. He had already reported to Government that a coconut estate belonging to Tamils was badly infested with the beetles. He considered that it would be best for Government to appoint special inspectors to go round, instead of doing it through the Penghulus. Mr Prior also attested to the bad condition of trees in Klang. Mr Parry suggested that if, after the matter has been reported to the District Government representative, no steps are taken in the matter, the complainant should then appeal direct to the Resident. Mr Rowland said that he had a coconut estate in Negri Sembilan, but so far had not discovered any beetles on it. Mr Hill stated that when Mr Birch was Resident in Negri Sembilan the Negri Sembilan Planters' Association had approached him on the state of the coconut beetle and that steps were at once taken by Government to control the pest with the result that there are very few places there now suffering from beetles. Mr Halliday suggested that owners of trees attacked by beetles who do not take immediate steps to clear them, should be fined as they are in Singapore. The Chairman said that Government would be only too pleased if planters would report places which were known to be infested with beetles. The resolution was carried unanimously.

CASTOR OIL MANUFACTURE.

Up to the present nothing has been done locally in the way of extracting oil from the castor oil plant. Briefly, the operations of oil extraction are by expression, by boiling with water, or by the agency of alcohol. A comparatively simple process can be tried by anyone interested, and a good oil should result if the seed is of the right variety.

First, cleanse the seeds from fragments of the husks and from dust, and submit them to a gentle heat, but not greater than can be borne by the hand, which process makes the oil more fluid and more easily expressed. A whitish, oily fluid is thus obtained, which is boiled with a large quantity of water, and all impurities are skimmed off as they rise to the surface; the water dissolves the mucilage and starch, and the albumen is coagulated by the heat, thus forming a layer between the oil and the water; the clear oil is then removed and boiled with a small quantity of water until aqueous vapour ceases to rise, and a small quantity taken out in a phial remains perfectly transparent and cool.

The effect of this is to clarify the oil and rid it of volatile acid matter. Care is necessary not to carry the heat too far, as the oil would acquire a brownish colour and an acid taste. In India the seed is first shelled and then crushed between rollers, placed in hempen cloths and pressed. The oil is afterwards heated with water in a tin boiler until the water boils. This serves to separate the mucilage and albumen, the product being then strained through flannel and put into canisters. Any oil-press would suffice for extracting oil for ordinary purposes, and by decantation and some process of filtration it could be purified. Cheap wooden rollers would serve the purpose, and these could be driven by a horse-gear, after the fashion of driving the old horse-mills for crushing sugar-cane.—*Queensland Agricultural Journal.*

RUBBER PLANTING IN THE MALAYAAN PENINSULA AND BRITISH NORTH BORNEO.

A little while ago Mr. H. K. Rutherford pressed us to try and obtain statistics of the area planted in Rubber in the Straits, &c. It is a difficult matter to do so as there are so many different States and Districts embraced in the Malay Peninsula. But from the returns given in the Singapore and Straits' Directory for 1902 which has just reached us, we venture to compile the following figures, simply as a rough approximation:—

District.		*Area under Rubber.*	
B. N. BORNEO	...	About	100 acres
JOHORE	...	"	200 "
NEGRI SEMBILAN	..	"	678 "
PERAK	...	"	540 "
PROVINCE WELLESLEY	..	"	100 "
SELANGOR	..	"	2,926 "
Total	...	"	4,544 "

This is against 3,356 acres in Ceylon. But our local returns are far more to be relied on, than the guesses we have applied to the estates in the Straits, &c. It should be the duty of the Selangor Planters' Association to collect reliable returns of the actual extent of Rubber planted on each garden or estate, and so to correct the figures which we venture to put forward above.

THE LITTLE TIN TICKET.

Ramasamy, come hither, I've something to say
About the new system, the Government way
Of travelling free of all fuss and delay
With a numbered and lettered tin ticket.

You will find it will save you from bother and loss
Whenever you wish the 'black water' to cross,
And you need not be cheated wherever you doss,
If you've only a little tin ticket.

It is not exactly a 'circular note,'
But will bring you back free on the railway and boat
You may pay for your betel—for food not a groat:
That is done by the little tin ticket.

Kanganies will hoax you with charges for food,
They will take you to places whose names are not good,
And many false items your bill may include,
If you have not a tittle tin ticket.

Whenever you leave your beloved estate
Take one of these tickets across the dark strait,
It will help your return at a wonderful rate,
This little tin Government ticket.

You come to the depôt: the pass lets you in,
But *not* like the robbers of Tuticorin,
Who would steal from the dying: their system of sin
Is checked by the little tin ticket.

You can travel by train and cross over the sea
And then come back again to the *totam* and me,
Paying nothing whatever: your bill comes to me,
  If you 've only the little tin ticket.

If your brother can't get from his *dorai* a pass
As that *dorai* belongs to a curious class
Of animal known for its patience, alas!
  He must go without any tin ticket;

But ere he comes back he can write him and say
He is ready to start on the very first day
That he 's able to travel with nothing to pay,
  And he *must* have a little Tin Ticket.

NEWLYN PIERCE.

MERCANTILE LIFE IN COLOMBO 40 YEARS AGO.

(BY THE SENIOR ED. " C. O.")

A stirring and even romantic chapter might well be written on the "ups and downs" of mercantile life in Colombo during the past 70, 50 or even 40 years. We can merely touch the fringe of the subject in this preliminary note. Of course the traditions of the "thirties" and "forties" were familiar talk in the Fort in the early "sixties." We had a real *Fort* then, enclosed by walls as well as batteries, a deep wide moat crossed by drawbridges with sentry-mounted mediæval winding gates which bore the mark of Cohorn and the

DUTCH EAST INDIA COMPANY.

The 24 European mercantile houses in Colombo and their 60 to 70 resident partners and European Assistants* were naturally thrown much together; they had their cliques, likes and dislikes and yet approached nearly to one big circle of friends, living under the shadow of banishment from "home" with only a fortnightly mail (by P & O) via Galle, and no telegrams, while most of the travelling (and all the heavy freight) between Ceylon and England, passed round the Cape of Good Hope, a voyage of 15,000 miles occupying from 80 to 110 days according to the vessel and weather.

Among the early Fort traditions was the strong opposition of the Merchants to the Government of Sir Robert Wilmot Horton (1831 to 1837) and how (in 1834) they started the *Observer*, the first newspaper independent of Government in Ceylon, and placed one of their number,

MR. GEORGE WINTER

in charge of it as Editor. The Governor could get no European to enter the newly-formed Legislative Council and was obliged to fall back on pensioners or recognised Government protegees to fill the Ceylonese seats. The mercantile opposition gradually died down, however; Mr Winter got tired of his task; and the paper was sold to Dr. Elliott. With the next Governor, the Rt. Hon. Mr Stewart-Mackenzie, the merchants worked amicably; but the ablest man amongst them—Mr Acland—was always more or less in opposition. The burst into coffee and the great boom from 1837 to 1845 followed by the financial crash in the latter year, tried Colombo houses very severely and many disappeared. In the dull time that followed, there were some happy hits in money-making. One proprietary planter, but who had a Liverpool mercantile training, bought up all the

"NATIVE COFFEE"

—a big crop in those days—for "a mere song" (as he told us long after), shipped it round the Cape and it arrived in London six months after, to a vastly improved market, so that he cleared cent. per cent., and immediately founded a mercantile house in Colombo, with later on a branch in Madras, and both continued for thirty years until the partners having made fortunes in cotton, gradually cleared out. But the head could not be idle and speculating with the great "Collie's" lost his all and had to begin life again in his old age. What an extraordinary record of both planting and mercantile experience the story of "C.S." would afford, if he only continued the tale, from his last instalment in our columns published a good many years ago!

It may well make brisk young mercantile men of today to stare, to learn that forty years ago, it was not considered "good form" to advertise any special consignment—say of

QUARTER-CASKS OF MADEIRA!

—until your neighbour had got rid of his stock. To go and compete at a Kandy land sale with a man who had selected any particular jungle "block" for himself by going to the spot, was thought most dishonorable—up to the time that Tottenham got a number of Haputale forest lots put up, and the spirit of competition became too strong and old-fashioned arrangements broke down. [On one occasion thereafter, seven would-be purchasers met at the Kandy Kachcheri and finding that 7 blocks were to be sold, drew lots and arranged the matter amicably; but alas before the last two were offered, one or two strangers to the bargain, dropped in and there was a severe struggle and high prices to the advantage of the revenue.]

The American Civil War—1861-5—and the blockade of cotton, enabled longheaded Bombay and Colombo merchants to amass rapid fortunes. We compiled and printed a telegraphic Code for a local Firm to be used between Bombay, Madras and Colombo (there was no cable to Europe) and *sixpence* was the maximum we were ordered to put in for Tinnevelly cotton (the price then being 2½d per lb.); but we ventured to compile up to the shilling—and yet in 6 months, the Code was useless, the price advancing to 1s 6d! Fancy cargoes of

TINNEVELLY COTTON

bought by Colombo merchants through their Brokers at from 2d to 4d a lb. being worth 1s, 1s 3d and even 1s 6d a lb. before they reached Liverpool or London four months after! E. J. Darley and his partner, S. Butler, whose names and Firm still continue; Alex. Gibson of Alstons, Scott & Co., Charles Shand and J. C. Fowlie made the largest profits, —Wilson Ritchie & Co. and Crowe & Co. following later. Piece Goods too was a safe and profitable business in the early days, since a Chetty breaking his word or bond was, at that time, absolutely unknown! But most of the Firms of the early sixties stuck to "coffee" and their Agency work and among them were Geo. Steuart & Co. (with Messrs. Geo. Steuart and Geo. Mackenzie), J. M. Robertson & Co. (Mr. Murray Robertson, senr., Mr. Geo. Christian), Mackwoods & Co. (Capts. Wm. and F. Mackwood and Mr. F. Smith), R. B. Carson (now Carson & Co.), and some others not now in existence of which Geo. Wall & Co. and J.I, Strachan & Co. were the chief,

* In 1902, there are not fewer than 90 Firms in the Fort with nearly 400 Europeans on their office staffs.

There was also Nicol, Cargill & Co. of which was C. B. (country-bottled) Cargill who, afterwards became Premier of Dunedin or Invercargill Province, and of whose survival now in a good old age we heard the other day in a letter from New Zealand. We well recall cheery and stately Sylvester Trant Richmond* who was a partner in the Firm (and our great Military authority in those days) coming into our office with a copy of a Dunedin paper giving on the one page a speech by the Premier and on another an advertisement saying that C. B. Cargill sold Straw, Hay, etc. Everything is grist to the mill in a new Colony.

*There was no Broker in Colombo in the "sixties"; but a well-known Broker of the present day who came out to be Assistant under Mr. Richmond in 1899, declares that he was the finest specimen of a British Merchant of the old school high-minded, honourable straight and liberal) he has ever known, and to this, all who were acquainted with out old friend, will undoubtedly subscribe.

THE GEM TRADE OF CEYLON.

"GOES STEADILY ON."

VALUABLE CAT'S-EYES AND OTHER JEWELS.

Attention was recently attracted to the gem trade of Ceylon by the announcement that Messrs. M. Ismail & Bros., Jewellers, Galle Face Hotel. had become the possessors of two catseyes which at one time had been a single stone weighing 340 carats in the rough. The stone had been cut into two—one weighing 105 carats and the other 71 carats. The colour was between light and olive green, of admirably oval shape, the bodies being neither opaque nor too transparent, setting forth bright silvery rays of a dazzling straight nature. The estimated value of these stones is R50,000 and R30,000 respectively; both were shipped to the London market, and it is time we heard of the result. [Not yet sold, we are told.]

Later on we had the pleasure of examining some most valuable jewels in the possession of another well-known firm. In particular we were shown a very magnificent catseye weighing over 100 carats and valued at £3,000. Of an olive green colour, with a perfect white ray, the gem exactly matches the description, in colour. given by Mr. Streeter in his book on gems. The gem has been in the possession of the firm for several years. Attempts have been made to purchase it—on one occasion an offer of R30,000 having been made for it on behalf of the Nizam of Hyderabad. The owner, however, finds the gem most valuable for advertising purposes and refuses to sell it under value. Among the other gems shown us was a smaller catseye of much lighter colour, weighing 40 carats. This jewel, although not so valuable as the larger one —being valued at R10,000—is much more attractive and has also a white ray running through it. A beautiful pink star stone, which along with the catseye, is the only jewel which defies imitation, was also shown us. The stone which is over 100 carats is a perfect specimen, with six rays. It was found in Ceylon and is valued at R5,000. A real Ceylon ruby, beautifully cut, weighing 20½ carats, is certainly the finest we have seen in Ceylon. It is valued at R25,000 but it has been so much admired that the owners are loth to part with it. The stone, along with a particularly good blue sapphire stone, weighing 30 carats and valued at R3,000, was found in the Ratnapura district.

These particulars tend to show that the gem trade of Ceylon is not the "baseless fabric of a vision" which of late years people have begun to suppose it is. Rubies, it is true, have not been plentifully found for the last four or five years; nor have there been any big finds recently until these catseyes of Messrs. Ismail and Bros., but the trade goes steadily and regularly on.

DESTRUCTION OF TROUT FRY AT OOTACAMUND.

Ootacamund, July 19.—I hear that the heavy floods in the Pykara River have breached the lately constructed fish pond in which the newly hatched trout fry of the Nilgiri Game Association were placed some weeks ago and that all the fry have been washed away. The Association has had consistent ill-luck in its efforts to introduce trout into the Nilgiri streams, and I hope that better fortune will attend the consignment of ova which Major Bagnall is to bring out with him from England.—*Madras Mail*, July 21.

PLANTING NOTES.

Ground Pumpkin Seeds for Fowls.—Fowls are very fond of cucumber and rock-melon seeds, and young cockerels will eat them in preference to wheat. They also are partial to pumpkin seeds broken up small. Where cows are fed on pumpkins there are always large quantities of seed, which are not fed to cattle. These, if cracked small, would form a valuable food for poultry. Those who have tried it say it increases the fertility of laying hens.—*Queensland Agricultural Journal.* 1st June.

Best Breeds of Fowls.—The following extract is taken from an interesting article by Mr W B Tegetmeier in *The Country* for April last:—The question may therefore be asked by those who keep poultry for practical and useful purposes, What breeds shall we employ, and what system of keeping shall we pursue? If eggs are the chief desiderata, the best breeds to adopt are those which do not incubate, such as those known at the present time as Minorcas, Leghorns, Andalusians, and Hamburgs. Of these the two former are unquestionably the best, inasmuch as they lay the largest eggs. But the system pursued varies greatly, as do the conditions under which the fowls are kept. It is almost needless to say that the most advantageous method of keeping fowls is in localities where they have an extended range, finding for themselves a great portion of their natural food—worms, insects, seeds and herbage of various kinds. Under these conditions, fowls only require a clean roosting-house and feeding twice a day to yield a good supply of new-laid eggs, provided the hens are kept for two years and not beyond that time, as the second year's laying exhausts the great prolificacy of any hen, when her services should be at once transferred to the stock pot.—*Agricultural News*, June 21.

CEYLON TEA AVERAGES IN LONDON.

FOR JUNE SALES.

Messrs. Geo. White & Co.'s highest results for each group of districts for June sales are as follows:—

1.—Udapusseilawa, Nuwara Eliya (6,200 ft), New Galway—Dimbula and Lindoola. (From 3,500 to 6,500 ft). Outlet—Nanuoya (5,300 ft), and Talawakelle (3,900 ft).

Estates and Marks.		Pkgs	Avge. s	d	Grades	Range of Prices. s	d		s	d
Goatfell	..	318	1	0½	*abe*	0	5½	@	1	4¼
Tillicoultry	..	403	0	11¾	*abcd*	0	5½	,,	1	5¾
Henfold	..	223	0	10½	*abc*	0	6½	,,	1	2¼
Holmwood	..	53	0	10¼	*abe*	0	6¼	,,	1	2
Diyanilakellle	..	129	0	10½	*abef*	0	6¼	,,	1	5
Talawakelle	..	395	0	10½	*ab*	0	7½	,,	1	5
Clydesdale	..	136	0	10¼	*abd*	0	7½	,,	1	0¾
Mount Vernon	..	147	0	10	*ab*	0	8	,,	1	10¼
Portmore	..	216	0	10¼	*abd*	0	7¾	,,	0	11½
Waverley	..	287	0	10¼	*ab*	0	8½	,,	1	1¼
West Holyrood	..	124	0	10¼	*ab*	0	8¾	,,	1	1¼

3.—Lower Dikoya, Ambagamnwa, Kotmalo (From 1,500 to 4 500 ft), Yakdessa and Dolosbagie. Outlet—Wattewela (3,200 ft), aud Nawalapitiya (1,900 ft).

Gallebodde	..	322	0	6¼	*abcd*	0	5	@	0	9¾
Imboolpitiya	..	347	0	7	*abe*	0	5	,,	0	8½
Paragalla	..	116	0	6¼	*abce*	0	4¾	,,	0	8¼
Queensberry	..	310	0	8½	*abcd*	0	5½	,,	1	0¼
St. Leonards	..	82	0	6¼	*Green*	0	5¾	,,	0	6½
Shannon	..	62	0	6¼	*ab*	0	5¾	&	0	6¾
Weemalle	..	34	0	5½	*ab*	0	5	@	0	6¼
Windsor Forest	..	109	0	5¾	*abc*	0	5	,,	0	6½

4.—Pussilawa, (3,000 ft) Rambodde, (3,500 ft.) Pundaloya and Kaduganawa. (From 1,500 to 5,000 ft.) Outlet Gampola (1,600 ft) and Kaduganawa (1,700 ft.)

Allagalla	...	164	0	6½	*abcde*	0	4¼	@	0	7¼
Atabagie	..	182	0	5½	*abcde*	0	3¾	,,	0	6¼
Beaumont	...	328	0	5¼	*abc*	0	4½	,,	0	6¼
Condegalle	..	205	0	5¾	*abe*	0	4½	,,	0	7¼
Dartry	..	162	0	5½	*abc*	0	4¾	,,	0	5¾
Dunsinane	..	758	0	8	*ab*	0	6¼	,,	1	0
Ferulands	...	118	0	10	*abce*	0	5¼	,,	1	1
New Peacock	..	427	0	6	*abc*	0	4¾	,,	0	6¾
Pundaloya	..	110	0	8¾	*abc*	0	6¼	,,	0	11¾
Sheen	..	126	0	10½	*abc*	0	7¼	,,	1	2

5.—Hantane, Nilambe, Lower and Upper Hewahetta, Matnrata, Dumbara, Rangala. Nitre Cave and Medamahanuwara. (Rising from 1,200 ft in Dumbara, to over 5,000 ft in Upper Hewahetta). Outlet—Kandy 1,700 ft) and Peradeniya (1,600 ft.)

High Forest	..	188	0	7½	*a*	0	6¾	@	0	8
Loolecondera	..	529	0	7¼	*abc*	0	5	,,	1	0
Mahacoodagalla	..	321	0	7¼	*abde*	0	4½	,,	0	9½
Rillamulle	...	155	0	7¾	*abcd*	0	4¾	,,	0	9¾

6.—Kellebokke, Knucklos, Hunasgeria and Panwila. (From 1,600 to 4,500 ft.) Outlet—Wattegama, (1,600 ft.)

Deyanella	...	74	0	6½	*abce*	0	4¼	@	0	6¾
Gavatenne	...	111	0	7	*ab*	0	6	,,	0	8
Richlands	..	105	0	6¾	*abce*	0	4¼	,,	0	10¼
Wattakelly	...	77	0	7¼	*abce*	0	4¼	,,	0	8

7.—Matale, East and West. (From 1,2.0 up to 3,500 ft.)

C'galla	..	61	0	6¾	*abce*	0	4	@	0	7
Dangkande	...	71	0	6	*abc*	0	5	,,	0	6¾
Midlands	..	281	0	6	*abce*	0	4½	,,	0	7
Opalgalla	..	181	0	6	*abcd*	0	5	,,	0	8¾
Pitakande Group	..	92	0	6	*abe*	0	4½	,,	0	6¼
Suduganga	..	95	0	6	*abcd*	0	4¼	,,	0	7¾
Syston	..	114	0	6¼	*abc*	0	5½	,,	0	7
Warriapolla	..	91	0	6¼	*abcd*	0	4¼	,,	0	8½

8.—Kurnegala, Polgahawela (From Sea Level up to 2000 ft.) Kegalle and Henaratgodde. Outlets—Polgahawela and Colombo.

Hunugalla	..	201	0	5½	*ab*	0	5	@	0	6
Karandupona	...	53	0	4½	*abc*	0	4	,,	0	4¾

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9.—Kelani Valley, Avisawella, Yatiyantota, Kittoolgalle and Lower Dolosbagie, Outlet—via Kelani Valley. (From 200 to 600 ft.)

Dunedin	..	129	0	5¾	*abe*	0	4¼	@	0	6¾
Elston	..	303	0	7½	*ab*	0	6	,,	0	9¼
Kumaradola	..	28	0	6¼	*abce*	0	4	,,	0	7
Penrith	..	433	0	5¾	*abcde*	0	4	,,	0	6½
Veralnpitiya	..	68	0	5¾	*abce*	0	4¼	,,	0	6½
Weyweltalawa	..	102	0	5¾	*abcde*	0	4	,,	0	6¾

10.—Kuruwita, Ratnapoora (100 ft,) Rakwana (2,000 ft) Balangoda (1,700 ft) and Knkulu Korale. Outlet—via Kaluganga and Ratnapura Road. (From 100 to 4,000 ft.)

Detenagalla	..	298	0	6½	*abcd*	0	4½	@	0	8¾
Maratenne	..	285	0	6¾	*abce*	0	4¾	,,	0	8
Rasagalla	..	97	0	6	*abce*	0	4	,,	0	7¼

11.—Kalutara and Bentota Districts. (100 to 500 ft), Outlet—via the Coast Railway.

Gikiyanakande	..	299	0	6	*abcd*	0	5	@	0	6¾
Nawalakande	...	63	0	6¼	*abe*	0	5	,,	0	7¾

12.—Udagama (From 100 ft), Morowak Korle (Up to 3,000 ft.) Outlet—Galle.

Campden Hill	..	343	0	5¾	*abc*	0	4¼	@	0	6¼
Valleyfield	..	212	0	5¾	*abcde*	0	4½	,,	0	7½

13.—Haputale (Haldummulla, 3,200 ft), Badnlla (2,200 ft), (From 2,000 to 5,000 ft) Madulsima 4,000 and Passara (From 2,000 to 4,500 ft). Outlet—Hapntale (By Ry. Station, 5,200.)

Batgodde	..	107	0	7½	*abde*	0	4¼	@	0	11¼
Berragalla	..	235	0	7½	*abcde*	0	4¾	,,	0	10
Cannavarella	..	625	0	7½	*abcde*	0	4¼	,,	0	10½
Glenanore	...	131	0	7¼	*ab*	0	6	,,	0	8¾
Gonamotava	...	356	0	7¼	*abcd*	0	4½	,,	0	10¾
Kelliebedde	...	136	0	7¾	*abce*	0	5½	,,	0	9½
Nayabedde	..	463	0	7½	*abce*	0	4½	,,	0	10¼
Poonagalla	...	64	0	7¾	*ab*	0	6¾	,,	0	9¾
Thotulagalla	...	187	0	7½	*ab*	0	6¼	,,	0	10½

The letters given refer to the different grades as follows:—"*a*"=Pekoe; "*b*"=Broken Pekoe; "*c*"=Pekoe Souchong; "*d*"=Broken Tea; "*e*"=Dust; and "*f*"=Unassorted.

A NEW PEPPER.

A new pepper from Kissi, Upper Guinea, on the frontier of Liberia, has been brought before the "Académie de Sciences," Paris. The corns are small, contain manganese, and are good for spice or condiment. It is called after M. Famechon, the discoverer, and is expected to become a colonial product.—*Globe*, July 4.

A FIND OF QUICKSILVER IN MALABAR.

Calicut, July 22.—Recently, while the Railway construction officials were working at Edakad, between Tellicherry and Cannanore, Mr A Sayers, Bridge Inspector, came upon deposits of quicksilver near a spot called "Sheitan Kunnu," or Devil's Hill. The deposits apparently exist to a profitable extent, for Mr J B Burnett, having inspected them, has already formed a Company under the title of the Tellicherry Quicksilver Syndicate to work the mineral. I learn that all the shares of the new Company have already been subscribed for, and it is to be hoped that Mr Burnett's commendable enterprise will prove profitable. It may not be generally known that so far back as 1858, the existence of quicksilver was reported in a bed of laterite at Cannanore.—*M Mail.*

THE ASSAM LABOUR SUPPLY.

CAUSES OF THE DECREASE.

Calcutta, July 23.—In 1901, 30,777 emigrants were despatched to the labour Districts of Assam, as against 65,190 in the previous year. The Government, in its Resolution published today, says that this great diminution is partly explained by the fact that the year 1900 was a famine year in Chota-Nagpur, and is also ascribed by the Commissioner of the Division to wild stories having been circulated, exaggerating the responsibilities incurred by garden Sirdars under the new Act. There is a further and, to the planter, a more serious reason. The coal mines in Bengal have increased rapidly of late both in number and size, and the mine owner is now a formidable competitor with the tea planter in the Districts of labour supply. He gives higher wages, and the mines have at least the attraction of being nearer to the Districts of recruitment.—*Madras Mail*, July 24.

MICA OR TALC.

The very large sheets of mica, which at one time used to fetch fancy prices on the London market, now seem to have fallen out of use, owing, we believe, to substitutes being used. At any rate at the sales held on 9th July the larger size sheets were neglected, the same as at previous sales, the demand being more for medium and small medium sheets, especially if clear and suitable for electrical purposes, and the prices realised for such were rather better than at last sales. Very small mica and films were out of favour and met with no demand at all. So all had to be bought in.

A GOOD TREE FOR TEA ESTATES.

A Dimbula Manager writes:—

"*Re* your article on tree growing, one tree that grows well upcountry, which has not received the attention it deserves, is the *Iolantha glandulosa*.* There are some fine specimens of this tree on Glasgow Estate, Agrapatnas, age about 10 years. It grows very nearly as quickly as the *Robusta* gum or Red Toon, and for growing amongst tea it is greatly preferable to either. I can say nothing as to its merits as a timber tree, but it should make good fuel."

How does it compare with the favourite Grevillea?—will be the first question asked.

A NEW INSECTICIDE.

We referred some American pamphlets, recently received, to Mr. E. E. Green, the Entomologist, who kindly writes:—"The one on Carbon Bisulphide, as an insecticide particularly interested me. I have always realised the important part this insecticide might play in Ceylon, *if only we could procure it in quantity here.* At present it cannot be obtained for love or money, except in small quantities as a drug. The shipping people are afraid of it and will not accept it as cargo. With the aid of Carb. Bisulph., white ants might be practically exterminated with ease. Then it is invaluable for destroying all the larger wood-boring insects without the necessity for hacking the tree to pieces."

* We cannot find this name in any of our botanical or Timber-trees' books of reference. To what country does the tree belong?—Ed, *T.A.*

PEAT TRANSFORMED INTO COAL.

A German and an engineer of Swedish nationality, named Fritz and Schöning respectively, have succeeded in transforming peat into coal. Coal, as Macaulay's Schoolboy knows, consists of metamorphosed vegetable matter which flourished ages ago on the earth's surface, the change having been brought about under the combined influence of heat and pressure. Messrs Fritz and Schöning simply imitated Nature in their experiments. They subjected peat to a pressure of one hundred atmospheres, that is one thousand five hundred pounds to every square inch and at the same time heated it. The resultant coal was found to have acquired the same heating properties as stove coal. Similar experiments might be made with Irish peat, which, from its low percentage of carbon (sixty per cent), constitutes a very poor fuel.—*Commercial Intelligence*, July 4.

COW-TAIL HAIR.

Although peace has been declared, the good demand that has existed so long for cow-tail hair still continues, and though the high prices of 11d and 11½d per lb. realised two or three years back are no longer obtainable, nice long hair, well-washed and free of skin and bone, is valued today at 7d to 8d per lb. according to length and quality, at which price there seems little doubt it pays shippers, especially in India, to send over this article in large quantities. Pig's bristles are rather dull; owing to a large failure in the trade some time back the market was considerably upset, but is now recovering itself and Indian shippers are doing well with their consignments; at least those who are in good hands seem to be, as it requires a great deal of trade knowledge and patience to place out the consignments to best advantage.

RESTRICTION OF TEA OUTPUT:

MR. ACWORTH'S REPLY TO THE LONDON I. T. A. CIRCULAR.

Dear Sir,—I am in receipt of your letter No. 529, dated the 11th instant, with enclosure *re* restriction of output, Circular No. 37. I am not one of those who believe in artificial methods of improving the position in tea—I mean such methods as cessation of manufacture, destruction of low grades and so on, and cannot therefore consent to support the amended scheme in Circular No. 37. I am, however, prepared to do this:—(*a*.) I will undertake to hold back 10 per cent. of my outturn during the current year, not put it on any market, but store it in my factory till better times; or (*b*) I will hand it over to a Committee to be formed for the purpose of exploiting foreign markets. Either of the above will I do, provided that 135 millions of lb of the Indian tea crop consent to some sort of scheme for improving the position, either by cessation of manufacture destruction of lower grades, or whatever seems good to them. It seems to me that, should the Viceroy consent to a compulsory cess, and should growers agree to hand over 10 per cent of their outturn to such a Committee as I suggest, our position would be a strong one. We could use the cess entirely for bounties on green tea and for advertising, whilst we could follow up our advertisements with very cheap teas, so far as blacks are concerned. If we could only dispose of them at 3d per lb. it would suffice, for this would pay the grower for the leaf from the bush to the hands of the Committee, and would leave something in hand to cover freights and sale charges

If these freely-given blacks were placed very cheaply on foreign markets, such as Russia, where there is already a taste for and large trade in blacks, it would

help to confirm the taste, now in its infancy, for British-grown teas, and once acquired the taste would probably remain. Germany, too, offers, another field, where it would probably pay us to lay down very cheap blacks, particularly if it is true that tea is in future to be served out to the troops, and duty reduced to 1½d per lb. The taste, once acquired, will not be easily given up. The soldiers, when their period of service is over, returning to their families, will insist on having tea, will introduce it to their families, and thus the taste will grow and spread. It is by such means as the above that I consider we should extend the use of our produce. To subsidise shops in fashionable quarters of Paris and Rome is to my mind futile and a mere waste of money. We want to catch the masses, not the classes. Finally I think greens should be turned out by the million and not the 100,000 lb., and we naturally look to the North with its great Companies and large resources to show us the way. We are being beaten in the race by Ceylon, and there is no reason why we should be, if we get funds and use them judiciously.

I may mention here that we down here have been much disgusted by the refusal of the I T A in London to accept the offer of Mr. P C Larkin of Canada; indeed, we have lost all confidence in that Association. The suggestion to form a British Growers' Union is excellent, and will, I hope, be carried out in the near future.

As regards restriction of output, I have a word more to say. One scheme has been proposed which has not come before the public, and that is a scheme which has been suggested by Mr. Parker, the Chairman of our Association, which is contained in the following extract of a letter I have received:—"If artificial restrictions are to be imposed I wonder no one has thought * (perhaps he has, but I have not seen it) of giving the bushes an extra month's rest after pruning. It would do the bushes a lot of good and when the new shoots were cut or broken back to the required height, the tea made from the first flushes would be of decidedly superior quality to that made from ordinary 'tippings' and thus prevent a good deal of common tea being thrown on the market. The shortage too would be gradual all over Southern India and Ceylon and would be regulated by the date when different estates pruned their different fields, and would extend over a period of about two years. Being gradual, no one would feel the shortage very badly and the improved quality of the tea (by getting rid of the 'tippings') would probably fully compensate for a decreased quantity." I must repeat that I regard, artificial means of restriction with distrust, but this does seem the most sensible yet brought forwards provided you can get men to act on it. My private opinion is that you will never get men to act upon any artificial method."

The rest of the discussion on the Indian tea cess was conducted in Committee.—*M. Mail*, July 30.

CEYLON TEA IN THE UNITED STATES OF AMERICA.

The British Vice-Consul at Los Angelos, in his recent report, writes as follows:—"Heretofore coffee has been drunk here almost to the exclusion of tea. More tea is now being consumed, and as the quality leaves much to be desired, while the price is quite high, I should think when the demand increases pure Ceylon teas might be sold here to advantage. Several agencies for the sale of Ceylon teas have been established in the last 11 years and have not been successful, and the time is not yet ripe to press the sale of good teas. I think, however, that there will be a market here in the future."—*Board of Trade Journal*, July 10.

* [Some one has: it was suggested in the *Ceylon Observer* early in June by a correspondent, signing "Indo-Ceylon."—ED. *T.A.*]

TROUT-FISHING IN CEYLON.

TWO DAYS AT THE HORTON PLAINS IN APRIL 1901.

(*Extracted from "Recollections of Sport" by James Cornway.*)

"I reach the river by 10 a.m. and find the water looking rather dark, owing to the rain of the previous night, but it is quite clear. I put on a small fly, black with red hackle, and some silver tinsel in the body. I know of a few places where trout used to lie last year, and approach carefully. Rainbow may be expected this year in addition to the brown, as the streams were fairly stocked with that variety during the last season. They must all, however, be returned to the water if I chance to take any. I had little expectation, however, of finding them in such numbers as they proved eventually to be. The first fish I caught was a rainbow, as nice a trout as could be wished for, measuring just twelve inches, and weighing about as many ounces; this may be considered very good growth for a fish only twelve months old. All I caught ranged from ten inches to twelve, and were in fine condition. Their fighting powers are too well-known to need my enlarging upon them; but I would sooner have a one-pound rainbow at the end of my line than a three-pound brown trout. He gives infinitely more play, and is decidedly more beautiful to look at. He almost invariably leaves the water three or four times before giving in; and then is a picture with the different lights on his body. The way, too, in which they come at the fly, leaves no doubt of their intention.

"After proceeding some distance without raising anything, I came to a large pool which I knew to harbour brown trout, but here again my first cast saw me into a rainbow. He was off like a rocket half-way across the pool, then he took a leap of seven or eight feet and was gone. He was a fine fish of some two pounds in weight. I caught three more in this pool, and returned them. The next fish I rose was a brown of about one and a half pounds. He came at my fly twice, but failed to lay hold. I gave him a rest, changed my fly, and tried him again, but he was not going to be caught this time.

"By three in the afternoon I had almost given up hope of catching a brown trout at all as at every pool I came to, and generally at the first cast, I rose and hooked a rainbow. This, of course, disturbed the whole pool, and I began to be provoked with them. By four o'clock, however, I seemed to have left rainbows behind, as I hooked and landed two browns, each about one pound in weight, within a few yards of each other.

"There had been thunder in the distance for some time, and, as it was coming nearer, I made off for the rest-house; and a rather sharp storm followed, the lightning being very vivid, and the rain falling in torrents. By five o'clock, however, it passed off, and I went out again; but the thunder had affected the fish, as I hardly got a rise, and they were evidently off their feed. As a rule, however, trout out here do not seem to mind thunder, probably for the reason that it thunders almost every afternoon, and they get

accustomed to it. I have fished through the whole of a severe storm, and caught numbers notwithstanding. On this occasion, however, I was using one of Hardy's cane rods, with a steel centre, and it was safer to lay it aside while the storm lasted. Just as it was getting dusk I had a rise, and as I watched a long stretch of water for some time they were rising again freely all over the water.

"I now put on a small 'coachman' fly, and fished till it became dark, but did not catch another fish. Those that were rising were apparently all small, and not worth taking.

"Sleeping at the rest-house, I next morning went down to the larger water about four miles below. By nine o'clock I had taken two trout of one pound and fourteen ounces respectively. Rainbows were again provokingly to the fore, and I returned several of about eleven inches. One I killed accidentally, it being badly hooked and injured. I held it in the water for some time, but it was beyond recovery. It had nice pink flesh, and proved very good eating. The brown trout seem to have here lost their pinkness of late years; and they further seem decreasing in numbers. The reason for this may be that the fresh-water shrimps have decreased; crabs, however, are still plentiful in all the streams, and, I think, are a great source of food. I have seen a trout taken with a crab in its mouth, too large for it to swallow, and yet he managed to take a fly. Another had a frog half-way down its throat, the hind legs protruding out of its mouth at right angles, and yet this one also was greedy enough to take a fly. My best fish was a beautifully-marked yellow trout of two pounds, five ounces. I saw it some way below me in the deep water, swimming aimlessly about, and managed to throw my fly just over its nose; it at once took it, and after some play I got it safely into the landing-net. It proved to be a very thick female, in fine condition.

"A little lower down in the same pool, which is a very large one, about fifty yards across and 200 yards long, I saw another large trout of about three pounds lying at the surface. Until I got closer, I could not make out what it was doing. It kept coming up, and taking the foam or bubbles which were floating down stream, making a noise each time with its mouth something like the word 'soup.' Thinking it might like something more substantial, I sent my fly above it, and drew it across almost close to his nose. The fly was immediately followed, but the fish failed to catch hold, and I could not induce him to come again. I landed another of about two and a half pounds in the next pool, with beautiful spots. He gave me some good sport, and I was decidedly pleased with my morning, so far.

"About mid-day I began to retrace my steps towards the rest-house. On passing the large pool, some way up the hillside, I looked to see if the big trout was still playing with bubbles, and, sure enough, there he was. I tried to get behind him for a cast, but he must have seen me coming, for he slowly sank and disappeared. I fished several likely places on my return walk, rose two nice fish, and hooked a third, which, however, managed to break away just as I was getting him near the landing-net. Above Baker's Falls, in a rocky pool, I secured my next fish, weighing about one and three-quarter pounds. At first I took it to be a rainbow, as he sprang out of the water several times, but he was too yellow, and, after a knock on the head, I found him to be a handsome golden fish with pink spots.

"By this time the afternoon thunder was rumbling, and as I had still two miles to walk, I started for the rest-house. I was caught, however, in one of the worst storms I would like to be out in. The roar of thunder was deafening, the lightning uncomfortably near, and the rain fell with a violence which threw up spray from the water to the height of a foot or more. On reaching the rest-house I weighed my catch, and found the eight trout weigh exactly eleven pounds, I had returned to the water twenty-one rainbow, and five brown trout of eleven inches and under.

"Next morning I make an early start for the station, rather more than two miles across patna, down through two miles of jungle, a short cut of the roughest kind. I reach the station just as the train steams into it; and two hours later I am at my bungalow ready for breakfast; and as I think over the doings of the last forty-eight hours, I come to the decision that a take of thirty-four trout amid such scenery, such air, and with such exercise, is a pleasure not to be despised, and would compare not badly with some of my sport at home in the Highlands." G. G. R. C.

PLANTING &c. IN THE MALAY STATES.

From the Annual Report for the year 1901 on the Federated Malay States by the Resident-General (W H Treacher, C.M.G.,) we make extracts:—

European COFFEE planters (Liberian) have again been disappointed by the poor prices ruling for that product, which were indeed lower than for the previous year—$18.29 per pikul against $20.89. Nevertheless, in Selangor and Negri Sembilan the European-owned estates are almost all in good order, there is a general improvement in the sample of coffee, and the planters are showing great determination to tide over the present long-continued crisis. The export of coffee for the year amounted to 51,239 pikuls as compared with 44,763 pikuls in 1900.

The reports as to the successful growth of Para and Rambong RUBBER are most encouraging and the cultivation of these species is being rapidly extended.

In Perak the cultivation of the SUGAR-CANE continues to prosper, flourish and extend, and, I am sorry to say, is in some places displacing padi, European and Chinese capitalists buying up padi land from the Malays, who, with some reluctance, part with their land, unable to resist the temptation of ready cash. The export of sugar from Perak amounted to pikuls 343,881, valued at $1,500,000. The figures for the preceding year were pikuls 278,156, value $1,315,974.

CENSUS IN THE MALAY STATES.—For the purposes of the Census the following areas were re-cognised, to which I have added the figures of population for the years 1891 and 1901, and the increase per cent:—

State	Area. Sq. mile.	Population. 1891.	1901.	Increase per cent.
Perak	6,500	214,254	329.665	53.87
Selangor	3,200	81,592	168,789	106.86
Negri Sembilan	2,600	65,219	96,028	47.23
Pahang	14,000	57,444	84,113	46.42
	26,300	418,509	678,595	62.14

It should be said that the figures of 1891 for Perak are considerably more reliable than those for the three other States. The total cost of the Census amounted to $60,500, or under 9 cents per head of population. Mr. Hare's report abounds with interesting deductions from the figures at his disposal. I must content myself with the following remarks. Principal nationalities, exclusive of floating population and prisoners :—

Malays and other Natives of the Archipelago	312,456	increase per cent	34.9
Europeans and Americans	1,422	do	98.3
Eurasians	1,522	do	169 8
Chinese	299,739	do	83.4
Indians	58,211	do	188.8
Average density of population per square mile			25.7

Population of five principal towns :—Perak : Taiping, 13,331 ; Ipoh, 12,791. Selangor : Kuala Lumpur, 32,381. Negri Sembilan : Seremban, 4,765. Pahang : Pekan, 1,142.

Chinese population of two British Colonies and the Federated Malay States :—

Hongkong and Kau Lung	..	376,797
Straits Settlements	..	281,933
Federated Malay States	...	299,739
Total	..	958,

It is stated that during the years 1881-1900, 1,681,711 Chinese immigrants have come to Perak and Selangor. It is, perhaps, unnecessary to point out that the attraction to the Chinese in the Federated Malay States is the tin mines, that not one quarter of the Chinese population can be considered to be "resident," and that the disproportion of the sexes amongst them is very marked —the proportion of Chinese males over 15 years of age to Chinese females per 1,000 is 927 males to 73 females ; the proportion of all Chinese males to all Chinese females per 1,000 is 910 males to 90 females.—*Mr. Treacher's Annual Report.*

SELANGOR EXPORTS.

Under the head of exports the principal increases are found under tin and tin-ore, mangrove-bark, charcoal, firewood, coffee and copra. It is to be regretted that, with an increase of nearly 3,500 pikuls in the amount of coffee exported, the value owing to the low prices ruling during the greater part of the year, was less than in 1900. The quantity of copra exported (5,544 pikuls), though not very large, was more than double the amount exported in 1900. The price of this product has been steadily rising since the end of 1900, and with the increased attention which is now being devoted to coconut growing copra should, before long, be one of the staple exports of the State. The principal decreases are to be found under ataps (the export of which was only about half that recorded in 1900), getah, betel nuts, gambier, blachan and salt fish. The value of the gold exported from Pahang *via* Selangor rose from $366,369 in 1900 to $400,960 in 1901.

THE PRODUCTION OF HEMP IN THE PHILIPPINE ISLANDS.

The principal industry of the Philippine Islands is the production of hemp. The southern part of Luzon Island, and all other islands to the south, are given up largely to hemp cultivation, all of the product being shipped to other countries to be manufactured. It is the industry which supports a large proportion of the population of those islands where it is extensively grown, and, according to the opinion of those most familiar with the trade, there is no danger of any over-production and a consequent decrease in the selling price of this product ; at least so it is stated in an official report on the trade of the Philippines recently issued by the United States War Department at Washington. Manila hemp is used in the manufacture of cordage of a superior class. For ships' purposes it is superior to any other material, considering its cost and wearing qualities. The cultivation of hemp, while carried on extensively in the Philippine Islands, is conducted in a most primitive manner. It is found nowhere else in the world, and while it is now extensively cultivated, and large tracts of land are planted with it ; it is still found growing wild in certain portions of the island, and in quantities which make it worth while to gather it for shipment. Hemp, or "abaca" as it is called in the Philippines, is a product of a species of plantain tree. In its wild state it grows to a height of from eight to twelve feet, but under cultivation it grows to a height of from fifteen to twenty feet, with a trunk from eight to twelve inches in diameter. The stalk of this tree is in appearance something like the banana plant-—merely a collection of fibrous leaves, which are closely joined together, and which can be easily cut with a single blow of a sharp knife. The tree is allowed to mature, which requires about three years, this being dependent upon the soil and the elevation of the land upon which it is planted above sea level. When the tree has attained the proper age, it is cut down and divided into long strips which are put under a large knife, weighted with a lever, and under which the strips are drawn. This separates the stalk and juice from the fibre, and the latter is then spread out on the ground to dry. This work is all done at the plantations, and after the abaca or hemp is sufficiently dried it is gathered up and taken in bullock carts to the nearest waterway, and shipped to some port where it is made into bales ready for export. The production of hemp is carried on extensively by natives, by Spaniards, and by foreigners. The export business is practically all in the hands of foreigners—mostly English, Belgian, and German houses.—*Journal of the Society of Arts*, June 27.

VANILLA CULTIVATION IN SEYCHELLES AND CEYLON.

The following remarks by a well-known planter will be read with interest :—" I have read the memorandum issued from Seychelles Government House. The cost of land in the Seychelles is very high R300 per acre. There is land suitable for such cultivation,—viz., cacao, vanilla, and should include rubber—in the Matale and Dumbara Valleys, available at R60 per acre. The cost of labour is also dearer than in Ceylon. The cost of curing R1·25 per lb. about the same as in Ceylon. As Vanilla grows very well on Dadaps, it is just as well to have these trees cultivated along with cacao. The Seychelles' produce is probably superior to that of Ceylon : in fact, I believe, it to be the best vanilla produced. Five rupees per lb is about as much as can be obtained at the present time for good Ceylon Vanilla on the spot. I find that Vanillas

frequently *commence* to bear at *2 years*. Each vine the memo states can produce from 25 to 30 pods, 4 inches to 8 inches long. This is surely a very moderate yield. I have frequently counted 70 to 80 pods or more on a single vine and well up to the measurement noted."

IMPROVED CEYLON GREEN TEAS.

We were enabled a few weeks ago to send the well-known Indian tea authority Mr. J. B. Leslie Rogers, a few samples of the teas turned out by Ambawatte mills, Colombo, and we are pleased to give his report on the same as of general interest:—

I have just been testing these samples, and the following is my opinion on the same. I may add that as I have more experience of the Asiatic than the American Green Tea Market, my opinions chiefly apply to the former.

No. 5 Samples.—Good Hyson quality. Rather broken leaf colour bluish Green and slightly uneven. Aroma good.

No. 6 Samples.—Good Young Hyson quality. Leaf fine and well rolled, but rather broken. Colour bluish green, but of a more desirable shade than No. 5. Aroma very good.

INFUSION.

No. 5.—Infused leaf, a good olive green. Pale straw green liquor, strong, crisp and full-flavoured. Fresh delicate aroma. Good in the cup.

No. 6.—A good even olive green. Liquor—a pale straw green. Strong, crisp and more delicately flavoured than No. 5 Fresh delicate aroma and very good in the cup.

GENERAL REMARKS.—Both high-class teas, which compare very favourably with the same qualities made in China and Japan. They would, however, in my opinion, be much improved if turned out a lighter green colour with less of the blueish tint. I would also suggest sifting out more of the small broken leaf, and disposing of the latter separately.

Messrs. Finlay, Muir & Co. are to be congratulated on these favourable samples. Similar makes with the improvements suggested, would undoubtedly "catch on" in the Asiatic Markets; and I also believe these teas will compete more successfully against Japans in America, than the other so-called Green Teas now being made in India and Ceylon. My views on this matter coincide entirely with the policy now being pursued by Messrs. Finlay, Muir & Co.; and I shall look forward with much interest to a successful termination to their important experiments in this direction.

SALE OF CEYLON ORCHIDS IN COLOMBO.

There was quite a lively time at the sale of Mr. Dodwell Browne's orchids by Mr. A. Y. Daniel this morning. Some 250 specimens were offered in about 100 lots, and the total realised was about R1,000. The highest price realised was R36 for the giant orchid, purchased by Mr. Macmillan, Curator of the Botanic Gardens, for the Lieut.-Governor. His Excellency, indeed, secured quite a number of rare specimens.

Amongst those present were: the Hon Messrs H L Wendt and J H de Saram, Messrs F Dornhorst, Morgan de Saram, S P Hayley, P D Siebel, R Daniel, Gigg, Geo. de Saram, Charles Perera, H F MacMillan, A W Andree, C Drieberg, Dr A J Chalmers and others. Amongst the purchasers, many of whom bought several lots, were Messrs J H de Saram, MacMillan, S P Hayley, G de Saram, M de Saram, F J de Saram, Gigg S D Young, R Daniel, J H E Rodrigo, Chas Perera, P D Siebel and Dr Chalmers. The prices paid ranged from R5 to R36. Mr. MacMillan bought one *Sarcochilus Calceolus* (fragrant flowers) for R36 and also a *Grammatophyllum Speciosum*, described as the queen of orchids, for R33. Mr J H de Saram bought a pretty *Sac Blumei* (lately flowered, eight blooms) for R34, two *V. Suavis* and two *V. Sauderiana* going to Messrs P D Siebel and Geo. de Saram for R20 each.

FLORA OF THE MALAY PENINSULA.

The Asiatic Society of Bengal has received R8,750 from the Government of the Straits Settlements, being a contribution for the purpose of defraying the cost of publication of Sir George King's materials for a treatise on the Flora of the Malayan Peninsula.—*M. Mail*, July 22.

BRAZIL COFFEE CROP.

There are 659,960,060 coffee trees in the State of Sao Paulo, Brazil, of which 525,624,435 are over four years old. During the present season the yield is on an average of 2 6-10 pounds net per tree. On some plantations with fully-matured trees, the yield has been as much as 12 to 14 pounds per tree. In commenting on the official returns of the coffee plantations, Messrs W H Crossman and Brother say:—"The State of Sao Paulo alone is capable of producing sufficient coffee to meet the entire consumption of the world; the fact that such a great quantity of trees exist, and such a large percentage of them below the age of four (4) years, proves conclusively that the planting has been going on successively during all the years, when it was proclaimed low prices meant heavy losses to planters, and that there was not sufficient labour to care for the plantations. It was claimed there were not enough hands to harvest a crop of nine million bags, and the Italians were leaving the country in great numbers; yet what do we see? Rio and Santos alone in one season are able to harvest a crop of upwards of fifteen millions, and have found time to continue clearing and extending plantations up to and including this very year.

It makes very little difference, in view of the monstrous supplies existing, whether the next crop is nine, ten, eleven or twelve millions. Any one of these quantities is much in excess of what is really wanted.—*Indian Gardening and Planting*, July 24.

COCONUTS AND WHITE ANTS AT ZANZIBAR.—Mr Theodore Burtt of the "Friends' Industrial Mission," Zanzibar, writing from Pemba on 2nd July, reports:—

"*Re* white ants and young coconuts. Some time ago I removed the soil from the upper part of some hundreds of young plants in the nursery, and put wet sand straight from the shore in place of the soil close round the nuts and young shoots. For some weeks the white ants let them alone entirely. Today I see three have been eaten off. I will soak them with sea water and hope to let you know the result after a while."

AN ENGLISH RUBBER PLANTATION IN MEXICO.

While most of the interest in rubber planting in Mexico has been developed with capital from the United States, and principally under the control of large companies, there are some plantations privately owned by citizens of other countries. One, for instance, is that above mentioned, the property of George Cullen Pearson of England. In a statement from the manager of this plantation to *The India Rubber World*, under date of May 20, it appears that there are now growing on this property fifty thousand rubber trees *(Castilloa elastica)* which were four years old in June; one hundred thousand trees three years old; and two hundred thousand trees two years old; besides a large number of plants in nurseries. This plantation, by the way, is one which has been referred to in certain quarters—but not on the authority of the owner—as embracing a large number of rubber trees old enough to be tapped this year.——Mr Pearson's plantation is located two miles from the "Hacienda de Yale," owned by Alfred Bishop Mason, of Chicago, and president of the Vera Cruz and Pacific Railway Co. Mr Mason's two nephews, James Trowbridge and R Willis, are resident managers of this hacienda, on which a considerable amount of rubber planting has been done.—*India Rubber World.*

A CHINESE CAMPHOR MONOPOLY.

On the authority of the Japanese Foreign Office, it is now stated that the Chinese Government has decided to establish a Camphor Monopoly Office in Fohkien, placing the manufacture and sale of camphor under the control of the Japanese. It is not correct, however, to say that the monopoly right of the camphor trade is to be conceded to the Japanese Government. In future the Japanese may be a party to the camphor business by contributing a part of the expenses of monopoly, but no definite arrangements have yet been made.—*Hongkong Press*, July 19th.

THE RUBBER FAMINE!

One of the subjects which might well occupy the attention of the much-talked-of colonial conference, which is to take place in Coronation week, is the rubber famine in West Africa. I hear from sources which are absolutely indisputable that rubber is becoming scarcer every day. The reason for this is not far to seek. In the first days of the rubber boom eager speculators rushed to West Africa, caring little what they did as long as they got rubber. As a consequence, the rubber trees were destroyed in a manner enough to make the heart of the most amateurish woodman sick with anguish. On the principle that you cannot eat your cake and have it, rubber—at least, the West African species—will soon become as rare as the Great Auk.—*Today.*

THE TROUBLES OF COCONUT PLANTERS IN THE STRAITS.

We are sorry to learn that another enemy to coconut planters has turned up in the *tikus besar*, that is so destructive also to padi crops. The "Mongoose" is their best destroyer, the introduction of which may prove beneficial. These creatures also keep a place remarkably free from snakes.—*Perak Pioneer*, July 29.

"HEMILEIA VASTATRIX" IN THE FRENCH COLONIES.

The French Minister for the Colonies has taken precautions against the hemileia vastatrix, a fungus which fastens on the leaves of coffee plants and destroys them. It is for the coffee planter what the phylloxera is for the vine-grower, and has played havoc in Ceylon. The French Colonies of Martinique, New Caledonia, Reunion, Madagascar, Guiana, and the Congo as well as Cochin China and Tongking raise much coffee, and it is now forbidden there to import coffee plants. Even coffee beans must be immersed for half an hour in a 1 per cent. solution of sulphate of copper to kill the enemy.——*Globe*, July 18.

JAPAN TEA IN 1901.

YOKOHAMA CONSULAR REPORT.

District of Yokohama, 1901, by Mr Consul H A Bonar.—The raw tea season opened at the end of April with but little animation, and although the demand increased as prices steadied, the competition for early teas, which in former years was always a marked feature of the trade, was anything but brisk, and the inquiry continued slack until the end of July. The fact cannot be denied that the Japan tea trade is gradually contracting in volume, the annual export of the United States and Canada having fallen off by some 10,000,000 lb. during the last 10 years. The competition from India and Ceylon teas has not proved as dangerous as was expected last year. The efforts made by these growers have not met with much success in the United States, and it is now doubtful if they will ever make any serious inroads into the trade. In Canada, however, the Japan tea trade is certainly suffering from the competition of these teas and it is probable that, except in the lower grades of Japanese, used chiefly for mixing purposes, the Ceylon product will eventually supplant the Japanese growths. The total export from Yokohama in 1901 was 24,577,524 lb.—*L. and C. Express*, July 18.

TAMIL EMIGRANTS AND THEIR FOOD.

(*To the Editor, "Madras Mail."*)

SOME USEFUL NOTES.

Sir,—Dr. Haviland, of Perak, attributes the prevalence of dysentery among Tamil coolies from India to the full meals they get on the estate. It has been observed in the hospitals in the planting Districts in Ceylon that a meat diet does not suit the cooly patients. They do not recover health or strength by it. This proves the rule that one man's meat is another man's poison. What is good and wholesome for the hardier Chinese cooly may not be so for the Tamil cooly who is "transplanted" to a strange country where he has to face a different set of circumstances. A sudden change from the arid plains of the Carnatic to the wet regions of the Malay Peninsula might in itself cause diarrhœa and dysentery. Overloading the stomach with food-stuffs to which one's system is not used may be another. But to say that dysentery follows good food is a startling statement. A full meal of rice and milk and vegetable curries will not lead to diarrhœa. But when the Tamil cooly imitates the Chinese cooly in eating

anything and everything at any time in a new place, he must necessarily get ill. There is nothing new in the case of the Tamil cooly catching diarrhœa or dysentery when he changes his diet. Without going far afield I may instance the case of the Tamil cooly in the Wynaad District when he is supplied with "raw rice." The Canarese cooly thrives on "raw rice" because that forms his ordinary food. But the Tamil cooly who is not accustomed to it gets diarrhœa when he lives on raw rice. The ordinary diet of the Tamil cooly in the high lands of Ceylon consists of rice, dhall and small dry fish called *nettali*. It has been found by experience that *nettali* soup nourishes the cooly patient, whereas mutton or chicken broth does not, because he has not been used to it. This does not apply to all coolies. There are some who are robust and well-fed like the Kanganies and the cooly employed in the planter's bungalow. The causes that lead to ill-health of the Indian cooly on landing at Perak are the following :—(1) the fatigue and starvation he has undergone on the sea voyage ; (2) the change of climate which includes the "bad water of Perak"; (3) unwholesome food, such as eating plenty of plantains and other fruits and meat at irregular hours.

M. TISAINAYAGAM.

Kayts, Ceylon, 24th July.

PANTING NOTES.

Tea Boxes for the Canadian Market.—We attract attention to "Merchant"'s letter on this subject, on page 200 as giving practical information of interest to shippers of Ceylon tea for Canada.

Planting in Sumatra.—Our planting readers will enjoy the racy letter we print on another page above the well-known signature of "W. T. McK." "Well-known" in Ceylon twelve or twenty years ago—but, alas, how many have come and gone since then !—and we fear if Mr. Turing Mackenzie revisited his old diggings in the Central Province, he would feel like a stranger among strangers, so far as his personal surroundings were concerned, although he would have a hearty welcome both from old and new. But the country is much the same, and his German or Dutch friend does not overrate the beauties of our Central Capital, uniquely situated in its cuplike valley guarded by the hills and the river, and with the grand Peradeniya Gardens close by. Someone the other day asked us "what about the future of Coffee?" The question made us feel a little guilty ; for, in 1896, we ventured in a letter to the London *Times*, which appeared above our own name, to correct some remarks of Sir R W Herbert and to say that "coffee" (with the failures in Ceylon, Java and India) should be *the* product to go in for, where it would grow in the tropics. Alas ! we had then no conception of what Brazil could do in almost doubling its exports. For the outlook at present, we cannot do better than refer to what "W T McK" says on another page.—As to the "King" coconuts wanted, we have no doubt some one with a good garden and wishful for new plants, will respond.

North Borneo.—We have had enquiries lately as to progress in British North Borneo. Such figures as the B.N.B. Company's Agent sends us (see page six), are the briefest answer and index to the growth of the country.

"Hill" Flavour in Tea.—The depressed spirits of planters are beginning to revive (says the *Indian Planters' Gazette*, August 2nd) especially those in Darjeeling, who almost began to think that the manufacture of teas of true "hill" flavour was a "lost art." Some of the gardens in the Darjeeling district have realised very satisfactory average prices for late invoices. Really good hill tea will always command full value, the same as any other "stand out" tea.

A New Cure for Dysentery.—We are always glad to hear of new and authentic cures. Have any of our readers information on the drug referred to in the following Indian cutting ? :—"The ravages which dysentery caused among Europeans in the tropics before the disease was as well understood as at present were terrible, and now, although it is affirmed by many medical men that dysentery if taken in hand in time is practically always amenable to treatment, and but seldom fatal even when for a short time neglected, yet the number of deaths caused by it, especially among children, is still very great ; and it is most certainly good news to hear that a new cure for it has been discovered in the seeds of the "Brucea Sumatranœ," which are said to be as much a specific for it as quinine is for malaria. Now that is news to the greater part of the world although probably known for long by the natives of the regions in which it grows. It is even found in Borneo, Java, Sumatra, the Philippines, South China and Australia. The plant is being raised from seed and in a short time the seedling will be ready for distribution, and already there have been very many applications received by Mr H M Ridley, the Director of the Botanical Gardens of the Straits Settlements."

Banana Rubber.—Substitutes for india-rubber appear to be getting more and more numerous. The latest idea is certainly the best ! As recorded in the pages of "The Fruit Grower," the information must be of great value to its readers as well as to the manufacturing trade ! The writer introduces his subject as follows :—There have been for many years past attempts to provide a substitute for rubber, the market price of which has in the past decade gone up by leaps and bounds. There is even talk at times of the supplies giving out. According to a report recently received in this country, a method has been patented for perfecting the manufacture of an artificial india-rubber from banana fruit skins, and a company is to be formed to work the process. Small cuttings of sheet rubber made a percentage of "banana rubber" and Para rubber have been exhibited in this country, and it is said to be difficult to tell the difference between this combination and pure rubber. It is claimed that banana rubber can be made at about half the price of pure Para rubber. When the skins of the banana (used according to this process) are *proved* to be worth more than the fruit itself, an enormous impetus will, of course, be given to the transport of bananas from West Africa and other parts of the world, where this fruit is so prolific. It is said that Messrs. Rowntree & Company, of York, who own large estates in the West Indies, are making exhaustive experiments in the manufacture of banana rubber.—*India-Rubber & Trades Journal*.

PLANTAIN-MEAL.

(To the Editor *Madras Mail.*)

SIR,—The green plantain, as you know, perhaps, forms a large item in the diet of the Hindus. Dressed, in various ways, it is not only palatable but highly nutritious, in which respect it is only inferior, if it is inferior, to the potato. Of late a good deal of attention has been drawn to plantain meal, and I presume that my personal experience in this respect may not be uninteresting. I use the meal a good deal in my family as a substitute for the flours of pulses, which, though possessing dietetic advantages, are not so digestible as plantain-meal. The way to prepare it is this. Pare the plantains, taking care to remove only the skin; then cut them into thin slices, which, after being dried in the sun for some days in boxes covered over with muslin, should be pounded fine in a mortar and the flour resulting be passed through a fine sieve, which will give a fine silky powder which should be put up in airtight tins or close-corked bottles to keep out the damp, to which it is extremely susceptible. My children all thrive upon it, and an infant of delicate constitution became after a conjee made from it quite strong, gaining flesh rapidly. I think that in this meal is to be found a new industry which if worked with care and persistence, will yield considerable profit. There are all kinds of English foods in the market, but these being priced too high are beyond the reach of the poorer classes who would be glad of something nearly as good at a lower price. I throw out the hint, hoping to see it taken up by someone who cares to put his hand to a new venture. I am almost certain, judging from my experience, that he will not repent it.

V. KRISHNASWAMY MUDALIYAR.

☞ One of the latest Reports on Plantain Meal is that of M. de Jong, of Surabaya, Java. He states that it is impossible to find a market for it in Europe. A big factory for making Plantain Meal according to the best methods was constructed in Java some years ago and recently went bankrupt. M. de Jong explains that very many attempts have been made to make a European market for Plantain Meal, especially as a food for infants; but in vain. The explanation given is that Plantain Meal is too rich in starch, which cannot be easily digested by infants. Nor can plantains be exploited for the starch itself, he adds, because of its dirty grey colour, which no chemical can get rid of.—Aug. 2nd.—ED.

PIERMONT MORGAN'S STAR SAPPHIRE.

LARGEST IN THE WORLD.

Mr Piermont Morgan has sent to the American Museum of Natural History in New York a star sapphire which is believed to be the largest in the world, and a yellow sapphire which is regarded as the most beautiful in existence. These gems will be added to the collection of precious stones previously presented by Mr. Piermont Morgan to the museum. This collection was shown at the last Paris Exhibition.—London *Times*, July 16.

THE "DJAGAGIRI" CINCHONA COMPANY, of Java, have declared a dividend of twelve per cent for 1901, the net profit being 33,533fl (about £2,800). The retiring director, Mr J R de Jong, was unanimously re-elected.—*Chemist and Druggist*, July 19.

RUBBER;—A CHOICE DESCRIPTION!

The crude rubber, as shipped by the natives, is known commercially as "rubber hams," the shape being almost identical with that of a good Yorkshire. Germany has commandeered nearly the whole of the rubber business, and the big German companies control the shipment of rubber in nearly every part of the world. The first thing, when a rubber ham comes to a factory, is to split it open. Natives have a wily trick of "stuffing" the ham with stones or metal to increase its weight. A sea voyage causes the rubber to lose weight, and the man who deals in the raw material has to make good the loss resulting from exposure to air. After the ham is cut and inspected, it is put into a crusher and ground out of all recognition. The next evolutionary stage is the washer, where all dirt, stray leaves, and impurity are cleaned out. It emerges from the washer in knobby rough sheets. The length of time it remains in the drying room depends entirely on the use to which it is to be put. "Compounding" is the next stage, sulphur being used to cure the rubber.

Immense care and skill is necessary in the compounding of rubber for tyres. Pure rubber would tear into ribbons with the wear and tear of the roads. When the necessary "compound" is decided upon, and the ingredients added, the whole is put in the mixing rolls. One roll runs quicker than the other, so that the twisting thus caused thoroughly mixes the compound with the rubber that is to form the tyre.—*Motoring Illu trated.*

PLUMBAGO MINING IN KALUTARA DISTRICT.

(*From Administration Report for 1901.*)

The price of plumbago, which fell heavily early in 1900, remained low in 1901 but rose slightly towards the end of the year. Few pits were opened; many were closed. In October only 36 pits were being worked, as compared with 94 a year before. They were distributed as follows:—Pasdun Korale East 27, Pasdun Korale West 6, Rayigam Korale 3,—Total 36. Of this total 31 are situated on land alienated by the Crown, 3 on land leased by the Crown, and 2 on paraveni land. By the end of the year 14 out of the 27 pits in Pasdun korale east had been closed. The number of mining declarations received at the Kachcheri fell from 204 in 1900 to 45 in 1901, of which 35 were for land in Pasdun korale east.

Messrs. Skrine & Co., on behalf of Messrs. Reckitt & Sons, Limited, were working during the year the three mines situated on land leased by the Government, viz., Humbuluwa at Liniyawa and Kokkumbura and Nakaulketiya at Migahatenna. By the courtesy of Messrs. Skrine & Co. I am able to append the following observations made by Mr Gill, the Manager of the Mines, on their operations:—

The work of developing the mines has progressed steadily during the year, and satisfactory results have been obtained. No new shafts have been sunk, but those already in existence have been considerably deepened. The system of work carried on under the previous management has been abandoned, and all operations are carried on in accordance with modern European methods. The native workmen have, on the whole, taken kindly to the system adopted, and a number of them are becoming expert in the English methods of sinking, driving, stopping, and timbering. The system of twelve hours' work instead of twenty-four introduced during the previous year has been adhered to, better work being got out of the men in the twelve hours' shift system. During the past few months, by the order of the directors, only necessary work, such as timbering, has been done

during the day shift on Sunday. The plant of the mines has been considerably augmented during the year, and hand labour for raising plumbago, *debris*, or water entirely superseded by steam machinery. Winding plants are working at Kokkumbura and Nakaulketiya; a new winding engine is in course of erection at Humbuluwa, and the mines are kept free of water by five powerful steam pumping engines. A light tramway has been laid down at Kokkumbura and another at the Nakaulketiya mine for the removal of *debris*. The timber for the workings is obtained locally, alubo and hora having been decided on as the most suitable woods. A dynamite store has been constructed in accordance with the published regulations, new cooly lines put up, and a good bungalow erected at Kokkumbura. A freedom from accidents of a serious nature has been enjoyed, and the labour force of about 200 men resident on the mines is contented and fairly stationary. The speed at which the mining operations are carried out is steadily increasing, and considerable new developments are projected for the immediate future.

INDIARUBBER IN NEW GUINEA.

Melbourne, July 18.—A discovery, which may lead to the more rapid development of British New Guinea, has been reported to the Acting Prime Minister. The British Ambassador at Berlin has advertised Rp. Deakin, through the Colonial Office, that guttapercha and Indiarubber have been found near to Stephensort, in German New Guinea, by Capt. Schlecter, who has just returned from an exploring expedition. It has long been thought that guttapercha is to be found in British territory, and now that the Germans have discovered its presence on their division of the island, more attention is likely to be given to the establishment of an export trade of the commodities named by the English settlers.—*Adelaide Observer.*

A RUBBER SUBSTITUTE.

New York, July 19.—As the results of a series of tests which have been made for several months, it has been found possible to manufacture from Beaumont oil a perfect substitute for high grade rubber. A company has been formed with a capital of £200,000 to use the discovery commercially.—*Laffan.*

TEA: THE WORLD'S PRODUCTION AND CONSUMPTION.

The two special points which strike us in the diagram circular of Messrs. Gow, Wilson & Stanton, which we issued with our last issue of the *T.A.*, are the danger pointed out of China common teas coming back into competition with British-grown teas; and the advantage of and necessity for making as much of green tea as is possible both in Ceylon and India. The diagrams and letterpress are otherwise both interesting and instructive. We send them to all who get our blue tea circular. Another striking fact as shown in the diagram on the last page of the circular is how tea consumption in the United States has gone back from a total of 117 million lb. in 1895 to only 108 millions in 1900; while Russia and Germany have advanced in the same period from 98 to 132 millions. Clearly the latter, which still take 112 million lb. of China against only 20 of British-grown tea, are the countries to be specially exploited for the ousting of China. The progress made in the United States with British-grown tea in the five years looks poor, compared with similar progress in Australasia, for instance; and the field for superseding "Chinas and Japans" is here also very considerable. Indeed the fact that China, Japan and Java should, in 1900, make no less than 253,605,914 lb. of the world's consumption, against 313,147,698 lb for India and Ceylon, shows that the "Far East" tea trade is by no means extinct and that not Overproduction but *Supersession* must be the order of the day. To that end, the cheapness of British-grown teas at this time may be a blessing in disguise; for it ought surely to secure an increased demand for such teas on the Continent of Europe and North and South America. The last is not to be despised, for it takes over 4 millions of China tea; while Australasia still has 7 million of the same description, South Africa 1½ million and "Other Countries" 5½ million lb. Altogether there is plenty of room to fight the battle with China and Japan.

BOERS AND CEYLONESE IN EAST AFRICA.

A number of Boer families have been introduced into German East Africa, to pursue stock raising and Agriculture on the high plateaux. The "Berliner Tageblatt" states that about 30 Ceylonese families have also been introduced for rice-growing in the low-lying regions, while great efforts are being made to extend the area of coffee-planting. Coffee, too, is making headway and there are about 50 miles of railway open.—*Globe*, July 25.

The "Prickly Pear" Cactus—makes a good fence, and was formerly used for the purpose by the mission fathers of California. Rabbits and other burrowing animals also seek their protection for warrens. Many birds build in the same refuge from their enemies. The giant "candle cactus", resembling a huge candelabra and covered with spines, is perforated by the Gila woodpecker, which, after making a hollow in the pith from 12 to 30 feet above the ground, builds its nest there.—*Globe*, July 25.

African Coffee.—The coffee, known as the Highland Coffee of Sierra Leone, was introduced to the West Indies about six years ago, through the instrumentality of the Royal Gardens, Kew. It is quite distinct from either Arabian or Liberian coffee, and is admirably suited for cultivation from sea-level up to an elevation of about 800 feet. The botanical name (*Coffea stenophylla*), that is "narrowed-leaved coffee," is a good name, as by this character and its small, dark-purple berries, it is readily distinguished from all other coffee. "Stenophylla" coffee has nowhere been more successful than under Mr Hart's care at the Royal Botanic Gardens at Trinidad. It has grown there into tall, handsome bushes, ten to twelve feet high, loaded with berries. It is singular that it has shown a marked tendeney to be cross-fertilised by Liberian coffee, so that in the second or third generation its original characters have almost entirely disappeared. If this coffee is desired to be kept distinct it must therefore be cultivated away from other coffee plants.—*Barbados Agricultural News*, July 1.

THE PEARL FISHERIES OF CEYLON: PROFESSOR HERDMAN'S REPORT: GOOD PROSPECT OF CONTINUOUS FISHERIES IF SCIENTIFICALLY TREATED:

TWO DANGERS TO AVOID:—"OVER-CROWDING" AND "OVERFISHING."

No act of Governor Sir West Ridgeway is more likely to be fruitful in material advantage to this Colony, than the selection of Professor Herdman, F.R.S., to inspect and report on its Pearl oysters and Fisheries. We had in 1896 seen something of Dr. Herdman's work in the Isle cf Man where he had established a Marine Laboratory which was an object of much interest to the Zoological section of the British Association meeting that year in Liverpool—one that included a special scientific excursion to the neighbouring island which Sir West had administered until 1895 when he left for Ceylon. We felt sure the right man was coming to deal with the problem of our Pearl Fisheries as soon as we heard of Dr. Herdman's appointment. The result, to judge by the Report, which we issued as a special supplement last evening, more than justifies the most sanguine expectations. Indeed, the regret must now be that Professor Herdman was not called in ten years earlier. But the fact was that "science" had got discredited, both in official and unofficial circles in Ceylon, ever since the failure of Mr. Holdsworth's mission in the time of Sir Hercules Robinson. That energetic Governor, when he found that—instead of four or five successive annual fisheries beginning with 1863 as anticipated by the then Inspector (and Collector of Customs), the Hon. Geo. Vane—there were no oysters available after the first harvest (which yielded R510,000 of revenue), resolved to call in the aid of science to see what could be done. Mr. Holdsworth, a Fellow of the Zoological Society of some experience in connection with home fisheries, was selected, but he met with most unfortunate circumstances during his few years in Ceylon; for not only did he never see a fishery but there was no bank covered with young oysters for him to examine or experiment with. From 1863 to 1873 proved a complete blank in our Pearl Oyster annals and Mr. Holdsworth left us none the wiser, so far as any practical result was concerned, though his Reports in themselves afforded in their way interesting reading. Very different is Professor Herdman's experience. He came to us not immediately after a successful fishery (such as occurred in 1891, giving R963,749 of revenue) but at the *close* of another decade of blanks and just when our historic Banks had once again become covered with enormous deposits of oysters, estimated for one bank alone at over a hundred thousand million! And not only young oysters; but in the case of one or two Banks a great many of an age that all past experience shows should be fished "next year," lest they may slip away or be lost—from one or other of the several causes which have disappointed our hopes in the past. In his Report Professor Herdman does not enter into the history or causes of past failures.—For the present at least, he wisely leaves alone a discussion of the reasons for the periodic succession of a series of years with fisheries alternating with a series of blanks On that subject he may possibly enter later on. But while going at once to the work before him, and giving us the results of his observations and scientific knowledge, he indicates two dangers apparent to the biologist in connection with such Fisheries, which may very likely indicate the key to much that is mysterious in the past,—namely the dangers of *over-crowding* and *overfishing.* The former especially is very evident at the present time (as it was to Sir William Twynam and Captain Donnan in 1862, in 1879 and in 1889); but—for the first time, we believe, in the whole history of Ceylon Pearl Fisheries—is a practical remedy proposed, namely that of *thinning out and transplanting the young oysters.* This, Professor Herdman assures us, can be easily and speedily done on a large scale by dredging from a steamer at the proper time of year, when the young oysters are at the best age for transplanting. Here is the one specially valuable result, so far, of Professor Herdman's Mission; and if he and his Scientific Assistant, Mr. Hornell, are enabled to carry out successfully the remedy herein proposed, we say they will most amply justify Governor Ridgeway's step in securing their appointment and be the means of conferring an immense advantage on the island by turning its Pearl Oyster Fisheries from an entirely uncertain, intermittent source, to a comparatively permanent source of revenue. Of the other work, of the two scientists, we need only notice the selection of Galle Harbour as the site of a Marine Biological Laboratory, and here the necessary experiments are now being carried on by Mr. Hornell, which are to determine the best size of oyster to transplant, the right season of the year (October or March) for the operation, and whether only oysters attached to movable objects can be depended on, or whether the byssus, once dredged or torn away, can be replaced without injury to the oyster.

We must not, of course, be too sanguine as to the future. The warnings of the past, ever since Sir Henry Ward's day, are sufficient to teach caution. We must first see actual transplanting on a considerable scale successfully carried out, and still more a successful fishery from the bank so planted, as well as a proper harvest gathered from the bank relieved of the superfluous bivalves. In all this there will be a risk; but Professor Herdman's modest, albeit clear and practical, statements inspire confidence, and we hail his Report as both extremely satisfactory and encouraging to the Government and public of this Colony.

VIEWS OF A MANAOS RUBBER MERCHANT.

During a recent visit to New York of Mr N H Witt, a leading rubber merchant of Manáos, the rubber centre of the upper Amazon, he was asked by "The India Rubber World" for his views on the practicability of companies being organised to work on a large scale in the movement of rubber direct from the producing districts to the consuming markets.

"I do not believe that such a thing can be done as yet," said he. "The difficulty of the labour problem is an old story which continues to be repeated. In the Amazon valley all the labour must be imported, together with provisions.

"There are no European peoples who can stand working in the climate of the Amazon valley. Something might be done with coolies, but it is a difficult matter to arrange with the government of British India for their introduction into South America. There has been talk of importing Chinese, but they would likely all turn traders and desert the rubber camps.

"I am convinced, therefore, that for a good while to come the safest way to deal in rubber is through the establishment of trading houses at the principal centres, as at present, and buying such rubber as may reach the market, from whatever source."

In answer to a question as to whether the existing rubber fields on the Amazon were showing indications of becoming exhausted, Mr Witt said:

All the fields which yield rubber other than Caucho still seem to produce the usual output. It is probable, however, that in some districts on the lower Amazon the trees have ceased to yield, and the fact that more rubber has been shipped this season from the state of Pará than last season may be due to the fact that the rubber workers have gone into new territory. In some cases the men may have worked harder, as we call it, forced by the low rubber prices ruling now. The increasing total production of the Amazon valley is due, of course, to the general widening of the district gone over in the search for rubber.

"One thing which indicates that the trees in the districts which have longest been worked are becoming less productive is the fact that the rate of shrinkage in the Island's rubber received at Pará gradually becomes greater. I remember that in 1885 a shrinkage of 6 per cent. was expected in Islands rubber, and the rate has gradually increased until now a shrinkage of 14 per cent, or even more is not unusual. And meanwhile there has been no important improvement in means of transportation between the Islands districts and Pará. Evidently there is a smaller percentage of solid rubber in the milk than when the trees were fresher, and with the same amount of smoking as formerly more moisture is retained in the rubber to be lost during shipment. In other words, while the trees apparently yield as much milk as formerly, the real production of rubber per tree is less.

Mr Witt spoke of the rapid exhaustion of Caucho in all the districts where the Peruvians went in search of it, and it was his impression that the trade of Iquitos, largely based upon Caucho, was not, for this reason, showing any increase. There was a possibility, however, that with the total exhaustion of Caucho on the upper Amazon—say within the next ten years—the Peruvians might turn their attention to gathering fine rubber, and thus replace in a measure the Caucho trade.—*The India Rubber World*, July 1.

TRINIDAD PRODUCE REPORT.

Trinidad, July 2nd, 1902.

Produce.—Cocoa.—Owing to a less active demand for European account, and also in consequence of slightly better receipts from the country during the earlier part of the fortnight under review, our local market has become somewhat easier and we quote to-day from $13·25 to $13·75 per fanega as in quality. The alternate dry and wet weather which we have been experiencing has had a beneficial effect on the cultivation and the outlook for the next crop appears to be rather hopeful at present. There have been further moderate arrivals from the Venezuelan coast and we quote for Good Ordinary grades from $13·50 to $13·60 per fanega.

Copra.—Receipts from the country are small and the price is firm from $2·85 to $3 per 100 lbs. Quality made is very ordinary on account of the difficulty of drying with the present rains.

"CAPITAL" ON THE INDIAN TEA CESS.

The writer of Current Coin in *Capital*, in the issue of August 7th, thus comments on the Indian Tea Cess:—"I do not anticipate that there will be any violent representations against the imposition of the Cess, though the unexpected not infrequently occurs. I am not at all sure that the proposed Cess will do more than lessen the returns to the shareholders; but as drowning men clutch at straws, so shareholders, who have not received any return on their capital for years, must be ready to clutch at any expedient, for it cannot put them in a worse position. I consider, however, that a Cess of one-fourth of a pie per pound on all Indian teas exported by sea from India is not at all a happy idea. The biddings at the auctions here advance by pies per lb. The tax is to be not more than one-fourth of a pie per lb. The question is—On whom is this tax to fall, on the consumer or the producer? The accepted doctrine is that all taxes fall upon the consumers, but this is not so when the supply is in excess of the demand. If the tax is to fall on the purchaser of teas at auction in Calcutta, he will surely protect himself by bidding one pie less, and consequently to obtain one-fourth of a pie for advertising purposes tea growers will give away three-fourths of a pie. Can anyone imagine a more wasteful scheme? Of course in the case of teas shipped direct by the gardens to London this argument does not obtain. But the effect of the Cess will be to encourage the direct shipment of teas to London by a bounty of three-fourths of a pie per pound. Is this intended? The right mode of levying the Cess would be by an octroi on all tea coming into Calcutta or Chittagong, and this could be as easily levied as an export duty. All tea comes by rail or river steamers, and the matter could be easily adjusted. The present idea is clumsy. I am not in favor of a compulsory cess but, if there is to be one, let it be levied on business principles. There is one thing that shareholders in Tea gardens should bear in mind, and that is that t is not in the interests of the managing agents to curtail the output of tea. There are so many little profits to be made out of the handling of the

chests that a reduction in output does not answer the agents' purpose at all. Hence gardens are often worked that are an absolute drag on the tea company, the agents apparently always hoping against hope that they will come round in time. Meantime all the little items of profit go merrily on. If the tea is shipped to London there is a commission on acceptance of bills, the various little commissions of the London house, the private wharf profit and the like ; the shareholders do not see them but they are there. And this reminds me of a little story of a ship captain who used to trade to Calcutta in the good old days. In his accounts there duly appeared an item of "Buggy hire." The owner demurred. He objected to the Buggy hire and told the captain that he would not pass such a charge in future. On the next voyage the accounts were presented as usual, duly scrutinised and passed, the owner remarking that he was glad to see that the obnoxious charge no longer appeared. "Ah !" murmured the worthy skipper under his breath, 'you may not see it but it, is there all the same. '

ACETYLENE TO ENTICE INSECTS.

The current number of the *Acetylene Gas Journal* points out the advantages of this new illuminant for enticing night-flying destructive insects to their doom in orchards and other places. The Journal says :—" By means of acetylene, for instance, it is possible to establish bright lights everywhere in the orchard or about the grounds in a way that is wholly out of the question with the electric arc. The expense of acetylene for such purposes is likewise very moderate. The manner of employing acetylene, for insect destruction, is by placing a low standard, surmounted by a burner of the gas, in a pan which holds a mixture of vinegar and molasses or of kerosine, the light being fed from a generator near by through a hose. The smallest kind of generator or any kind of a portable acetylene lamp, such as a bicycle, a miner's or a table lamp, is suited to this use, by placing the same in, or just over, a basin of the liquids named. It is well to have a receptacle of some size, as the idea is to drown the insects. In the month of July, 1901, in Beaujolais, France, more than 177,000 moths were thus killed in the space of 18 days. Twenty little lamps were emplyed for the purpose, the consumption of each costing 8 centimes per evening."

FORCED PLANTATIONS.

(*From a Correspondent.*)

Attention should be called to the practice adopted by gardeners and fruit merchants, more especially in recent years, to ripen plantains artificially for the market with a view to obtain a quick sale. The result is that the fruit is rendered soft and pulpy and the flavour destroyed. Plantains forced in this way become rotten and worthless very quickly, and therefore have not the same value to those who purchase them. Forced plantains may be known by the softness of the fruit, and by the greenness of the short stems by which they are attached to the stalk of the bunch. If allowed to ripen naturally, the stems ripen with the fruit into a pale straw colour and the fruit is ready to be eaten as soon as it can be removed from the stems without the slightest effort. This is not so with artificially ripened fruit, as the short stem remains green and tough, so that it is difficult to remove it, while the rind appears to be ripe.

It may be interesting to relate what this artificial process is—a process which seems to be spreading extensively throughout South India. A large earthen pot is taken and a bunch of plantains with some leaves is put into it. Another pot of similiar make but smaller in size is filled with straw, and its mouth placed on the mouth of the larger pot. The mouths are then sealed with cow-dung (that useful article to many people in this country) and occasionally with clay instead. A hole of about an inch in diameter is made in the bottom of the smaller pot, which is upside down, and a piece of glowing ember, or charcoal, is put through the hole and placed on the top of the straw. A current of air is then blown by the mouth through the hole for a few minutes. This fans the glowing ember inside, and smoke from the ignition of the straw is forced down into the vessel containing the fruit requiring ripening. After this the whole is sealed to prevent air from entering. This is done in the morning, and repeated in the evening, and also on the morning of the next day. If the plantains be wanted very soon, they are smoked a fourth time.

It is a pity that this forcing process was ever resorted to, as it will be abundantly evident that not much flavour can remain after it is over. Europeans should set their faces against it, and refuse to buy such artificially ripened fruit. If ladies would give strict orders to their cooks not to buy such plantains, but only those that have been allowed to ripen naturally, and if Hindus would do likewise, fruit merchants would soon stop such a practice. The plantain is a most wholesome and nutritious fruit, especially the *rastali* and the *powvazhai*, which are among the best table plantains. When properly ripe and in good condition, and mashed ap with a fork on a plate with a liberal supply of milk, plantains make an excellent dish and are easily digested. But in these days, when fruit merchants hasten to bring about a quick sale by the forcing process, one almost despairs of ever getting a good plantain possessing its natural and delicate flavour, so much prized by many people in this country,—*Madras Mail*, Aug. 10.

INFUSED TEA LEAVES AS MANURE.

(To the Editor, *Indian Gardening and Planting.*)

Sir,—*Re* your note on infused tea leaves as manure, I remember many years ago a friend of nine in Madras treating a small tea-rose plant with the remains of his tea pot. I have never yet seen a rose plant blossom as that did. It was for about two or three months one perpetual bloom, fresh flowers coming up as fast as others were cut off. My friend was going to France and he gave me the plant, which by that time had ceased flowering. It never flowered again. The tea infusion with the infused leaves must have been too forcing, and a few months after it withered and died. I was very sorry, because the flowers, though small, were every one of them perfect, and somehow I never could get another plant like it again, though I looked up a number of neighbours' gardens. This experience of mine might be of use to those who would try infused tea leaves as manure. W.

—*Indian Gardening and Planting*, Aug. 7.

RUBBER ACCORDING TO THE CONSULS.

Ceara.—Mr. Acting Consul Williams reports that the rubber exports of Ceara were small, owing to the high duty collected by the State on the rubber exported; part of what used to come to Ceara from the neighbouring States of Piauhy and Rio Grande de Norte was exported from the States that produced it.

Congo.—To the consular report of Mr Whitehead are added the following remarks :—Exportation of rubber has nearly trebled since 1898, and that commodity is by far the Congo's most important article of commerce. During the year under review the export of rubber amounted to £1,758,638 in special, and £1,807,327 in general commerce, out of totals of £2,019,536 and £2,160,302 respectively. The 'special' commerce thus differentiated from 'general' means the exportation from the Congo of products yielded within the territory of the State. Of the total 'special' export of rubber, amounting in value to £1,758,638, Belgium's proportion was £1,713,926, and the United Kingdom's only £188 ! Of the 'general' commerce in rubber, amounting in value to £1,807,327, Belgium's share was £1,747,323, and the United Kingdom's but £1,162. Little wonder that the importance of Antwerp as a mart for rubber has grown at a great rate since the Belgians set themselves to exploit the 'Independent' Congo State. From the report itself it would appear that the satisfactory development of the commerce of the Independent State of the Congo continues; that it is largely, though not entirely, owing to increased exports of indiarubber, and that this trade is almost entirely in Belgian hands.

Colombia.—The Colombian Consul-General in London has made the following communication to Reuter's Agency :—"A contract has been secured from the Government for the navigation of the Caqueta and Putumayo rivers with their tributaries. The concessionaire (Mr. J Bidlake) is permitted the free introduction of boats and such machinery as he may require. He is to receive 1,250 acres of land for each vessel he puts upon the rivers. He has also the right to build wharves and necessary buildings on public domains. The contract is to continue in force for ten years. The territory covered embraces the larger portion of Southern Colombia, and includes a vast rubber forest, the extraction of the product being the main object of the enterprise."

Peru-Bolivia.—H.M. Consul-General at Callao remarks that the india-rubber industry is likely to progress, as, from all accounts, the forests of Peru contain innumerable rubber trees. From 1st July, 1900, to 30th July, 1901, grants amounting in the aggregate to 1,240,000 acres of forest land, said to contain valuable rubber trees, have been made by the Government. These lands lie in the Departments of Huanaco and Cuzco. The periods of the grants are either five or ten years. The royalty claimed by the Government is 2s for every quintal of rubber which is exported. During the same period six other concessions were granted under somewhat different conditions. One of the grants comprised 4,942 acres and the others 1,235 acres each. These grants are divided into plots called 'estradas.' Each 'estrada' contains within its boundaries 150 rubber trees. The royalties levied in this case are 20 cents annually for each 'estrada' and 20 cents for each hectare of land which the estradas cover.—*India-rubber Trades' Journal*, July 7.

CAMPHOR MONOPOLY IN FUKIEN.

On the authority of the Japanese Foreign Office, it is now stated (says the *Kobe Chronicle*) that the Chinese Government has decided to establish a Camphor Monopoly Office in Fukien, placing the manufacture and sale of camphor under the control of the Japanese. It is not correct, however, to say that the monopoly right of the camphor trade is to be conceded to the Japanese Government. In future the Japanese may be a party to the camphor business by contributing a part of the expenses of monopoly, but no definite arrangements have yet been made.

POULTRY BREEDING IN RUSSIA.

Without any great exaggeration it can be said that there is no house, no family in Russia, where poultry is not bred. Peasants in their small izbas, big landlords on their estates, and even inhabitants of town breed poultry, mostly hens for laying and for supplying the market. Beside hens, other kinds of poultry are also kept, as geese, ducks, turkeys, guinea-fowls, peacocks, swans, and even certain species of non-domesticated birds—as partridges, turtle-doves, black-game, woodcock, etc. All possible species of hens can be found in Russian poultry yards, and amongst them those native to England and America—as Cochin China, Brhamapootra, Langshan, Plymouth Rock, Wyandote, Dorking, etc. But the thoroughbred hens are to be found mostly in poultry yards owned by amateurs. The average country inhabitant, however, does not possess any superior kind of poultry; he owns generally mongrels, and attaches more importance to the quantity of the birds than to their good qualities. But there exists in Russia two breeds of hens which are looked upon as national breeds. They are, firstly, the Orloff, and, secondly, the Paul species. Opinions are divided concerning their origin ; some attribute it to Count Orloff-Tchermensky, and others to an Oriental stock from Persia. The Paul breed got its name from the village of Pavloff, where it was first obtained in Catherine II's reign. These two kinds of hens, bred in Russia for more than a century, are entirely unknown to the outer world, and they are so exclusively Russian as are the fighting cocks in England. The Orloff and Paul breeds are rather sportive than utilitary breeds, although they are not wholly lacking in the latter qualities. Goose breeding is widespread. It is probable that formerly it attracted amateurs, as there are still existing some special breeds peculiar to Russia alone, for instance the fighting geese of Toula, Arzamass, and Kolmogory. They have a round head, large forehead, and a very short but strong beak. Their flesh is savoury, they are very prolific, and easy to breed. The duck is equally widespread, but we seldom meet superior breeds, as Rouen, Aylesbury, Pekin, etc. The same can be said about turkeys ; the better species, as the Cambridge or the American one, are principally to be found in amateur aviaries. The peacock is exclusively bred merely as an ornamental bird, and has no economical importance. The same may be said about the swan. Partridges, quails, woodcocks, and blackbirds are bred on big country properties for sporting purposes, and not for the market. Pheasants are bred more abundantly, and there are some well-known estates as, for instance, Luamenskoe, belonging to Their Imperial Highnesses the Grand Dukes Nicholas and Peter Nicolaevitch, and

Bialo-Tserkew, belonging to Count Bianicki, which can vie with the most perfectly kept covers of other countries. As Russian people do not eat pigeons as a rule, they are only bred by amateurs. There are, however, some national breeds, as Turman and Tchisty, and there exists also a charming little species with a top knot, known as the Bukhara pigeon. In the last twenty years many bird-breeding societies, with wide ramifications, have been formed, constituted principally by amateurs, who organise Shows and contribute to elevate the level of poultry breeding. But we can say that until then there was no scientific poultry breeding in Russia. It occupied no place in rural economy, and as its production was not expensive, people were satisfied if they had enough poultry and eggs for their daily use. Things are different now, and the trade in this line has reached vast dimensions. Unhappily, we do not possess exact statistic data about Russia's production and its home consumption. We have, however, some indication about poultry export. In 1897 the export was valued at 35,000,000 roubles, and in 1898 at 40,000,000 roubles. Compared with other countries, Russian export occupies the first place. The principal item in the export is eggs. Of the 40,000,000 roubles in 1898, 32,000,000 roubles were for eggs, and the remaining 8,000,000 roubles for poultry proper. Its production is increasing by leaps and bounds, and will presently assume gigantic proportions. As the Russian climate, with the exception of the extreme north, is very favourable to poultry breeding, we may suppose, as foreign demand is constantly increasing, that the production will rise and that commercial companies will be started to organise the export in the best possible way,—*Russia*, July 19.

WOOD FUEL.

Mr D E Hutchins, whose valuable paper on 'Forestry, read on November, 22nd, 1899, will be in the remembrance of those members who are interested in the subject raised in *Nature*, of the 10th July, a rather novel question in connection with the supply of timber. He suggests that it would be worth while to cultivate the wattle or eucalyptus vegetation in Australia or South Africa, with a view to its being used as fuel. He argues that eucalyptus planted on tropical mountains would produce wood fuel at the rate of 20 tons per acre per year in perpetuity, and points out that, by a calculation of Helmholtz, a eucalyptus plantation would store up about one per cent. of the solar energy received on the unit of area. Its dry timber, which weighs 60 pounds per cubic foot, as compared with coal weighing from 50 to 52 pounds, is said to have an equal or higher thermal power than coal. As these calculations were made from natural forests, Mr Hutchins argues that by selection and cultivation, even double the amount might be produced where there was a powerful sun, a heavy rainfall, and a very rapid forced growth. Very large districts of the world would supply the requisite conditions, and he looks forward to a yearly output of over 40,000 million tons, or even on an average forest yield of 20,000 million tons, the world's yearly output of coal being calculated as 663 million tons. The suggestion is certainly a novel one, but its merits and its practicability must be left to be discussed by experts on the subject.—*Journal of the Society of Arts* July 25.

MINING EXPLOITATION in the Dun is likely to receive a stimulus from the fact that Messrs Bird and Company of Calcutta have obtained from the Government of the United Provinces a license to prospect for minerals over an extensive area in that locality.—*Indian Agriculturist*, Aug. 1,

JOTTINGS FROM SUMATRA'S EAST COAST:

(Coffee-planting by an ex-Ceylon Colonist.)

"Hard times, alas! are with us still
The coffee-planter's lot—
Allowing him only just enough
To boil the daily pot."

—*Ancient MS.*

'Tis a bad sign in coffee here that some folks are beginning to reckon on 'next year,' that will-o'-the-wisp which deluded with false hopes so many Ceylon men in the sad years between the decline of coffee and the rise of tea.

We have just had one of the most wonderful blossoms I have ever seen, so we are all right for 'next year.' But from all I hear there are some quaking hearts wondering if they can hang on till then. Last year, in addition to the plague of caterpillars, we had an abnormal and prolonged drought which was fatal to blossoming, and the consequent short crop which we are now taking in presses hardly on all. Twelve months ago we were working day and night with hand-pulpers to work off our coffee and sending our parchment to Singapore to be cured, Now we are all provided with grand establishments: put in the pig at one end, press the button and cured hams and sausages come out at the other. But pig *won't* get over the stile, and I fear me some of us *shan't* get home tonight.

I've just had

A RUN THROUGH THE DISTRICT,

Serdang I mean, and I never saw coffee looking in better heart. Rich, dark-green foliage and plenty of good wood, but everywhere the same; no crop, or only a very little. The caterpillar-stricken patches are different. They bear the mark of the beast most unmistakably, and it will be long before they recover their vigour.

Most men seem to think that the damage done by the caterpillars is confined to the denudation of the tree of its leaves. I am inclined to think that a further mischief is done by the caterpillar in imparting a poison to the sap of the trees. Of course, I can prove nothing; but I am very strongly of this opinion. Anybody coming over here now with a view to *speculative* investment, in the event of Brazil cutting its own throat, could certainly pick up a bargain or two. The statistical position is appalling: and if Brazil goes on for another two or three years at its present rate of increasing production, and can stand the racket, the East Indian

COFFEE PLANTER

will be as extinct as the dodo. If on the other hand Brazil, as is stated, has overdone it and must reduce its output by more than one-third, there is a good time coming for us. We shall be able to pay our debts and drink champagne on birthdays!

However, in view of considerably over a quarter of a century's experience in the East, I make it a rule to keep a stiff upper lip and be prepared for the worst; and when it comes, take it smiling: and if you can't take it smiling, take it as smiling as you can.

————Shut up you Pessimist.

Pessimist.—Go to the—inkpot you interfering—It is always pleasant for

AN OLD CEYLON MAN

to hear his old country well spoken of. Some days ago I met a friend who was one of a special-train-party sent up a few months ago to Kandy—chiefly I think through the enterprise of the well-known Manager of the Queen's Hotel. My friend was full of praise of the country and all that therein is. The railway, the view from the railway, the mountains in the distance, the smiling terraced paddy-fields below—these, we thought, had exhausted his vocabulary. But no! Peradeniya was yet to come. My friend is a great amateur of all sorts of tropical botany, and it was surprising what an amount of detail he had been able to observe in what must of necessity have been more or less of a hurried scamper. His observations were sharp and to the point; his praise unstinted; his admiration unbounded. More was to come. But in few words:—'Kandy,' he began—there was a pause—'Kandy,' he began again and lay back in his chair: 'Kandy is the most beautiful place in the world!' And he lay back in his chair, puffing huge rings of smoke, through which I suppose he revisited 'the most beautiful place in the world,' for nothing more was to be got from him that night.

The same gentleman on his return the other day had only four hours to spend in Colombo, and these he spent in looking for seed-nuts of the king coconut, but without avail. He wants them sorely—not for trade purposes; but merely to add to his orchard which is a most comprehensive one; and if any lowcountry reader of these lines has a sympathetic heart and would like to profit

BY EXCHANGE OF FRUITS,

let him put a few seed-nuts of the king coconut variety into a gunny bag and send them to O. Puttfarcken, Lobo Pakam, O.K. Sumatra, and he will certainly get a good return in other Tropical fruits not common to Ceylon. Please, Mr Editor this is not an advertisement, but only an opportunity for gentlemen gardening *for pastime only* to exchange the 'fruits' of their experience.

But anybody sending such things to Sumatra's East Coast (O.K., Oost Kust, East Coast) should always ship by *North German Lloyds.* By other lines your parcel may go to Bali, Lombok, Macassar, even Samoa, or somewhere. *'It 'im over the 'ead with a 'ard 'eavy 'ammer and make im 'owl 'orrible.* It was not the Socratic one this time, but another little beast in his image—just as I thought I had him by the neck, he disappeared into the ink-pot again.

26th July, 1902. W. T. McK.

PRODUCE AND PLANTING.

"CEYLON AND ITS PLANTING INDUSTRY,"

Mr J Ferguson writes: "The most notable fact revealed by the figures is the falling-off in the area of tea, the total in cultivation on plantations being 4,000 acres less than a year ago, or, including native gardens, a decrease of 6,000 acres, making a total of 386,000 in place of 392,000 acres. This must be due to the abandonment of non-paying fields and of some unprofitable gardens; for it is accompanied by an extension of the total extent in cultivation by 1,000 acres, although poor 'coffee' has gone down, being 3,200 acres less than a year ago. Cacao, on the other hand, is 500 acres more in planted extent; cardamoms are greater in area by 1,800 acres; cinchona shows an increase of 1,000 acres; and India-rubber (chiefly the Para or Hevea variety) of nearly 1,000 acres—which must, however, be rather under the actual area planted during the year, our total extent planted being about 3,400 acres. In several minor products, too—camphor, nutmegs, crotons—there has been a good deal of planting, and still more have we had in the Kelani Valley and other low country estates, a planting out of coconut palms among the tea, just as Para rubber has been put in freely on the Kalutara tea estates. The check to tea, and the act that there are no clearings this year to plant ought to strengthen the hopes of those who believe in a future for our staple, so soon as consumption overtakes pro-
for our staple, so soon as consumption overtakes pro-
duction. A year ago we anticipated that there would be 400,000 acres under tea at an early date in Ceylon; whereas now we are in reality back to 386,000, with no immediate prospect of extension. In our shipments of tea from Ceylon this year we are so far 5,000,C00 lb. behind the same date last year for the Uni ed Kingdom, but shipments to Russia and America show an increase. Our coconut palm industry—chiefly in native hands—covering 600,000 acres with a crop of one thousand million coconuts (for oil copra, fibre, desiccating kernels, &c.)—is in a highly prosperous condition; while that in cinnamon bark and in plumbago mining continues fairly satisfactory. The Boer prisoners are making preparations against their return home—the first transport calling at Colombo shortly—and are likely to take a good deal of Ceylon tea with them."—*H and C Mail* August 1.

PLANTING NOTES.

Bermuda Arrowroot.—A report on Bermuda recently issued by the Colonial Office states that the cultivation and manufacture of arrowroot, which were at one time important industries in that colony, have, from various causes, greatly declined in recent years. The arrowroot produced in the colony by the latest improved methods is of an excellent quality, and there is a good opening for investment of limited capital in this industry.—*Chemist and Druggist,* July 26.

Eucalypts are freely referred to in Ednie-Brown's volume on the "Forests of Western Australia"; but he often gives no scientific name. We quote two sentences:—

Tuart.—This is a handsome Eucalypt, and has a wonderfully bright and cheerful appearance in the forest. The bark is of a greyish-white colour, and is smoothly crinkled and persistent throughout. The trees are always clean and bright-looking. In the young stage the species forms a very ornamental tree, and is planted as such in some of the other Colonies. It is straight, well-clothed, and has a beautiful bright-green leaf, and in this respect is not unlike the Karri.

Crimson-Flowering Gum.—This is referred to here, not because of its value as a timber tree but simply as a gorgeous and remarkable specimen of the forest flowering trees of Western Australia. The subject is a very handsome, branchy, umbrageous, small tree; its foliage is dark-shining green with the leaves standing out more flat, and not edgeways, as is usual with the eucalyptus family generally. The specimens which I saw ranged from 20 to 40 feet in height, with stems averaging about a foot in diameter. The bark is rough and somewhat like the red gum; the wood is a dark, blood-like colour. These trees had their branches sweeping down to the ground amongst the ferns.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Road-sides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: WILLIAM, HENARATGODA, CEYLON.

Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS, *Tropical Seed Merchants*, HENARATGODA, CEYLON.

Correspondence.

To the Editor.

GREEN TEAS AND —— GREEN TEAS IN CEYLON.

Stagbrook, Peermaad, S. India.

Sir,—In your footnote to a letter signed "Willing to Learn," in yours of 18th July you refer to "Green Teas" as "*manufactured*" at Ambewatte Mills. I have again to point out to you and such of your readers as are as hazy on the subject of "Green Tea manufacture" as is "Willing to Learn," that "Green Teas are" *not manufactured* at Ambewatte Mills; but that manufactured Green Teas are coloured and restored there. There is no secret about the process. It is merely a matter of extra expense. "Willing to Learn" can see the process for himself as adopted in Japan on pages 12 and 27 of the Report of the British Vice-Consul at Yokohama upon the Japanese Tea Industry, printed at the *Observer* Printing Works. Machines can be bought for colouring large quantities quickly instead of using the Panning Process described in above report for about £375 f.o.b.; but probably after reading the article on Colouring of Tea on page 27, he will bide a wee before following Messrs. Finlay, Muir & Co.'s example.—I am, sir, yours faithfully,

H. DRUMMOND DEANE.

P.S.—If experts in colouring green teas are wanted, there are many men in India who have nothing to learn from the Japanese.

[It is very good of Mr. Drummond Deane to enlighten us; but we have yet to learn that he has been inside the Ambewatte Mills to see all the process. Here is what Mr. A. K. Muir said in England the other day:—

A factory has been erected in Colombo and equipped with the necessary machinery for making green teas in the Chinese and Japanese fashion. This factory is capable of turning out about 3,000,000 lb. of green tea per annum. About one-fourth of this quantity is at present being manufactured there, and if it proves that 3,000,000 lb. can readily be sold in the United States and Canada the output will be increased accordingly.

—Ed. *T.A.*]

THE "MANUFACTURE" OF GREEN TEAS IN COLOMBO; MR. DRUMMOND-DEANE EXPLAINS.

Stagbrook, Peermaad, S. India, Aug. 2.

Sir,—With reference to your footnote to my letter in your issue of 28th instant, it is not necessary for me or anyone else to go inside the Ambewatte Mills to know that any large quantity of green tea leaf could not be transported to Colombo and *manufactured* there. On the other hand manufactured leaf can of course be transported there and sorted or coloured in any way that is found paying, and I for one wish the enterprising firm in question every success, though I doubt the desirability in the long run of colouring Ceylon and Indian Teas. Mr. A. K. Muir, when he spoke (in the speech you quote) of "making" green teas in the Chinese and Japanese fashion, was not talking to manufacturers but to consumers, and, if he had used the words "turning out" instead of the word "making," he would have been absolutely correct; or had he used the word "into" instead of "to" he would again be correct. Not that such a slip would matter at all to the general public, but here in India and Ceylon it is a different matter because many men are thinking of "manufacturing green tea" but reluctant to begin so long as from your editorial chair the fiat goes forth that to "manufacture" green teas on the best Japanese lines, intending manufacturers must either obtain an entry into the "Ambawatte" factory or be out in the cold. This is a fallacy. If any gentlemen wish to colour their green teas I have no doubt Mr C Judge of 47, Free School Street, Calcutta, will, for a small remuneration, give them every particular for doing so by hand. If they wish to do it by machinery it is a mere question of a very expensive machine. Two very large gardens in India are colouring their teas with great success as regards appearance, to my personal knowledge, though their teas are made on the system first introduced into Ceylon and India by myself.—Yours faithfully,

H. D. DEANE.

[The above letter, we take it, was written before Mr. Drumond Deane saw Mr. Leslie Rogers' report on Ambawatte samples? Our latest news is of a leading Ceylon planter who was, in confidence, taken through Ambawatte and who expressed himself as perfectly satisfied as to no extraneous substance being added to the teas. At the same time our correspondent is right about planters having to continue on his plan of turning out green teas.—Ed. *T.A.*]

"THE CONSOLIDATED TEA AND LANDS" AND "AMALGAMATED TEA ESTATES" COMPANIES.

In re "COMMISSIONS"—AN EXAMPLE TO BE FOLLOWED?

July 21.

Dear Sir,—There is a *down* among some Ceylon tea planters on what are called the "Muir Companies"; but it seems to me, Sir, that much occurred at the Glasgow meetings of the "Consolidated" and "Amalgamated" Companies deserving of praise from outside planters. There are Planting Companies in Ceylon that pay no dividends; but the remission of fees and commissions is rare? Here is the Chairman's reference in Glasgow:—

"With a view to enabling the directors to make up the full sum drawn from the reserve account last year and thus place the company again in a dividend-paying position as soon as possible, the Calcutta and Colombo agents have agreed to give up to the company, for the benefit of the revenue account of 1901, the whole of their commissions for that year; the directors have returned one-half of their fees, and the London agents have also returned one-half of their commissions."

There are other passages in the proceedings that you ought to copy and emphasize.—Yours, etc.,

FAIR PLAY.

[We regret not having given the proceedings in full. Mr. A. K. Muir, who is a keen man of business—as we saw in Calcutta—made a capital Chairman; but he was inclined to be a little too sanguine—for instance, at the "Consolidated" meeting, he said:—

"There is no doubt, Gentlemen, that the tea industry has, for the last two years, been passing through very trying times, but the present position is not by any means so gloomy as might be imagined from the market quotation of tea shares. Without being unduly optimistic, I think there are some indications that the tea-growing industry will, before very long, again enjoy a period of prosperity. The remarks recently made by the Chancellor of the Exchequer may fairly be taken as equivalent to a promise of the early removal of the additional 2d per lb. on the duty on tea, which has been a serious burden on the industry, as it has undoubtedly been borne almost entirely by the producers. The consumption of Indian and Ceylon tea has been going on increasing satisfactorily, and if it continues at the same rate should before long overtake and pass the production. . . , The export of tea from China has been steadily declining. [Not so, for the present season.—Ed. *C.O.*] In Japan there has been a marked advance in the price of labour, so much so that it has become impossible in many districts to grow tea at a profit. In these districts, I am informed, the tea bushes have in many cases been pulled up and mulberry trees have been planted in their place. The exports from Japan have fallen off over 10,000,000 lb. and it will be difficult for them to make their exports up to the old figures. For the past few years both the Chinese and the Japanese have tried to off-set the advance in labour and the lower prices in the United States by putting less labour on their tea. I refer now to the rolling. The result has been that the quality has fallen off very considerably."

Later on, he stated:—

"As regards finding other fresh outlets, I may remind you that the Australian markets are now free and that the American tax will be removed next year. Progress in America has, so far, been disappointing, and Indian and Ceylon producers are beginning to realise that if they are to make headway there they must set themselves to turn out the class of tea which the Americans want. There is a market for over 60,000,000 lb. of green tea in America, which sells at from 7d to 1s 6d per lb., the average price of green tea in America being about 8½d to 9d per lb. These teas are made in China and Japan, and it seems reasonable to suppose that if we are to produce an article suited to the American taste we must study the methods of China and Japan. With his object in view the Anglo-American Direct Tea Trading Company, Limited, have during the past year had a representative in Japan, studying the system of manufacture adopted there. A factory has been erected in Colombo and equipped with the necessary machinery for making green teas in the Chinese and Japanese fashion. This factory is capable of turning out about 3,000,000 lb. of green tea per annum. About one-fourth of this quantity is at present being manufactured there, and if it proves that 3,000,000 lb. can readily be sold in the United States and Canada the output will be increased accordingly."

Mr. Wm. Mackenzie made some remarks worth quoting:—

Mr W Mackenzie, after referring to some items in the accounts, and the necessity for economical work, said he hoped commissions on results would continue to be paid to estate managers. Personally, he thought the reserve fund, which now stands at £65,000, hould be applied in wiping out such nominal assets as debenture expenses and preliminary expenses, and in reducing block account, to which he noticed interest continues to be charged. He also thought it would not be fair to use present valuations as a test per acre. We went in at a high value, and things have fallen a bit, and therefore we cannot be too mathematical, but must consider the circumstances, and what is good for practical protection.

At the meeting of the "Amalgamated," the Chairman said:—

As mentioned in the report, the Calcutta and Colombo agents have, in view of the disappointing results of last season's working, voluntarily agreed to give up to the company for the benefit of revenue account the whole of their commissions for the year. The London agents have also agreed to give up one-half of their commissions, and the accounts have been framed on that basis. As regards the future, you will no doubt also appreciate the offer made by the Calcutta and Colombo agents to accept lower remuneration than they are entitled to under their agreement while the depression in tea continues. The planted area of the company's properties is now 13,491 acres. The estimated yield of tea for the current season is 3,175,280 lb. As stated in the report the increase expected is mainly from the company's young estates in Assam, which are now coming into bearing, and which, having been planted with a high-class jat of tea, should help to improve the average price of the company's produce. . . . The company's coconut estates in Ceylon, aggregating about 1,000 acres, continue to make satisfactory progress, and the growth of the palms generally is reported, according to latest advices, to be excellent. While this is so, these properties cannot be expected to contribute to the profits of the company for two or three years owing to the long period this product takes to mature.

Mr. Alex. Mann, the Company's Visiting Agent, made an important statement, the closing sentence especially being noticeable:—

This company has the great advantage of having most of its properties in the two best tea districts in India, viz., in Assam and Darjeeling, and it is rather unfortunate that these are the two districts that have suffered more than others last year in quality of manufacture.

It may be pointed out that there is practically no more land suitable for tea to be had in the Darjeeling district, so the over-supply too often heard of in connection with tea generally should not apply to teas from this hill district.

—Ed. *C.O.*]

CACAO—AND ITS FERMENTATION.

July 22.

Dear Sir,—Your appeal to Cacao planters to give their experience in the way of fermenting and washing (in connection with Mr. Renton's valuable information) will, I am afraid, not be responded to. Is it shyness or egotism?—the latter I think. If it is the latter, it is a mistake; for I dare assert that the produce of the individual planter will not receive much attention in the market if the country is thought to produce an inferior article.

Much is to be learnt about fermentation, that mysterious operation. It wants a specialist, and it has to differ for every variety.

Coincidence—this is what I wrote on June 16th to my London agents;—"Our cacao is not appreciated in Germany on account of its sour smell, it is said, which is due to the washing. To obtain the red colour outside, appreciated by London buyers, it is necessary to wash after a day's fermentation, dry slowly, give another night's fermentation, dry slowly. This way of fer-

menting leaves the bean devoid of the chocolate taste, when a longer continuous fermentation, taking care not to overheat, brings it out but darkens the skin. To dry the bean without washing gives it a dirty appearance and renders it more liable to mildew. It is the reason, I think, for which in some parts of Central America they earth the cacao (Puerto Cabello, the highest priced, is earthed).—Yours truly,

CACAO PLANTER.

CEYLON TEA CHESTS AND TEAS FOR THE CANADIAN MARKET.

July 27.

Dear Sir,—In view of the recent official correspondence published by the Tea Traders' Association *re* Ceylon-made chests, the enclosed letter will interest all your planting readers, especially as it refers to Ceylon "greens." The writer, as you will see, is a Japanese tea importer in Montreal and should know what best suits the trade generally. It may also be as well to point out that pine chests were only imported by local merchants when Momis could not be obtained. We don't think many are coming forward now.—Yours faithfully,

MERCHANT.

Montreal, March 12.

In reply to your inquiry *re* the prospect of Ceylon and Indian teas with the Canadian market, I may tell you my own opinion, which is that they have a good prospect in blacks as much as Japan has in its greens. They try quite hard to compete with us in green tea recently, but unless they make still further improvements, I do not think they can ever displace us from the market. There are many defects on their part if I point out, but it is needless to say to you about its make, etc., except something wherewith you are interested directly. It may be interesting to you to know (as you are exporting Momi Tea chests) that I have seen many packages of Ceylon tea which are not of (our) Momi wood, but of pine; the latter, in my opinion, is not from Japan and resembles very much Chinese pine. As you have some idea of tea, you should know that boxes for tea, made out of pine wood either from Japan or elsewhere, cannot be good for tea; and I am greatly surprised to see the Ceylon merchants (who are so earnest in pushing their tea and effecting all kinds of improvements) use boxes made of pine. The boxes that I saw at your mills are very good and very suitable. Don't you supply large quantities? Perhaps China pine is cheaper, but cheap things always come out dearer in the end and I shall not be at all surprised if this is found out and pine boxes avoided altogether. I have also seen some boxes which, I fancy, cannot be made in China or Japan, as the wood appears to me to be from some very cold country in the North part of Europe as far as my knowledge of lumber tells me; you may perhaps know where they come from. Without anything further interest,—I remain, yours truly.

A GOOD TREE FOR TEA ESTATES.

August 5.

Dear Sir,—The tree referred to by a Dimbula Manager in your issue of the 30th July should be *Ailantus*: I think it appears in the Peradeniya Gardens Catalogue as *A. malabaricus*. It was planted in the south of France about thirty years ago as a food for one of the new species of silk-worms then introduced, and on a small scale in English gardens on account of its ornamental appearance.—Yours faithfully,

B.

[" Ailantus Malabarica "—is no doubt the tree and here is Trimen's information:—

" Low country of the moist region ; rather rare. Seven Korales ; Colombo ; Heneratgoda. Fl. Jan. ; white. The bark is tonic and febrifuge. A brown, fragrant, resinous exudation is given by the inner bark, and is used in dysentery as well as material for incense. Wood very light, soft and spongy. Ailantus is from 'Ailanto,' said to be native name of *A glandulosa* in the Moluccas.'

From the "Treasury of Botany" we further quote :—

" Ailantus. The *Vernis du Japon* of the French, *A. glandulosa* of botanists, is in its native countries, China and India, where it is called Ailanto, a tree of large size and hendsome appearance, bearing numerous pinnate leaves from one to two feet long or more, and clusters of greenish flowers of a disagreeable odour. It is of rapid growth, making, when favourably situated, annual shoots from three to six feet in length. Its German name, Gotterbaum, 'tree of the gods,' is said to be a translation of *Ailanto*. French arboriculturists recommended that its lateral branches should be annually lopped off, when the main trunk will ascend perpendicularly and sustain a symmetrical spreading canopy. In France and Italy, it is much valued as a tree for shading public walks, and is planted for that purpose along with the tulip-tree, horse-chestnut, plane, &c. Its leaves are not liable to be attacked by insects, which is a great recommendation ; nevertheless they are the favourite food of the silk moth, *Bombyx Cynthia*; and they continue on the tree and retain their green colour till the first frosts of November, when the leaflets suddenly drop off, the leaf-stalks remaining on often a week or two longer. The wood is yellowish-white, satiny, and well suited for the purposes of the cabinet-maker. There are specimens, both in England and of the Continent, exceeding sixty feet in height. The name 'Japan varnish' seems to have been applied to it through some mistake. The genus belongs to the *Simarabaceæ*."

[Probably the Dimbula trees are from imported seed of *Ailantus glandulosa*.—Ed. *T.A.*]

TREES FOR TEA ESTATES.

Glasgow, Agrapatana, Aug. 9.

Dear Sir,—The trees growing on this estate, of which mention has recently been made in your columns, answer the description of Ailantus Glandulosa given in your issue of the 8th inst.

A small quantity of the seed was got by Mr. A L Cross, but I have no record of it, and he was unable to give me any information when I applied to him a few years ago. They are deciduous trees, shedding their leaves about the month of September, So far none of them have flowered. The growth compares very favourably with grevilleas of the same age. Some trees on this estate ten and eleven years old are about 50 feet high. They are handsome, healthy

looking trees, and I do not know anything better for growing amongst tea. I am taking steps towards having any doubt as to their identity removed.—I am, yours faithfully,

ROBT. WATT KERR.

JAK FRUIT IN INDIA AND CEYLON.

Aug. 7th.

DEAR SIR,—I learn on good authority that in India the largest and best jak fruits are borne on the roots of old trees, *i.e* , on such roots as come above the soil, which they often do in the case of very old trees. I have seen regular patriarchs of jak trees in Ceylon, with huge fruits hanging from all parts of the trunk down almost to the surface of the ground; but I cannot say that I have ever seen fruits produced on the roots. I should like to know whether the experience of any of your lowcountry readers agrees with my own or with that recorded in India. —Yours faithfully,

INTERESTED.

THE BRITISH NORTH BORNEO COMPANY.

Kandy, 11th August.

DEAR SIR,—I have just received the Report issued by the British North Borneo Company's Court of Directors for 1902, in which the following items, which may interest your readers, appear :—

Receipts in 1901 were	..	$655,569·02
Revenue 1900 do	..	$587,226·81
Increase of Revenue	..	$68,342·21
Disbursements 1901	...	$431,219·82
1900	..	$402,858·63
Increased Expenditure	...	$28,361·19
Imports value 1901	...	$3,262,763·70
Do. 1900	..	$3,178,929·20
Increase	..	$83,834·50
Exports value 1901	..	$3,382,387·64
Do. 1900	..	$3,326,621·39
Increase	..	$55,766·25

The Court of Directors propose declaring a dividend to Shareholders of 2 per cent on Shareholders' capital of £741,130, beside paying 5 per cent on debentures, £200,000.—Yours faithfully,

W. D. GIBBON, Agent.

JAK FRUIT BORNE ON ROOTS: A REPLY.

Galkissa, August 13.

SIR,—In reply to your correspondent "Interested", anent jak fruit in India and Ceylon, I have not seen a single jak tree in Ceylon the fruits of which are borne on the roots, but there are, as your correspondent is aware, trees with huge fruits hanging from the trunk and touching the surface of the ground. The former kind too is found wild in Panrute, a place on the South Indian Railway line near Pondicherry, noted for fruits produced on the root, which are considered very delicious, M. P. C.

TEA OVER-PRODUCTION: A NEW SCHEME?: IS IT WITHIN "PRACTICAL POLITICS",?

Gammaduwa Group, Gammaduwa, Aug. 15.

DEAR SIR,—I trust the following will commend itself to the careful consideration and support of your readers. For a sum of £20,000 (twenty thousand pounds sterling) the output of Ceylon tea can be reduced by 7,500,000 lb. (seven million five hundred thousand pounds) being the yield of 30,000 acres of tea at the very moderate estimate of 250 lb. per acre. This can be accomplished provided the money can be found, and, handed to the Committee of the Planters' Association of Ceylon, who would, I presume, appoint trustees for the disbursement of the Fund. My proposal is that all Proprietors of tea estates, resident, non-resident or Companies, who find it impossible to cultivate tea at a paying figure, be invited to enter into a contract for one year with the Trustees of the Fund.

They must agree to bind themselves to cease plucking, from an area of their own choosing, of not less than 25 acres of tea, now in bearing, for a period of one year from 1st January, 1903, on condition they receive from the Fund the sum of 80 cents per acre per mensem, to enable them to weed the tea which they shall have ceased to pluck, and bound themselves not to pluck for that period.

Example: A Proprietor or Company having say 300 acres of tea in bearing (the youngest tea over four years old,) on agreeing to cease plucking 100 acres from the 1st January, 1903, would receive from the fund R960 during 1903. This sum would enable the Manager, to keep the 100 acres free from weeds during that time. Without attempting to go into details, I think a few of the advantages of the scheme are:—estates do not in any way suffer, rather the opposite; mortgagees would not interfere, they should rather approve, as the tea on the 100 acres would have improved by the rest. Buildings would cost no more to keep up; and a smaller labour force will be sufficient for the crop and maintenance of the other fields. Neighbouring estates, proprietors and managers would have no cause to complain of the condition of the abandoned tea, as it will, or ought to be easier weeded than the fields which are regularly plucked.

The objection may be raised that it will be impossible to check the Superintendent or the coolies should they pluck the tea on the fields set apart for the year, and that the tea would be sure to be plucked by some, though not in every case. I do not believe this could be carried on to any extent if at all without being discovered, as non-plucked tea fields are not so difficult to verify, but to help to guard against this the fund has still R12,000 from which Inspectors might be employed to make surprise visits to contracting estates.

I commend the above to my brother Planters in the full assurance that they will give it their careful consideration. The only difficulty, which presents itself, is, How are we to raise the money? The "Thirty Committee" requires all the Cess and more, were it available, and this lessening of production can scarcely come under the Ordinance which empowers that Committee to carry on its work.—Yours faithfully.

JAMES WESTLAND.

JAK FRUITS.

Trincomalee, Aug. 14th.

DEAR SIR,—"Interested," in your issue of the 12th instant, makes enquiries of jak fruits borne on the roots of trees. I hear on reliable authority that in 1889 at Sampeltion, a village in the North, a tree in the garden of one Mutar Kadramer, produced a ripe fruit on the root, 6 feet off the tree, under soil not deep, and it was traced by the smell and a crack on the surface earth. Those who ate it tell me that the pulp was delicious. Yours faithfully, J. B. C.

NIYANGALA AND VEGETABLE POISONS.

DEAR SIR,—With reference to the account of "deadly poisoning" as the result of eating a tuber of *Gloriosa Superba*, I think you will find that the use of the tuber "as an abortive for criminal purposes" (as Dr. Watt puts it) is by no means uncommon among the Tamils of the North.

The properties of such vegetable poisons and the means of detecting them, have yet to be studied by medical and scientific men who at present are, I believe, quite ignorant on these points: and there is little doubt that many a death from "unknown causes" or "dysentery" must be attributed to the effects of vegetable poisons—the study of which should furnish congenial work for our local scientific celebrities.—Yours truly,

ÆSCULAPIUS.

[What do the local Medical Association and Dr. Chalmers say to this?—ED. *T.A.*]

TROUT.

August 19.

DEAR SIR,—Referring to a cutting from an Aberdeen paper in your issue of the 18th *re* "Marked trout caught in Deveron," I hope the Provost and the Inspector of Fisheries will excuse me when I say, "Steady old boys," as I can only swallow that trout *cum grano*. A trout is a trout (yclept *salmo fario*, if an ordinary brown one) and if he ever attains the size of 6 lb. in the old country, my experience is that he's a very old trout, indeed, but no doubt there are exceptions to the general rule. Was that trout really a brown trout, a sea trout, a grilse or a young whale? The statement would not be at all a surprising one for Ceylon, where the climate and abundant food seem far more conducive to rapid growth than home conditions.

I have a well-authenticated case of a trout having increased from 1 lb. to 3½ lb. here in 6 months, but perhaps better not tell this to the Lord Provost or Mr. Inspector, as it might lead to a terrible waste of salt and strong language.—Yours faithfully,

PISCATOR.

THE "AGRICULTURAL LEDGER"—1902—No. I.—Indian Tanning Materials. A list of the raw stuffs of India which contain tannin, with notes on their composition and the preparation of extracts, by Mr D Hooper, F C S.

THE KANAN DEVAN HILLS PRODUCE COMPANY, LIMITED.

The report of the directors for the year ending 30th November, 1901, to be submitted to the fifth annual meeting to be held at 22, West Nile Street, Glasgow, on Friday, the 18th July, 1902, at noon.

The Directors beg to submit their report for the year ending 30th November, 1901.

The tea crop obtained from the Company's Estates amounted to 2,031,235 lb. compared with 1,444,695 lb. in 1900. While larger crops were gathered at both the Northern and Southern Indian properties than in the previous year, the yield from the latter, owing to unfavourable weather, was considerably short of the estimate. Latest reports as to the condition of the young plants are satisfactory, and point to the Estates as they come into full bearing giving a large average yield per acre. The price realised was 7.23d per lb. which is disappointing, but a distinct improvement in quality is expected by the local management as the Estates generally mature. The yield of Coffee was 1,495 cwts, and the Cinchona Crop amounted to 251,537 lb.

For some considerable time past, in view of the adverse circumstances affecting the tea-growing industry, the Directors have had under consideration the terms of the Agreement between the Company and its managing agents. While it was recognised that at the time the agreement was entered into its terms were reasonable, the agents, on being approached, expressed themselves as perfectly willing to consider a re-arrangement, and they voluntarily offered in future, during the continuance of the present depression in tea, and, while reserving their rights under the agreement, to restrict their charges as agents of this Company to their actual outlay, plus a Commission of 3 per cent on the nett profits. The managing agents have also, in view of the disappointing results of last season's working, voluntarily agreed to give up to the Company, for the benefit of the revenue account of 1901, the whole of their Commission for that year; and the London Agents have also agreed to return one-half of their Commission.

Given effect to the concessions referred to in the preceding paragraph, the accounts show a balance at credit of profit and loss account of £15,989-4-5. Against this sum are chargeable:—Commission on profits to estate managers and Secretaries, interest, discount on bills, &c., and interim dividend at the rate of 6 per cent. per annum for the six months ended 31st May, 1901, paid to the preference shareholders on 15th June, 1901, which total £11,661-1-3, leaving a balance of £4,328-3-2. Out of this the Directors propose to pay a dividend at the rate of 6 per cent. per annum on the preference shares for the 6 months ended 30th November, 1901, payable on Monday, 28th July, 1902, which will absorb £3,000 and leave a balance of £1,328-3-2 to be carried forward to the following year.

No new tea or coffee extensions are in progress or contemplated, but the planting of Cinchona is being continued through the existing cultivation in Travancore, and a few acres of specially suitable fresh land will be put out in 1902. The area of the Company's estates, which have now been practically all surveyed, aggregates 15,861 acres.

The estimates of crop for the current year are 2,962,480 lb of tea, 1,587 cwt. of coffee, and 239,500 lb of cinchona.

Efforts continue to be made to increase the consumption of Indian and Ceylon Teas elsewhere than in the United Kingdom, and more particularly in America and Russia, for both of which countries the Directors believe the teas produced by this Company's Travancore Estates are specially suitable. Producers in India have started an organisation for increasing tea-drinking amongst the native population, and it is hoped that in time an appreciable quantity will be consumed there. This scheme receives the support of the Directors, who are glad to report that some progress has already been made.

Owing to its former inaccessibility, and to the heavy expenditure which has had to be incurred in opening up communications, the development of the Company's large Concession in the Kanan Devan Hills, Travancore, has cost more than was originally expected. It was understood at the time planting operations were commenced in these Hills that the Government of His Highness the Maharajah of Travancore would construct a cart-road from the High Range to the plains, and thus afford direct communication to the port of Cochin which is about 86 miles from the Company's head-quarters at Munaar. After protracted negotiation, however, the Travancore Government declined for the present to proceed with the construction of the proposed cart-road to the west, owing to the cost being estimated by their chief engineer at so high a figure as £112,000. The Company was, in the circumstances, obliged to make its own arrangements for opening up communications, and this was done by the construction of a main cart-road and tramway for over 30 miles through the Concession to its eastern extremity, and by the erection of an aerial ropeway from that point (6,000 feet above sea-level) to a place called Kotagudi in the plains. From Kotagudi a cart-road 10 miles long was made to Bodinaikanur, one-third of the cost of which was contributed by the Government of Madras. There is a Government road from Bodinaikanur to Anmanaikanur Station on the South Indian Railway, connecting with Tuticorin, from which port the Company's produce is shipped. The Directors are glad, however, to be able to state that the Government of Travancore, although unwilling meantime to proceed with the western outlet, have agreed to contribute up to R400,000, or about £26,500 for the construction of a cart-road to the north to connect with the Madras Presidency road-system, and an agreement has been entered into whereby the Company has undertaken to make this road at a cost not exceeding the figure named. This road will be of great advantage in making the Concession more accessible and cheapening the cost of rice and other foodstuffs there.

The shareholders will notice from the accounts that the paid-up capital of the Company, as at 30th November last, was £360,000, and that the Block cost of the properties, which includes, of course, the expenditure by the Company on communications referred to in the preceding paragraph, amounted, as at that date, to £844,895 8s 9d. It is estimated that a further sum of about £120,000 will be required to bring the existing young cultivation to maturity, and to complete the equipment of the properties with factories, machinery, &c. The Directors, therefore, decided to issue the balance of the authorised Capital of the Company, namely, 15,000 Preference Shares and 10,000 Ordinary Shares. This fresh issue of Capital will, of course, be offered in the first place to the Shareholders of this Company, but the Directors are glad to be able to state that Messrs. James Finlay & Co. are prepared to take up, at par, whatever portion of the issue may not be subscribed for by other Shareholders, and to apply, so far as required, their cash advance to the Company, which exceeds £300,000, in meeting the amount due on the shares which may be allotted to them. To the extent of their cash advance so applied Messrs. James Finlay & Co. will take the position of shareholders instead of creditors of the Company.

The Directors propose to make a call of £2 per share on the ordinary shares already issued, of which due notice will be given. On the fresh issue of ordinary shares it is proposed that £3 per share should be payable on application and £3 per share on allotment, making the new issue also paid up to the extent of £6 per share.

The Directors regret to state that Sir John Muir, who has acted as Chairman of the Company since its formation, has been obliged to resign as member of the Board on account of the state of his health. They hope that after a time he may be able to again preside at their meetings. In the meantime Mr A K Muir, who was offered and accepted a seat on the Board, has agreed to act as Chairman. Mr Muir has been in India for the last eleven years, latterly as Senior Manager of the Calcutta Agents' firm, and has been connected with the management of the Company's estates since planting operations were commenced in Travancore.

In terms of the articles of Association, one of the Directors, Mr A B Murray, retires at this time. The Directors regret that Mr Murray, although eligible for re-election, finds it necessary to retire on account of ill-health, and they have considered the question of filling his place. They approached Mr D M Mannay, of Messrs Kelly & Co., Exchange Square, Glasgow, and he has expressed his willingness to be nominated for a seat on the Board.

The Auditors, Messrs Alexander Sloan & Co., C.A., retire, and offer themselves for re-election.

DUMONT COFFEE COMPANY, LIMITED.

DIRECTORS' REORT.

The Directors submit the general balance sheet and profit and loss account for the year ending 31st December, 1901.

	£.	s.	d.
The gross profit for the year, exclusive of £10,263 15s 7d brought forward from previous year, amounted to	73,693	4	10
And the London charges were	3,314	11	7
Leaving a net profit of	70,378	13	3
Amount brought forward from 1900	10,263	15	7
	80,642	8	10
Interest at 5½ per cent per annum inclusive of income tax has been paid on the Debentures amounting to £21,989. A payment of 2½ per cent inclusive of income tax was made on 1st Feb. 1902, on account of arrears of dividend on the preference shares £10 000. Ditto, ditto, was made on 1st July, 1902, on account of arrears ditto £10,000	41,989	0	0
Total	38,653	8	10
It is proposed to set aside for buildings and machinery the sum of	5,000	0	0
And to carry forward a balance of	33,653	8	10

At a later date, when more of the crop has been sold, the Directors hope to be in a position to pay a further dividend on account of arrears of the preference shares out of this balance.

The crop for 1901 has amounted to 143,395 cwts., which is equivalent to the large yield of over 12 cwts. per acre of the coffee lands in bearing.

Of this quantity	103,615	cwts. were sold in London.
	14,645	do do in Santos.
	4,819	do do in New York.
	21,316	do were unsold at date of making up this account.
Total .. cwt.	143,395.	

The gross average price for the whole crop (including the portion unsold, which has been taken in the accounts at 30/ per cwt.), is equivalent to 38/8½ per cwt. landed in London, as against 40/2 per cwt. the previous year. The average price realised for the Company's pulped coffee, of which there were 39,362 cwt., was 37/5¼, and for the Company's unpulped coffee 32/3½.

The exchange rate for the milreis was again adverse to the Company's business, being 11 7-16 as against 10·44 the previous year; but, notwithstanding this, the coffee was laid down in London at 2/6¾ per cwt. less cost than in 1900.

The coffee crop from Brazil for the year under review was the largest on record, being 15,500,000

bags, as against 10,900,000 bags the previous year; and this, together with the crops from other countries, proving largely in excess of the world's requirements, caused a heavy fall in prices.

The Brazilian crop for the current season is expected to be considerably less than that of the past year, and the Company's estate manager estimates the yield from the Dumont property at about half that of the previous year.

The heavy crop that had to be dealt with necessitated the purchase of additional railway rolling-stock, and also an increase in the buildings on the Company's property, the expenditure on which has been charged to capital account.

Mr P R Buchanan, owing to prolonged absence in India, has ceased to be a director of the Company and the Board has elected Mr H K Rutherford to the vacant office of chairman.

It is with extreme regret the directors have to record the death of their colleague, the Hon H A Lawrence, who took the deepest interest in the affairs of the Company.

Mr H K Rutherford and Mr Stratton Boulnois retire on this occasion from the Board, and being eligible offer themselves for re-election.

The auditors, Messrs Jackson, Pixley, Browning, Husey & Co., also retire, and again offer themselves for re-election.

TEA COMPANY'S REPORT.

Empire of India and Ceylon Tea.—The directors, in presenting the accounts made up to December 31 last, state that the rainfall during 1901 was, in Assam, very short in the early months, and the weather was, on the whole, rather unfavourable for quality and outturn. In the Dooars it was favourable. In Ceylon the weather was generally unfavourable. The company's gardens in Assam obtained an average price of 7·87d., against an average price of 8·76d for the Assam Valley. Its gardens in the Dooars obtained 6·25d, as against an average for the district of 6·65d. The gardens in Ceylon secured 6·06, as against 6·15d for the district. Although one property in Assam was highly successful, on the whole results were disappointing, except in the Dooars group. On the Dooars gardens expenditure shows an increase due to the whole outlay on Tasati being charged to revenue. This garden is by no means in full bearing, and left a loss on the year of nearly £2,400, but it is confidently expected that it will be able to give a good account of itself henceforward. In Assam and Ceylon substantial savings were effected, but not sufficient to compensate for the fall in the price of tea. The Ceylon crop was short, and the board has again to record a loss on the working of the gardens. In the autumn of 1901 radical changes were made in the management, and while it was too late to expect good results in 1901 as a consequence of those changes, the board is fairly confident that 1902 will make a better record. So far the year shows an increase in output and a reduction in cost. The present low range of price is likely to promote the sale of Indian tea in markets outside the United Kingdom. The profit and loss account shows a balance of £9,292, to which must be added £5 536 brought forward from last year. The half-year's dividend on the preference shares held over from 1900 was paid in December, 1901, and the directors now recommend the payment of half the preference dividend due for 1901, £5,475, and that the balance of £3,879 be carried forward.—*H and C Mail*, Aug 1

SPANISH COCONUT OIL.—The *Gaceta de Madrid* of July 9th contains an order authorising the temporary admission of coconut or coprah for use in the manufacture of coconut oil, which must be exported within a maximum period of one year, through the Custom House of Barcelona, for the firm of Garcia and Co. of Sans. There will be a rebate of sixty per cent of the duty paid on coprah on importation.—*Chemist and Druggist*, August 2.

PLANTING NOTES.

CINNAMON.—The third quarterly auctions took place in Mincing Lane on Monday last when 800 bales were offered and 500 sold. The sale is reported to have passed off with fair competition. Notwithstanding this, however, unworked firsts and seconds are said to have fetched prices from 1d to 2d lower than in last sale.

SERICULTURE IN SIAM.—Siam is evidently intent upon improving her sericulture. Yesterday six Japanese men and two women, all experts, recommended to the Siamese by the Japanese Government, arrived by the ss. "Kawachi Maru" *en route* for Bangkok, having been engaged for a term of years. Certain districts of Siam are extremely favourable for the cultivation of the silkworm, the rearing of which would seem to be an employment well suited to the lethargic habits of the Siamese.—*Straits Times*, Aug. 4.

SHOOTING IN CEYLON: A GOOD BAG.—Ceylon is not yet by any means depleted of the big game necessary to provide a good day's hunting such as was enjoyed in the old days when the planter "led a glorious life of a pioneer hunter on the threshold of paradise." Messrs. Tranchell and Dickson's experiences at Panawa, in the wilds of the Batticaloa district, prove this to be the case. Mr. Dickson has had a unique and exciting experience, but apart from that little affair of his with a wounded and infuriated bear; the sport was excellent and the bag obtained sufficient to turn other Ceylon hunters green with envy. Such bag should be the means of attracting sportsmen to the Island, especially in view of the failure of the grouse prospects on the Scottish Moors!

OLD KING COFFEE.—In view of the frequent mention of coffee in our columns recently, in connection with the affairs of the Dumont Company in which Ceylon men hold large shares, and with the enterprise carried into the Far Eastern Colonies also by Ceylon planters, it will be of interest to read what is said of the prospects of our old staple nearer home. Not a few of our old planters have found a home in Southern India, where the outlook seemed bright at one time. There has been, unhappily, a change for the worse; and this is what an Indian paper of recent date says:—

"The decline in the Indian coffee industry is strikingly shown by the latest published figures. The average production of the last five years was under 20 million pounds, as compared with 34 million pounds in the preceding five years, and the quantity produced last year was less than half the quantity produced ten years ago. The cause of this decadence is the severe competition of Brazilian coffee, and the absence of a domestic market. The exports, apparently, exceeded the production during the past ten years, but this discrepancy is explained by the greater accuracy with which the export statistics are kept. The United Kingdom and France take between them considerably more than half of the total output of Indian coffee; and the state of the industry may be judged from the fact that, since 1897, the London prices have decreased more than fifty per cent. In view of these figures, observes the Lahore paper, there seems no escape from the conclusion that coffee is a doomed industry in this country."

THE TEA INDUSTRY IN CEYLON AND THE SUPPLY OF FUEL: A SERIOUS PROBLEM OF THE NEAR FUTURE SOLVED BY THE SUCCESS OF FUEL OIL.

In not a few districts in Ceylon there is no more serious question facing the planter than his future supply of fuel. Scarcity and high prices have already made themselves felt severely in not a few cases, and practical men have been shaking their heads over the prospect, more especially where fuel for "power"—for the steam engine furnace—has to be provided as well as for the tea dryers. We are aware that in one or two instances, at rare intervals, oil for steam engine fuel has been used on plantations, just as it is at the electric works in Kandy and in most of the Railway workshops upcountry. But it was a much more delicate matter to experiment, and decide, on the fitness of the fuel oil for tea-drying purposes. The "Shell Company" and their local Agents, Messrs, Delmege, Forsyth & Co. (who have long been considering the question from a business point of view) deserve credit for going to work after a very practical fashion to secure the necessary solution. An Engineer of the Company—an expert in all that concerns the use of oil fuel—has for some time been making a series of experiments at the Galaha Factory along with the capable Manager, Mr. W. M. Hall, and we are now informed that these have been crowned with success, as may be judged from the following statement which has been placed at our disposal:—

FUEL OIL FOR TEA DRYERS.

It is a well-known fact that in certain districts, Ceylon Tea Growers have almost exhausted their supply of firewood, and in the near future will find it a difficult matter to keep their dryers running on account of an insufficient and inferior supply, with eventually a total lack of firewood. Comparatively few are, however, aware that liquid fuel can be used in lieu of firewood, and it is said even at less cost, and Tea Planters will certainly be glad to learn that extensive experiments in the burning of fuel oil in Jackson's Tea Dryers have been carried on at the Galaha Factory during the last two months with very gratifying results. The steam jet system is that used; while absolutely no alteration is required in the furnace. The burner is placed on the front of the furnace on trunnions, and can be swung out of position at a moment's notice when the furnace is again ready for solid fuel. The oil tank can be placed at any convenient place in or near the Factory. One man only is required to work the whole arrangement. After testing several burners, that of "Rusden and Eeles No. 00" has proved to be the most economical and suitable for this class of work. The fuel used was Borneo oil supplied by the "Shell" Transport and Trading Co., and the amount of fuel consumed on an average of a long series of tests was rather less than six gallons per hour, actual tea drying being carried on during the whole of the experiments. The manager of the Galaha Factory, W. M. Hall, Esq., will be pleased to show the burning of the fuel oil at the Factory to any interested in it, if due notice is given. In anticipation of a great demand

for fuel oil, Messrs. Delmege, Forsyth & Co., the Agents, are erecting storage tanks at several of the centres.

As to the cost, Mr. Hall estimates that with firewood costing R2 per cubic yard, his tea-drying costs ·75 cents per lb., and he feels sure that with the fuel oil he can do the work as, if not more, cheaply. This is extremely satisfactory, because the delivery of the fuel can be made more economically to estates close to a railway station, say for instance at Hatton, Kotagala and Talawakele—three centres where we believe fuel to be scarce—than at Galaha with the many miles of cartage involved. Tanks are at once to be erected at convenient centres and portable iron cases are to be substituted, for wooden casks so apt to leak, for the transport by rail, with a suitable package to carry on coolies' heads where there are no cart roads available. Another great advantage of the new system is the equality of temperature for drying that can be maintained; whereas with firewood as the teamakers know, this is a very difficult matter. Altogether, then, it must be confessed we are here face to face with a very notable improvement and advance in connection with tea factories, and we may well prophesy that no long period will elapse, before the use of fuel-oil for tea-dryers will become almost universal in the hill-country of Ceylon; while, in many cases, it will also be used for the furnaces of plantation steam engines. It must be remembered that the Galaha experiments only apply to Jackson's dryers; and in this connection it may be noted that Mr. Jackson himself has invented an air-injector for oil-fuel, which is necessary where there is no steam used. But we have no doubt that the makers of other dryers—of the Siroccos and Brown's Desiccators—will be keenly alive to the application of the new fuel to their inventions. Planters, after satisfying themselves of the wisdom of the change, must, of course, apply to their engineering advisers to get the needful adaptations made, whatever be their style of dryer, and a start in this direction need not be delayed from any fear that the fuel-oil required, will not be available, as there is always an ample stock for all requirements in Colombo.

MR. HART AND THE TRINIDAD ROYAL BOTANIC GARDENS: NEW KINDS OF RUBBER; GRAFTING CACAO.

As usual, Mr. Hart's Annual Report (from April, 1901, to 31st March, 1902) is both full and very interesting. We have marked all that is of most value to planters and horticulturists in full, and meantime would say that an experiment in Bee-keeping (Italian Queens being introduced) is likely to prove very successful and generally useful. We cannot understand why an attempt at bee-keeping is not made in the Henaratgoda Gardens: there are two Ceylon honey-making bees worthy of attention. We dare say Gangaroowa will first show an experiment. Mr. Hart has a good deal to say about Rubber. His Castilloas are seeding freely, and the seed is good, but it has "a very fugitive vitality, and even with the best packing it is very difficult to send it long

distances in good order." Seeds from Para Rubber trees, growing far and high up in the interior (possibly a new variety); is attracting attention. West African "Silk rubber," *Funtumia elastica*, trees are making splendid growth. Trees not four years old are over 20 feet high with stems 12 inches in circumference. Landolphias (creepers) are grown against the Indian rain tree, *Pithecolobium Saman*, and give excellent rubber fluids which easily coagulated. Mr. Hart is succeeding with the camphor tree, citronella grass, various fibre plants, peppers, vanilla, clove, cinnamon, ginger, kola, &c. He is strong on the value of *Erythrina* (Immortelle) as shade for cacao, and the flowers are said to have a high nitrogenous value. With various fruits—mangoes, oranges, mangosteens, lemons, plantains, &c.—Mr. Hart is experimenting with more or less success. His coffee hybrids are turning out well and are favourably reported on from Mincing Lane; but nothing is said as to their being proof against the fungus, *hemileia vastatrix*. Mr. Hart pays special attention to his cacao section, and new varieties—one from Venezuela and *Theobroma pentagona*—are doing well. He is a strong believer in the value of grafting cacao of the best kinds and feels sure this will result in samples of fruit far superior to any now seen. So Mr. Herbert Wright will have to hurry on at Gangaroowa and show how a plot of grafted cacaos of the best kinds—from strong, large trees with heavy crops and large beans—are to do in Ceylon. For fuller information of valuable experiments in Trinidad we can only refer to September's *Tropical Agriculturist*.

HORTICULTURE IN NUWARA ELIYA.

A VISIT TO MR. JOHN COTTON'S ORCHARD.

The pride of Mr. Cotton's orchard just now is the single apple (of the size of an orange) known as the Kentish Fill Basket, on a tree about 7 feet high, which Mr. Cotton a few years back got from Mr. A.J. Kellow of Albion, Nuwara Eliya, and planted about his orchard till at last it seems to have got placed in proper soil and is now rapidly growing into a big tree. Mr. Cotton has just imported plants of the Beauty of Stoke, Boston, Russet, and Emperor Alexander; these have all been set about two weeks last Friday, and to all appearances have started to grow. Mr. Cotton hopes soon to have plants of all the varieties to sell.

CHERRIES.—The latest varieties have been imported and set during July, among them Purple Jean, Waterloo, Florence and the Verdus (black variety) all striking new buds famously. Mr. Cotton's experienee with imported eherry plants is wide.

PLUMS.—The success which has attended the Red Heart Plum of which several hundred fruits weighed down the many trees both last year and this year, and the propagation of cuttings being alike successful and easy—the result has encouraged Mr. Cotton to experiment with the Golden Drop, Diamond, General Hand, Orleans, General Sago, and the Golden Heart. The orehard has just now in bearing the Ootaeamund and Kelsey beside the Golden Heart. The sale of the Red Heart Plum plants has been a big one and the demand continues to increase. He would strongly recommend to every land-owner to plant out the Red Heart Plum—those in the writer's yard, barely two years, are just now in flower and grown without much fussing or care.

ENGLISH GOOSEBERRIES.—Of these there are the green, red, white and yellow varieties growing in the orchard, and Mr. Cotton was kind enough to mention that this was his first attempt with Gooseberries, and he was quite certain that the plants, which were looking healthy and in fair growth for the short period they have been put down, were for the first time experimented with in Nuwara Eliya.

CURRANTS.—Red and white; these plants put down during the middle of last season came to fruit early this year and had a few springs on them, much to Mr. Cotton's delight. The plants are now coming on rapidly, and Mr. Cotton expects to be able in a few months' time to graft cuttings of all the above varieties for anybody wanting to plant out these fruits about their homes.

ORRANGES.—The imported plants of last year are doing well and young plants from these will be available by the end of October. Just now a few plants are on hand, which await booking. That further sucess may attend Mr. Cotton is the wish we express heartily; for, he is a resident worthy of the clime he has decided to live in for so many years past.—*Cor.*

A DISEASED OR DIRTY "GARDEN'S" ACT FOR CEYLON.

Ever since in 1869 we saw farm fields in Tasmania, nicely enclosed by stone walls or dykes, but in some cases, bearing one continuous crop of thistles, from wall to wall, and learned that a Thistle Act had to be passed in the Colony to deal with such cases, we have, from time to time, pointed out the need of a similar Ordinance in Ceylon. At one time "white weed" on coffee estates was the great trouble—one neglected dirty property imperilling its neighbours and causing heavy expense; but who hears much of "white weed" now. Other weeds have in many districts superseded it, just as lantana is so freely losing ground upcountry. Now a-days, it is the cacao planter who specially wants protection, and that very much from native neighbours who will not deal with, or destroy, their diseased trees, from which the fungi or other enemies freely spread. Most applicable, too, would such an Ordinance be to the case of neglected coconut gardens. We have had expensive personal experience in this direction. The owner of a well-tended garden of palms, dies: it falls into as indifferent hands, gets quite neglected, and becomes a regular breeding-place for beetles which, of course, fly over into the adjoining gardens. In such a case a law giving adjacent owners, the power, after due intimation, of entering and destroying beetle-infested palms, or corners full of illuk-grass, the expense to be a first charge on the property,—would seem to be equitable. The same applies exactly to the case of diseased and neglected cacao gardens; and in both cases, there could be an official inspection and report—Mr. Carruthers, Mycologist, and Mr. Green, Entomologist, being available—before due notice was given, and failing redress, action taken at the expense of the owner.

PLANTING FORTY YEARS AGO.*

A Few Reminiscences by Ed. *T.A.*

Our first inspection of a coffee estate was of Aliwetenatenne in the Medemahanuwara district; that was in 1864. The owner—a Mr. Turner—had died suddenly, and being in Kandy, Mr. Richard Rudd invited us to a drive to Teldeniya and a ride thence up to the far-famed Gap in the Eastern mountain range, near the spot where the last King of Kandy was captured in 1815. *En route* we were stopped by cherry "Ned Mortimer"—then in his prime—who shouted "Come and see 15 cwt. of coffee (cherries) per acre on Rajawella No. 2" At our journey's end we were met by Mr. Richard Burke (then quite a young planter) who begged the owner to come and inspect the finest coffee clearing in the island on Angruwella in Rangalla district.

The following week we accompanied "Abercromby Swan" to "Vicarton" and "the Borders"—to inspect his line coffee, clean estates and crops of "Sepoy Coolies" in West Matale. "A rupee for every weed you pick up in my fields" was his triumphant challenge to visitors. James Grant (John had begun pioneering in Travancore) Donald Bain and John and Charles Forbes were neighbours;—(but we are merely giving a skeleton sketch; details and incidents must await the future Autobiography?) We rode across to Elkadua, up by Sylvakande where we encountered Edward Young, riding down from Kellebokka on a big horse which threatened to kick our pony into the ditch; looked in on D. Watson on Dambulagalla; had a grand afternoon outlook over *the Valley* (a picture of green framed by the everlasting hills), got to D. Webster on Wattekelly; and then made the round of the Knuckles and Rangalla. Heigho! what grand shows of coffee everywhere; and what bright ardent spirits among the

KNUCKLES BRICKS!

Is there any one of them left in the island now,—save Mr. Channing Esdaile who is revisiting his Madulsima property?

Next year 1865 found us in the wake of Sir Hercules Robinson on his memorable tour through Uva and Sabaragamuwa, the veteran Major Skinner piloting the new Governor and bidding farewell himself to scenes with which he had been familiar since 1825! Who can foreget the delight of the veteran head of the Public Works Department with the Farewell Address which the Haputale planters, headed by "clever Henry Don" presented to him (the best expressed Address he declared, he had ever read and he wished to know who was the writer:—'a feather', as we told the old Major ten years afterwads in England, 'in the cap of the young Sub-Editor and Reporter' who had been asked to draw it up!) Who remain of all who met Sir Hercules Robinson at Kalupahane in 1865, save R. E. Pineo (Colombo Club) A. Macphail, W. H. Wright and ourselves?

Next year (1866) brought a

BLACK FRIDAY

in London Overend Gurney & Co. down) and great depression in Colombo; so that £500 could not be raised in the Fort to buy an estate which a few years after sold for £5,000; and bushels of coffee were exchanged for as many bushels of rice to keep coolies from starvation.

Hard work was the order of the day during 1866-7-8; and our next trip upcountry was to visit "Logie Elphinstone" on Westhall and Macleod on Kudienlena, early in 1869. And what a delightful ride we all three had into

DIMBULA FELIX

as it was called—for, the Wilderness of the Peak was, comparatively, still *terra incognita*—Logie and Belgravia were then the farthest estates, with a 50-acre clearing in Matakelle as an excuse for sport; and all the region beyond up to the Gorges and the foot of the Bopats was "Sporting Reserve' never to be cultivated! Dimbula now counts 50,000 acres in cultivation out of 55,000 in private hands. In 1869, only 8,000 acres were opened—much of it newly burnt off as we saw it—and only 20,000 acres in all had been taken up. Forest, forest everywhere: our ride through forest from Forest-creek to New Valley, Dikoya, was declared to have its risks—bad fords, or rotten wooden attempts at bridges, perhaps a prowling elephant, or the chance of getting bogged in a morass in some of the gullies below Kotagala. But our chief enemy proved to be heavy persistent rain. [This was again the case on crossing from Dimbula to Dikoya, in 1872, when we were glad to accept Mr. Stopford Sackville's hospitality at Drayton and pass a pleasant forenoon with him, the late Walter Campbell, one of the Camerons and John Buchanan now in Brazil.] In 1869 Dikoya and Maskeliya (the latter with four blocks sold) had only 6,000 acres cleared: S. Le Cocq and T. R. Dobree were chuckling at the foolish rush into the region beyond; they had had enough of rain] and were soon after off to select land, the one in Morawakkorle and the other Nitre Cave!

The land was all before them
Where to choose,—

and they left behind them Bogawantalawa, the Agras and the best of Maskeliya, to fix on two of the poorest spots in our hill-country. But then the old Demerara coffee planter Sir Wm. Reid (who for himself in 1840, selected Spring Valley, the finest block in Uva) after passing through and rejecting Haputale, fixed on a corner of Rakwana for his nephew Charles Shand's future coffee plantations!

Where are the Dikoya men of 69—James Mac Donald, the cheetah-slayer, L. H. Kelly, Sillery, Mackinnon, Davidson, MacLellan of the bagpipes, Reid? Two only remain in Ceylon, we believe, Giles F. Walker who was superintendent on Del Rey, and D. W. H. Skrine who managed his own compact Warleigh property of 120 acres planted, a perfect "gold mine" in coffee. And yet poor Dobree and Lecocq with all their Dikoya experience, would not touch, but rather an away from such land! As for Maskeliya, there were only four blocks taken up in 1869, the pioneer being Tom Gray with Bunyan and Ovoca. Time and space fail us to record here any of the many planting adventures of those early days before roads and bridges came ino existance. There were

'scapes by flood and field,—

and there were actual fatalities—deaths by drowning in trying to cross the Dikoya river in monsoon

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* The hypercritical will say, that means 1862 and Ed. "*T.A.*" though he arrived in 1861, never saw Kandy or a coffee estate till 1864! It was Dr. Johnson who retorted on the old lady—who found fault with his saying a certain pear-tree was "loaded with fruits," because she had counted and there were only 40 pears—"Od's Madam would you have us swear to the truth of a song!"

floods; while "Pedigree" Banner got his name after a narrow squeak of a raft capsizing with himself and two companions and because one of them risked his life to recover a valuable paper in an overcoat pocket, which turned out to be (not a title-deed but) a copy of the "Liverpool Mercury" with the pedigree of his family. The disgust of the rescuer may be imagined! Then there was poor old Noad, Chief Surveyor, under Colonel Fyers, S. V. G., nearly starved under Adam's Peak living on the coolies' rice for weeks together, while his supplies were stopped by three rivers all in flood, and rendered impassable. Well may the present generation of planters between Adam's Peak and Great Western (is there anyone left who was in the same region in 1869, besides the two named above?) be told by us:—

If you had seen these roads
Before they were made,
You'd have held up your hands
And blessed General Wade!

It was in 1869 that we collected, for the first time, the *planted* acreage of each estate: Meddecumbra with its thousand acres of coffee was the biggest by far in the young districts: Del-rey had 290, Kirkoswald 287, Warleigh and Newton each 120; Bearwell was all forest; Palmerston and Belgravia each 100 acres and so on.

Our next big planting trip was in 1872. Starting from Galle for the newly-opened Morawak-korale district to visit Le Cocq and his sinnedurais, A. E. Scovell and A. T. Rettie; across Gongalla through Rakwane, riding from Pelmadulla right through Haputale, Badulla and Passara districts; back to New Galway and Nuwara Eliya and thence by the Kiklimaana bridle road through the forest to Upper Dimbula, represented chiefly by Lousa and Scalpa. Of the country as it then appeared, of incidents and adventures, much might be said (we pencilled the draft of the Memorial that started the agitation for railway Extension from Nawalapitiya to Nanuoya and Haputale, while lying on the patna in front of the old Bandarawella rest-house, on this trip); but we must not tire our readers and have said enough for today.

Trusting to our memory—which is probably with advancing years, not so good as it once was—we find we made several omissions of, importance in our instalment of Reminiscences published on Friday last. One is simply unpardonable; for it was to the hospitable bungalow of Mr. and Mrs. W. D. Gibbon at Hoolankande that we turned our pony, when we first entered the Kellebokka valley in 1864; and it was then, if we recollect aright, that we accompanied Mr. Gibbon and Mr. Charles Catto on a very notable jungle expedition across the Knuckles range to take stock of a new experiment in planting on the Eastern spurs and slopes—an experiment which it wou'd have been well for Mr. Gibbon if he had never touched. (But of how many more can that be said as to Planting on the Lagalla side:—Poor Ted Hope and Wingate, Thomas Mackie, Borron and many more who lost much money in vainly trying to make plantations pay in wind-blown districts.) Another visit to the same veteran planter, when he became Manager of Oodoowella, first made us acquainted with

THE HANTANNE DISTRICT.

The romantic history of the first estates planted; the tragedies connected with the deaths of Henderson, Urquhart and Falconer; and the still more harrowing murder by Sinhalese villagers of the young Welshman, Morgan, when riding with the monthly bag of rupees through a bit of jungle before bursting out on the patnas of Kitoolamoola, would fill up much more than a column it space and time permitted. A. C. Mortimer as Manager for Sir John Cheape's group of estates was the great gun of the district, and he was succeeded by Wm. Cameron and James Beaton. Old Gottelier on Peradeniya and Paul de Chermont—with the grand old giant rose-tree on Ooroogalla—were characters in their way; and altogether there are many pleasant reminiscences of Hantanne in the early days, as there is respecting the

HEWAHETTES

which we first entered by the old road from the top of the Kandy Lake to get to Kirrimettia, Bowlane, Bopitia, Patiagama, etc.—the ground being nearly everywhere strewn with coffee—bumper crops and scarcity of coolies accounting for much cherry lost. Then Dr. Dodsworth, proprietor of Kirrimettia, who dated from "the forties," rode down with us to pay our first (but by no means last) visit to the

PATRIARCH OF DUMBARA,

the late Robert Boyd Tytler, regarding whom and his work as Pioneer of Coffee and Cacao how much could be told!

We regretted at this time not to be able to visit

DOLOSBAGIE

and look up Mr. Wm. Rollo (who had just—1864—got a young Assistant in Mr. C W Horsfall, now our neighbour in Baillie Street); while his planting neighbours then included Messrs. John Stephens, J A Bell, Henry Saunders, W C Whitham, R B Downall, Blacklaw, Imray, James Blackett, G M Ballardie, R Porter Wm. Taylor, etc. We had to wait some years before we saw one corner of the district with Mr. T. Smith at Barnagalla.

Still another early trip that should not be forgotten was that with Mr. Andrew Cross from Nuwara Eliya into Maturata to be the guest of Mr. J. H. Renten and thence to ride back into Udapussellawa and visit our old friend Mr. G. A. Dick on Ragalla, then being opened. Still earlier, of course, was our acquaintance with Mr. Dick when Manager of Nayapane in

PUSSELLAWA,

while Maurice Worms ruled over Rothschild; F. R. Sabonadiere was a little King at Delta, and had for genial neighbours, such good men and excellent planters as old George Shireff on Helbodde, John Lewis Gordon on Wavendon (afterwards and still partner in Messrs. Geo. Steuart & Co.), John Martin on Sir Horace Rumbold's estate of Melfort, W. Sabonadiere on Glenloch. Northmore on Whyddon, Sweeting on Kallugalla, Capt. Donald Graham on Mahavilla (to be succeeded later by Wm. Mackenzie), and the Bowden Smiths in

NILAMBE.

To that district we made a most pleasant trip with Old Colonist when he was doing double duty as V. A. for Messrs. Geo. Steuart & Co. as well as for Lee Hedges & Co. when (as Price and Boustead's Agents) they held a long list of estates in Agency. Of the Wariagallas under Henderson and Arthur Davidson, and of E. S Grigson, as a young planter opening his first clearing of 100 acres of beautiful young coffee on Nilambe estate, we have most pleasant recollections; as also of C. S. Armstrong on Morahena. But we must close what is after all little more than a preliminary sketch.

Monthly Shipments of Ceylon Black Tea to All Ports in 1901-1902.

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb	1902. lb.
January ..	12617540	9056013	727093	612958	104240	151984	740574	714247
February	8333266	7455219	...	919709	135811	121158	1778987	1020948
March ...	7932090	8198179	1288010	896513	82055	91081	2012070	1713916
April ..	8174940	8521388	1297873	988698	111082	93198	2245142	2081904
May ..	10570686	9638555	937133	238239	63310	80669	1641160	2000522
June ..	11425044	12563050	835711	1984976	93699	166479	1730886	1828695
July .	8488409	10724781	700557	1779011	189567	108785	2593243	1747960
August *..	6030406		949747		82595		1612929	
September	6093129		485429		74896		1779523	
October .	8989024		762616		181891		1840192	
November	6229472		1018996		190988		1529370	
December	12235867		830226		189520		990563	
TOTAL ..	105,497,339		9,699,734		1,539 986		20.638,208	

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.
January	138235	125795	275598	389215	14603250	11050212
Febuary	272221	115332	453774	385795	10974059	10018071
March	510734	566263	350874	311191	12175833	11777143
April	10030	807390	226776	290137	12365843	12782715
May	288333	242651	306644	436410	13810271	12637046
June	276827	403005	404687	714471	14766854	17660676
July	442100	464858	669163	846036	13083039	15671431
August	266787		227578		9170042	
Septembr	214779		388213		9035969	
October	115545		273928		12163196	
November	504614		183124		9666564	
December	313534		366244		14875954	
Total ...	3,704,335		4.549 627		145,188,244	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.
January	...	64021	...	..	...	...
February	...	24839	..	4420	...	...
March	75583	14800	...	24210	...	..
April	13016	13676	...	8000	...	...
May	33889	70103	...	..	1714	..
June	12814	87340	..	74225	...	...
July	4478	40574	...	..	...	...
August	...		..	..	...	...
September	5945		...	..	...	...
October	12921		..	..	...	...
November	16540		5615	..	...	..
December	15255		38547	..	1262	..
TOTAL ...	237.231		44,162	...	2,976	...

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901, lb.	1902. lb.	1901. lb.	1902. lb.
January ...	...	113332	..	...	...	177353
February ...	...	26480	...	515	..	56254
March ...	227889	62313	12173	100	315660	101423
April ...	79403	53610	7365	9165	99784	84451
May ...	65980	32676	1454	3280	103037	106059
June ...	23046	84184	...	4500	35860	250249
July ...	46896	194016	...	...	51374	234590
August ...	12260	...	...	...	12260	..
September ...	15304	...	...	..	21249	..
October ...	28560	..	...	..	41481	...
November ...	36296	..	...	...	58541	...
December ...	11786	...	7612	...	27011	..
TOTAL ...	797.796	...	28,609	..	11.10774	...

* It is impossible to get the figures for the last month in time for publication; but see pages 210, 211 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Agra Ouvah Estates Co., Ltd.	500	825 x.D.	..	—
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	..	..	—
Ceylon Provincial Estates Co. Ltd.	500	500	..	—
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	$47\frac{1}{2}$	...	50
Clyde Estates Co., Ltd.	100	2[illegible]	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	..	—	...
Drayton Estate Co., Ltd.	100	—	..	—
Ella Tea Co., of Ceylon, Ltd.	100	30	—	—
Estates Co of Uva, Ltd.	500	200	...	200
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	—	—	—
Great Western Tea Co., Ltd.	500	575	—	—
Hapugahalande Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	475	500	—
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	85	—	85
Kalutara Co., Ltd.,	500	—	..	—
Kandyan Hills Co., Ltd	100	—	40	—
Kanapediwatte Ltd.	100	40	45	—
Kelani Tea Garden Co., Ltd.	100	..	35	—
Kirklees Estate Co., Ltd.	100	—	—	100
Knavesmire Estates Co., Ltd.	100	...	45	..
Maha Uva Estates Co., Ltd.	500	—	350	—
Mocha Tea Co., of Ceylon, Ltd.	500	700	—	—
Nahavilla Estate Co., Ltd.	500	..	300	—
Nebreda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co., Ltd.	100	—	—	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	—	40	30
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd	500	.	—	—
Rayigam Tea Co., Ltd.	100	35	...	—
Roeberry Tea Co., Ltd.	100	—	85	—
Ruanwella Tea Co., Ltd	100	...	30	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	...	...	$17\frac{1}{2}$
Do 7 per cent Prefs.	100	—	—	—
Tonacombe Estate Co., Ltd,	500	300	...	—
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	500	—	..
Uvakellie Tea Co., of Ceylon, Ltd	100	...	—	—
Vogan Tea Co., Ltd.,	100	45	50	..
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	—	275	..

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	...	30	...
Bristol Hotel Co., Ltd.	100	..	110	...
Do 7 per cent Debts	100	—	...	..
Ceylon Gen. Steam Navigation Co., Ltd	100	—	250	—
Ceylon Ice & Cold Storage Co. Ltd.	100	..	115	115
Ceylon Superaeration Ltd.	100	—	40	—
Colombo Apothecaries' Co. Ltd.	100	—	125	$132\frac{1}{2}$
Colombo Assembly Rooms Co., Ltd.	20	15	..	..
Do prefs.	20	...	..	...
Colombo Fort Land and Building Co., Ltd.	100	—	80	...
Colombo Hotels Company	100	...	.	280
Galle Face Hotel Co., Ltd.	100	190	200	—
Kandy Hotels Co., Ltd.	100	..	130	—
Kaluganga Nav. Co. Ltd.	60	...	60	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	..	—	75
Nuwara Eliya Hotels Co., Ltd.	30	—	$27\frac{1}{2}$	$27\frac{1}{2}$
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	...	—	—

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transaction.
Alliance Tea Co., of Ceylon, Ltd.	10	..	—	..
Anglo-Ceylon General Estates Co	100	...	55–60	—
Associated Estates Co., of Ceylon	10	..	$1\frac{1}{2}$–$2\frac{1}{2}$	—
Do. 6 per cent prefs	10	..	3–5	—
Ceylon Proprietary Co.	1	.	$\frac{1}{4}$–$\frac{1}{2}$	..
Ceylon Tea Plantation Co., Ltd.	10	..	$23\frac{1}{4}$–24	...
Dimbula Valley Co. Ltd	5	..	5–$5\frac{1}{2}$	—
Do prefs	5	—	5–6	...
Eastern Produce & Estates Co. Ltd.	5	...	$3\frac{1}{4}$–$3\frac{3}{4}$	—
Ederapolla Tea Co., Ltd	10	...	6–8	...
Imperial Tea Estates Co., Ltd.	10	...	4 $4\frac{1}{2}$	—
Kelani Valley Tea Asscn., Ltd.	5	...	3–5	—
Kintyre Estates Co., Ltd.	10	...	6–8	—
Lanka Plantations Co., Ltd	10	..	4	—
Nahalma Estates Co.,Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	$2\frac{3}{4}$–3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	—	10
Ouvah Coffee Co., Ltd.	10	..	6–7	—
Bagalla Tea Estates Co., Ltd.	10	.	11–13	—
Scottish Ceylon Tea Co.,Ltd.	10	—	10–15	—
Spring Valley Tea Co., Ltd.	10	...	2–5	—
Standard Tea Co., Ltd.	6	..	10–12	..
The Shell Transport and Trading Company, Ltd.	1	...	$2\frac{7}{8}$–$3\frac{1}{8}$	—
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	$5\frac{1}{4}$	..
Do. pref. 6 o/o	10		9–10	...

BY ORDER OF THE COMMITTEE.

Colombo, Sept 5th, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1897.	1898.	1899	1900	1901	Av. of 32yrs.	1902
	Inch	Inch	Inch.	Inch.	Inch	Inch.	Inch
January ..	3·81	2·32	·98	3·72	11·91	3·51	1·95
February ..	1·68	1·98	2·78	0·63	3·55	1·24	4·37
March ..	3·66	4·21	0·88	3·71	5·12	4·76	6·85
April ..	10·97	22·81	6·66	15·12	8·71	11·34	10·01
May ..	8·30	5·80	17·73	10·63	6·23	11·86	11·89
June ..	10·14	10·91	9·23	7·83	5·93	8·28	9·84
July ..	5·24	6·15	1·11	6·77	4·52	4·46	4·63
August ..	9·09	0·97	0·62	7·35	0·46	3·63	2·78
September ..	4·58	6·90	1·48	4·00	3·93	4·91	1·03*
October ...	4·71	20·60	12 99	9·47	3 91	14·03	
November ..	11·66	17·38	8·58	9·25	19·84	12·77	
December ..	8·89	3-05	4·44	5·20	1·70	6·26	
Total..	82·73	103·11	73·48	83·68	75·86	87·83	5[illegible]·77

* From 1st to 2nd Sept. 1·03 inch, that is up to 9·30 a.m. on the 3rd Sept.—ED. *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate	for	Aug.	1902—7 to $7\frac{1}{2}$ mil. lb.
Total	Shipments	Do	1902—7,250,000 mil. lb.
Do	Do	Do	1901—6,030,406 lb.
Do	Do	Do	1900—7,568,667 lb.

[ESTIMATE for Sept. 1902—7 to $7\frac{1}{2}$ million lb.]

THE DEAF HEAR.—No. 479 of *the Illustrated World* of 626, Chiswick High Road, London, W., England contains a description of a remarkable Cure for Deafness and Head Noises which may be carried out at the patient's home, and which is said to be a certain cure. This number will be sent free to any deaf persons senudig rheir address to the Edito

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Sept. 1st, 1902.

CARDAMOMS :—
All round parcel, well bleached per lb. R1·10
Do. dull medium do. R0·90
Special assortment, 0 and 1 only do. R1·30
Seeds do. R1·05

CINCHONA BARK :—
Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 50c.
Nos. 1 and 2 only per lb. 54c,
Nos. 3 and 4 only per lb. 45c.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R67·50

COCOA :—
Finest estate red unpicked per cwt R45·00 }
Medium do do R38·00 } Prices
Bright native unpicked and undried R37·00 } nominal
Ordinary do do do R28·00 }

COCONUTS—(husked).
Selected per thousand R49·00
Ordinary ,, R42·00
Smalls ,, R34·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 19c—Business done.

COCONUT OIL—
Dealers' Oil per cwt R17·50.
Coconut Oil in ordinary packages f. o. b. per ton R385·00.—Business at lower figure.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—62 50.—Nominal.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—46c Little doing.

COPRA—
Boat Copra per candy of 560 lb. R55·00
Calpentyn Copra do do R56·50
Cart do do do R50·00
Estate do do do R56·00

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot—R175·00.—Sales of the 4th August,
Inferior R95·00.

FIBRES—
Coconut Bristle No. 1 per cwt None
Do ,, 2 None
Do mattress ,, 1 None
Do ,, 2 None
Coir Yarn, Kogalla ,, 1 to 8 15·00
Do Colombo ,, 1 to 8 R11·00.—Fine qualities steady, others lower.
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R600
Ordinary lumps do R600
Chips do R350
Dust do R250 Prices nominal
Fine qualities very scarce.
Do (Flying) do R125

SAPANWOOD— per ton None

SATINWOOD (ordinary) per cubic ft. None
Do (Flowered) per cubic ft. None

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	62	47	32
Orange Pekoe do	51	39	31
Pekoe do	43	34	26
Pekoe Souchong do	37	22	23
Pekoe Fannings do	40	27	25
Broken mixed—dust, &c	26	21	21

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1901 AND 1902.

COUNTRIES		Black Tea 1902 lbs	Black Tea 1901 lbs.	Green Tea. 1902 lbs.	Green Tea. 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1902 cwt	Coconut Oil. 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago. 1902 cwts	Plumbago. 1901 cwts.
To U. K.	..	2260657	7135826	365392	139800	5492	—	5492	24463	250767	231015	125812	149400	143091	9708	5576928	21	7564018	89307	117195
,, Austria	..	33619	38495	..	..	1	..	1	...	...	5600	36400	9362	2685	5000	120550	...	5510	..	..
,, Belgium	..	50030	13166	...	..	95	..	95	475	...	72000	111440	1794	3291	15904	147795	67943	146160	7543	12701
,, France	..	148242	19010	—	..	4	...	4	609	448	35600	11592	238	..	67306	14000	...	56020	1246	286
,, Germany	..	445222	290977	...	..	26	..	26	3625	89559	461281	387813	5738	2413	85753	1322600	68868	658035	45580	31025
,, Holland	...	4434	15589	...	..	...	..	..	..	..	25 00	158200	..	..	476	213720	..	..	203	...
,, Italy	..	13134	8681		..	...	..	..	32	435	155418	88312	1519	1487	...	...	10	11285	7	...
,, Russia	..	220252	6179059	106135	..	8	...	8	170	448	130	..	60	..	28036	..	..	...	1546	3713
,, Spain	..	3281	...	..	..	...	..	..	31	..	195495	64832	..	..	...	10250	..	...	..	...
,, Sweden	..	53205	31304	...	..	..	..	..	410	...	..	..	617	199	...	20350	..	5040	206	...
,, Turkey	..	19124	27269	..		...	...	..	..	..	..	...	...	...	..	...	...	..	..	...
,, India	—	619146	9 7335	17331	16124	68	...	68	2	63577	...	2296	46546	70915	5	...	...	20000	1715	230
,, Australasia	..	2145196	14181100	..	1714	1818	14	1832	474	...	3624	20136	..	94	...	462581	21	..	216	132
,, America	...	308578	1594022	668593	455484	820	...	820	7	2799	157000	6275	59423	9010	...	1021900	...	...	171252	178041
,, Africa	..	346772	193283	1200	..	6	..	6	..	2226	..	..	60	76	..	17660	1	762381	..	...
,, China	...	2685234	2010779	...	4853	23	..	23	100	5745	6200	112	339	707	..	1918	..	—	797	..
,, Singapore	...	126572	86829	...	...	1	...	1	5060	2140	...	..	71	...	...	...	...	...	...	...
,, Mauritius	.	48869	29376	..	...	230	..	230	..	..	..	..	...	..	...	..	..	..	..	..
,, Malta	..	213781	214508	...	...	...	...	..	...	..	...	..	..	..	..	...	..	..	...	..
Total export from 1st Jan to 1st Sept 1902.		101517348	97388167	1158951	617975	8595	14	8609	35378	418144	1351863	1013030	275166	233968	215188	8930362	136864	9222439	319618	273323

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, August 13th, 1902.)

	QUALITY.	QUOTATIONS
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay { White ,,	Good to fine	£6 a £7 10s
{ Yellow ,,	Fair ,,	£6 a £7 5s
Madagascar ,,	Dark to good palish	£6 12s 6d a £6 17s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality ..	160s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon. Mysore ,,	Fair to fine plump ..	1s a 3s
	Seeds .	1s 3d a 1s 7d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish ..	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s 3d a 3s 3d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2⅛d a 2⅜d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s 6d a 40s
CINCHONA BARK.— lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3½d a 7d
	Red Org. Stem	3⅜d a 4¼d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	4½d a 6d
Zanzibar and Pemba }	Good and fine bright	3 13-16d a 4¼d
	Common dull to fair	3⅝d a 3¾d
Stems ..	Fair	1d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 120s
	Middling to fine mid ..	80s a 100s
	Smalls	47s a 70s
Native	Good ordinary	40s a 55s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	65s a 80s
	Medium and fair	58s a 64s
	Native	50s a 60s
COLOMBO ROOT ,,	Middling to good	8s a 13s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	18s a 25s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 90s
B & C ,,	Small and medium	48s a 70s
Cochin Rough ,,	Common to fine bold	40s a 43s
	Small and D's	35s a 38s
Japan ,,	Unsplit	32s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £18
	Part yellow and mixed	£7 a £9
	Bean and Pea size ditto	70s a £9 2s 6d
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar ,,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E.I. & Aden ,,	Ordinary to good pale	25s a 40s
Turkey sorts ,,		30s a 37s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 25s
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ..	18s a 25s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 30s
KINO ,,	Fine bright	4½d a 7d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	50s a 70s
OLIBANUM, drop ,,	Good to fine white	48s a 50s
	Middling to fair	28s a 42s 6d
pickings ,,	Low to good pale	20s a 26s 6d
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 0½d a 2s 7d
Assam	Good to fine	2s a 2s 3d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 4d
Borneo	Common to fine	6d a 2s 2d

	QUALITY.	QUOTATIONS.
INDIARUBBER (Contd.)		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 2s 1d
Mozambique ,,	Good to fine Ball ...	2s 6d a 2s 9d
	Ordinary to fair Ball ...	1s 10d a 2s 2d
	Low sandy Ball ..	6d a 1s 6d
	Sausage, fair to good ..	1s 10d a 2s 6½d
	Liver and Livery Ball ..	1s 9d a 2s 2d
Nyassaland	Fair to fine ball ..	2s 3d a 2s 6¾d
Madagascar	Fair to fine pinky & white	2s a 2s 8d
	Fair to good black ..	1s 8d a 1s 9d
	Niggers, low to fine ..	7d a 1s 9d
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 5d a 3s 9d
	Consuming mid. to gd.	2s 11d a 3s 3d
	Ordinary to mid.	2s 5d a 2s 10d
	Mid. to good Kurpah	1s 6d a 2s
	Low to ordinary	9d a 1s 3d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 6d a 5s
Bombay ,,	Jubblepore	4s 6d a 5s 6d
	Bhimlies	4s a 6s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 5½d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 2d
CASSIA ,,	According to analysis	1s 10d a 2s 3d
LEMONGRASS ,,	Good flavour & colour	5d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3½d a 1s [illegible]d
CITRONELLE ,,	Bright & good flavour	9½d a 10d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody...	10s a 12s 6d
Zanzibar ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	5[illegible] a 5⅝d
Singapore ...	Fair	5¾d
Acheen & W. C. Penang	Dull to fine	4¾d a 5¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	3s 6d a 7s 6d
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good .	£5 a £5 10s
Manila ,,	{ Rough & rooty to good	£4 10s a £5 15s
Siam ,,	{ bold smooth...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	115s a 120s
SENNA, Tinnevelly lb	Good to fine bold green	5d a 8d
	Fair greenish	3½d a 4d
	Common dark and small	½d a 3d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's	
	D's and B's	48s a 120s
	Small ...	
Mergui ,,	Small to bold ..	£7 15s a £9 15s
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta... per cwt.	Mid. to fine bl'k not stony	8s a 10s
Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	17s a 22s
TURMERIC, Bengal cwt.	Fair ...	14s a 16s
Madras ,,	Finger fair to fine bold bright	12s a 14s
Do. ,,	Bulbs ..	10s a 12s
Cochin ,,	Finger ..	10s a 12s
	Bulbs ..	9s a 9s 6d
VANILLOES— lb.		
Mauritius .. } 1sts	Gd. crystallized 3½ a 9 in	6s 6d a 22s 6d
Bourbon ... } 2nds	Foxy & reddish 3½ a 8 ,,	5s a 15s
Seychelles 3rds	Lean and inferior ...	3s a 7s 9d
VERMILION lb.	Fine, pure, bright ...	3s 1d a 2s 2d
WAX, Japan, squares cwt	Good white hard ...	50s a 55s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for September :—

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KURAKKAN.

SOME months ago we read some remarks of a Government Agent to the effect that Kurakkan is a palatable and nutritious food when properly prepared as a porridge, though only fit to be utilised for gun wads if turned out in the shape of the indigestible cakes so much affected by the village housewives of the North-Central Province.

We make this reference to show that even in Ceylon there are among the more enlightened population those who see some good in this much-maligned article of diet.

In our last issue we quoted under the head of "Three Chena Crops" the remarks of an African authority on the subject of native diet. The author of these remarks proposes submitting samples of Kurakkan (with other grains) to the authorities at the Imperial Institute, with a view to settling certain points relating the possibilities of Kurakkan, such as whether by careful and continuous selection, the hard husk of the grain can be reduced (as has been done with wheat and maize) to a minimum, and whether the grain could be harvested and cleaned, husked and milled on a commercial scale.

To give another instance of the good opinions that are gathering round this "pariah" among cultivated grains, we may mention that the Agricultural Explorer, the United States Government, on the occasion of his last visit to Ceylon, procured through us a quantity of the two cultivated varieties of Kurakkan seed for experimental purposes, with a view to testing its suitability for the warm arid regions of America, together with other drought-resisting plants (from the region of the Persian Gulf and India) which he was giving his attention at the time.

Kurakkan (well known as "ragi" in India) is scintifically known as *Eleusine coracana*, and is a cultivated variety of *E. indica*, a common weed. In the Madras Presidency the crop occupies no less than 1,551,000 acres, and in Bombay 802,000 acres. These are the returns for these Presidencies for 1887-8, but the plant is largely cultivated in other parts of India as well. In Mysore *ragi* constitutes the diet of four-fifths of the people.

Professor Church's analysis of the grain is as follows:—

	Husked.	Unhusked.
Water	... 13·2	12·5
Albuminoids	... 7·5	5·9
Starch	... 73·2	74·6
Oil	... 1·5	0·8
Fibre	... 2·5	3·6
Ash	... 2·3	2·6

The nutrient ratio is given as 1 : 13, and the nutrient value 84. Phosphoric acid exists in the whole grain to the extent of ·4 per cent. As a food Kurakkan is looked upon as indigestible, but it is the defective cleaning and preparation of the grain that causes indigestion and other stomach disorders. From a dietetic point of view it is a suitable food for the working man.

OCCASIONAL NOTES.

Mr. J. B. Carruthers, the Government Cryptogamist, is reported to be working at the "betel disease" with a view to discovering a remedy. The "disease" is due to a fungus and causes much loss to cultivators of this remunerative product. The application of lime to the soil has been known to check the attack, and Bordeaux solution is about to be tried in some of the infected School Gardens.

In an article on Tapeworm in the Dog appearing in the June number of the *Agricultural Journal of Victoria*, the following recommendations are made under the head of treatment:—"To expel tapeworms from dogs no remedy succeeds as

well as arecanut. The dog should be kept off food for about 12 hours, and then from 15 to 60 grains of powdered arecanut should be given in a little milk. A dose of 30 grains will suffice for a dog weighing 25 lbs., and 60 grains may be given to a very large dog, and 15 grains to a little one. About a couple of hours after the administration of the arecanut a dose of castor-oil should be given and the dejecta watched for the segments or joints, which may be seen to be crawling about, and these should be burnt before they get a chance to burst and scatter the eggs which they contain.

We have to acknowledge with thanks the following publications:—

Journal of Agriculture of Victoria.

Agricultural Gazette of New South Wales.

Queensland Agricultural Journal.

Journal of the Department of Agriculture, W. Australia.

Station, Farm and Dairy, Sydney.

The Indian Agriculturist.

The Indian Agricultural Ledger Series.

The Agricultural Journal of Cape Colony.

The Capricornian, Rockhampton.

The Sunday Times, Perth.

The Journal of the Imperial Department of Agriculture, West Indies.

The Veterinary Journal.

The Proceedings of the Royal Agricultural Society, England.

The Proceedings of the Highland and Agricultural Society, Scotland.

Nearly all these come as exchanges for our own Magazine, and they constitute an excellent nucleus for an Agricultural Reading Room.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF AUGUST, 1902.

1	Friday ...	Nil	17	Sunday ...	·50
2	Saturday ...	Nil	18	Monday ..	·33
3	Sunday ...	Nil	19	Tuesday ...	·11
4	Monday ...	Nil	20	Wednesday	1·10
5	Tuesday ...	Nil	21	Thursday ...	·35
6	Wednesday ...	Nil	22	Friday ...	·23
7	Thursday ...	Nil	23	Saturday ...	·12
8	Friday ...	Nil	24	Sunday ...	Nil
9	Saturday ...	Nil	25	Monday ...	Nil
10	Sunday ...	Nil	26	Tuesday ...	Nil
11	Monday ...	Nil	27	Wednesday	·70
12	Tuesday ...	Nil	28	Thursday ...	Nil
13	Wednesday ...	·10	29	Friday ..	Nil
14	Thursday ...	Nil	30	Saturday ...	Nil
15	Friday ...	·08	31	Sunday ...	Nil
16	Saturday ...	·08	1	Monday ...	·14
				Total ...	3·84
				Mean ...	·12

Greatest amount of rainfall registered in 24 hours on the 20th August, 1902, 1·10 inches.

Recorded by Alex. Perera.

A NEW EDIBLE TUBER.

The Agricultural Gazette of New South Wales for July contains an article (from which we cull the following information) on the New Edible Tuber, *Coleus (Plectranthus) coppini*, said to be cultivated and used in the French tropical colonies. From past experiments it would appear that the plant will thrive in the southern districts of France, and that, going on the analysis of the tuber, it is desirable to encourage its cultivation as a vegetable.

Successive analyses gave the following results:—

Fatty matter ...	... 2·50	per cent.
Glucose ...	... 16·68	,,
Saccharine ...	... 1·67	,,
Not defined ...	... 4·35	,,
Gum and Pectic matter	... 16·05	,,
Albuminous subsances	... 5·78	,,
Starch ...	... 14·00	,,
Ash ...	... 4·26	,,
Cellulose, ligneous matter and loss ...	... 40·71	,,
	100·00	

The ashes are said to consist of sulphates, phosphates and carbonates; the weight of the potash 2·49, and of soda 1·34 per cent. "The tuber," says Mr. Heckel, the author of the article, "containing fatty substances, is rich in starch, glucose and saccharine. It certainly contains but little albuminous matter, but is, nevertheless, a perfect food."

The taste of the tubers, when cooked, are said to be agreeable and somewhat like salsify, while richer in alimentary equivalents. Fresh, the tubers contain 80 per cent water, but they dry and shivel up in a few days when they show about 75 per cent.

This esculent would be a close relative to our "innala," sometimes spoken of as "country potato" (*Coleus parviflorus* before *Plectranthrus tuberosus*) locally considered to be a very wholesome vegetable.

A MANUAL ON BEE-KEEPING.

Bee-keeping in the West Indies is the title of a useful little pamphlet issued by the Imperial Department of Agriculture for the West Indies. The author of the manual is Mr. W. K. Morrison who, writing in a popular style, gives the reader a deal of useful information on the subject. He recommends bee-keeping as particularly well suited to schoolmasters, and if only our village pedagogues will occupy their spare time in the manner suggested, we shall before long have springing up a rural industry—eminently suited to the tastes of the easygoing villager, and affording the cultivator's family (and himself between sowing and reaping) a remunerative means of livelihood.

Mr. Morrison settles the question of the variety of hive by saying "the Langstroth is an all round hive suited to any purpose."

As regards variety of bee the author tells us, "The Cyprian is likely to do well in the

West Indies, as also is the Syrian or Palestine bee which is closely related to the former. The latter can seldom be obtained in a pure state, and the choice of a race for the West Indies is practically limited to the Italian, which is also the one best suited to local conditions." And again, "A dash of Cyprian blood in the Italian makes an excellent strain of bees for work in a hot climate."

At present, however, it will be enough if the "mee-messa" (*Apis indica*), the only satisfactory honey bee of Ceylon and one capable of domestication, is taken in hand and kept in frame hives, and the hints given in the West Indian pamphlet followed as to procedure.

In previous numbers of the Magazine we have given a complete account of what has been done in the past in the way of bee-keeping, describing the different varieties of honey-makers and their characteristics.

An experiment in apiculture has been carried on at the School of Agriculture since 1900, with a view to "educating" the Ceylon honey bee; and the Director of the Museum and Government Entomologist have shown interest in the experiment.

We must not omit to mention that Mr. Charles Andreé, of Kurunegala, has kept bees for many years, and planned a special hive on the lines of the Langstroth hive, specially suited to the Ceylon bee.

BETEL CULTIVATION IN INDIA.

(*Continued.*)

In Bengal three varieties are cultivated, one of which (difficult to grow) is known as 'sweet betel,' and has a fine flavour and odour like camphor. There it would appear that the vines are grown on 'pandals,' but before being allowed to creep over them the creeping stem is pulled down repeatedly, and a portion is made to rest on the ground in a soil which is covered with a little earth, a few leaves being plucked each time. Pond-mud and other good mould is used for occasionally earthing-up.

In Orissa, we read, the plant reaches maturity in 12 or 15 months and yields leaves for 50 or 60 years. An acre is said to yield from £88 to £100 gross or a net profit of from £25 to £35.

In Ahmednagar betel begins to yield from the third year, and picking is carried on at intervals of 8 to 10 days. The vine is cut to the ground once a year, after which new shoots spring up and are trained on to the live supports—*Erythrina indica* (erabodu) or *Moringa-pteryosperma* (murunga).

In Kandesh the leaves are plucked with the aid of sharp-edged thimble-like plates which nip the leaves clean off without wrenching the plant. Then the leaves retail at 1 to 2 annas per 100.

In Poona where it is well-manured the vines last from 15 to 20 years. Every year the upper half of the vine is cut, while the lower half is coiled and buried under fresh red earth and manure.

In Nasih the acre yield is said to be worth Rs. 150 to Rs. 750 annually, but from Rs. 400 to Rs. 600 are often spent before the crop yields any return. Stunted shoots are said to give the best leaves, soft, smooth and full of flavour, while those on luxuriant shoots are coarse. Two kinds of vines are distinguished, one yielding quick returns, the other better and larger crops.

In Dharwar the vines are planted in the open on quick-growing trees, 2,000 to the acre, the crop last for from 4 to 7 years. Then the vines are dug up and the leaves of the supports are used as manure and the wood for fuel. After a catch crop of sugar cane for which the land is well prepared betel follows on.

In Kanara betel is allowed to run up mango trees.

In Thana the vines are started in pits $1\frac{1}{2}$ ft. apart, and when established are given 5 oz. of oil cake (generally mustard as castor is found unsuitable) and a second dose of $\frac{1}{2}$ lb. being given at a later stage.

In Kolaba the vines are manured with fish and yield a crop in the first year.

The ordinary fertilisers used in India are dried and powdered cowdung or dry soil from ponds.

POULTRY PICKINGS.

Considerable vitality has lately been exhibited in poultry-fanciers' circles. We have long known that there are amongst us a few poultry enthusiasts, and the names of Messrs. T. Sanmugam, Chapman Dias, and Dr. VanRoyen are well known among Ceylonese brid fanciers, who have for some time been devoting time and attention to the subject of the improvement of poultry. Now, however, the number of private individuals who are interested in this home industry is larger, and we know of one Government officer who is taking up the matter of improving the poultry of his province from his official standpoint. Under these circumstances it is not unreasonable to expect that some real benefit will accrue to the country.

The following is a resumé of the results of the Poultry Show held on the 13th August taken from the *Ceylon Observer*:—

The Brahmas exhibited were considered no quality at all and cocks and cockerels received no prize. Langshans also failed to come up to expectations. The four Leghorn imported hens exhibited were capital specimens and there was keen competition between Mrs. F. C. Loos (jr.) and Mrs. M. J. Cary, the former being awarded the prize. There was a fair lot of country-bred Leghorns. Mr. Geo. John, who was the chief competitor, carrying off the prize for hens and Mrs. Cary for cockerels. Dr. Thomas exhibited a very fine imported Minorca cock which carried away the prize from two others. Mrs. Loos and Mrs. Bowie divided honours for hens in this class. Mr. Seale got first prize for c. b. Minorca cocks with an animal which showed good quality, as also did the hens amongst which Mrs. Bowie's bird got the prize. The

cockerels and pullets in this class were very difficult to decide upon for prizes as they were a fine level lot. Amongst Plymouth Rocks the imported and country-bred hens were judged together owing to the paucity of entries in the former class and, of course, the two imported hens carried away first and second prizes. They were fine specimens of the breed, the country-breds also showing comparatively good quality. The cockerels and pullets exhibited included some fine imported birds which secured three prizes for Mrs. Bowie, Mrs. Haslop getting third prize amongst pullets. A showy Orpington cockerel exhibited by Miss Kendal Watson was considered a very fine country-bred bird and was awarded the prize in its class, while the same lady carried away the prize in the next class as well. There was a very fine class of Indian game fowls which were acknowledged to be of even better quality than those shown at the last show at "Temple Trees." The Maha Mudaliyar's prize for the best Indian cock was awarded to Dr. VanRooyen's exhibit which was considered to be one of the best bred birds hitherto shown. This bird was erroneously entered on the list as belonging to Mr. Jeffery. Mr. Serasinghe's exhibit won the special prize offered by Major Firminger for the best Malabar cock in the Show. Mr. Henderson won the Cup presented by Mr. A. Y. Daniel for the best Indian game hen with a fine specimen of its kind, Mr. Jeffery coming second. The pure-bred Indian game pullets and cross-bred cocks and cockerels were of a very poor quality and got no prizes. In class 39 there was a fine specimen of the Plymouth Rock in a sturdy cock, but no prize was awarded, as there was hardly any competition. There were two pairs of Bantams, but they were not in condition, although the spotted black and white pair were indeed a pretty set. The prize in this Class (41) was, therefore, awarded to two white silkies which were curiosities in their way. There was quite a number of curlies exhibited. No guinea fowls were exhibited, and the few ducks on view were of a very poor quality. This was amply compensated for by the exceedingly fine collection of geese, Mr. Jeffery getting the prize for a very shapely trio and Mr. A. Y. Daniel coming a close second with a pretty pair, one white and one dun. The pigeons shown were all in very good condition, including a pair of rare White Barbs which many considered should have got at least second prize instead of the Brown English. Mr. Daniel's pair of Maltese were a fine large pair, one white and one light brown

Miss Kendal Watson's fine black Orpington cock was awarded the Championship prize offered by the Lieut.-Governor, the bird being from eggs supplied by Mrs. Bowie, whose imported Plymouth Rock ran it close. Mrs. Bowie got the prize for the best hen in the Show with a fine Plymouth Rock.

Our local poultry fanciers are, however, not to be satisfied with occasional Shows, but have established a Society and are going to have a Journal, both which we sincerely trust will be well supported and together be a power for good. It is only by combined action of this kind that any real work can be established, and it is a pity that the various Committees appointed in connection with Cattle, Poultry and similar Shows cannot unite to form an Agricultural Society which is sadly wanted in the Island.

Eggs for hatching which have travelled, should always be placed on their large ends in bran or chaff, and allowed to rest for 24 or 30 hours before placing under a hen. When valuable hens are in question, use two hens and place half the eggs under each. Never overcrowd a broody hen with eggs; give her rather a less number than she can cover.—*Journal of Agriculture, South Australia.*

Where birds come from a distance the following rules should be strictly observed :—

(1.) Place in a warm, well-ventilated coop, and keep for, say a week till the brid has settled down and seems quite well.

(2.) Give water sparingly, and even then it should be boiled and allowed to get cold. A change of water is often provocative of disease.

(3.) For a few days feed on bread soaked in boiled milk. If milk is scarce make a sop of stale bread and boiling water; then squeeze out the surplus water and add a little hot boiled milk. Gradually feed ordinary food.—(*Ibid.*)

A USEFUL DISCOVERY.

According to the *Station, Farm and Dairy*, Dr. Anderson, of Minnesota, has made a discovery which promises to revolutionise the preparation of staple food stuffs. The starting point of the discovery was the peculiar action of Indian-corn under the influence of heat, resulting in the parched grain known commonly as pop-corn. Already he has succeeded in adding something like sixty different kinds of starchy foods, by popping not only Indian-corn and rice but also potatoes and other starchy food-stuffs. Having found that popping was due to the expansion of moisture inside the corn, he concluded that he had only to secure three factors—heat, pressure, and a sudden release of the pressure. The next step was to construct a steel cylinder to represent the envelope of the grain. Having placed a piece of raw potato in the cylinder, the receptacle was closed and submerged to an interior pressure of three or four atmospheres. Heat above 220° F. was applied for a time, and then the pressure was suddenly released, with the result that there gushed up from the cylinder a mass of snow white "popped" potato as light as pith. This product can be compressed for transport and restored by soaking to prepare it for consumption. The treated stuffs are found to embody many advantages lacking in the original products, being delicate, soluble, digestible, and nutritious. Flour and water treated in the same way popped into "full-fledged biscuits" as light as feathers and free from fermented leavening so objectionable to weak digestion.

This so-called discovery proves what observation and thought can do. Popped corn, rice and potatoes steamed in their jackets are all familiar enough, but so long no one has seriously observed the conditions under which these delicate and digestible products were produced and the possibility of acting upon other starchy food stuffs—free from an enclosing membrane or jacket under similar conditions.

A word as to the value of popped Indian-corn and other grains. Medical men have by experience found that such products are digestible and nutritious, and prescribed them as a suitable diet for children, just as they would prescribe extract of malt, possibly owing to the fact that the change resulting from "popping" were similar from a chemical point of view to malting. In a lecture on Native Food Stuffs of Africa by Mr. Open, administering the Agricultural Department, Rhodesia (we quoted from his lecture in our last issue), the peculiar sustaining power of popped Kaffir corn or sorghum is referred to and instances given of its value as a diet under trying circumstances. Mr. Open there says, "I am sure there is considerable chemical change in the parched and burst grain, and that analysis would easily show the reason of its nutritiousness." We have no doubt that with the developements in the direction of preparing starchy foods similar to popping grain, the chemistry of the process will be soon made clear.

NATURE STUDY LESSONS.

FIRST COURSE IN THE STUDY OF PLANT LIFE.

(Continued from August Number.)

THE LEAF.

Leaves differ greatly in size, shape and other characters, but most leaves agree in having a more or less thin, flat green portion called the blade. This blade is in some plants connected to the stem by means of a stalk as in the croton; in others the leaf stalk is absent as in screw-pine (Wetakeyia). In addition to these parts some leaves bear at the point where they join the stem a pair of leafy structures which may be very small as in the shoe-flower (Sapatumal), or large and leathery as in the bread fruit which drops them as the leaves expand. These are called stipules, and their function is considered to be the protection of the leaf buds or young leaves before expansion. Notice in the plantain tree how the young leaves are for protection rolled up in the hollow stalks of older leaves. The protection of le f buds by scaley leaves is seen in the grape vine (Mudarapalam), and in the underground stem of ginger (inguru). Some leaves are thick and fleshy as bowstring hemp (Neyanda). An onion bulb consists of a mass of succulent leaves closely packed round a tiny central stem. Here we have an instance of leaves storing food for the future use of the plant, as the swollen stem of the potato and the thickened roots of radish do.

On the surface of leaves are certain markings due to the presence of tougher structures running through the leaves. These are called veins, but unlike the veins in our body, which are hollow structures for the conveyance of blood, the veins of a leaf are solid. The principal vein which generally intersects the leaf into two equal parts is called the midrib. When this midrib is elongated or developed as in the mango, we get leaves of the pinnate or feather type, with veins branching out from it. When the midrib is contracted or undeveloped we get leaves of the palmate or hand type, as in the papaw (pepol), in which the veins seem to spread out like the fingers of the hand. There is a large class of plants in which the veins branch to form a kind of net work, as in the orange (panidodan), and another large class of plants in which the veins run parallel to one another as in the plantain. In some plants—ferns (meemana)—there is a peculiar forked arrangement of the veins. These arrangements of the veins help us to classify plants.

Notice in *Glorioso superba* (Niyagala) how the midrib of the leaf is extended to form a hooked structure which enables the plant to support itself; this being another of the special arrangements for helping the plant to grow upwards.

The surface of a leaf may be hairy as in *Coleus aromaticus* (Kappra walliya), and sometimes these hairs are of a stinging nature owing to an irritating fluid they contain, as in *Laportea cremulata* (Ma-ussa). There are also smooth leaves as those of domba.*

We have leaves of almost every shape—compare the heart-shaped leaf of *Colocasia* (Gahala), the kidney-shaped leaf of *Hydrocotyle* (Gotukola), the needle-like leaf of the whip tree (Casagas) the round leaf of the lotus (Olu) and so on. But leaves vary also according to the extent and the manner in which they have been cut into. Compare the entire leaf of the jak with the irregularly cut leaf of the bread fruit or papaw. Note that a leaf which consists of one blade, no matter how much it has been cut into, is a simple leaf. But leaf which has been divided up into distinct parts (leaflets), each of which constitutes a secondary leaf (bearing the same relation to the midrib, as the leaf does to the branch) is a compound leaf. Take a rose leaf and see how it consists of distinct leaflets. Examine a tamarind (Siyambala) leaf and see what you can learn from it in this connection.

A very strange form assumed by the leaf is the pitcher-like structure in the pitcher plant (bandurawel), but of this and other insect-eating plants such as the *Drosera* (wata-essa) I shall have more to say in another lesson.

You will also learn something of "seed leaves" when I come to speak of seeds.

THE FLOWER

I have told you that everything borne by the stem is a leaf or a modification of a leaf. Now the parts of the flower, you may be surprised to hear, are also modifications of leaves.

* In this connection notice the prickles on the surface of the leaves of the wild brinjal (Katuwalbatu.)

A perfect flower, that is one which has all its parts, such as the shoe-flower, may be said to consist of four distinct kinds of leaves. The outermost and lowest of the flower leaves form the calyx, which consist of small green structures (the sepals) like little leaves. Sometimes, as in the shoe-flower, we find an extra growth outside the calyx; this is called the epi-calyx, which is not commonly found. The flower leaves next to the calyx are the petals, which together constitute the corolla, the coloured and showy part of the flower. The calyx and corolla together may be called the protective organs of the flower since they protect the more important and essential parts of the flower which are within them.

The third series of flower leaves found next to the petals are the stamens in which you will still be able—as in the case of the calyx and corolla—to trace the original outlines of leaves. The stamens consist of delicate stalks supporting a two-lobed structure corresponding to the blade of a leaf. Inside the two lobed structure or anther is a yellow powder—which is shed when the anther is ripe—called pollen. You will see later on that this yellow powder is of the greatest importance in the formation of seeds.

The last and innermost series of the flower structure is the pistil. It is not easy to recognise the leaf here, but with a little trouble you will be able to do so. The pistil consists of a more or less hollow structure below, containing what may be called seed buds or ovules which afterwards become seeds. Alone, it consists of a style or a delicate stalk holding up the stigma, or the part on which pollen is shed. The stigma is generally either sticky or hairy in order to catch the pollen grains.

There, you have a general idea of the flower, and what you should now do is to examine as many flowers as you come across, and see if you could pick out the different parts you have been told about.

Remember that all flowers are not perfect. There are flowers that have only one of the protective organs, as you will see if you examine the tube roses in your garden. Some flowers have stamens and no pistil, as you will find in some of the flowers borne by your bitter gourd (Karavila) or Luffa (Vetakolu) creepers. Again some flowers have only the pistil without stamens, as in the large-flowered papaw. As minor points note that the stalks of the stamens may be missing as in temple-flowers (araliya), or the style may be wanting as in the papaw flower referred to above.

I must tell you of another leaf-like structure which is sometimes found on the stalk that bears the flowers. This is the bract, which is sometimes green, but more often brightly coloured or white. When large and enclosing a collection of flowers it is spoken of as a spathe. Carefully examine the coloured bracts of *Poinsettia* and Bougainvillea, for which there are no vernacular names; but they are common enough in gardens. The spathes of the coconut and arecanut palms are familiar enough, while some of you may have seen the white spathe of the garden caladium and the large showy spathe of the arum lily which grows upcountry.

THE FRUIT.

In speaking about the various parts of the flower I made mention of the ovary. True fruits are formed by the developement of the ovary, and when mature they contain one or more seeds which are nothing more than the ovules that have undergone certain important changes to be referred to later on.

You can watch the growth of the ovary into the fruit in your own garden in the bandakka or brinjal plant, and note the changes that take place.

Observe that some fruits are more or less dry and others are succulent. When the bean is mature it is dry, but a ripe orange or mango is quite succulent.

Some fruits are of a very simple structure. In the bean, for instance, you can distinctly trace the leaf structure. The pod may be said to consist of a leaf with its margins united, so forming a hollow body in which are contained the seeds. In the mango we can distinguish three layers in the structure which contains the seed: (1) the skin, (2) the pulp, and (3) the hard portion wrongly called the seed. The true seed of the mango is what is contained inside this so-called seed. The orange is not so simple in structure; it consists of a number of chambers, each of which has a few seeds imbedded in the succulent matter that is the portion that is eaten. The pineapple is still more complex in structure; it is called a compound fruit because it results not from one but many flowers. You should notice the pineapple when it is in flower and see how a large number of flowers take part in the formation of the fruit. But the pineapple is a very strange fruit, for the stalk which bears the flowers and parts of the flowers beside the ovary, also help in the formation of the fruit, and what is most peculiar is that there is a crown of leaves borne on the flower-stalk where it comes out at the top. The jak and the breadfruit are also compound fruits of somewhat similar structure to the pineapple.

The coconut resembles the mango in structure though not in shape, size, &c. Instead of a succulent outer covering we have a mass of fibre, but like the mango we have an inner shell. The edible portion of the coconut is therefore the seed. Paddy is a very simple fruit with a dry scaley covering, and rice is the seed.

You should notice that some fruits spring from below the flowers, while others spring from above it. In the guava the fruit is formed below, in the orange above the flower. Thus we speak of inferior and superior fruits.

Some fruits when quite mature split open, so that the seeds may fall, this is seen in beans. Others, like the mango, do not split. Most dry fruits split open while succulent fruits do not, but in the nutmeg you have a more or less succulent fruit which splits open.

There is still more for you to learn about fruits later on.

THE SEED.

You have some idea now of what is a seed. You know that it is formed from the ovules found within the ovary, but you will naturally

ask what makes the difference between an ovule and a seed? The chief difference is that the seed contains a minute plant called the embryo, and the ovule does not. This minute plant is formed in the ovule as the result of a process known as fertilisation, that is the influence of the pollen of the stamens upon the ovary of the flower and the ovules within it, resulting in the ovary and its ovules being transformed into fruit and seeds.

A seed may be said to consist of the following part:—(1) a seed coat, inside which are contained (2) the embryo or minute plant with a very minute stem and root and one or two seed leaves called cotyledons, with (3) a store of nutriment for the developement of the young plant in the earliest stages of growth and until it can supply food for itself. A seed may be compared to an egg, which also has a shell, a little embryo, which develops into a chicken, and a store of nutriment consisting of the red and white parts of the egg.

When the seed is put into the ground, under favourable conditions, it develops a young plant, just as an egg by the process of "hatching" produces a chicken, both having developed from an embryo nourished by the store of nutriment supplied to them. Some seeds are large as in the coconut, others are small as in paddy or mustard. Seeds vary much in colour and are sometimes mottled as in the castor oil. Seeds are smooth as in bandakka or hairy as in cotton. But all these differences you can observe for yourselves, and it would be very interesting to make a collection of seeds and note how they differ. The store of nutriment provided for the nourishment of the embryo is what gives value to all cereals as food, (just as it gives value to the egg as an article of diet) whether it be wheat, oat, barley, paddy, Indian-corn, beans or other kind of seeds. This nourishing portion is what has been provided for the development of the young plant, but which man appropriates for his own use.

TANNING MATERIALS.

Ceylon, like India, is rich in tan-producing trees, and Mr. D. Hooper's list of Raw Stuffs containing tannin with notes on their composition, &c., (*Agricultural Ledger*, No. 1 of 1902) deals with many trees common to both countries. The notes contain valuable information, and we therefore reproduce those of special interest from a local point of view. Allowance has, of course, to be made for different localities, for it is well-known that the proportion of tannin varies considerably in samples obtained from different places. Still the information given is a fair indication of the utility of local tan-producing trees.

In the following table the highest percentages obtained in examination by analysis of tanning materials is given:—

Terminalia chebula ...	...	Wood	28·6
Rhizophera mucronata...	...	„	26·9
Ceriops Candolleana ..	...	„	26·2
Cassia auriculata ...	...	„	23·0
Ceriops Roxburghiana...	...	„	19·2
Acacia dealbata ...	...	Wood	17·8
,, arabica ...	...	,,	16·7
,, leucophlea ...	...	,,	16·2
Brugniera gymnorhiza...	...	,,	16·2
Bridelia retusa ...	...	,,	15·9
Kandelia Rheedii ...	...	,,	12·2
Casuarina equisetifolia	...	,,	11·1
Cassia fistula	...	,,	9·5
Acacia catechu ...	...	,,	6·8
Pterocarpus marsupium	...	Bark	5·4

Terminalia chebula (Sin. Aralu).—The fruits of this tree, well-known as chebulic myrobalans, are a valuable tanning agent. They are collected largely and exported to Europe. The dried fruits are extremely rich in gallotannic acid and require no preparation except powdering or crushing in a mill. Some recent (1900) analyses by Dr. Leather of samples from different parts of India indicate that the tannin present varies from 31 to 43·74 per cent.

The fruits should be collected before maturity, otherwise there is apt to be variation in their strength. The oblong pointed solid fruits are much superior to the round and inflated ones. The astrigent principle lies in the outer pulp of the fruit, the stone-like kernel containing hardly any. (This is a fact that does not appear to be recognised locally.) The fruits are not liable to deterioration, so that it is more economical to export them in their natural condition. The extract (varying from 57·87 to 59·47) made in open pans tends to absorb moisture and to ferment when exposed to the air. It would therefore not be satisfactory to prepare a tannin extract from myrobalans, unless made with skilled appliances. (The preparation of such extracts will be described later.) A factory with vacuum pans has lately been established in India.

The bark, too, provides a valuable tan. In young trees the proportion of tan is about 33·0, not much inferior than in average samples of myrobalans.

The true galls found on the leaves and twigs are used in the preparation of ink.

Terminalia belerica (Sin. Bulu).—The fruit is a commercial article under the name of Beleric myrobalans, but it is inferior to the chebulic variety. Examination of different samples showed that the percentage of tannin varied from 5 to 17·4. The nuts are used in the adulteration of ground chebulic myrobalans.

Terminalia catappa (Sin. Kotamba).—The bark of leaves of the country almond give a black dye with salts of iron. Wardle in 1887 separated 9 per cent of tannin from Madras bark. (We find no reference made to the highly astringent character of the "husk" round the fruits.)

Terminalia Arjuna or glabra (Sin. Kumbuk).—The bark is astringent and is occasionally used for dyeing and tanning. Specimens examined yielded from 8·6 to 16 per cent tannin, giving a blue-black colour with ferric salts. The tannin in the fruits would seem to be very variable, ranging from 1·38 to 9·6 per cent,

Terminalia tomentosa.—The percentage of tannin varied from 5·7 to 13·6; that in the fruit from 4 to 5·9 per cent. The extract is said to be

too dark necessitating decolouration before condensation in a vacuum.

Anogeissus latifolia (Sin. Dawu).—The leaves and bark of this tree are astringent, a specimen of Madras bark yielding 32·5 per cent, and of leaves 15·5 per cent of tannin. The sale of dried and powdered leaves has been suggested.

(To be continued.)

THE PACKING OF FRUITS AND SEEDS.

BY J. H. HART, F.L.S.,

Superintendent, Royal Botanic Gardens, Trimidad.

(Concluded.)

(2.) SEEDS.

Some people are under the impression that the Botanic stations maintain seed shops, where any kind of tropical seed can be purchased in the same way as from seedsmen in temperate climates. It is not so. There are very few tropical seeds indeed, which can be safely kept for more than a month, a great many which cannot be kept more than a week, and not a few whose vitality is destroyed in one or two days if not properly cared for. Thus, a seed shop under European conditions for tropical seed is impossible.

Tropical seeds possess for the most part a very fugitive vitality, and are easily destroyed by an excess of either drought or moisture; but more quickly by the former. Even if left exposed to air, the humidity of which is generally high, they suffer largely, but if in a position where the alternations of dryness and humidity can affect them, they are destroyed in a very short time.

Proper methods have therefore to be devised to keep them in a suitable state until they reach their destination.

Such seeds as mango, cashew, nicker beans, some palms &c., can stand a large amount of hardship and will keep for a long time, and may be packed in bags or boxes for transit. It is quite a different matter, however, with seeds of *Artocarpus, Brosimum, Amherstia, Castilloa, Hevea, Cynometra,* &c., &c. Such seeds must be preserved in a suitable medium to keep them in good condition and preserve them for any length of time either in hand or on a journey. The best medium found so far, is the fine dust or short fibre from the interior of the coconut, commonly called coconut refuse. This material is the lightest that can be employed and answers well for almost any kind of seeds. It is especially suitable for packing in tins for transmission by post.

Another material which has been successfully used is weathered charcoal dust. New or unweathered charcoal dust is just as bad for packing seed as weathered dust is suitable, on account of its caustic character and the amount of moisture it will absorb from seeds packed in it. A danger with both materials is, that spores of certain fungi get into them and destroy the seeds they cover.

Packing for delicate seeds should not be too dry or too wet, but a happy medium between the two, just sufficient to prevent the seed losing moisture and insufficient to start it rapidly into growth. On the whole it is better that seeds should germinate on the way than be kept too dry, provided the process of growth does not reach beyond a certain stage.

Experience teaches that greater success is met with if seeds are started on their journey as soon after harvesting as possible, and not kept a day longer than is necessary. If only required for home use, they are best sown as soon as possible after being gathered.

There is another danger to which even the hardiest of our seeds are subject, and that is, the attacks made upon them by ants, weevils, and other small insects. Seeds which have suffered in this way are often to all appearance perfectly sound, but a close examination will generally show that the germ or growing part has been entirely destroyed. The seed is therefore useless.

Persons living in temperate climates, with no experience of the tropics, can hardly believe that seeds cannot be dealt with in the tropics as in temperate climates, viz., gathered, cleaned and placed in a "dry drawer" until required. Proof that imported seeds will not keep is to be found in the universal complaints of the bad quality of the seeds which are on sale. Many trials of freshly imported seeds have been made at Trinidad. As a rule, they have been found to be good on arrival, and to lose vitality exactly in proportion to the time allowed to elapse since they were imported.

Peas, which on first arrival showed a germination of 98 per cent, kept for one month in a dry drawer will have their vitality reduced to 40 per cent, and in three months' time not 10 per cent will germinate. Other kinds of seeds are affected in a similar way. If the period of test, however, happens to be in the dry season, vitality will be found to be more persistent.

These facts were recognised many years ago and have been met, by ordering periodical supplies at frequent intervals. Seeds can be kept for a greater length of time if they are imported in packages which have been sealed in dry air in the temparate zone and only unsealed as required. The best packages for seeds are small tins opening readily with a thumb piece, like Huntley and Palmer's biscuit tins, or the tins used for packing Capstan tobacco.

Continental seedsmen adopt new methods quicker than English traders. The latter do not appear to exert themselves to keep the West Indian trade.

The transport of seeds should always be made by the quickest route and by parcel post, where possible. Consequently they should be put up in light and handy packings.

SWEET POTATOES.

The West Indian Department of Agriculture are giving some attention to the growing and preserving of Sweet Potatoes. We feel sure that a good deal can be done to develope and

encourage the cultivation of this useful tuber in Ceylon. Most people associate the sweet potato with the Southern Province, where it is extensively and successfully grown; but few are aware that the tuber reaches the height of perfection in the Hanguranketa district. On a recent visit to this part of the country—eminently suited for vegetable and fruit culture—we had an opportunity of seeing for ourselves how the "batala" grows there. Two vines dug up at our request but quite at random, gave two potatoes which together weighed 10 lbs., or approximately 5 lbs. each, but we were informed on reliable authority that 8 lbs. as the weight of one yam was by no means uncommon. What is a noteworthy fact is that these boulder-like masses are on cooking as soft and mealy as could be wished, and practically contain none of the fibrous matter that so often spoils the flavoury tubers of the South. On the spot the price during the season is only one cent a pound, so that here is an opportunity for any one with an eye to business working on the lines adopted in Antigua for preserving the sweet potato in some form for future use. Mr. Spooner of that town is reported to have made many tons of meal, preparing it by slicing the potatoes in a chaff-cutter and drying them in the sun (as is done in Japan) on wire-netting —the drying being completed in about 8 hours. One ton of potatoes of this method yielded 910 lbs. meal at the cost of about £4 10*s*. per ton of meal produced. Dr. Voelcker, who analysed the product, found it had the following composition:—

Moisture ..	11·99	per cent.
Nitrogenous matter	5·12	,,
Oil	1·19	,,
Sugar	9·90	,,
Starch and Carbohydrates	67·01	,,
Woody fibre ...	1·89	,,
Mineral matter ...	2·90	,,

As regards the keeping qualities of the meal, we read that it was stored in tins for twelve months, after which time it was found to be quite good. We understand that another use to which sweet potatoes are put is for making spirit, which is shipped to Portugal for fortyfying wines. As regards meal, we fancy that the cost of production would be much less in Ceylon if the poorer Kandyan families can take up the preparation which, so far as we know, is not known among them, though Cassava and other meals are commonly prepared.

A good deal has been written about a banana meal industry for Ceylon, but though a sample, prepared by Mr. Chas. Stouter of Anuradhapura, gained a Gold Medal award at the Paris Exhibition of 1900, we understand that the price offered for the meal by probable dealers to whom samples were submitted both in Paris and London, was by no means encouraging. An analyses of Mr. Stouter's Plantain Meal has been given by us in a previous issue. The interest in the question of commercially manufacturing this product has evidently not altogether abated, as we learn that an enterprising gentleman is giving it his serious thought. To him we would commend for his consideration the cognate qestion of profitably manufacturing Sweet Potato Meal, than which we cannot think of a more suitable diet for children. An excellent way of preparing the potato for the table is first to boil, then slice and toast.

We hardly think there is room for improvement in the Hewaheta potatoes referred to above. Some time ago we imported tubers of what was described as one of the finest table varieties of America, but the product of their cultivation was by no means superior to the local article.

DIRECTIONS FOR HARVESTING THE TOBACCO CROP.

Tobacco plants are usually twenty-two weeks in maturing from the time of transplanting; and for four to six weeks after topping, when ready for cutting, the leaves become thick and brittle, and will crack when doubled between the finger and thumb. They also exhibit mottled yellow spots.

It is always wise to allow the plant to ripen thoroughly, as the quality is much improved by so doing and the weight much greater; the colour also is better and more uniform. The process of cutting is performed by splitting the stalk with a tobacco-knife down the centre to within 8 or 10 inches from the bottom, without cutting off the leaves.

The stalk is then severed close to the ground. The plant is better left with the butt up in the sun for an hour or two, according to the heat of the sun, when it becomes toughened or wilted, and can be handled without fear of breaking or bruising. Tobacco should never be cut directly after rain, or when it is wet from any cause. After heavy rain it is wise to allow at least one fine day to intervene before harvesting, to allow the nicotine to again accumulate. After tobacco has been well wilted, it can be placed in piles of five or ten plants, one directly above the other, until the cart is ready to take it to the scaffold or shed. In good fair weather the better plan is to hang the plants on the scaffold, first putting them on small sticks about four feet in length by opening the split stalk and hanging the plant across them. It is a mistake to put the plants too closely on the stick, the best guide as to distance being to allow the breadth of the hand between the butts at the top of the stick. The stick, containing eight or fourteen plants according to size, is then hung on the scaffold, allowing about ten inches of space to separate them. When the tobacco begins to colour a nice yellow or light brown, which usually occurs in this climate in seventeen or eighteen days, it should be removed to the shed. If the tobacco is to be cured by open fires, close your sheds up as soon as all the leaf begins to colour well, and keep your fires going in pits in the floor, keeping a low degree of heat, say 70 to 80 degrees, after which raise the heat slowly until at the end of two days you have reached 125 degrees, after which you can safely go to 125 degrees. The tobacco must be carefully watched until the midrib of the leaf is dry two-thirds of the way down, then the fires can be withdrawn and the shed will

cool. The tobacco will then absorb a certain amount of moistnre and become soft, and the colour will become regular. If wet weather should come after this process is finished keep small fires in the shed to maintain an even temperature. More tobacco is spoilt by too fast airiug than too slow, and care should be taken to see that the tobacco does not get wet or poleburn while the drying process is going on. If such should occur, open up the shed at once to allow free circulation of air, and when the sweating stops go on with the fires. The system generally followed by growers in Victoria is that for air curing is open sheds with the aid of little firing. The shed is covered rouud with hessiau, which is rolled up during fine weather, and the air allowed to get through the tobacco.

Directly wet weather ensues the hessian is dropped, the shed closed as close as possible, and small fires lighted in pits to keep out an excess of moisture.—*Victoria Agricultural Journal.*

GENERAL ITEMS.

In Germany the regulations of the Meat Inspection Act of 1900 are of the strictest, and prohibit the use of boracic acid and its salts, formaldehyde or formalin, salicylic acid and its compounds and other less known substances; but in England the Committee of the Local Government Board have allowed the use of boracic acid and its compounds iu fresh and cured meat, butter, &c., (equivalent to 5 per cent boracic acid) and one grain per lb. or pint of salicylic acid except for milk, cream, and butter and infants' food. The presence of salicylic acid where used must be declared and the use of formalin is condemned.

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A Mr. Swinle is reported (by the *Chicago American*) to have produced (aud to be able to reproduce always) water melons up to 20 lbs. weight, which do not contaiu a single seed.

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The Arseuite of Soda, the *Queensland Agricultural Journal* states, that the Principal of Hawkesbury Agricultural College has found a solution of one lb. of the chemical to eight quarts of cold water very effective, the spray killing every living plant on the ground, on which nothing was able to grow for quite a month. So that for keeping garden walks, tennis courts, &c. clear of weeds, nothing could be better.

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The *Journal of the Jamaica Agricultural Society* refers to the "Lawtou Process" of fruit preserving as a decided success, and states that delicate fruit (such as bananas) could now be carried from the ends of the earth to London with safety.

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Here are some useful hints for thrifty housewives:—

(1.) *Ink Stains.*—Ink stains are very easily removed if put immediately in milk and slightly rubbed for a few minutes. If allowed to dry, they are not so easily removed, but can be by a little more effort.

(2.) *Blood Stains.*—Blood stains can be removed from an article that you do not care to wash by applying a thick paste made of starch and cold water. Place in the sun, and rub off in a couple of hours. If the stain is not entirely removed, repeat the process, and soon it disappears.

(3.) *To remove Mildew.*—Soak and wash the spots in sour milk and you will have no trouble in removing the same.

(4.) *Fruit Stains.*—Hold the goods stained over a vessel in such a way that pouring boiling water on the opposite goods, and in a short time the stain will be seen to disappear.

(5.) *Iron Rust.*—Place a bright tin, pour over a kettle steamiug with boiling water, moisten the goods with water and hold the iron rust spots closely to the tin and rub them with oxalic acid. As soon as you see the rust disappear rinse in cold water to remove the acid, as it tends to rot the goods, but if the process is performed quickly there is no danger of this.—*Queensland Agricultural Journal.*

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The following facts from the *Sunday Times* are calculated to make one pause and think a little about the complexity of that wonderful machine, the human body:—"Every time the heart beats a small tumblerful of blood is passed from one of the chambers of the heart towards the lungs to be purified; at the same time another tumblerful of purified blood leaves the heart to travel through the system. As the heart beats 72 times a minute, it thus deals with about 3 gallons of blood iu that brief space. The body contains roughly 70,000,000 pores which are always giving out moisture, though this may not appear as beads of perspiration. During hot weather or when laborious work is being done, the moisture given out varies between a piut and a quart a day. Every square inch of the body bears a pressure of 14 lbs., or a total of about 29,000 lbs. on the entire body. Every meal we eat traverses a jouruey during digestion and assimilation of about five times the height of the human body. This fact should be sufficient to persuade agaiust over-feeding aud over-taxing the digestive organs.

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PLAIN TALK TO SMALL OWNERS IN WEST INDIAN ISLANDS.*

By His Honour F. H. Watkins, Commissioner of Montserrat.)

IT is my intention this afternoon to speak on one or two matters of interest to those connected with agriculture, and especially to small owners and those engaged in the development of what are called 'minor industries.' I cannot speak with deep practical experience, but there are points which must strike anyone who moves about Montserrat with his eyes open and who reads what is passing in the outside world of agriculture. My address will therefore be composed largely of notes prepared from the valuable publications of the Imperial Department of Agriculture for the West Indies, the United States Department of Agriculture, the Department of Public Gardens and Plantations in Jamaica, and other reliable sources, confirmed by personal experience and observation.

Importance of Good Seed.—While many of the dangers to crops cannot altogether be avoided, it may be possible, with care and foresight, to keep clear of some which are commonly unnoticed. One of the most important considerations at the outset is to secure reliable seed of good varieties of plants. As I have ften said, and inferior variety requires, as a rule, more care and attention than a better and more vigorous variety, while the difference in the sale of produce of he two means, in many cases, the difference between profit and loss. Good seed is absolutely essential to successful cultivation. Efforts should, moreover, be made gradually to improve your crops, by careful selection. A Canadian farmer, by careful selection extending over a number of years, has gained a world-wide reputation for the quality of his seed and is able to dispose, at fancy prices, of a large crop for seed purposes alone. On the other hand, a leading planter in Antigua, by having inferior onion seed sent him by mistake lately suffered a large loss. *Be sure to ask for the best seeds and varieties, and insist upon obtaining them.*

Value of the Soil.—Every farseeing landowner bears in mind that his land is so much capital. Every crop taken from the land removes certain substances from the soil. If you desire to continue to derive full benefit from the land, you must feed and replenish the soil, otherwise you will be living on, and eating up, your capital. Too little importance is attached to this essential matter especially by those working provision grounds. 'Nature,' as has been wisely said, 'is a strict accountant; and if you demand of her, in one direction, more than she is prepared to lay out, she balances the account by making the deduction elsewhere.' You must, therefore, feed, or, in other words, manure and fertilize the land.

Class of Manure.—Manures may be divided into two classes:—

(*a*) Complete manures, which contain everything which the crop requires.

(*b*) Incomplete manures, containing certain ingredients and constituents required by particular crops and soils.

Here, the nutritive requirements of the different crops and soils have to be considered, and the small owner would do well to obtain the advice of those with experience of manures.

Estate Yard Manure.—Of complete manures by far the best is ordinary estate yard manure. Nothing better can be wished for when it is properly made and can be obtained in sufficient quantity. Not only does it contain the ingredients required by every crop, but also a large quantity of valuable organic matter, which in addition to its value as plant food improves the general condition of the land, opening up stiff soils to admit air, and helping to conserve moisture in light soils.

Green manuring.—Peas, beans, and other leguminous plants have the power, which most plants have not, of taking in the nitrogen of the air and building it up into substances of great value to plant life. When

* (*From Imperial Department of Agriculture for the West Indies.*

such plants are dug in they decay and add this nitrogenous matter to the soil, and thus to future crops. This is one of the cheapest ways of enriching the soil. Many people having stock, turn the cattle into the field when the green dressing is ready and apply, with advantage, the manure thus obtained to the land.

Value of Lime in Manuring.—Although I have advised you, in the case of incomplete manures, to obtain expert knowledge as to their application, a few words on the use of lime in agriculture may be in place. Lime is of value directly and indirectly. Directly, it supplies a necessary element of plant food in soils deficient in lime; indirectly, it unlocks the unavailable potash, nitrogen, etc., in the soil. It also exerts influence on the mechanical condition of soils, rendering heavy soils loose and binding together loose soils. Care should, however, be taken in its application, for, used alone, lime, in most cases is rather a stimulant than a fertilizer. There are two old sayings, 'Lime makes rich fathers but poor sons,' and 'The use of lime without manure makes both farm and farmer poor.' It should always be used together with other necessary manures and fertilizers, and infrequently applied small quantities rather than in large quantities at long intervals. About 3 cwt. per acre every year would be sufficient as a rule in Montserrat.

Crops.—Commercially considered, crops may be divided into two classes:

(*a*) Those for home consumption which do away with the necessity of importing food. These may be termed our 'Agricultural Defence Force,' for they enable the labourer and, in fact, everyone, to save money.

(*b*) Those for export, constituting our 'Attacking Force' which will enable the island to make money.

FOODSTUFFS FOR HOME CONSUMPTION.

'Avoiding unnecessary expenditure is one of the ways of increasing capital. Sufficient consideration has not been paid during the past, in Montserrat, to growing foodstuffs for home consumption. In a valuable paper by the Hon. F. Watts upon the food supplies of the Leeward Islands, (*West Indian Bulletin*, Vol. 1, pp. 270-280), it is pointed out that the value of foods, exclusive of liquors imported into the Colony in 1898 was £132,728, an amount larger than the revenue of the whole of these islands.

It is admitted that a quarter of these imported foods might reasonably be replaced by home-grown produce. It is well worth while to turn some attention to those vegetables and foodstuffs which can be stored and put to use at times when both employment and provisions are scarce and when we have to rely upon articles of food imported from other lands. Among those which will keep I shall deal with yams, farine, and corn.

Yams.—The Government has recently introduced from Antigua and Barbados good varieties of yams. Last year about a quarter of an acre (between two and three 'tasks') was planted in yams at the Chateau or Hospital Garden. Nearly 27 barrelsful were reaped, containing about 130 lb. each, or 3,510 lb. in all which at ½d. per lb. means a gross return of £28 per acre. The land had been carefully dressed and manured and was rich. When reaped they should be kept dry with plenty of air passing around them. A dusting of slacked lime is at times useful. A ready market is found for yams in Trinidad and elsewhere, but even if they are not sold, they are useful in the months of scarcity and want of employment. Care should be taken to plant the different varieties apart, especially the long thin yams which are more suitable for baking. Several barrels of white eddoes and tannias, which are highly appreciated in Barbados, have also been obtained for distribution.

'Farine.'—Efforts have been made to teach people how to make farine from the root of the cassava plant because it can be stored—a property not belonging to cassava roots. Farine will keep for months or years, and in Dominica and St. Vincent nearly every labourer has his barrel of farine which comes in useful about the middle of the year. There are numerous ways in which this valuable meal can be used as a food. All that is required for its manufacture is a small pan or copper, one of which has recently been erected at the Hospital Garden. Instruction to about fifty people in the manufacture of farine has been given at the Experiment Station at the Grove and elsewhere during the past year.

Maize.—Many persons grow maize or what is called native corn. Recently I bought 7 barrels of corn, on the husk, for 21 shillings. When shelled they gave 65 gallons, or rather more than 8 bushels, equal to 4 bags of American corn which is now selling at 10s. a bag. I thus saved more than 20s. besides retaining the cob, which, ground with the grain in a suitable mill, adds largely to its nutritive and digestive properties. The great objection raised by people to the more extensive cultivation of native corn is that it will not keep. I am of opinion, however, that with care and attention native corn may be preserved much longer than is usual in Montserrat. One or two hints may be of use.

(*a.*) Never pick corn on a wet day nor, if possible, until after the sun has shone upon it some hours.

(*b.*) The common practice of gathering and storing corn with the husks still enclosing the ear is advocated by many from a belief that the husks serve to protect the grain from the attacks of insects. The insects most destructive to stored corn are the grain moth and several weevils, and, as the corn may be infested by these insects while still in the field, there is little to support the idea that the husk serves as a protection. It is like shutting the stable door after the horse has been stolen. The husks add to the bulk of stored corn, afford little protection from insects, and provide the best of hiding places for rats and mice. Most of the corn has to be husked before it can be used. Husking can be done more rapidly while the corn is being gathered than at any other time, and, under ordinary circumstances, it is the best time for doing the work.

(*c*) When it has been gathered and husked, it should be put into boxes or barrels of which the bottoms and sides are perfectly tight or hermetically sealed, and treated with bisulphide of carbon to kill the insects. If thoroughly dry, when brought in from the field, it may be thus packed for several days without fear of heating and moulding, and if treated with bisulphide of carbon it will be secure from insects for some months. One to three pounds of the liquid will be found sufficient for 100 bushels or 50 bags, and it costs about 1s. per lb. The process is to pour the liquid over the grain and to cover all over closely with tarpaulin or sacks. Special care should be taken not to allow lamps or lights of any kind near the building where it is used, until the odour has disappeared, which will be from 3 to 6 days after the application. Seed corn should not be treated for longer than 24 hours; the box should then be opened and the vapour allowed to pass off. I have already spoken to you of the importance of carefully selecting the seed. The usual custom is to sell the best cobs, reserving the worst for seed purposes. Carefully go through your corn and select the largest and most vigorous cobs, and a great difference in the yield of your future crops will be the result. Opinions differ as to whether the best and most vigorous seed is to be found at the top or bottom at the cob. It would be an interesting experiment if you were to cut some cobs in two, separating the seeds at the bottom from those at the top, to plant them in two plots of equal size and notice the difference in yield, if any. It would be well for the small owners of a district to combine and purchase a corn sheller and also a corn mill. A corn mill would cost about £1 5. 0. to £1 10. 0. landed, as would also a corn sheller.

FOODSTUFFS FOR EXPORT.

With regard to our attacking force, or articles of food for export, there is no reason why small owners should not make Montserrat the kitchen or market garden for the neighbouring islands. The chief of

these vegetables and foodstuffs to call for our attention are; onions, potatoes and other table vegetables, cacao, ginger and honey.

ONIONS.—Last year seed was obtained from Teneriffe, but a sufficient quantity was not available to meet the demand. Many of those engaged in the industry lost their first sowings owing to the heavy rains of September and October. All, however, who have reaped and are reaping have every cause to be fully satisfied with the results, both as regards quality and quantity. When establishing their onion industry Bermuda had for many years to struggle against far more adverse circumstances than those experienced in this island, and we have the advantage of starting strengthened by the experience of others as to the best methods of cultivation on which I venture to give a few hints.

Onions require a light, friable, well drained, and well manured soil. When planted, they should be carefully weeded and watered, and when pulled they should be carefully laid out on the floor, for 10 to 14 days, away from the sun and rain, both of which are likely to injure the bulbs. Crates for shipping the onions are obtained from Halifax by the Canadian boats. (*a*) The size of the crates is:—Ends, 16 in. long, 7in.wide, ¾ inch thick, planed one side, 3 ends to a crate · slats 2½ in. wide, 3-8 in. thick, planed one side 14 slats to a crate, One bundle of ends and 2 bundles of slats will make ten crates complete. (*b*) Cost; $6.00 (£1. 5) per 100, free on board. Freight: $3 00 (12/6) per 100. With regard to onions, a merchant in New York writes advising shipping as soon as possible in December. 'That is the right time to start if you can possibly do so, so as to have everything marketed before Bermuda starts. When she starts, prices are apt to drop very suddenly. This drop usually occurs in April, about the middle of the month. Do not forget to have your onions packed *immediately before* the sailing of the vessel bringing them; always have them freshly packed and the crates tightly filled. They always lose considerably in transit, consequently every care must be taken to ensure their arrival in good condition—everything depends on this.' Thus it is a case of the early bird getting the worm. I should like some of you to experiment in keeping onions. From July to the end of the year, onions at times command what may be called fancy prices in these islands. The seed should be obtained direct from Teneriffe, for it is cheaper, costing about 4s. per lb. landed here, and is more reliable. Six pounds of seed are sufficient for an acre.

ENGLISH POTATOES.—From the experience of those who have grown English potatoes within the last two years, it seems to be difficult to obtain reliable results except at an elevation of 800 to 1,000 feet. Excellent potatoes have been obtained at low elevation but the results are by no means so certain as in the case of onions. Further experiments are being made and it is hoped soon that we shall be better qualified to speak on this vegetable and offer recommendations of a practical character.

OTHER VEGETABLES.—A large number of Boer prisoners are shortly to arrive in Antigua, and this may afford an opportunity for a temporary market for the disposal of green and other vegetables. It is not to be expected that any of the usual articles of consumption, such as meat, will be directly obtained from these islands, but there is a likelihood of a demand for vegetables and ground provisions which could be grown in Montserrat. In selecting the kind of vegetable to be planted, it must be borne in mind that Montserrat is without telegraphic communication and that steam and other opportunities are rare and uncertain. Only such vegetables as will keep for, at least, a week after being gathered should be planted. Lettuce, for instance, may be regarded as out of the question. Among those to be selected should be squashes, carrots, turnips, khol-rabi, radishes, egg-plant, pumpkins, melons, beetroot and, of course, onions and potatoes. The following hints as to the cultivation of each of the plants named have been taken from reliable sources of information. On the cultivation of such plants as ochros, pigeon peas sweet potatoes, etc., I need hardly speak. As a general rule bulbous vegetables should be sown in the open ground at once, but non-bulbous plants should first be sown in boxes and then transplanted in showery weather or after rain.

Squashes.—A light, rich soil deeply worked is best. Plenty of stable manure will be repaid by increased yields. They should be planted in hills 4 feet wide and covered to a depth of 1 to 3 inches. One ounce of seed will plant 25 hills. Weeds should be kept down and the hoe used as soon as the vines begin to run. As a rule, the squash may be gathered in 50 days. Some of the scalloped or 'pattypan' varieties are excellent and suitable for shipping.

Carrots.—Carrots require rich, deep soil of a friable character. They should be grown in rows 1 foot apart. The seed should be covered lightly and pressed down firmly. If radish seed be sown in the same row it will break the surface and mark the rows so that relief will be given in case the ground should bake. Thin out to 4 inches in the row. One ounce will plant a row of 100 feet long and may be gathered in 70 to 120 days. Carrots are best eaten when young.

Tomatoes.—A clayey soil is liked by some, sandy by others. The land should be deeply dug, and plenty of manure will make good tomatoes on almost any soil. Sow the seed in boxes, and when the plants are two to three inches high transplant 3 feet apart in rows 3½ feet apart. Thorough cultivation, loosening the soil, and killing the weeds will be required until the plants begin to cover the ground. The soil should be moulded up 3 to 4 inches. Some support, trellis-work or sticks, is necessary to keep the fruit off the ground. One ounce of seed will produce 1,500 plants and they take 3 to 4 months to come to perfection. Great care should be taken in preparing the fruit for the market. It should be fully grown but still green, if to be shipped. It should not be bruised, and each fruit must be wrapped in paper.

Turnips.—Rich and finely powdered, sandy or gravelly soil is best. Turnips are sown in drills 1 foot and ½ inch deep. Water freely, and cover with straw to prevent them being scorched. The plants should stand at least 3 inches apart. When gathered, the tops may be cut off and sold separately for greens. One ounce of seed is enough for 150 feet of drill, and turnips mature in about two months. If kept too long they become pithy and hot.

Khol-Rabi.—This vegetable, as its name implies, is apparently a cross between a cabbage and a turnip. It is usual to sow the seed thinly in boxes or nursery beds and, when sufficiently strong, to transplant the seedlings into well manured ground 9 inches apart in rows 18 inches distant. At the 'Meadow' it has been treated as a turnip with successful results. It comes to maturity in two to three months.

Radishes.—Radishes require little space, should be grown on a nice rich soil and sown thinly on a bed, the drills being 12 inches apart, and the plants 3 inches in the drill covered 1 inch deep. The plants should be thinned promptly, watered well and covered with litter if exposed too much to the sun. Radishes should be eaten young; otherwise they become tough and indigestible. The young leaves make an excellent salad. One ounce of seed will sow 100 feet of drill. They are ready for use in 20 to 40 days according to the kind.

Cucumbers.—The great thing to be guarded against in growing cucumbers is the attack of grubs and insects. As a rule cucumbers and squashes do best on newly dug land, that is, where no crop has recently been planted. The seed should be sown 1½ inches deep in a warm, light, sandy soil, in a mixture of cow manure and wood ashes, on hills a foot high, 4 to 5 feet wide, and 6 to 8 feet apart, which have been thoroughly prepared by digging, raking and mixing with stable manure. There is a tendency to an excess of leaf to the detriment of the fruit by the

use of improper fertilizers. The plants when young must be carefully weeded, great care being required not to move or injure the cucumbers. One or two ounces of seed will plant 100 hills and the cucumbers may be picked in 50 to 75 days.

Melons.—The cultivation of melons is very similar to that of cucumbers, but more heat, light and air are necessary, and not so much moisture. The vines may be pinched back if they run too far. Musk melons require 2 ounces to 100 hills, water melons 4 ounces. Musk melons ripen in about 100 days; water melons in 120 days.

Egg-plant or the French Aubergine.—This plant will thrive in any good soil. The seed is sown in boxes or beds, and when about an inch or two high, planted out in beds 3 feet apart in rows 3 feet apart. They require shelter and much water. Thinning out improves the size of the fruit. It is a good plan to graft the egg-plants on the common shushumber. This method may be learnt on application to Mr. Jordan at the Grove Experiment Station.

Pumpkins.—Can be planted like squashes, but at double or treble the distance, and only one plant to a hill.

Beet Root.—Should be sown from July to January, at intervals, so as to secure a succession, in a sandy soil in drills 15 inches apart. The young plants are thinned out to allow 9 inches. The seed might be soaked in lukewarm water for some hours and, while still moist sown 1½ to 2 inches deep.

A valuable pamphlet (No 8) entitled *Cultivation of Vegetables in Barbados* published by the Imperial Department of Agriculture should be in the hands of every small owner It costs only *2d* and is obtainable in this island, with other publications of the Department, from Mr. W. Llewellyn Wall, Plymouth : and elsewhere from the Local Agents of the Department.

(*To be Continued.*)

ON SOME NEW SPECIES OF EUCALYPTUS.

BY R. T. BAKER, F. L. S., CURATOR, TECHNOLOGICAL MUSEUM, SYDNEY.

[*From the Proceedings of the Linnean Society of New South Wales, 1900, Part 4, October 31st.*]

E. INTERMEDIA, sp. nov.

"BLOODWOOD" OR "BASTARD BLOODWOOD,"

(Plate xlvi., fig. 1.)

A medium-sized tree with a *light brown fibrous* bark.

Leaves lanceolate, acuminate, about 6 inches long, and 1-1½ inches wide or more, pale on the underside; lateral veins oblique, fine, numerous, parallel; intermarginal vein quite close to the edge.

Flowers mostly in large terminal corymbs. Calyx turbinate, 4 lines in diameter, 3 lines long, on a pedicle of about 4 lines. Ovary flat-topped. Stamens all fertile; anthers parallel, opening by longitudinal slits.

Fruits urceolate, about 6 lines long, 4-5 lines in diameter, contracted at the orifice to some times 2 lines; rim thin, capsule sunken.

Hab.—Ballina (W. Bauerlen); Richmond and Clarence Rivers (Rev. Dr. Woolls); Barney's Wharf, Cambewarra (W. Bauerlen, P. Macpherson).

A tree closely allied to both *E. corymbosa*, Sm., and *E. eximia*, Schau. It has, however, always been considered as the northern form of the former species, but in botanical characters it more nearly resembles the latter, and especially *E. maculata*, Hook. The chemical constituents and optical features place it midway between the two former. It differs from *E. corymbosa* in the nature of the timber, bark, oil and fruits which have not the marked recurved rim of that species.

From *E. eximia*, it differs in having pedicellate fruits, a stringy flaky bark, a pinkish timber, and in its chemical constituents.

Dr. Wolls was cognisant of the differences existing between these species, for in his "Flora of Australia" (p. 238) he states :—"At the Clarence and Richmond Rivers the 'Bloodwood' prevails to a great extent, and the workmen reckon two kinds—the one with smooth and the other with rough bark. . . It seems probable that the Mountain 'Bloodwood' (*E. eximia*), which overhangs the valley of the Grose, is different from the Bloodwood of the north." As stated above, other botanist have always regarded the northern "Bloodwood" as identical with the Sydney and southern "Bloodwood"; but Dr. Wolls is the only one who connected it (the northern one) with *E. eximia*, Schau., and recent observations also show it to have affinities with that species.

Its physical characters, however, are so evenly balanced between the two that it is decided to give it specific rank.

It differs from *E. terminalis*, F. v. M., the "Bloodwood" of the interior, in its bark, timber and oil; and from *E. trachyphloia* in its larger fruits, bark and chemical constituents.

Its fruits are exactly identical in size and shape with those of *E. maculata*, but it resembles this spotted gum in no other characters.

This tree is constant throughout an extensive range, as it was found many years ago at Barney's Wharf, Cambewarra, by W. Bauerlen, who forwarded specimens to the late Baron von Mueller, who considered it a hybrid between *E. corymbosa*, and *E. maculata*, but of course he only had dried material upon which to base his opinion.

The timber of both the southern and northern trees is similar in colour, hardness and other characters, and the chemical constituents of the oil show no variation.

TIMBER.—A pale-coloured timber, hard, strait-grained, and easy to work. It is much closer in texture than the Sydney Bloodwood, *E. corymbosa*, Sm. The figure is occasionally not unlike that of *E. maculata*, Hook. Gum veins are not infrequent. It is considered a good durable timber, and superior to that of *E. corymbosa*, Sm. It has quite a metallic ring when the fractured edges of a piece are rubbed together.

OIL.—The yield from this oil is ·125 per cent It consists very largely of pinene, 58 per cent. of the oil distilling below 170° C.; only a trace of eucalyptol could be detected. The specific gravity of the crude oil @ 15° C. = ·8829. The specific rotation of the crude oil [a] D = + 11·2°. This oil differs from the oil of the Bloodwood of the Sydney district, inasmuch as the latter is lævo-rotatory to about the same extent. The rotation of the oils from *E. corymbosa*, Sm., and *E. eximia*, Schau., and this species varies in about equal proportions, that of the oil of this species being about half-way between those of *E. corymbosa*, and *E. eximia*, although the constituents of the oils of the three species differ but slightly, being largely pinene.

E. ANGOPHOROIDES, sp. nov.

"APPLE-TOP BOX."

(Syn. *E. Bridgesiana*, Baker, *partim.*)

(Plate xlvi., figs. 4*a*, 4*b*, 4*c*.)

A medium-sized tree with a white box bark persistent to the ultimate branchlets.

Sucker leaves ovate-acuminate, cordate, shortly petiolate, glaucous, variable in size from 1 to 3 or 4 inches long, and 1 to 3 inches broad; venation indistinct on both sides. Leaves of mature trees narrow-lanceolate, about 6 inches long, acuminate, not shining, of the same colour on both sides; venation finely marked, oblique, spreading; intramarginal vein removed from the edge. Oil glands numerous.

Peduncles axillary, 3 to 4 lines long, slightly compressed, bearing a few flowers. Calyx hemispherical

to payriform, 1 line long; pediole about 1 line long. Operculum hemispherical, shortly acuminate. Ovary domed. Stamens all fertile; anthers parallel, opening by longitudinal slits.

Fruits hemispherical to slightly pear-shaped, 2 lines in diameter and under 4 lines long; rim thick, sloping outwards—a ring just below the edge; valves generally 4, exserted under 1 line.

Hab.—Colombo, N. S. W. (W. Bauerlen); Towrang N. S. W. (R. T. Baker).

The herbarium material of this species is so similar to that of *E. Bridgesiana*, that on my first examination it was included under that species (Proc. Linn. Soc. N. S. W., 1896.)

My field observations since that date, and the aquisition of further material such as timber and oil, have convinced me that two trees are quite different, and should not be included under the same name. Mr. W. Bauerlen, indeed, who has known the trees for very many years, has always held that the two were different in specific characters.

E. Bridgesiana is known vernacularly as "Apple" and "Woolly-butt," but this tree as "Apple-top Box." As stated above, the foliage, fruits and flowers certainly resemble those of the former species, but there the similarity ends. The bark is a true box-bark, but the timber is quite unlike that of a box.

It differs from *E. Cambagei*, Deane & Maiden, in the superiority of its timber and the inferiority of its oil, and the shape of its fruits; and from *E. nova-anglica*, Dean & Maiden, in the bark, colour of timber, and oil.

It has little affinity with such Boxes as *E. hemiphloia*, F. v. M., *E. Woollsiana*, Baker, *E. conica*, Dean & Maiden, *E. pendula*, A. Cunn., (*E. largiflorens*, F. v. M.,) although it appears to be a connecting link with these and what are known as *Bastard Boxes* such as *E. Cambagei*, Dean & Maiden, and *E. bicolor*, A. Cunn.

It is quite limited in its distribution, and presents no difficulty of determination in the field.

The bark has not an essential oil as pertains to *E. nova-anglica*, and *E. bridgesiana*.

Although it has a regular light-coloured grey box bark, yet the appearance of the tree is more like that of an "Apple tree" (*Angophora*), hence the local name of "Apple-Top Box."

Timber.—A pale-coloured, soft specifically light timber, open in the grain, and perhaps to be regarded as porous. It has not the broad sapwood of *E. Bridgesiana*, Baker. It seasons well, and is suited for cabinet work, as it closely resembles in colour, weight and texture the timber of *Angophora intermedia*, DC. It is much superior to that of *E. Bridgesiana.*

Oil.—The yield of oil from this species is ·185 per cent. A large quantity of phellandrene is present, also some pinene, and 26 per cent. of eucalyptol was found in the rectified oil (fraction representing 70 per cent. of the crude oil). The specific gravity of the crude oil at 15° C. was ·9049; the specific rotation of the crude oil = [a] D—12·7, the lævo-rotation being due to the phellandrene. The constituents of this tree differ greatly from those obtained for *E. Bridgesiana*, Backer, a species which in appearance it somewhat resembles. The oil of *E. Bridgesiana* is of excellent quality, while that of this species is of litte commercial value, irrespective of the small yield H. G. Smith).

E. Wilkinsoniana, sp. nov.

(Syn. *E. hæmastoma*, var., F.v.M., Eucalyptographia, Dec. ii.; *E .lævopinea*, var. *minor*, Baker).

(Plate xlvi., fig. 2)

A medium-sized tree with a thin compressed stringy-bark—not furrowed.

Sucker leaves lanceolate, falcate, generally under 3 inches long and under 6 lines wide, oblique, thin; venation oblique, parallel, distant: marginal vein removed from the edge. Leaves of mature trees similar to sucker-leaves, only larger.

Flowers in axillary peduncles of about 6 lines long. Calyx small, 1 line long, 2 lines in diameter pedicle about 1 line. Operculu small, hemispherical, acuminate. Outer stems apparently sterile: anthers kidney-shaped. Ovary flat-topped

Fruits hemispherical, 5 lines in diameter, rim thick, *red*; valves slightly exserted, acute.

Hab—Dromedary Mountain (C. S. Wilkinson, F.G.S.); Colombo (W. Bauerlen); Barber's Creek (H. Rumsay); Sutton Forest (R. T. Baker).

This is the "Stringbark" variety of *E. hamastomæ* Sm., mentioned by Baron von Mueller in his Eucalyptographia under that species.

It was first observed in this colony by the late Government Geologist, Mr. C. S. Wilkinson, F. G.S., at Dromedary Mountain at an elevation of 1,500 ft. above sea level, and named for him by Mueller as stated above

It differs, however, from *E. hæmastoma*, Sm., in the nature of the timber, texture and venation of leaves, bark and chemical constituents of the oil and kino; and it is on these differences that it is now raised to specific rank.

The bark and timber ally it to *E. eugenioids*, "White Stringybark," and in botanical sequence it is placed next to that species.

The oil resembles that of *E. lævopinea*, Baker, but on other characters connect it with that species.

The fruits, and particularly the oil, differentiate it from the other "Stringybark" such as *E. capitellata*, Sm., *E. macrorhyncha*, F.v.M , *E. eugenioides*, Sieb., *F. E. dextropinea*, Baker.

The red rim of the fruits has evidently been the cause of the misplacing of this species, but it is well known now that this is a character common to a number of Eucalyptus.

It is a feature quite absent from *E. lævoeapinea*, Baker. In fact the fruits of the two species are so very different that the trees could not be synonymised with any degree of correctness in specific naming. The bark, leaves, venation and timber of these trees also differ.

E. lævopinen, Baker, has a hard ,compact bark right out to the branchlets, whilst this tree has a light-coloured, loose stringy bark, not extending out to the limbs.

It is quite distinct in specific characters from the two stringybarks described in this paper, viz., *E. nigra* and *E. umbra*.

Timber.—Pale-coloured, very hard, close-grained, heavy. In transverse and compression test, it stands higher than that of any of the other Stringybarks above enumerated. It is evidently an excellent timber, and is strongly recommended for forest conservation.

Oil—The yield of oil from this species averages about ·9 per cent. It consists very largely of lævopinene. A small quantity of eucalyptol is present in the oil at sometime of the year, and a small quantity of phellandrene at others. This terpene alters much, occurring in small quantities in many Eucalyptus oils at certain seasons of the year, whilst at other times it is absent. The specific gravity of the crude oil was ·894 at 15° C.

The specific rotation of the crude oil = D—23·9; no phellandrene was detected in the January oils.

No less than 86 per cent. of the oil distilled below 170° C. The lævo-rotation of this oil is due to the lævopinene present. The odour of the oil after saponificatoin of the small quantity of ester present is exactly that of oil of turpentine (H. G. Smith.)

E. ovalifolia, sp. nov.

"Red Box."

(Plate xlvi., figs. 6*a* 6*b*.)

A medium-sized tree with a smooth bark, decorticating at the base of trunk, producing a roughish appearance.

Leaves small, of light yellowish colour, sometimes glaucous, oval or ovate, shortly acuminate, mostly 2 inches long and ¾ inch wide, rarely 3 inches long;

venation faintly marked, lateral veins distant oblique, spreading, the marginal vein removed from the edge, producing at the base of the leaf a trinervate appearance. Petiole slender, under 1 inch long.

Flowers in axillary or terminal panicles, 6-8 in the head. Calyx under 2 lines long, 1 line in diameter, tapering into a slender pedicle. Operculum hemispherical, depressed, very shortly acuminate. Ovary flat-topped. Outer stamens sterile. Anthers parallel, opening by pores at the truncate end.

Fruits small, 2 lines long and 1½ lines in diameter, rim thin, contracted slightly at the orifice, valves not exserted.

Hab.—Bathurst, Rylstone and Camboon (R. T. Baker); Hargraves (A. A. Suttor); Gerogery (L. Mann)

A medium-sized or rather stunted tree growing in poor, sandy, rocky soil. The bark can hardly be said to be smooth, and neither is it altogether a box. bark such as that of *E. albens*, Miq., or *E. hemiphloia*, but rather between a box and a smooth bark, The upper parts of the trunk and limbs are quite smooth.

It is allied to *E .melliodora* in the shape and venation of the leaves, and perhaps in the exterior character of the bark, but it has not the yellow satin on the inner surface of the bark such as obtains in *Emelliodora*. It differs, however, from that species in the shape of the fruits, colour of timber, and chemical constituents of its oil.

It differs from the typical *E. polyanthema*, Sch., of Victoria, which has a persistent box-bark right out to the branchlets, larger and obicular-shaped leaves, and larger fruits. The oils of the two species are not at all identical, but there is a resemblance in their timbers.

It differs from *E. conica*, Deane & Maiden, in having a smoothish bark, and in the shape of the leaves and fruits, and chemical constituents of the oil; nor can it be confounded with *E. pendula*, A. Cunn., (*E. largiflorens*, F. v. M.) which has a box-bark, and fruits and leaves quite different from this a species.

The timber, leaves and bark differentiate it from the Lignumvitæ, *E. Fletcheri*, Baker, of St. Mary's and Thirlmere.

In botanical sequence it is placed next to *E Dawsoni* Baker, as it approaches this tree in the colour of its timber, and occasionally in the shape of the leaves, but differs in every other respect.

There appears to be no reference to this tree in the writings of Dr. Wools and Mr. A. G Hamilton, both of whom wrote on the Mudgee Flora so that it must have escaped their observations, as it occurs at Hargrave, mid-way between Mudgee and Wellington.

Timber—When growing on poor ironstone ridges the tree becomes rather stunted and the stem has a tendency to barrel, so that it yields only small specimens of timber. It is red-coloured, hard, close and straight-grained, and very durable in the ground. It is suitable for all kinds of heavy work.

Oil,—The yield of oil from this species is ·27 per cent. It contains much phellandrene and but a minute quantity of eucalyptol at time of distillation. It is not, however, a commercial oil. It is distinctly different from *E. polyanthema*, schau., of the south, which gives a commercial oil rich in eucalyptol. The specific gravity of the crude oil at 15° C. is ·9058. The specific rotation of crude oil [a] D=-993°

There is very little difference in the constituents of this oil and that of *E Fletcheri*, Baker, the "Lignum-vitae" or Black Box at St. Mary's, as they both contain the same constituents in practically the same amount (H. G. Smith).

E. Fletcheri, sp. nov.

'Lignum-vitæ," "Box."

(Plate xlv.)

A medium-sized tree with a box-bark on the trunk, branches smooth, branchlets glaucous,

Leaves from orbicular to ovate-acuminate in shape sometimes oblique, cuneate or rounded at the base from 1 inch to 3 or 4 in diameter, thin, not shining; venation faintly marked, lateral veins oblique spreading; intramarginal vein removed from the edge, more pronounced at the base, giving a trinerved appearance to the leaf. Oil glands very numerous; flowers numerous in axillary or terminal panicles peduncles short, 2-3 lines long.

Buds about 5 lines long. Calyx conical, with scarcely any pedicel. Operculum hemispherical, very shortly accuminate or obtuse.

Ovary flat-topped. Outer stamens sterile. Anthers parallel, opening by terminal pores.

Fruits conical, about 4 lines long, 3 lines broad; rim thin, and mostly in mature fruits with a notch; capsule sunk.

Hab.—South Creek, St. Mary's (R. T. Baker and N. V. Fletcher); banks of the Nepean River (Rev. Dr. Wools); Thirlmere (W. Cambage).

It is named after the late Norman Fletcher, B. A., a promising young botanist much interested in Eucalypts, who, in Company with the author, some years ago discovered trees of this species at South Creek, St. Mary's near the railway bridge. A tree apparently restricted in its geographical distribution to the watershed of the Nepean River of this colony.

The late Dr. Wools was very probably the first to collect material of this tree for botanical determination, and he forwarded it to Mueller under the local name of "Lignum-vitæ" (Eucalyptographia, Dec. iii). This latter author, working on morphological grounds, confounded it with the Victorian 'Red Box,' *E polyanthema*, Schau. The dried specimens of the two species are very much alike in the shape of the leaves and fruits, but the trees differ considerably in other characters. For instance, the Victorian 'Red Box' has a persistent *box-bark* right out to the branchlets, and a *dark red timber*, while its leaves are larger than those of this species. The New South Wales tree has *thick, rough, flaky bark*, and *the wood which is of a brown colour* towards the centre, is very hard and tough as recorded by Dr. Wools (Fl. Aus. p. 236). The two timbers alone are sufficient to differentiate the trees, whilst their essential oils possess quite distinct chemical constituents.

This is another example showing how essential it is that field observations are required in order to determine correctly the specific rank of Eucalypts.

It generally occurs on the banks of rivers and creeks, growing along with *E. bicolor*, Cunn., but this latter species, although having a somewhat similar bark and timber, is quite different in the fruits leaves, venation and oil,

In colour of timber and bark it appears to stand apart from the western "Boxes," such as *E. Woolsiana E. conica*, Deane & Maiden, *E. albens*, Miq. but in fruit and shape of leaves it resembles *E populifolia* and *E polyanthema*, Schau. whilst it only approaches *E conica* in the shape of the fruit.

The leaves are thinner than those of *E populifolia* and have not the lustre so distinctive of that species.

It differs also from this latter species in the shape of its fruits, and in its timber and oil.

E quadrangalata, Deane & Maiden has a lighter coloured timber, sessile fruits with extended valves and lanceolate leaves.

Timber.—It is well described by Dr. Wools (*loc. cit*). No doubt owing to its good qualities it has been extensively cut by timber-getters as it is quite rare now in its original habitat (Nepean), but is more plentiful at Thirlmere. It is worthy of propagation

Oil.—The yield of oil from this species is ·294 per cent. It contains much phellandrene and but a minute quantity of eucalyptol. In constituents and characters this oil differs but little from that obtained from "Red Box," *E ovalifolia*, Baker, of Rylstone. The specific gravity of the crude oil at 15° C, is ·8805

Specific rotation of crude oil [a] D=-14·2°. The lævo-rotation is due to phellandrene. It is not a commercial oil. The amount of ester and free acid are small in this oil, consequently the crude oil is not very dark-coloured, the red colour of crude eucalyptus oils being due to the presence of a minute quantity of iron from the stills being dissolved in the free acid occuring in the oils. The colour is removed by agitating with potash.

(To be continued).

THE IMMORTELLE AS A SHADE TREE FOR CACAO.

By PROF. CARMODY, F.I.C., F.C.S., & MR. J. VERTEUIL, F.C.S.

(Read before The Trinidad Society 10th June, 1902.)

Last year in Agricultural Society paper, No. 155, it was shown that Immortelle flowers were particularly rich in Nitrogen, and it was estimated that they contributed to the soil a larger amount of this substance than was permanently withdrawn by the cacao bean. This year the investigation has been continued, and through the kind co-operation of Mr. J. G. de Gannes we are able to give a more accurate estimate of the Nitrogen supply from these flowers. Mr. de Gannes' valuable report is attached.

This year we have not found any of the samples to contain more than 4·03% of Nitrogen which is considerably less than the 6% found in last year's samples.

Taking Mr. de Gannes' figures and ours (reduced to 3% to be within safe limits) the following calculation is made:—

50 immortelles = 800 lb. *dry* flowers
at 3% of Nitrogen = 24 lb. ℔ acre.
250 Cacao trees = 500 lb. cured cacao
at 2½% of Nitrogen = 12½ lb. per acre.

and shows an excess of about 12 lb. of Nitrogen per acre.

Apart from the question of the retention of the Immortelle as a shade tree, which we submit these figures fully justify, the results of this investigation suggest that flowering trees may be utilized to keep the Nitrogen of the soil in circulation and to conserve it by bringing it from lower depths in a soluble form and periodically spreading it in a less soluble but easily decomposable form on the surface of the soil.

It will be remembered that last year it was stated that the amount of Nitrogen in the flowers rapidly diminishes. We now find that this depends on the methods of storing the samples; and that if the flowers are spread out thinly, instead of in heaps, that there is no less of Nitrogen even when freely exposed for several days to the air.

We now wish to bring to the notice of the members of the Society another point which appears to us to be in favour of the retention of the Immortelle in preference to other shade trees. It has long been observed that the Immortelle drops its leaves during the dry season, and it has been stated to its discredit that it ceases to give the necessary shade at the time when the Cacao trees most require it. It should not be overlooked that one of the functions of the leaf is to evaporate water in large quantities, and in the absence of leaf there must be absence of evaporation. The water evaporated is drawn from the soil by means of the roots, and it follows as a natural consequence that a leafless Immortelle tree does not absorb from the soil that large amount of water which its leaves, if present, would have evaporated, and that this water remains available for the cacao trees which are never entirely leafless. The value of this self-denial on the part of the Immortelle during the dry season when four or five months the rainfall is very low has, we think, not been fully appreciated.

With reference to the previous paper on this subject Professor Carmody has been reminded that he cannot claim to be the first to point to the flower as the special and most valuable feature of the Immortelle as a Cacao shade tree. At the time of writing the paper he believed he was alone in giving expression to such advanced opinion; but he is glad to find that one of the most astute observers among our Cocoa planters, viz: Mr J. P. Bain, has long held and expressed the same view.

LA CHANCE, ARIMA,
7th April, 1902.

DEAR PROF. CARMODY,

The Immortelle tree—Anauca—from which I collected the flowers, the flowers, is an isolated tree and was profusely laden with healthy flowers at the time but its size is rather below the average full grown trees. I must here remark that the "Anauco" does not thrive its best in the Vegas. I had underneath the tree properly cleaned, and the flowers were collected carefully and weighed twice a day. The quantity collected amounted to 130 lbs. but a good many were blown away by the wind outside of the area cleaned, and I think by adding 30 lb. to the quantity collected making 160 lb. would be as nearly as possible correct. I regret I did not collect flowers from the "Bocare," it escaped my memory to do so when the trees are flowering, but it is my impression that as they do not bear so profusely as the "Anauca" the weight per tree is less notwithstanding the size of the flowers being larger.

J. G. DE GANNES.

GRAPE GROWING IN JAMAICA.

(THE GLENFARG VINES.)

I was first induced to take an interest in grapes culture, by my having attended a series of lectures given at King's House, by the then Superintendent of the Gardens there, Mr. W. J. Thompson, now of Castleton, and so far, I have never had cause to regret it,—and I have never ceased to take a lively interest in all things appertaining to grape culture. During the course of these lectures, I discovered that it was Mr. Thompson's belief that we should not permit our vines to fruit before they were five years old, and that very nearly digusted me of trying to plant any, as I was entirely against waiting for so long a period on any crop. However I was able to procure a few cuttings, and several people who saw me with them, informed me that I would have to wait ten years for a crop. I soon discovered that like many other well known fables, this was untrue in practice, as I was able to produce fine grapes in two years.

Having planted my vines, and after seeing them grow for three months, I was so pleased, that I thought I would go one better. I got an American flower catalogue, and after having read up all the wonderful descriptions given of the Concord, Brighton Eaton, etc., I sent off for $10 worth, and they reached me in good condition, they were planted out and that was all; in nine months they had in some cases put on three or four leaves, and in one case I got one bunch of grapes, which had on five of the sourest grapes one could ever desire to taste. I dug them up, and against American vines I wrote failure and disappointment. In the mean time my other ones had come on nicely, and I now had the opportunity to attend a series of lectures and demonstrations given by Mr. Cradwick here, (in the Hope Gardens) as the vines were now removed from King's House. These demonstrations were very helpful to me, and fully brought out the fact that reading to me was one thing, and ocular demonstration another. I leaned sufficient, to my way of thinking, to prune or rather cut back my vines in that year, and in the early part of the next I pruned off for fruit. The white variety I planted fruited heavily, but all

the nursing could not bring them to perfection, as they began ripening they began splitting and nothing could save them. These vines are what are known as Fosters Seedlings, and so far as my experience goes, they are utterly worthless for a tropical country—though they are far ahead of any other white varieties as a heavy copper. The black varieties—Barbarossa or Black William, and another, Lombardy, did well, and are still doing well. The Black William is certainly the most profitable grape for culture in the plains of Kingston and St. Andrew. This vine here covered a sloping arbour 150 feet long and 21 feet wide before it was four years old, and having been pruned in February of one year, it was never without fruit in all stages for the next eighteen months. At one time it had on over a hundred large bunches. I had the pleasure of sending one to the Director of Public Gardens, and another to Sir Henry Blake. The former sent me a very complimentary letter, and the latter took his to Montego Bay and exhibited it in the Court House there. During the year just passed this vine has excelled all its previous records. On the 2nd February it was pruned by Mr. Greenless and my brother and it received a liberal supply of goats, manure, (four cart loads,) and later on six loads of fresh manure from cow stables, with periodical forking and watering it produced the largest crop. At one time it had on 250 bunches of good grapes, and it was the wonder of all who saw it. We sold Five Pounds Ten Shillings and Sixpence of grapes off this crop alone and gave away quite as much again, besides winning the first prize at the Kingston Flower Show. Acting under the advice of the Botanical Staff I pruned in August, the vine cropped fairly well, but the unusually heavy seasons which followed completely spoilt the crop. I have now planted out twenty of the Muscat of Alexandria and Shafston, Muscat generously given to me by Laurence Tate, Esq., of Shaftston, and fifty of the Black William. I have also through the courtesy of the Director of Public Gardens, six fine plants of the Great Hampton Court vine. The soil here is what is described as a sandy loam; the deeper you dig the more sand you get, and this seems to suit grape growing admirably. The climate is warm during the day and moderately cool at nights. The district is very dry, and here let me say that growing at stake is unsuitable to this country. The vines so treated failed entirely, and common sense shows that if a vine will cover a great area and produce good fruit it ought to be allowed to do so. We have no winter here to check continuous growth. All the vines are on wire arbours and have the full benefit of the sea breeze. That apostle of grape culture, the Revd. Wm. Griffiths, says the reason that black grapes are not liked is that every old woman knows when a white grape is ripe, but nobody knows when the black grape is. As soon as the latter turns purple they are gathered as ripe, and as a result they are sour, and the grape gets a bad name—when every grape turns black the bunch can be permitted to remain on for two weeks, and then they will be as sweet as any white grape, but of course lacking the flavour of the Muscat. Grapes can be grown profitably and easily, and there is lasting fame awaiting the agriculturist with a scientific and experimental turn of mind, when he succeeds in producing a hardy white variety out of the Black William, by cross fertilizing or grafting, which will retain the vigour of the parent stock whilst retaining the delicate Muscat flavour. In conclusion, I must here record my thanks to the Botanical Department for the able assistance always readily given me at all times. Messrs. Cradwick and T. J. Harris have personally visited and given instructions on these vines, and I have never failed to get valuable assistance from the subordinate staff, and to them is due the praise which the success of these vines merit.

W. Ramsay Thomas.

Kingston, 31st March, 1901.

P.S.— I might be pardoned for mentioning the following circumstance. In 1900 the Director of Public Gardens and Plantations was on leave in England. I wrote asking him to try and obtain a few cuttings of the famous Hampton Court Vine; in replying to my letter he said he would try, in due course he returned to Jamica fetching several cuttings and a fine picture of the vine with a book recording its history. I planted six of these cuttings myself, and gave two a neighbour. They have done remarkably well my neighbour's vines started fruiting when a little over nine months before they had the first pruning, and at present they have seven or eight bunches on them.—W.R.T., 8th April, 1902.—*Journal of the Jamaica Agricultural Society.*

PLANTING NOTES.

A Sequoia "Combine."—All lovers of the grandly beautiful in Nature—numbering among them the readers of this Journal—will be glad to learn that an effort is being made to induce the Government of the United States to purchase and preserve the giant trees of California, now threatened by the lumberer—only the Mariposa Grove being the property of the State, the remainder being in the hands of private individuals which spells lumberer. It would be an eternal disgrace to all concerned if these magnificent specimens of an old time variety were to be cut down and converted into furniture, &c. It is affirmed that they adorned the present landscape thousands of years since, and one of those now interested in their preservation affirms that as far as may be, the giants of the Gold State may be considered as immortal? for they are growing now, some of them. But in these days of "combines" —of "trust"—why appeal to Government when a few of the so-called "millionaires" could between them sign a cheque which would save all brother or explosion of sentiment, and render the donors famous for ever—even at the expense of conferring upon the rescued giants the names of all the members of their respective families. A State so rich as is California- -rich in the products of the soil and the metals—could we imagine, easily settle the whole business in a very few days.—*Gardeners' Chronicle.*

Couch Grass.—You have given your correspondent Pan-Adam (see *Gardeners' Chronicle*, p. 331), a laborious task in advising him to trench his land 2 feet deep or more to get rid of Couch grass. About 1 acre of orchard ground here was overrun with this weed, also Mare's Tail, Docks, Nettles, and woodbine, the latter running up the stems of the Apple and Pear-trees besides half smothering some old Currant bushes. Instead of trenching and picking them out, I planted Rhubarb in the worst places, sufficiently close to surround the stems of the trees, but the Currant trees were destroyed as soon as others were raised to take their place, and Rhubarb was planted. The Rhubarb was lifted the third year for forcing, and fresh plantations made each spring, so we have always two or three batches going. The crops that follow the Rhubarb are Jerusalem Artichokes, Scotch, Kale, Winter Greens, and Potatoes, where open space admits of it. I have destroyed the weeds profitably, and in a way that no other known method would have done so effectually, and I would strongly advise Pan-Adam to give my plan a trial. I think the Mare's Tail a most determined grower, and when once it gets a hold on the land or of gravel walks, it defies every means for its destruction. When present in gravel walks I assume that the roots were present in the soil when these were made; at any rate, weed-killers have been applied which destroys the tops, but after a year or two it comes up as vigorously as ever. *W. P. Roberts, Cuerden Hall Gardens, Preston.* [Not every gardener wants large quantities of Rhubarb, or to crop his orchard with Kale, &c. Ed.],—*Ibid.*

PLANT SANITATION.

The advantages gained by sanitation, or preventive medicine in preserving human life and making it more vigorous are universally recognised facts and hardly needed to be supported by data to provo them. Two hundred years ago the mortality in London was 80 per 1,000; it is now about 20; and this has been brought about, not by the possession of knowledge of disease and the moans of combating it, but by continually putting such knowledge into practice.

Tho introduction of sanitary methods is comparatively recent. The first Public Health Act was promulgated in 1818, though local efforts had been made earlier. Since then the tendency of such legislation has been to place the regulation in the hands of the local authorities, subject to a general superintendence by a Government department. Still later has come the adoption of measures in Britain to protect animals from disease. Until comparatively recently lung disease (contagious pleuro-pneumonia) and foot-and-mouth disease caused large and frequent lossos of cattle, estimated at nearly 2,000,000 per annum—a loss of perhaps £ 3,000,000 each year. Foot-and-mouth disease has been almost exterminated. Glanders, which was responsible for the loss of large numbers of cavalry horses, is now rare both in tho Army and in private stables. Rabies will no doubt be at no distant dato recorded in the category of extinct diseases in Britain, if preventive measures are continuously and thoroughly carried out.

Sanitation for mankind was probably induced to some extent by fear; for animals partly from motives of benevolence, but mainly for economic reasons. Plant sanitation also must be considered for economic reasons. Increase of population necessitates larger food supplies. The fight of the farmer in Britain and the planter in Greater Britain must become more strenuous as competition, cheapness of transport, and the opening up of new countries go on. Yet while many means of producing larger crops and improved varieties have been devised and made use of, no means for keeping cultivated plants in health, or preventing the spread of epidemics, havo been to any extent practised in Britain or encouraged by the State.

That great loss of wealth has been suffered from diseases to plants, figures have been frequently adduced to provo. The potato disease in Ireland caused immense losses and a disastrous famine. The phylloxera on the vines of France reduced the yield of wine by 90 per cent., and spread to and affected other Continental vine-growing countries. Estimates have been carefully made to show that in Australia wheat rust causes a loss of nearly £3,000,000 annually. In 1882 the hop-aphis lost to Kent and Sussex alone about as much. In India the annual loss by wheat-rust has been calculated at not less than £91,000,000. In America in 1882, before any steps were taken to mitigate these evils, the Agricultural Commissioner estimated the enormous sum of from £40,000,000 to £60,000,000 as the amount of waste due to insect diseases alone. Ceylon suffered to the extent of probably over £15,000,000 by the coffee leaf disease, which led to the ruin of the Industry in that island. All these estimates must from tho nature of the data be only approximate; but oven if they err on the side of exaggeration it is plain that vast losses have occurred through diseases to cultivated plants.

Can these losses be reduced or to any extent avoided? The answer to this question is found in other lands more than in our country, though in some cases in Britain diseases have been treated with success, and the cultivator has benefited by his intelligent action. Germany and America are in the van in proving the value of knowledge gained and put into practical form in tho use of sanitary measures for plants. The vine industry in France, Italy, Germany, Maderia and other grape-growing countries was almost ruined by the phylloxera, until means were found to minimise the attacks, and varieties of the plants were discovered in other countries which were immune from the ravages of this destructive insect. The vines were still suffering from phylloxora when a mildew or blight, due to a fungus, began to do serious damage to crops. Through a fortunate accident—the spraying of values by the roadside with blue stone to prevent pilfering of fruit—a fungicide was found for this disease, which prevented the extinction of the vine, and is still recognised as the most important substance for spraying in leaf diseases. In America, among other industries orange growing and vine culture have been relieved from various diseases, and organised campaigns have kept the many insect and fungal enemies of these important cultivations in check; and in many wheat-producing countries sterilisation of reed-corn before sowing has done much to exterminate smut-diseases.

The large bodies of workers in these countries are to a great extent helped and encouraged by the fact that the people for whom they aro working have an intelligent knowledgo of the methods and results of plant pathology and therapeutics. In America—where money's worth is required for money—£600,000 per annum is spent in supporting a large staff of experts whose efforts are directed to the improvement of agricultural methods, crops and stock, the introduction of new plants, and the prevention and cure of epidemic diseases.

It is true that there are cases of plant disease which have not been to any extent lessened or prevented by science. But even in the much older science of human medicine failures might be mentioned, and yet these still unsolved problems of the doctor do not in any degree shake the faith of thinking men in the value of medicine and surgery. The plant doctor has frequently to submit to the halfhearted carrying out of preventive methods, or the refusal to do anything at all to interfere with the progress of a disease. I myself, when advising the proved and practicable remedies for a certain disease, have been met with the remark: "Don't you think that if I got rid "of this disease in my trees I should only get some other?" The mixture of ignorance, apathy and fatalism shown in this reply is, to say the least, not encouraging. Further, the plant therapeutist does not possess one of the chief weapons of the doctor and the "vet" against contagious and infectious diseases—isolation. Where it possible in the case of a rusted wheatfield, a cankered larch plantation, or a blighted potato crop to isolate the diseased plants and prevent them from contaminating their neighbours, the plant doctor and the farmer would have a far easier battle against theso diseases. The agriculturist is wont to complain that the number of diseases by which his crops are affected is so great; but comparing any species of cultivated plants with man, the horse, the dog, or other domestic annimal, we do not find that the diseases suffered by them are less in number than those we deplore in our plants. Plant diseases are on the increase—for very evident reasons. In the economy of Nature the intermingling of species of plants with others differing in structure, habits and inherent characters hinders the progress

and endangers the existence of the organisms which cause the largest proportion of our epidemics. The spread of such diseases among human beings, sparsely scattered over a wide area, is low. In closely-packed populations the prosperity of the organism causing the evil is most marked. But the multiplication of large areas of plants of the same kind destroys the natural equilibrium and increases the danger of epidemics. This danger calls for corresponding precautionary measures. A hundred years ago the conditions favourable to the rapid spread of a disease caused by insect, fungus or bacterium were very much less than at the present day. But our weapons for an intelligent fight against the attacks of these organisms were then of little use, and were wielded without confidence. We have now, as in human therapeutics, got past the "bleeding for all evils" stage, and our weapons are of no mean order. Man's power over the organisms which injure cultivated plants is immeasurably greater than it ever was before, and his knowledge of the plants themselves is equally extensive. Indeed in many ways the knowledge of plant pathology and therapeutics will bear comparision with that of human and veterinary medicine.

All efficient measures for the preservation of health whether carried out by individuals or communities rest upon exact knowledge of the causes of diseases and the effects they produce in their victims. It is a matter for congratulation that there are a host of instances of the accurate tracing, by observation, of the causes of many diseases of plants. This has been accompanied by experiment, and it needs no argument to convince anyone in the least acquainted with inductive science that experiment is as essential as observation. The science of plant pathology and therapeutics has its giants, whose brilliant work has gained valuable positions in the advance of knowledge. Medicine has its leaders like Hunter, Pasteur Simpson, Lister; and De Bary, Hartig, Tubeuf, Frank and others will be remembered as the pioneers in a science the importance of which, from an economic point of view, will by-and-by be as fully recognised as medicine or veterinary science. During the past fifteen years the discoveries made in combating insects and fungi which are parasitic on plants have made almost a revolution in agriculture, though this has not been so much felt in Britain as in other countries. The conservatism of the British armer is a very marked character and leads to great delay in accepting the lessons learnt outside his own sphere.

The general laws of sanitation in plants do not differ very much from those laid down for preventive medicine in man or animals. They include the removal and destruction by burning of dead plants, or dead parts of plants, suffering from communicable diseases, as soon as the outbreak is noticed and before it has widely spread; the prevention of conditions which favour infection; the isolation by means of trenches of plants whose roots are diseased; and the exclusion or quarantining of plants from infected countries. These are but examples of sanitary methods which should commend themselves to every practical man, and have been used with great success in numerous cases. They are, however, almost useless without an intelligent watching for the appearance of disease, such as every careful mother or shepherd exercises in the family or flock. It is not unusual to find a lack of observation in noticing the appearance of blights on crops, so that the evil is not considered until the fields are most markedly devastated. Observation, too does not always lead to intelligent action. The farmer who seeing "smut" in his wheat takes no measures, and attributes it to the prevalence of "the mule plant," is not a myth and may still be found in Britain. It is necessary, when sanitary laws are announced, that they should receive the support of those they are intended to benefit, and a belief in such rules must be inculcated in those engaged in cultivating plants.

The machinery for technical instruction in rural districts in England exists, and could be used (as is has been to a slight extent) for disseminating such doctrines. But the farmer will learn more by his eyes than by his ears. His own knowledge, which gives him what success he has in his art, has been gained by the use of his eyes, rarely by reading books or attending lectures. Demonstrations of the methods and results of plant sanitation, to which all agriculturists and horticulturists should be invited, should be carried out at local agricultural shows, at weekly markets and fairs, and at Colleges of agriculture. The interest the bee-keeping, dairy management and other demonstrations evoke at agricultural shows points to the fact that farmers are not averse to taking advantage of this, the best method of instruction. Landowners might arrange that demonstrations of spraying, fumigating, isolating by trenches and other operations should be shown at convenient places, where their tenants and others could come and see these things for themselves.

The science of plant pathology and physiology has opened a new epoch in agriculture, and British farmers should be alive to this fact. Let them not allow their competitors in other countries to profit at their expense by knowledge which they also might possess and which would enable them to get in advance of others by obtaining more from the soil, with less expenditure of time and money. It is difficult for those interested in these questions to avoid a tendency to "make "the flesh creep" by exaggerating the probable results of supineness in the matter, but it is unwise, because the Britisher—and the agriculturist not less than other classes—directly he hears any suspicion of the shriek of the enthusiast, assumes an antagonism without relation to the gospel of the preacher.

The conversion of the agriculturist and horticulturist to these beliefs is not an easy matter, even as the agitation against small pox, vaccination and muzzling for rabies shows to be the case with human and veterinary sanitation. A shorter and perhaps better way would be for those who control such affairs in the State to satisfy themselves—as has been done by foreign governments—of the importance of plant sanitation and of the confidence to be placed in means already used, and then to enforce their practice. The history of sanitation shows that the existence of knowledge and the promulgation of methods were of little use till the force of the law was called into make the carrying out of these methods obligatory. The mortality in human beings and domesticated animals would be far higher in Britain if the laws with regard to notification and treatment of cases of fevers, small-pox, pleuro-pneumonia in cattle, swine fever, etc., were not enforced. There is little doubt that if the Board of Agriculture initiated similar measures to protect crops, in a short time those benefited would recognise their value, just as has occurred in other countries. In America the National Government exercises a supervision and control in matters of quarantine and prevention of disease in plants, and expects each State to provide for the proper and timely application of the most approved remedial and preventive treatment when found necessary. The actual laws as to the suppression of diseases among cultivated plants are enacted and carried out by each State. These laws vary to some extent in the different States, but they are all accompanied by penalties—both fine and imprisonment—for neglect of orders to carry out the prescribed treatment. In Michigan any person who neglects to remove and destroy a diseased tree or fruit, after such examination and notification as is provided by the law, is guilty of a misdemeanour, and punished by a fine not exceeding one hundred dollars, or by imprisonment in the country jail for not exceeding three months, or both.

Such legislation in America has been in existence for nearly 20 years, and is extending with the exact

knowledge of the method of spread of parasitic diseases and with progress in agriculture. A permanent legislative committee was appointed some few years ago to watch over and control matters relating to plant diseases, and this committee is in touch with the various local authorities. This was the result of a "National Convention for the suppression of insect pests and plant diseases by Legislation," held at Washington in 1897, and attended by some fifty agricultural and scientific experts.

In Germany official notice is annually given of examination for particular parasites, and these orders are carried out through the police authorities. In some of our own colonies, notably Australia and Canada, equally strict laws exist. Queensland has fully recognised the value of State aid to agriculture by giving it the best scientific advise, and by the "Diseases of Plants Act, 1896," of that Colony after enacting that certain importations of plants from places where diseases of these plants are prevalent are prohibited, every nursery is required to be registered and regularly inspected by an officer duly authorised by the Minister for Agriculture. In the event of the nursery being diseased, the officer notifies the nurseryman to take the necessary measures for the eradication of the disease, specifying the required measures in clear and easily intelligible language. For example in the case of fruit-fly disease the instructions are:—"All fallen fruit of whatever kind, whether harbouring insects or not, shall be gathered at noon of each day, and all pest-infected fruit shall be submitted to the process of boiling or be buried beneath not less than 1 foot 6 inches of solid earth. The trees shall be sprayed with one of the following mixtures." (The methods of preparing the mixture and the number of and interval between the applications are given.) That in countries where personal freedom is so carefully guarded such laws should be passed and carried out without friction shows that the planters of these countries are awake to the value of these legal enactments.

There are difficulties in carrying out such laws, and it may be urged that the inspection would be costly and hard to carry out efficiently; but these difficulties have been met with and overcome in human and veterinary sanitation, and even in plant sanitation they are not proving at all insuperable in countries where the system has been in force for some years. It is said that in Britain we are not yet ripe for this kind of legislation, and that popular opinion would disapprove of measures interfering with the freedom of tea cultivator. But history shows us that such arguments have been adduced against sanitary reform in men and animals. The effective carrying out of health regulations and the economic benefits which result have been the best answer to these objections. The Board of Agriculture could by means of existing data easily satisfy itself and others that the cost of the introduction and administration of sanitary laws for plants was money well spent. A series of epidemics, causing great losses to farm crops and other plants, would no doubt produce a different feeling in the matter, but would it not be wiser to learn by experience already gained, and not wait for further lessons from this expensive though effective teacher?

Looked at from the point of view of insurance against possible losses, or as an investment which will ensure greater profits, plant sanitation should commend itself to the business man. It is the duty of those whose interests are at all affected by the prosperity of agriculture—a fairly extensive class—carefully to weigh the evidence in other countries and at home in favour of sanitary methods for plants, and having convinced themselves as to their practical value, to lose no opportunity of furthering the cause of *Planta sana in plantario sano*, by inculcating the aims and methods of plant sanitation, and where advisable taking means to obtain the support of the State. J. B. CARRUTHERS,

—*Contemporary Review* for May, 1902.

MODERN METHODS IN TOBACCO CULTURE.

BY A. M. HOWELL.

Perhaps I can entertain and assist the farmers of Victoria, in the columns of "The Australasian," by briefly outlining my experiences in the culture of tobacco. It may be proper that I should state, by way of introduction, that my training in the arts of growing and curing tobacco-leaf was acquired on the farm, in the Southern States of America, where I was born and reared, and where the choicest of "bright" aromatic tobaccoes are grown. It may be added that in later years I have given close attention and study to the principles involved in both growing and curing—the really scientific principles that come within the easy grasp to the common run of intelligent farmers, and this means no more nor less than the application of good commonsense, once you see the how and the why. These principles are few in number, but they are not to be trifled with if the grower is aiming at tobacco of good quality, that will bring the highest market price, wherever he may sell it. There are just a few important—it may be said absolutely important—points to be strictly and rigidly adhered to, and these are:—

THE MAIN QUESTIONS INVOLVED.

1. The selection of a suitable soil for the type of tobacco desired to be produced.
2. The selection of a suitable variety or varieties of tobacco, looking likewise to the class and type desired.
3. The cultivation of the crop, including the work of the plough and hoe, the prompt and diligent pruning of the plants, the extermination of insect pests, and all else that can be done to promote the fullest expansion of the leaf.
4. Preparations for curing and the harvesting of the crop at the proper stage of ripeness, looking to a uniform yield of ripe, mature leaf and to desirable colours.
5. The curing processes—the ultima thule of the tobacco-grower—how to produce bright and beautiful colours that at once captivate the tobacco manufacturer and command the highest market prices, and pay the producer a good round profit.
6. The care of the leaf after it is cured, which means its preservation in sound condition, and the fixing of the colour, which may be lost or faded or deepened into other shades by improper management.
7. Packing and marketing—in the local home market or abroad—with extreme care as to content of moisture and the possibility of dangerous absorption of moisture in the hold of the ship.

SUITABLE TOBACCO SOILS.

In growing tobacco there is nothing more important than the selection of a suitable soil. This matter is co-important with curing the leaf. With the most skilful curing that can be done the influences of the soil are inevitably present. Proper curing will, of course, make the best that is possible of any leaf, grown upon any soil, but upon the character of the soil the grower must depend for the raw material out of which to turn out excellent cured leaf of any given class or type. To grow the cigarette leaf, for instance, upon a dark, rich soil is impossible. Such leaf is produced on a sandy soil of only very moderate fertility, and cannot be produced upon any other with any degree of certainty. With a good season—a year of satisfactory rainfall—the certainty would be the reverse way—that fine cigarette goods would not be the yield from a very fertile soil. Granville county, in the state of North Carolina, is famous for its production of the finest types of bright tobacco, and they are grown upon poor sandy soils, so poor, indeed, that, to use an expression common in the vernacular of that region, they will barely "sprout cow peas." Soils of only medium fertility, containing a predominance of sand, are unquestionably best for

that general class of leaf required in Australia for pipe-smoking—classed in America as "manufacturing leaf." Well-handled leaf from such soils will contain a sufficiency of nicotine, will be of mediumly fine texture, will burn with freedom and with good flavour and aroma.

AVOID COMPACTED CLAYS

A hard, compacted, or tight, waxy clay subsoil should be avoided, especially if the top-soil or soil proper is shallow. Examine the roots of plants grown in such a soil, and it will be found that they have not reached any considerable depth, but have branched out laterally or have rebounded, so to speak, and appear crimpled and crumpled, with but little growth where they have come into contact with the impenetrable clay subsoil. It will be found also that such soils quickly dry out down to "hardpan" in seasons of drought. The hard subsoil may maintain a minimum of moisture, sufficient to keep the plants alive, but there will be poor growth, and the product small, short, ribby leaves. The reverse will be the case if the crop is grown in a fine, deep sand, or sandy loam and for reasons that are at once obvious to the practical farmer. Such soils hold moisture with greater tenacity. Water rises to the surface by capillary force much more slowly in such soils. Consequently, there is less evaporation from them. Such soils come nearer than any others to maintaining just the proper quantity or percentage of moisture that plants require. In seasons of drought they hold moisture longer than fine, impalpable clays or silts, and in season of excessive rain they quickly drain themselves to the proper limit, which is very important to the tobacco crop in the matter of texture of the leaf. Tobacco will not stand an excess of moisture to be of good texture and flavour. It will grow coarse, and heavy, and excessively gummy in a saturated soil, or one nearly so.

SOIL MOISTURE, AND SYMMETRICAL GROWTH

It is easy to see that in loose, friable soils, with subsoils of like texture, the roots of the plants easily reach to considerable depths and to the level of permanent moisture without encountering too much of it. Now just here we come to a question of supreme importance in growing good leaf, and that is the matter of continued uninterrupted growth. In the production of leaf of the best and uniform texture the growth of the plants must go on unchecked. In that case there is regularity and symmetry in cell growth and constant, measured expansion. The soil that is capable of storing and holding persistently a moderate percentage of water is the soil that will promote and maintain the regular growth just described. In such soil, with fairly good seasons, the soil being not very rich in nitrogen, but having a plentiful content of potash and lime, the leaf will reach a satisfactory width and length. In all cases, once a tobacco crop is planted, everything feasible should be done to accomplish the greatest possible expansion of the leaf. It may be noted here that the ribs and veins of a tobacco leaf never increase in number from the time it is first unfolded in the tiny plant in the bed, no matter to what size and length it may grow. Count them when the leaf is the size of a shilling coin, and again when it is 2ft. or 3ft. long, and it will be found that they are the same in number. Now the greater the expansion of the entire leaf the wider the spaces between the ribs, and the greater the proportion of parenchymatous matter—or ribless and veinless tobacco. In cigar tobacco, if of the proper texture, the greater will be the proportion of wrappers, as cigar-wrappers must come from the web of the leaf occupying the space between two lateral ribs. This maximum expansion is best promoted by a soil that maintains a proper percentage of moisture—about 40 per cent. of its water holding capacity—and no soil serves this purpose better than a fine, deep sand, or a sandy loam, with a friable, workable subsoil. In the American states the soils generally adopted by the most successful growers of fine tobacco are those above described, containing from 60 to 90 per cent. of fine sand. They are, in many cases, what geologists term transported soils or drift soils. Where the land is really too poor to produce leaf of sufficient size for the type wanted, farmyard or stable manure well rotted, is sparingly used, or, in its stead, commercial fertilisers, containing rather high proportions of the mineral elements such as potash and phosphate of lime. It is perhaps rare in Australia to find soils too poor in plant food to grow excellent tobacco. At least, I have found this to be the case in New South Wales, where I have had several years' experience in growing the weed.

DARK RICH SOILS UNSUITABLE.

The main objections to dark, rich soils, such as the silty, humic flats along the rivers and creeks, is that in seasons of generally satisfactory rainfall they overdo what the intelligent, ambitious tobacco-grower requires They produce what may be termed "too much of a good thing"—coarse, heavy leaf, with enormous ribs and veins, with too much gum, too much nicotine, rank, strong stuff, that is devoid of that delicacy of flavour and aroma that pleases the average smoker; and such tobacco has to be very considerably steamed and manipulated to get it to burn well in pipe or cigar if, indeed, it can be used at all for the later form of smoking goods. These dark, rich soils contain too much nitrogenous matter and that kind of plant foods tends to coarseness to large growth which however desirable in maize and some other farm crops, is modifiedly the reverse of what is wanted in a crop of tobacco.

REARING TOBACCO PLANTS.

As the season is at hand for sowing seed, perhaps a fitting conclusion to this contribution would be some suggestions on the production of plants. Tobacco seed should be sprouted before sowing. Fold the seed up in a dark wollen cloth, about three-ply, tie compactly with twine, and soak the packet in warm water for 12 or 15 hours. Sprout a well-rounded teaspoonful of seed for every ten square yards of bed which should produce a sufficient number of plants for two acres. When the packed of seed has been soaked in warm water for the time stated, put it in a closed tin or other similar vessel, and place in a warm situation, as near the kitchen stove, and keep warm and moist until the seeds show general sprouting. The bulk of seed should show quite a speckled or grey appearance with germinated seed before sowing. Have the bed ready—a rich, black soil is best for producing plants. To prepare the bed, dig and pulverise to the finest tilth to the depth of 12 in. to 18 in. use no manure. After the bed is fined and levelled, pile wood upon it plentifully, and burn it well, so that the soil is well cooked to the depth of 12 in. or 3 in. This process destroys all vestiges of insects and the seeds of noxious grass and weeds and improves the texture of the soil. Again rake the bed well, and clean it of rubbish. The seed being ready, as above described, mix thoroughly with about half a bushel of moderately dry fine, sifted soil, adding sufficient ashes or cornmeal, or other white material to give the mass a bright appearance, so that it can be seen in contrast with the soil of the bed. Make sure that the seed and soil are very thoroughly mixed, by sifting through a fine sieve a number of times. Sow by hand lightly and evenly, never allowing handfuls to fall in a place. Make three or four sowings instead of sowing all at one going over. In this way an even and regular distribution of the seed will be accomplished. Sweep the bed very lightly with an ordinary house broom, dragging the broom rather than brushing. Water the bed freely at once with a fine-rosed sprinkler, slowly so that the water does not run on the surface and float the seed into heaps. Now cover the bed with the cloth called bessian, the cheaper, open quality, laying the cloth, flat upon the bed in contact with its entire surface, and pin it down securely on all sides. All future waterings, until the plants are well up, must be done upon this cloth, which takes the water readily and prevents it from flowing on the bed's surface and washing the seeds out of place. The seeds will "come up" better under this cloth, and more evenly,

than in the open air, especially if there is any wind. The tiny seedlings will appear in from two to four days, and the hessian may remain lying upon them for two or three days longer, or until the plants show signs of stretching—their stems lengthening out as they reach upward for more light. Stretching must not be permitted, as it greatly weakens the plants. The hessian must be raised about 3 in. or 4 in., resting on poles or cross-sticks for support. From this period on the bed of young plants should have a plenty of light and moisture, and should be covered only at night for protection from cold and frost, and during the heat of the day for protection from a very hot sun. To nourish and hasten the growth of plants liquid manure should be used—a very weak solution at first when the plants are young and tender, and of greater and greater strength as they grow larger and become more hardy. Very strong liquid manure should never be used, however. The beginner is apt to make it too strong. Good barnyard or stable manure, well rotted, is the proper material. Soak it in water, strain and dilute with water with judgment, being careful to err, if at all on the safe side by making the solution too weak rather than too strong.

PROTECT THE PLANTS.

Beds of tobacco plants should by all means be protected from the wind, especially dry, hot winds. So, protected they will grow much more rapidly and perfectly, and should become sufficiently developed for transplanting in about eight weeks from the time the seed is sown. For avoiding the wind there is no better plan than boxing in the bed with boards, and it is not a bad plan to have the bed in a pit its top about 12 in. or 18 in. below the surface, in which case care must be taken that water does not flow into it during heavy rains. In the woods far removed from the fields of cultivation, near a river or creek, is the best place for the plant-beds, looking to the avoidance of fungus diseases and destructive insects that may infest the farm premises, and to a constant supply of water.—*Australasian.*

THE FORMOSA TEA INDUSTRY.

Memorandum on the Tea Industry of the Island of Formosa.

BY THE BRITISH CONSUL AT AMOY.

The following notes have been drawn up from personal knowledge supplemented by information furnished by the Japanese authorities. Attached hereto will be found a pamphlet* issued by the Formosa Government which will be of interest, and will, it is hoped, assist to a clear understanding of the tea industry.

* The pamphlet may be seen by those interested at the Chamber of Commerce.

With regard to the Export of tea from this Island, the "season" does not coincide with the twelve months' returns from January to December of the Customs tables, and an extract has therefore been made (see below) for the sake of comparison from both the Customs returns and the Consular reports on the season's yield for the last five years and seasons, dating from 1897, when the Island was still suffering from the effects of disturbances consequent on the Japanese annexation.

Export of Tea, 1897-1901, extracted from the Japanese Customs Return.

Year.	Oolong.		Ponchong.		Total
	Quantity.	Value.	Quantity.	Value.	Value.
	lb.	£	lb.	£	£
1897 ...	17,857,438	654,583	2,145,152	46,794	701,377
1898 ...	17,422,631	569,684	2,704,185	52,673	622,357
1899 ...	—	549,834	2,918,277	60,812	610,646
1900 ...	—	496,103	3,303,497	67,038	563,141
1901 ...	—	383,411	2,920,228	52,610	436,021

Return of Season's Yields 1897-1902 from Consular Reports.

Season.	Exported to Amoy.	Exported to Japan.	Total.
	Half-chests.	Half-chests.	Half-chests.
1897-1898 ...	484,061	—	484,061
1898-1899 ...	421,271	—	421,271
1899-1900 ...	377,848	32,502	410,350
1900-1901 ...	359,000	39,000	398,000
1901-1902 ...	338,500	64,500	403,000

Especially worthy of notice, apart from the steady decrease, up to last year, in quantity and value of this Export, is the growing trade via Kelung to Kobe for further shipment to the United States at the expense of the Amoy trade during the last three seasons. The inclination of the Japanese authorities is naturally all for the development of the Export of this staple to their own country, and it receives every encouragement from them in that direction, in respect of harbour development at Kelung and by means of preferential duties or harbour dues. The Oolong teas are the final quality of teas produced here and are destined for the American and London markets, whilst the Ponchong tea, which is, both as regards manufacture and export, in Native Chinese hands, is sent for consumption to the mainland and the Straits Settlements. This latter tea is highly scented by means of the blossoms of certain fragrant flowers—among them being those of the gardinea, the Tchu-lan (aglaia odorata, Lour.) and Magni (Jasminum Sambac), but the Oolong teas are not dependent or any adventitious aid for their aroma. The following notes on the preparation of tea have to do solely with Oolong leaf. It will be understood that the leaf goes through two courses of preparation, one at the hands of the cultivator or planter, and the other by the tea-merchant at Twatutia (Jap. Daidotei) the local tea market and export centre, where the leaf purchased from the planter or broker undergoes another firing, and, after sorting, is put up in chests for shipment to Amoy or Kobe. It will be noticed that no kind of machinery is used in the manufacture, the entire process being carried out by hand with the aid of very primitive utensils, made principally of split bamboo in different forms, which, however, seem admirably adapted to the end desired. The wood used for chests is imported from the mainland ready cut into small pieces of standard size suitable for building up the boxes. The lead foil with which the boxes are lined is made by hand, being pressed when in a molten state between large tiles, and then cut to measure locally, the lead use for the purpose being imported in pig form from Australia. The districts under tea cultivation in this Island lie between Lat. 24°N. and Lat. 25°10'N., extending from Taichin and Shoka in the South, and Keiung and Kimpaoli in the North; the intervening country being one almost continuous stretch of hill and uplands. The parts most famous for tea are the hills and uplands on both banks of the Tokoham and Kelung rivers, whilst of these tracts the locality which yields the choicest leaf of the whole Island is Paichipo, the upland country around the eastern extremity of the Tokoham river.

The table below gives the names of the principal producing centres and the respective areas under tea-cultivation:—

Prices of all commodities and consequently of labour have risen year by year since the annexation of the Island to Japan. Rice in particular has gone up in value to an extraordinary degree, and great distress has generally been felt in consequence. The expense of such industries as the manufacture of tea have experienced an increase of fully 60 per cent in ten years, or an average of 6 per cent per annum. The following is an estimate of the expense entailed in the preliminary manufacture of tea for delivery to the tea-merchant; taking 100 catties of tea as the unit (1 catty = 1·33 lb.)

	£.	s.	d.
RENT (say)	0	10	5

Note.—Rent of one "Ko" (1956 sq. yds.) is gold yen 30, or £3 2s. 6*d*. A "Ko" bears 10,000 plants and produces 600 catties of raw tea

CULTIVATION (say)	0	6	0

Note.—The tea-gardens are tilled four times a year. in spring, Summer, Autumn and winter. For one "Ko" of garden 43 coolies are employed, their wages being 40 sen (10*d* a day including food, making a total of £ 1 15*s*.

PREPARATION OF TEA (say)	1	8	4

Note.—Subdivided as follows:—

	£.	s.	d.
Picking	0	12	6
Fuel	0	1	6
Charcoal	0	1	10
Labourers	0	4	6
Do. food ...	0	8	0

Total...£2 4 9

Over 100,000 persons are engaged in the production of tea in this Island, and it is said that in Twatutia alone those occupied in the business number over 10,000 males and females. Labourers in the districts given up to the cultivation of tea-gardens are all natives of Formosa, and in the intervals of tending the tea are all engaged in farming and agriculture.

With regard to the labour engaged in the final preparation of the tea, the shorters are all natives of this Island, but the remainder immigrate temporarily from the mainland of China as occasion requires. This custom is of long standing, and intending employers have to engage their men in advance, making the re-engagement at the close of each season when their employes returns to China. Their passage money is advanced to them, half the wages of the season is paid to them on account, and the balance is handed to them when they leave the Island. Rates ruling for labour are approximate as follows, when calculated by the month:—

	s.	d.
Tea-coolies in Twatutia	14	7
Tea-sorters (women and gir's) ...	9	5
Tea-garden labourers	15	8
Tea-cultivators	18	9

Wages paid to coolies by tea-merchants and farmers vary, but the above is a fair average. Wages paid by the merchants in Twatutia are given above as for the month, but they are as a rule estimated in the lump for the nine months or so of the season. Tea-sorters are paid by the day, and it is the general custom to supply coolies and sorters with food, at an average cost per head of about 6*s*. a month. Tea-gardens in Formosa are, as a rule, held by natives of the Island, who either rent uncultivated land from the owners, paying certain rates for fixed periods, and plant tea for their own profit; or rent a garden already planted. The former pay about 6*s*. a year for one "Ko" of untilled land, and the latter a rent of about £2 10*s*. the "Ko" per annum. As already stated there are two processes in the manufacture of tea; the preliminary preparation or curing by the planter and the final process carried out by the export-merchant. There are many methods practised by the cultivator in the first process, varying with the different districts, but the variation is unimportant. The successful production of Oolong tea depends greatly on the weather, and whether the season is favourable to the development of the leaf. The preliminary preparation of the leaf is, according to the season of the year, as follows:—

DISTRICT.	AREA. Acres.		NUMBER OF PLANTS. Number.
Paichipo ...	274·81	...	6,300,000
Haisoanpo ...	601·36	...	14,879,600
Bunsoanpo ...	757·74	...	22,500,000
Sekiteito ...	1,473·87	..	36,470,000
Tokampo ...	2,249·60	...	62,890,000
Aachirifumpo ...	1,114·14	...	6,080,000
TOTAL...	6,471·52	...	149,119,600

SPRING TEAS.—The fresh picked leaf is first spread on a cotton cloth (No. 3, plate 10, of the pamphlet), and dried in the sun until it curls up. This is to assist fermentation, and takes about 20 or 30 minutes, the workman in the meantime turning it over once every five or six minutes. The moment when this process is complete is recognized by the smell, and the tea is then taken under shelter to finish curling which is carried out as follows:—A small quantity (about 1½ lb. or 2 lb.) is laid on flat round trays, made of split bamboo, arranged on shelves (No. 4, plate 10, and see plate 11), and the leaf is turned over at intervals of four or five minutes to let the air circulate freely, whilst it is rubbed between the hands to promote fermentation. Fine dry weather is required for this part of the process, as damp weather destroys the aroma. After the preparatory indoor drying has gone on for about two hours the leaf is emptied into larger trays (No. 6, plate 10, and see plate 11) holding some 30 to 40 lb. and turned over by hand for another two hours or so at intervals of about ten minutes or a quarter of an hour, the process being considered complete when the leaf shows reddish brown at the edges, and gives out a fragrant scent in place of the raw smell of the green leaf. It then undergoes a first firing. About 2½ lb. to 3 lb. or more of the leaf is placed in a shallow iron pan over a fire (No. 7, plate 10), after three or four minutes the leaf softens owing to the evaporation of its moisture, when it is removed to another pan and fired for another two or three minutes. (Some prefer to fire the tea for six or seven minutes in one pan only.) After this it is transferred to small split bamboo trays which are placed on the "hai-i" or rubbing-table, where the leaf is rubbed and pressed by hand for two or three minutes. The second firing, is much the same as the first, the only difference being that in the latter case the fire is not so hot as in the other. After the second firing, the leaf is poured out into a "toppin" or bamboo mat (No. 9, plate 10) and rubbed and pressed between the hands for some seven or eight minutes until the moisture comes out of it, which is a sign that this process is finished. The compressed leaf is then well separated by hand, and is put to the first drying, the method of which is as follows:—5 lb. or 6 lb. of live charcoal are put into the fire places (plate 12), and after the fumes have dissipated a "poelan" or bottomless round bamboo cylinder (plate 12) is set on the top, and on this rests a fine mesh sieve (No. 10, plate 10), holding about ½ lb. of the leaf at a time, where it is dried for one or two minutes. For the second drying the process is repeated. The leaf is then subjected to a third drying to complete the entire process before delivery to the merchant. In this last drying it is necessary to keep up a slow fire, and the fire is therefore banked up with ashes, the frame over it, and some 6¼ lb. of tea in the sieve which surmounts it: the leaf being turned over once in 10 minutes for 2½ to 3 hours. Owing to the cooler weather, raw leaf prepared for spring teas, takes a very long time in curling—and the liquor, appearance and aroma being all inferior the tea commands a low price.

SUMMER TEAS.—The process of preparation is identical with the foregoing, but owing to the difference of the temperature the time occupied in curling is shorter (see table below). The leaf prepared at this season is of the very best quality.

AUTUMN TEAS.—For time occupied in process of preparation see table. These teas are only inferior to the summer teas, with a good aroma, and find a ready market.

WINTER TEAS.—For time occupied in process of preparation see table. Tea prepared at this season is, for climatic reasons, inferior in aroma, and can be classed with the spring teas.

The table below gives the times for the steps of the preliminary preparation at the four different seasons of the year:—

	Spring Teas.	Summer Teas.	Autumn Teas.	Winter Teas.
	h. m.	h. m.	h. m.	h. m.
Sun-drying and curling ...	30	7	13	30
1st indoor ...	2 00	1 30	1 40	2 20
2nd do ...	2 00	1 30	2	2 10
1st Firing ...	5	5	5	5
1st Rubbing and Pressing ...	3	3	3	3
2nd Firing ...	4	4	4	4
2nd Rubbing and Pressing ...	4	4	4	4
1st Drying over Fire ...	2	2	2	2
2nd do do ...	2	2	2	2
3rd do do ...	3 00	2 30	3 00	3 00
Total...	7 50	5 57	7 13	8 20

Questions addressed to tea planters with regard to variation in quality of teas elicited the opinion that this depended greatly on the care and attention given to the four steps of turning over, drying, rubbing and firing. If the turning over is carried on for too long a period, the leaf becomes soft and loses its aroma. Especial care must also be taken that the leaf be turned over uniformly. If the pan-firing process is too quick it leaves a raw smell in the leaf, and if is too slow it dissipates the aroma. It is important that every part of the leaf should be brought into contact with the pan. If it is subjected to an insufficient rubbing the leaf will not curl. It is better to rub too much rather than too little as the rubbing and rolling have a great effect in producing a good scent. If the leaf is in sufficiently fire-dried it will not yield a good aroma, and owing to the moisture remaining in it will easily deteriorate in quality afterwards On the other hand if the fire-drying is too prolonged or the leaf is exposed to too much leaf heat, a poor aroma is the result. Great care has to be exercised therefore to insure a properly gradnated drying. Four catties (533 lb.) of raw leaf yield one catty of rough prepared tea: therefore, as 10,000 plants give 20 piculs (1 picul =100 catties) of raw leaf, the same number of plants will yield five piculs or 665 lb. of prepared tea. The final firing of the tea in the godowns of the merchant reduces the weight by another 10 or 15 per cent. The last process consists of sorting the tea by hand and sieve (see plates 13 and 14), when it is fired for some 12 hours, with an interval of cooling for one or two hours after 7, 8, or 6 hours' firing, and is then packed for shipment. The merchants are of opinion that the final firing is the crucial step of the whole process.

H.B.M. Consulate, R. DE B. LAYARD.
Tamsui-Formosa, 19th May 1902. *Consul.*

AN ACCOUNT OF THE CULTIVATION AND MANUFACTURE OF FORMOSA TEA, PUBLISHED BY THE DEPARTMENT OF AGRICULTURE AND COMMERCE OF THE GOVERNMENT OF FORMOSA.

(*Translated from the French.*)

FORMOSA TEA.

In the North of Formosa between 24° and 25° 10 North Latitude, there stretches a district of from 160 to 170 kilometers in length and 80 to 120 kilometers in breadth, intersected everywhere by chains of mountains which occupy two-thirds of its surface. This tract of land, which is entirely cleared, is the centre of the production of the tea called "Oolong" whose quality is renowned. The numerous villages, which cover the valleys there, are inhabited by Tea Planters. For the most part these plantations are in terraces on clayey slopes which facilitate drainage; this advantageous position joined to a climate particularly favourable gives them a solid prosperity. The temperature does not rise above 28° centigrade (82° Fahrenheit) in the highest summer heat, never falling below 13° (55° Fahrenheit) in the depth of winter. The yearly rainfall is, 2000 m/m. The plantations are therefore exempted from an intense heat and a vigorous cold, which would both be injurious to their fertility. In this region, so privileged by nature, the cultivation of tea has succeeded in reaching an extraordinary extension, so much so, that the slopes and the valleys are entirely covered with this luxuriant vegetation. Of all the plantations the best known are those of Tokanpo, Haisoanpo, Chutenpo, Paichipo and Bunsoanpo situated on the upper course of the River Tamsui, in the valleys of Toakoham, Keelung and Shintiam.

The origin of tea cultivation in Formosa is obscure, but it is believed that the tea plant was imported thither from China, about 100 years ago.

At the commencement, the cultivation was limited only to a few unimportant plantations started on the outskirts of Taipei by some private individuals for their personal use; but from 1855, it began to develop, and from that date steadily extended year by year. At the sametime, owing to the choice of varieties of tea and to the improvement in the process of preparation, the yield and the quality of the product did not cease to improve, so that to-day the north of Formosa is endowed with an abundant wealth. Eight varieties of tea have been introduced there according to the soils that suit each of them. The different varieties cultivated reach a height varying between 0 meters 4 and 0 meters 7 or 8.

Generally the plants are obtained by sprigs. Transplanted, they begin to yield after 4 years, and from the 13th to the 16th year which follows their transplantation, they undergo a stump cutting. The picking of the leaves takes place 6 or 7 times during the year, from April to November. They pick only the young terminal leaves which are plucked by the hand, three at a time with the greatest care. The teas are known according to the season of the picking. There are the Spring, Summer, Autumn and Winter crops. The extent of the plantations varies from 100 square metres (about 1-40 th acre) to 300 square kilometers (74,114 acres). Their outturn is about 1,200 kilogrammes=(2645 lbs.) of green leaf per 10,000 square meters (2·471 acres)=1070 lb. per acre. The cultivation is simple and easy, the soil naturally fertile claims only four tillages during the year and it does not require any manure which, far from being useful, would deprive the tea of its characteristic flavour, as has been proved by experience. The tea of Formosa is prepared in two different methods, according to which it is either called "Tea Oolong" or "Tea Pawchong." "Oolong" Tea is of long standing in Formosa, but the production of Pawchong tea is rather recent. We shall now sum up briefly the Processes of Preparation of the two above-mentioned kinds of Tea.

OOLONG TEA.

The preparation is two-fold. The first which is but temporary is made at the Tea maker's. The second which is the final one, on the premises of the Tea merchant.

A. TEMPORARY PREPARATION.

As the work is done by men's hands only and without any machinery, the result depends on cleverness, which is acquired only after years of practice; in fact it is a question of real art which is grasped by workmen of experience, who reach a perfection absolutely inimitable, and which entirely depends on the individual himself. This is the process of the Temporary Preparation of Tea:—The picked leaves are spread on a cloth called "Moa-po-tia" and put out to dry in the sun, in order to obtain a first softening. Then they are stored in a room, where they undergo a second softening, heaped up in "kalei," (a sort of frame or round board made out of bamboo strips interwoven) placed one over the other. Poured back into vases called "kamwo," they are submitted to a third and last softening, before being warmed in pots. The softening, having for its object to perfume the tea by the fermentation that it produces, is a delicate and important operation which requires from the workmen great cleverness. In order to obtain a good result from the three suc-

cessive operations, it is necessary to constantly observe the state of the weather and to take note of it. The heating in pots (a la marmite) is made at two different times. In this operation the difficulty is to get the necessary degree of heat. When out of the pots (marmite), the tea is dried at three different times in vases called "Poelan" with a fire carefully regulated. These are the different operations necessary to the temporary preparation of tea. It is said that this process requires altogether 7 h. 50 in Spring, 5 h. 54 in Summer, 7 h. 38 in Autumn, and 7 h. 13 in Winter. Whta is essential in the preparation of "Oolong tea" is to give to it first its perfume, then its flavour and colour which is seen when decocted. Its appearence, when dry, is a matter of less consideration. The preparation of "Oolong" tea consists then:—1. In a scrupulous care to be used in the softening and the desication. 2 In a careful examination of the prepared tea which is obtained through the proper and correct tests which every tea-planter and cultivator possess.

The ratio of the weight of the green leaf to that to which the preparation called "temporary" reduces it being 4 to 1, it follows that a plantation of 10,000 square meters will produce 300 kilogrammes of tea of "temporary preparation," if its yield in green leaf is 1,200 kilogrammes. The tea of "temporary preparation if its yield in green leaf is 1200 kilogrammes. The tea of "temporary preparation" is called "tea in bag," because the producers carry the same and deliver it in bags of the capacity of about 34 kilogrammes.

B. Final Preparation.

The tea merchants of Toa-Ko-Ham buy from the cultivators the temporarily prepared tea which then undergoes a second and last process in the manner following:—The leaf is passed through a perforated framework, being then thrashed with a winnow called "Shokalei." In this manner only the finest leaf remains. This is then put for 7 or 8 hours in an oven and warmed to the right temperature. This work finished, the tea is packed in cases. The second preparation reduces from 10 per cent to 15 per cent. the original quantity of tea which has been so treated, and the tea cases are of a square shape, in wood, fitting exactly to a doubt case in tin. The wood used for the manufacture of the outside case reminds one of "Cryptomeria," but it is harder and less elastic. Every year it is imported from Amoy. The dimensons of the cases are not uniform; some can contain 20 to 33 catties (27 to 44 lb.), others from 7½ to 15 catties (10 b. to 20 to lb). The large size is called a "half-chest" and the small a "box." Outside, all the cases are wrapped up with paper upon which are designed flowers, birds or personages, and which bear also the name of the tea merchants. Tea, after its second process, is commonly called "tea in case." "Oolong tea" holds the mean between black and green tea, from which it is distinguished by its delicious perfume and agreeable flavour. It has both refreshing and stimulating properties. It bears different marks which are generally used in the markets of Amoy and America as distinguishing the qualities:—

1st.	Choicest.	5th.	Superior.
2nd.	Choice.	6 h.	Good.
3rd.	Finest.	7th.	Fair.
4th.	Fine.	8th.	Common.

Although known in China since the olden times, the method of preparation of "Pawchong tea" was introduced into Formosa only 19 years ago. Its preparation consists of heaping up in a closed room "Oolong tea" mixed with fragrant flowers which impart to it their perfume. This heap is then dried and the flowers are finally removed. Tea so prepared yields a sweet taste and a peculiar smell. The flowers intended for this use are of four different kinds which give their name to the tea which they perfume. Pawchong tea is wrapped up in separate paper packets and packed in a case whose partitions are covered with tin foil just as in the case of Oolong tea. The outside is wrapped up with paper which bears a description of the contents, and the whole is covered with a bamboo mat. The cases are described as being of 1 nin (= 37 grammes and ½ of silver), of 2 nin or of 4 nin according to the quality of the merchandise they contain, although the capacity is equal to 20 catties (27 lbs.) for all the cases.

The export trade of Formosa tea owed its source to an attempt made by the Englishman J. Dodd, 31 years ago, with 5,000 lb. of tea which he forwarded to Amoy, and from there to the United States through the English firm of Messrs Tait & Co. From that date this branch of commerce made very quick progress. Formosa tea has surpassed in reputation all similar products of the Far East imported into the American market. It has attained the first rank amongst the articles of commerce in the Island, and its export has now reached the value of 6,000,000 yen per annum. The United States of North America are the most important buyers of Oolong tea. Nine-tenths of the whole export of Formosa tea go to their markets. A small quantity is exported to Canada and to England.

The cargoes intended for America come down the river Tamsui and arrive at the port of the same name, where they are transhipped aboard steamers and sent to Amoy and from there to New York *via* the Suez Canal. Eight or nine-tenths of Pawchong tea are forwarded to Java Borneo Sumatra and Australia: the remainder is sent to Annam Siam Singapore and to other parts of the Straits Settlements. The shipments intended for Australia go *via* Amoy and those for Annam and Singapore *via* Hongkong.

Yearly Comparative Statement of Quantity and Value of "Oolong" Tea Exported

Years.	Quantities.	Value.	Average Value by 100 Cattles.
	Catties.	Yen.	Yen.
1867 ..	293,000		
1868 ..	396,100		
1869 ..	546,900		
1870 ..	1,054,000		
1871 ..	1,486,800		
1872 ..	1,951,300		
1873 ..	1,560,900		
1874 ..	2,461,000	808,369,592	32,847
1875 ...	4,157,300	1,049,601,845	25,247
1876 ..	5,890,5[illegible]0	—	—
1877 ..	6,923,000	1,904,655,760	27,512
1878 ..	8 026,0 0	2,283,778,598	28,451
1879 ..	8,503 200	2,955,916,396	34,762
1880 ..	9,047,500	3 278,524.480	36 237
1881 ..	6 944,600	3 395 207.828	35,203
1882 ..	9,030,300	3,651,130,896	40.432
1883 ..	9.905,000	3,398,048.920	34.306
1884 ...	9,867,400	3,539,633,728	35,872
1885 ..	12,273,000	4,122,746,160	33,592
1886 ...	12,128.700	5,066 109,475	41,769
1887 ..	12 644,200	4,995,065,921	39.504
1888 ..	13,574,100	4,429,826,090	32,634
1889 .	13,070,800	4,366,901,996	33,409
1890 ..	12,[illegible]62,900	4,688,475.600	36,449
1891 ..	13,573,300	4,126,891,200	30,400
1892 ..	13,671,700	4,443 364,870	32,573
1893 ..	16,394.900	6,167,761,380	37,620
1894 ..	15,400,300	6,144,719.700	39,900
1895 ...	13,399,8 0	5,991,171,210	44,760
1896 ...	15,923,500	5 851,022,000	36,744
1897 ..	13,448.700	6,458.850,000	48,025
1898 ..	13,073.300	5,696,842,000	43,576

DESTRUCTION OF INSECTS.

We have received from the *Academie des Sciences*, a brochure by M. M. Vermoral and Gastine on their latest experiments for the destruction of the *Pyrale*. Finding any pulverisations with liquid insecticides, soapy emulsions of nicotine petroleum, or pyrethrum, etc., useless, as these do not reach the insects wrapped up in the tender leaves by means of a web they weave for themselves, they tried arsenical solutions, salts of baryum, etc., in order to poison the leaves. But the wise creatures avoided these. Finally they had recourse to gas and toxic vapours, operating under conical metal bells, inside which increasing doses of gas were let out. But even these were unsatisfactory in their results. So they made an entirely new experiment with heated air. The pyrales, exposed to a hot vapour of a temperature of 48 to 50° centigrade, died in 3 or 4 minutes, They are killed at a much lower temperature (45 C.) if exposed for 10 minutes. Towards 40° C., they struggle and come out of their retreats, and the tender foliage is not destroyed at that temperature. The method of operation is further described. Metal bells were used and flexible tubes conveying watery vapour.

PLANTING AND PROGRESS IN THE FEDERATED MALAY STATES.

EXTRACTS FROM ANNUAL REPORT FOR THE YEAR 1901

By the Resident-General W. H. Treacher, C.M.G.

Mining.—As regards the chief industry, tin mining, while the average price of the metal for the year was lower than in 1900—$67.56 per pikul of 133⅓ lb (£108.15 per ton) against $74.15 (£132 per ton)—the output was:—

	Pikuls.	Tons.	Value.	
1900 ..	713,000	42,440	$52,800,000	£5,500,000
1901 ..	789,000	46,960	53,600,000	5,240,000

The out-turn approximated to that of 1896, which ranks next to 1895, in which year the largest record for the Federated Malay States was obtained, pikuls 825,000, the sterling price being £62 per ton only, or $32 a pikul. The labour force is returned, approximately, at 170,000 against 168,000 in 1900.

Tapioca cultvation is extending in Negri Sambilan and a condition attached to the alienation of fresh land for this product is that the planter must introduce some "permanent" form of cultivation, such as coconuts or rubber. Tapioca cultivation has been commenced in Pahang and will be encouraged. In Perak, especially, a considerable area of native-owned land is planted up with fruit trees. There is a ready sale for fruit to the miners, the trees require or receive little attention, and this fact indisposes the native to the more arduous labour of paddy cultivation.

The total forest revenue for the year under review was $287,542 and the expenditure $97,789. For 1899 the receipts were $212,730, and for 1900 $242,936. The estimated revenue for the present year is $260,000. It must be recollected that since the commencement of 1901 the collection of gutta percha *Palaquium* has been prohibited. The department is now *inter alia* energetically engaged in continuing to search for and reserve tracts known to contain palaquium trees, in planting up and supplying from nurseries, and in facilitating the growth of self-planted trees in the palaquium reserves. It has been found necessary to close, to a great extent, the mangrove (fire-wood producing) forests in Perak, which prove to have been over-exploited. These forests are being examined, surveyed and reserved. In due course working plans will be framed and the forests will be worked and become a source of considerable revenue.

Government Railways.—Open Lines.—The mileage open for traffic at the end of the year was 244½ miles (Perak 147, Selangor 97) as compared with 234 miles in the previous year. The nett revenue was $1,079,118, showing an increase of $43,750 over the results of the year 1900. The gross earnings were $2,240,822, and the gross expenditure $1,261,704. The proportion of working expenses to gross receipts was 53·90 per cent. as compared with 50·41 per cent. The worst percentages were shown by the new Province Wellesley section 91·77 and the new Larut and Krian section 91·94.

The Railway capital account of open lines is given as:—

Perak	..	..	$10,637,387
Selangor	..	..	7,896,624
			$18,534,011

and the return earned thereon during the year was 5·82 per cent, being for Perak 4·72 and for Selangor 7·30 per cent. The average cost per mile of construction and equipment of open lines to the close of 1901 is reported to have been $75,754—this includes the cost of constructing wharves, piers, buildings, sidings and the purchase of land at six ports, the expenditure at Port Swettenham alone amounting to $1,108,791. The new rates and fares referred to in my last report came into force during the year. The present rates are said to compare favourably with those charged on the Ceylon Government Railway, though the cost of maintenance and working is higher than in that Colony. The figures of capital account above given do not include the large sums assigned for the extensions in hand.

Construction.—The estimate for the cost of the 179 miles of extension, the construction of which was commenced in 1896, put by the revised estimates of December, 1900, at $16,472,982 has been raised by $389,778 so that the estimated cost per mile is $100,380. Of these 179 miles there were open to traffic at the end of the year 82 miles. The total expenditure on the extensions up to 31st December, 1901, is given at $14,103,743, all furnished by current revenue of the States.

Towards the close of the year arrangements were made for the engagement of a party of surveyors from Australia for the survey of the proposed extension from Seremban (Negri Sembilan) through Kuala Pilah to Kuala Gemas, on the Johore boundary—some 54 miles, A provision of $87,000 has been made for this survey, which is now in hand. With the completion of the extension to Kuala Gemas there will remain only the State of Johore to be traversed say 120 miles, to complete the line from Penang to Singapore. From Kuala Pilah will probably be the most accessible route for railway extension from the main west coast line into Pahang.

Administration.—A General Manager of the Federated Malay States Railways was appointed during the year—a long-needed step in the right direction. The appointment was conferred upon Mr C Edwin Spooner, lately State Engineer, Selangor, from whose annual report I have gathered the information summarised in these pages. Mr Spooner was transferred to the service of Selangor from that of Ceylon in 1891, and among other works carried out the Kuala Lumpur Water Supply, erected the admirable block of Government Offices, Kuala Lumpur, and engineered the fine road over the Semangko Pass from Selangor into Pahang.

Public Works.—The total expenditure on Public Works, exclusive of the cost of establishments was $3,600,000.

Irrigation: Krian (Perak).—This scheme was commenced in 1899. Owing to difficulties experienced in procuring labour and to the unhealthy nature of the work, the scheme is not likely to be completed before the close of 1904. Approximately 100 square miles of paddy land will be served by the works The headworks will impound some 7,256,000,000 gallons of water in a sheet of water covering 10 square miles. The main canal is 15 miles in length and there will be 20 miles of branch canals, and, in addition, a large number of distributaries. The main canal will be capable of carrying 650 cubic feet of water per second. The scheme will supply water for domestic purposes as well as for crop irrigation and will act as a complete system of drainage in seasons when the rainfall may be excessive. The estimated cost is over $900,000.

THE CAUVERY FALLS ELECTRIC POWER INSTALLATION.

Despite a hitch in the line arrangements, leading to a breakdown at the start, the Cauvery Falls scheme promises well. The Falls are ninety miles from the Kolar Gold-Field, on which not only is coal dear, but the scanty supply of water is another difficulty. Although not the longest electric transmission line in the world, there being one of 135 miles length in the United States, the successful operation of the plant is a very important and interesting event. The contract with the Mysore Government provides for the supply of 4,000 horse-power to the various mines under Messrs John Taylor and Sons' management with the option of additional power to the same extent later. It was estimated that the first 4,000 horse-power would cost the Mysore Government £300,000 to provide, while the provision for doubling the power if required by the mines, as no doubt it will be eventually, will entail the duplication of the plant, involving altogether a cost of some half-million sterling. The agreement with Government is for ten years, for the first of which £29 per horse-power is to be charged per annum to the companies; for the second, third and fourth years £18 per annum and for the fifth year not exceeding £24 per annum. By that time it is estimated that the Mysore Government will have recouped a good part of the expense it has been put to and for the remaining five years of the contracts the companies are only to be charged £10 per horse-power per annum. The Chairman of the Mysore Gold Mine, rather more than a year ago, gave the average cost of working by steam as £30 per horse power per annum, so that the advantage to the mining industry, apart from the important question of saving water, is obvious.—*Railways*, Aug. 13.

"IMPERIAL DEPARTMENT OF AGRICULTURE" FOR THE WEST INDIES.

From Dr. Morris we have received copies of; Reports on the Botanic Station, Agricultural School and Land Settlement Scheme, St. Vincent, 1901. Report on the Experiment Stations at Monserrat, 1900-1901. Reports on the Botanic Stations and Agricultural School, Dominica, 1900-1901. The Reports shew that good work is being done, especially in Dominica. Here are two interesting paragraphs referring to the last-mentioned Colony:—

African Rubber *(Funtumia elastica)*: The trees continue to make progress. Should the yield and quality of rubber prove good under the condition in which the plants are growing, this tree will have proved itself hardy and worthy of cultivation in the West Indies.

Central American Rubber *(Castilloa elastica)*:—Five of the largest trees (over eight years old) are now ready for tapping experiments A second batch of these plants are growing well in another part of the station. When young this plant requires as much shade and attention as cacao. At this stage it is also liable to attacks of a 'white blight.' In Tobago this tree is being used experimentally as shade for cacao. That it may be cultivated side by side with cacao may be seen at this station where cacao trees, within a few feet of it and under its shade, continue in health and bear good crops.

THE RUBBER FAMINE.

To the Editor of the *India-Rubber and Gutta-Percha Journal.*

Dear Sir,—Your correspondent who writes about "The Rubber Famine" appears to have as much knowledge of the subject as a cow has of playing the flute. How can any sane man talk about a "famine," whilst the imports into Liverpool *alone* are about six thousand tons yearly, to say nothing of the supplies received in Hamburg, Antwerp, and elsewhere? The supply is practically as inexhaustible as the sands on the seashore, and even if millions of rubber trees are ruthlessly slaughtered, others go on growing behind them as rapidly as the weeds in the back garden. There are, of course, fluctuations in the supply from certain districts, and difficulties in the way of collection and transport, but the supply is unlimited, and exports will certainly increase just as they have done steadily from Para, whence the output when I first knew the trade was only eight thousand tons yearly, but has now increased from 21,640 tons in 1896 to 27,730 tons last season. Nivloc.

—*India-Rubber and Gutta-Percha Trades' Journal*, July 21.

A PROPOSED NEW INDUSTRY IN NEW ZEALAND: PAPER.

The Government has sent to London a number of samples of New Zealand timber, in order that these may be thoroughly tested, with the view of having it decided whether it is possible to start the paper-making industry in this colony. Sir J G Ward, in mentioning this circumstance to the saw millers' deputation on Monday, said that one of the daily newspapers in Australia required as much paper in twelve months as could be made from timber dealt with by any sawmill in this colony in that period; and if an industry of that kind could be started here, it would result in great benefit generally.—*New Zealand Mail*, July 16.

DEATH BY POISONING.

EATING A TUBER OF "GLORIOSA SUPERBA."

A Dolosbage correspondent writing on August 19th, reports:—

"The *Gloriosa Superba* is in full blossom just now, and an inquest was held this morning on a Kangany's wife at Pen-y-lan who tasted one of its deadly tubers."

Trimen says nothing about poison:—

"G. superba, Niyangala, *S* Karttikaikilanku, Ventonti, *T*. Rootstock of arched, solid, fleshy, white,

cylindric corms, 6—12 in. long, and 1—1½ in. diam., pointed at each end, bifurcately branched (or V-shaped), producing a new joint at the end of each branch; Low country, in bushy places; common. Fl. Sept.-Jan.; at first greenish, passing through yellow, orange, and scarlet to crimson from base to apex. Throughout India and in Burma, Malay, Cochin-China, and Trop. Africa. The character of the corms given above is from a note by Dr. Trimen, who further says that they are slightly acrid."

But Dr. Geo. Watt gives fuller information:—

HABITAT.—.—A large scandent herb, grasping by the tips of its leaves; found in the forest of India, Burma, and Ceylon, ascending to 6,000 feet. It produces a large and very handsome flower, during the rain.

"MEDICINE.—The root is supposed by Hindu and Muhammadan physicians to have valuable medicinal properties. Dutt writes, 'It constituted one of the seven minor poisons of Sanskrit writers and had for one of its synonyms '*garbhaghatini*,' or 'the Drug that causes abortion,' but I am not aware of its being used as an abortive for criminal purposes. The tuberous root, powdered and reduced to a paste, is applied to the navel, suprapubic region, and vagina, with the object of promoting labour. In retained placenta a paste of the root is applied to the palms and soles, while powdered Nigella seeds and long pepper are given internally with wine.' Early English writers on Indian botany and materia medica speak of it as a violent poison, but none furnish satisfactory details of a case in which marked ill-effects were produced by its use. It seems highly probable that these ill-effects have been greatly over-estimated, an assumption which is confirmed by experiments recently conducted by Moodeen Sheriff. In a special opinion kindly furnished to the editor he writes: 'The root is not so poisonous as is generally supposed. I have taken it myself in small quantities, gradually increasing the dose to 15 grains. There were no bad effects, but on the contrary my appetite improved, and I felt distinctly more active and stronger. I have been using it in my practice during the last sixteen or seventeen years, and consider it to be a pretty good tonic and stomachic. Dose from 5 to 12 grains three times daily.' In Bombay it is supposed to be an anthelmintic, and is accordingly frequently administered to cattle affected by worms. In Madras it is believed to be specific against the bites of poisonous snakes, and the stings of scorpions, and is also used as an external application in parasitical affections of the skin. Surgeon-Major Thomson, C.I.E., has kindly furnished the following information regarding its utilisation in Madras:—'There are two varieties of this plant. The root of one plant divides dichotomously, that of the other does not divide at all but appears as a single piece shooting into the ground. The former is supposed by the natives to be the male plant, the latter the female. The male root is gathered during the flowering season, cut up in thin slices and soaked in butter-milk to which a little salt is added. In this composition it is soaked by night and dried by day for four or five days. It is eventually dried well and preserved. By this process its poisonous properties are said to be removed. When so prepared, and administered by giving apiece or two internally in a case of cobra bite, it is said to be an effectual antidote in cobra poisoning. It is called in Tamil '*Katharum cheddy*.' In scorpion and centipede stings and bites relief is obtained from the pain by applying a paste of the root rubbed up with cold water and then warming the part affected over the fire. This paste is applied also for parasitic affections of the skin."

"Notwithstanding its characteristic appearance, the tuber is occasionally employed by natives as an adulterant of the roots of Aconitum ferox, to which, indeed, they believe it to be closely allied in therapeutical properties.

"PHYSICAL CHARACTERS AND CHEMICAL COMPOSITION.—The root flattened or cylindrical, sometimes much pointed at both ends, sometimes consisting of two tubers uniting at right angles. On the upper surface may be seen a circular scar marking the point of origin of the stem, and on the under-surface beneath this another mark to which thin small rootless are frequently left attached. Covering the tubers is a thin loose, and wrinkled epidermis of a brownish-gray or pale-brown colour and on removing this skin, a brown or dark-brown surface is exposed. On cutting the tuber it is found to be dull-white and farinaceous internally. The taste is faintly bitter, the odour slightly acrid. A chemical examination by Dr. Warden resulted in the separation of two resins and a bitter principle, *superbine*, which the analyst considered closely allied to, if not identical with, that of Scilla maritima (*Dymock*)."

The case of this death in Dolosbage should be made the occasion of a careful enquiry and report for future guidance and protection.

CURING TOBACCO LEAF.

Some twenty years ago Mr. Cabanis, who had had experience in Cuba in planting tobacco, took exception, as a correspondent writing to us from Fort Stedman does, to the faulty methods adopted by the people of the country in curing their tobacco. He pointed out that sun-dried tobacco is never so palatable to smokers as that dried under cover. No doubt the latter method is not so easy nor so speedy as simply putting the leaf in the sun, The Shans apparently leave their tobacco alternately in the sun's heat and the night's dews with a result the reverse of pleasing. The correspondent says they are quite willing to learn a new method if there were only someone to teach them. Perhaps if the railway were made through the Shan States and the Shans were certain of securing a good price for all they can grow over and above their own requirements, there would be an improvement. The best tobacco-growing lands at present are at places distant from the railway, and perhaps that is one reason that so little care or trouble is taken by the cultivators in the important part of curing the leaf.—*Rangoon Gazette*, Aug 11.

RUBBER IN LOWER BURMA.

In the India rubber plantation at Mergui which is progressing favourably, the Government will in a few years have a highly remunerative return on the capital invested, beside the advantage to be derived from having introduced a new industry into Lower Burma. The extraction of rubber is said to be one of the simplest crafts in the world, which can be easily learned by the most ignorant. Kachins work it in the wild country between Upper Burma and India and equally wild and savage Indians in the Bolivian and Peruvian forests. A workman in the latter country usually taps from 75 to 159 trees a day, depending on his industry and the nature of the ground. A small incision is made in the bark and a tin cup attached to catch the sap. This is smoked and coagulated in the evening over a wooden fire which makes it hard, cured rubber. A collector gets from seven to twenty-one pounds of this rubber daily. The cost there comes to about 1s 4d per pound whilst the London price is from 4s to 4s 6d. The demand for rubber is increasing yearly, so that there would seem to be a bright future before the rubber industry in Lower Burma.—*Rangoon Gazette*, Aug 11.

REALIZATION OF FLOWERS.

TO THE EDITOR OF THE "TIMES."

Sir,—In *The Times* of Friday, July 11, you broach a subject of quite as much interest to agriculturists as to botanists, in reviewing "The Primrose and Darwinism." Whilst botanists are quibbling over small matters, fortunately for agriculturists there are men, who have no learned degrees, who for years have devoted their time to the subject of cross-fertilization, and turned it to practical account for the benefit of others. The Laxtons with the pea and the strawberry; Findlay in the development of the potato; and Garton in the cross-breeding of almost all farm plants, have done more good to British farming than has ever been effected by narrow laboratory tests, carried out without a definite object of practical utility. Whilst it has been generally accepted that grass such as the rye-grass and fescues could not be made to interbreed, Mr Garton has broken down the non-affinity of these varieties, and in his experimental grounds at Newton-le-Willows a large number of new cross-breeds of these may be seen growing at the present time. Oats which rarely produce more than two or three grains in a spikelet, except in a Chinese weed oat-grass which produces five, have been made to produce seventeen and any number from that down to two, and all with permanently fixed character. The kohl-rabi has been successfully crossed with the common swede; in fact, as a result of twenty years' unremitting work in cross-breeding, in the experimental grounds, there are at this moment tens of thousands of plants which shew variation to permit selection to establish a new and distinct breed from any one of them. As they are open to inspection this can be put to proof by any one interested.

In respect to insect-pollination, Mr Garton's observations go to show that Darwin far overstated the case. He has found that fertilisation occurs, at any rate among farm plants, at a much earlier period than is usually supposed, and certainly earlier than text-books suggest. So early is this performed that when insects enter self-pollinating plants, attracted by the colour or in search of nectar, fertilisation is completed; and his inference is that nectar is an after-product of fertilisation just as he has shown by his micro-photographs that an immediate result of fertilisation is the filling of the lodicules with moisture to ever open the glumes (at the base of which they are placed) to allow of the exit of the anthers, which, having performed their part of shedding pollen on the stigmatic surface, are no longer required. At this season, when the cereals are "in flower," an opportunity is afforded to anyone to test what he has so definitely shown, that when the anthers appear outside the glumes fertilisation has occurred some days.

Health has not permitted Mr Garton to publish a scientific account of his work, but when it does many of the points raised in your review will be cleared up. I have troubled you with this because, just at this season, the experimental grounds at Newton-le-Willows give too many proofs which botanists should not fail to see; and from the courtesy with which Mr Garton has shown his micro photographs to me and to others, I feel sure he would extend the same privilege to any who may be deeply interested in one of the most important matters relating to agricultural prosperity.

I am, Sir, your obedient servant,
W J. Malden, Principal, the Colonial College, Hollesley Bay.—London *Times*, July 25.

ARTIFICIAL RIPENING OF PLANTAINS.

The forcing to ripen of this delectable article of the table, to which a correspondent lately drew attention in your columns, is a practice for which the grower, and not the dealer, of the commodity is primarily responsible. In the Pulneys, where an enormous trade in plantains is carried on with the plains, the Hill ryot depends mainly, if not entirely, for his bare sustenance, on the sale of his fruit at the weekly markets in the lowcountry, and therefore it is not surprising he should resort to artificial methods for bringing the fruit to maturity. Beyond robbing the fruit of its freshness and flavour (for who has not relished a plantain ripened on the tree?) this "blowing" of the half green fruit, as the practice is termed among the fruiterers, has not been discovered to produce deleterious effects on the consumers. That the trade in plantains has, of late years, assumed vast proportions in the Lower Pulney Hills, will be patent even to a casual observer. After the wholesale destruction of the coffee, as the result of disease, the Hill ryots planted up the lands lately occupied by coffee, with plantains; and, in the long run, they found the latter more paying. The result is that almost every new grant, under the Darkast Assignment Rules, is cultivated with plantains. The comparative ease and rapidity with which this crop is grown in an eminently fertile soil, and the permanency of a crop once sown, added to the luxuriant yield in all seasons of the year, make the plantain the backbone as it were of the Hill population, who, but for that, would be reduced to dire straits. In fact, it is the growing of plantains that alone enables them to keep the pot boiling, and to meet their Government dues. Coffee and cardamoms do not pay, except the very large investors, owing to the depression in these industries of late. It is therefore but fair to say that any restrictions placed on the hitherto free grants of Government lands, under the Dharkast Rules, would be productive of incalculable harm to the smaller ryot, as it would be literally taking away the food from his mouth. No one, who has some acquaintance of the conditions of the Hill ryot and his humble aspirations, will accuse him of land-grabbing. His lot is already a hard one, and it will be made infinitely worse if undue restrictions are introduced on the easy and inexpensive methods, heretofore in vogue, of acquiring land on permanent *putta*. Of the numerous variety of Hill plantains and degree of excellence of each, a good deal may be written; but the most delicious and, at the same time, least harmful is the tiny *Navaram*, a fruit about 2½ to 3 inches in length, with a thin rind, and of a most delicate flavour and sweetness. The Hill people attribute curative qualities to this species of plantain. The huge red plantain, which attains perfection on the Hills and is noted for its succulence and richness, is the largest of the Hill plantains one would suffice for a meal. C. J. Stracey.
—*M. Mail*, Aug. 20.

ARTESIAN SPRINGS AND THE AUSTRALIAN DROUGHT.

With regard to the phenomenal outbreak of springs in various parts of New South Wales during the drought, Professor David, of the Sydney University, explains that it is due to the fact that after long spells of drought water-bearing rocks become very much desiccated, so that they contract, and in the process of contraction cracks are formed, which admit of subterranean water, which was previously hermetically sealed, finding an outlet for itself at the surface. The water coming from them, he states, might flow for weeks or months, but it was not likely they would prove such a lasting source of supply as do artesian wells, for, if the water was present in such a large volume, it would in all probability force a much bigger outlet for itself. Then rain comes, the earth is soaked, and the cracks close again; so the springs, he adds, cease to flow. The outbreak of such springs after a long drought are by no means rare.—*Melbourne Leader,* June 14.

BOTANIC STATION, TOBACCO.

This station was started in June 1899 at Dealfair, a valley situated opposite the landing place at Scarborough. The site was selected in 1898 by the Imperial Commissioner of Agriculture and the Superintendent of the Royal Botanic Gardens of Trinidad. The soil is fairly good and there is a regular supply of water from a small spring on the land. The first year's work consisted of clearing and preparing the land, making roads, paths and drains, and starting a nursery. The latter in 1899 contained 1,600 economic plants. In 1899 and 1900 the laying out of the Station was greatly advanced. In the latter year the nursery was increased to 7,500 economic plants, of which 2,157 were sold, bringing in an income of £15 7s 3d. A large number of cacao and other plants were distributed free to settlers on Crown lands and others. Latterly, a house for the Curator, an office and a shelter for visitors have been provided. Also a new entrance rendering the Gardens accessible from the landing place.

Attached to the Station is a travelling Agricultural Instructor whose chief duty it is to visit the holdings on Crown lands, and advise and assist the settlers. About five hundred acres are estimated to be now in course of being planted by cacao trees. The Agricultural Instructor also assists generally in promoting industries in the land.

The Station is mainly supported from the funds of the Imperial Department of Agriculture but the grant is supplemented, to some extent, by the Government of Trinidad. The Curator and the Agricultural Instructor are departmentally under the Superintendent of the Royal Botanic Gardens at Trinidad. The Station is occasionally visited and inspected by the Imperial Commissioner of Agriculture.—*Barbados Agricultural News.*

PLANTING IN COORG.

A beginning has been made in growing crops other than coffee. In two cases sugarcane has been grown, and ginger and saffron also in another, while elsewhere some attention has been paid to the cultivation of vanilla. The flowers of this plant, as is well-known, have to be artificially fertilised. This has been successfully accomplished in the case referred to with the aid of the humble Kurumber who has shown himself a very apt pupil and works most intelligently at the operation.—*Madras Mail,* Aug. 18.

PRODUCTS OF PARAGUAY.

The present important industries of Paraguay are the growing of Paragnay tea, maize, tobacco, oranges, beans and mandioc. The cattle industry is very large and exports of beef and hides extensive. Paraguay has immense forests of hard and soft timber, and an abundance of iron, marble, pyrites, copper and kaolin. The decree does not specify the amount, but authorises the necessary expenses for a proper exhibit of the country's resources and industries.—*Official.*

PLANTING AND R. B. GARDENS ON THE NILGIRIS.

From the Annual Administration Report (190-12) of the Government Botanic Gardens and Parks, the Nilgiris by R L Proudlock, Curator, we make the following extracts:—

Strobilanthes gossypinus, T Anders, flowered at the end of 1901, and it was a beautiful sight to see this shrub when it was in full flower, covered with bluish purple flowers; it is now ripening its seeds. The Curator has never seen this species in flower before. Most of the species of Strobilanthes flowers, as a rule, only once and then die.

The oldest tree of *Araucaria Bidwillii,* Hook, which is situated immediately below, and in front of the quarters of His Excellency the Governor's Medical officer, in the gardens, produced matured seeds during the year for the first time. Eleven seeds were sown on the 8th July 1901, and they have all germinated. The seedlings are still small, but are healthy and promising. This tree was planted in or about 1867 —*vide* paragraph 38 of the garden report for 1878-9.

A good deal of planting was done during the monsoon as usual. A number of plants of *Widdringtonia Whytei* Rendle, were planted in a ravine above the overseer' quarters, and also on the side of the ravine above Government House.

Seeds of a fine species of Phœnix (*Phœnix Canariensis,* Hort. were received from Sir George King, K.C.I.E., San Remo, Italy, on the 14th May 1901, and a good number of seedlings has been raised from them. Sir George King states that this is a very ornamental species of Phœnix which is commonly seen in gardens on the Riviera, and he thinks it would be likely to grow in Ootacamund and Coonoor.

A one-ounce packet of seed of *Paspalum dilatatum,* Poir, a grass which has received much praise in the newspapers during the last few years as a drought-resisting fodder plant, was received from Mr John Cameron, F.L.S., Superintendent, Government Gardens and Parks in Mysore, on the 23rd July 1901. The seed was sown on the 25th idem and germinated well. The seedlings were planted in trial plots at Ootacamund, at Sims' Park on the 28th October, and at Burliar on the 17th December 1901. The plants are dwarf in Ootacamund, while at Coonoor and Burliar they have grown well, flowered and seeded.

The following are a few notes on, and measurements taken of, a few of the species of economic importanoe recently planted in Burliar:—

Name of species.	Height.	Girth at 4 feet from the ground.
The Durian	6 ft 10 in	Not taken.
Durrio zibethinus Murr *a*	10 ,, 9½ ,,	4¼ in
Camphor	7 ,, 9 ,,	Not taken.
Cinnamon Camphora, Nees and Eberm *b*	12 ,, 4 ,,	6 in.
Avocado Pear	15 ,, 10 ,,	8 ,,
Persea gratissima, Gaertn *c*		
Para rubber	18 ,, 8 ,,	Not taken.
Hevea brasiliensis, Muell. Arg *d* ..	21 ,, 9 ,,	8½ in.
Do do *e* ..	29 ,, 0 ,,	6⅝ ,,
Central American rubber	12 ,, 0 ,,	Not taken.
Castilloa elastica, Cervy *f*	18 ,, 10 ,,	1 ft 5⅛ in
Kickxia Africana,	8 ,, 10 ,,	Not taken.
Benth *g*	17 ,, 10 ,,	0 ft 7½ in
Kallar variety of Ceara Rubber	22 ,, 6 ,,	0 ,, 9¾ ,,
Manihot Glaziovii, Muell. Arg· *h* ...	23 , 5 ,,	1 ,, 4 in

In order to give effect to the proposal and suggestion made in paragraph 50 of last year's report, to collect and plant in order in Burliar or elsewhere the progeny of the best rubber-yielding trees which are discovered in other plantations from time to time with a view to comparing their relative merits,nine pits, 26½ feet, apart in one line, parallel to, and 30 feet distant from, the last line of Castilloa were planted with cuttings on the 9th February 1902 and with seeds on the 6th Maroh 1902, taken from the best rubber-yielding tree yet found at Bekki Kolley, Wynaad. It may be mentioned that this particular tree, which girthed 3 feet 3 inches at 2½ feet from the ground, yielded 14 ounces of dry rubber after one tapping, which was made on the 30th Jan. 1902. Adjacent to the line planted with the Bekki Kolley variety is a line of eight pits, 26½ feet apart, planted on the 23rd February 1902, with both seeds and cuttings of the Kullar variety. The yieid of rubber from the parent tree (now dead) was never accurately determined, but it was known to be good.

Mr H G Parsons of Beechlands, Polibetta South Coorg, in his letter, dated 25th January 1902, to the Curator, states that he possesses a ceara rubber tree "20 years old, that is yielding 10 lb of rubber per annum," and he further states, "I have no other trees that in any way come near such a yield and some give next to no latex." Mr Parsons has quite recently sent here a few seeds from his best tree and has also promised to send a few cuttings of it. The seeds have been sown, and should they germinate it is intended to plant a third line at Burliyar with the seedlings. Should this variety prove in due course to be a better rubber-yielder than the Bekki Kolley and Kullar varieties, a distinct advance will have been made in the work of selection which has been undertaken.

On the cleared area which is free of mahoganies the following species of rubber-yielding plants have been planted, 30 feet by 30 feet, in lines:—

FIRST LINE.—Eight pits planted in February 1902 with the Bekki Kolley variety of the ceara rubber tree.

SECOND LINE.—Eight pits planted in February 1902 with the Kullat variety of the ceara rubber tree.

THIRD LINE.—Pits vacant—to be planted with Beechlands variety—*vide* paragraph 49 *supra.*

The following species of rubber trees were planted on Bekki Kolley on the 3rd, 4th and 5th February 1902, with a view to seeing whether they will succeed or not in that part of South-East Wynaad, viz.:—

11 Hevea brasiliensis at 25 feet apart, planted 3rd February 1902.

12 Kickxia Africana at 25 feet apart, planted 4th February 1902.

12 Castilloa elastica at 20 feet apart, planted 4th February 1902.

10 Manihot Glaziovii (from the best latex-yielding tree on Bekki Kolley), planted on the 5th February 1902, at 24 feet 4 inches apart.

6 Ficus elastica at 100 feet apart planted 5th February 1902.

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a Raised from seed received on the 26th August 1898. The plants are doing well.

b Planted 1st December 1899. The plants are growing vigorously, and are rather bushy in appearance.

c Planted 26th August 1898. The plants are growing well, but have not fruited yet.

d Planted in November 1898: The plants are growing vigorously, and after small trial tappings, they have yielded rubber of good quality. They are, however, too young yet to be profitably tapped.

e This is the tallest tree in the 1898 plantation and is of the same age as the above.

f Raised from seed collected in April 1897, and planted in September 1898. The plants are making fine growth and flowered in March 1902, for the first time. Hitherto, in small trial tappings, these young trees have yielded a somewhat gummy substance possessing scarcely any elasticity and resiliency and therefore destitute of the properties of true rubber. Observations are being continued periodically so that definite information may be obtained as to when these particular trees will yield good rubber of marketable value.

g Raised from seed sown in April 1899, and planted in December 1899—*vide* paragraphs 11 and 18 of report for 1899—1900. The plants are doing well.

h This young tree, which has grown from a cutting put in on the 17th January 1900, now seeds freely and yields rubber of excellent quality.

ADAM'S PEAK IN CEYLON.

[The following paper in the *Scientific American* (July 5) is accompanied by four striking engravings entitled:—Adam's Footprint on Adam's Peak; Shadow of Adam's Peak at Sunrise, the Bibile mountain in the background; Section of the ascent to Adam's Peak; Adam's Peak seen from the inn of Laxapana.—ED. *C.O.*]

The followers of Buddha in India, Burma, Siam and Ceylon venerate Adam's Peak as their sacred mount; for, on the summit, which rises abruptly like a needle of rock from the mountains of middle Ceylon, there is to be seen, according to their belief, the imprint of a foot of the Buddha. Singularly, the Mohammedans consider this natural depression as a footmark of our common ancestor, Adam. So that Mohammedans as well as Buddhists come every year in crowds from the most distant parts of the country to testify their reverence for this holy relic like the Japanese in their regard for their sacred mount Fujiyama and the Chinese in a similar esteem for their Taishan in the heart of Shantung.

As, in the course of years, I have ascended these two mountains and published descriptions and photographic views, I undertook at the beginning of this year the same task with respect to Adam's Peak, less on account of the sacred footprint than those of the remarkable natural spectacle which has made this mount famous to Europeans; at sunrise Adam's Peak throws a sharply defined shadow, as deep as it is regular. This fact has been mentioned by various travellers, and it is even reported that the shadow has been seen from ships at sea, approaching the harbour of Colombo. But this is denied by the captains of the vessels plying regularly between Ceylon and the harbours of southern India. To some who have

been sailing in these waters for many years the precipitous top of the mount, which appears as sharp as a needle, affords a sign for steering their ships, but they have never observed the celebrated shadow from shipboard. I searched in vain in stores where Indian and Ceylon photographs are kept for views of the summit with the footprint and the temples built there, and decided to take the views myself.

Whoever gazes from below at the lofty peak, rising abruptly like an Indian Matterhorn from the towering masses of Ceylon, considers the ascent much more difficult than it really is. Not only do numerous pilgrims climb to the summit, but Europeans make the ascent every year; some of these, however, would hardly care to repeat it.

By dauntless enterprise a railway has been built in the mountains of Ceylon, and from Hatton, one of its stations, a convenient footpath leads, a distance of about 20 kilometres, to the inn in Maskeliya, which is situated in a valley at the foot of Adam's Peak. From here I started at midnight, accompanied by two guides and lantern bearers, and reached the Peak three hours later by gradual ascent. The climbing of the bare steep granite rock, which has a height of 2,260 metres, is less dangerous than fatiguing. In the upper part, in order to overcome the worst obstacles, series of steps have been cut in the naked rock and iron chains are strung along, similar to those on the Matterhorn.

At 6 o'clock in the morning we reached the summit. The plateau, which may have a circumference of one hundred steps, is inclosed by a wall breast high. Inside are a few low huts for the priests of Buddha and the pilgrims. From the centre of the plateau rises the granite rock 20 metres higher still, and on its very apex stands a small temple, open on all sides, in which the celebrated footprint is to be seen. This is here represented for the first time. (See illustration.) It requires a great deal of imagination to view this depression in the rock as the print of a human foot. The individual must have been of gigantic stature, for the length of the footprint, according to my measurement, amounts to 1.40 metres and the width 65 centimeters. On the south side stands a small altar on which the priests and pilgrims at sunrise deposit delicate white frangipani blossoms and grains of rice, afterwards kneeling with clasped hands and offering their prayers.

At 18 minutes past 6 o'clock a priest called my attention to the splendid disc of the sun, which appeared in the east in a saddle of the highest mountain of Ceylon, the Pedrotalagala. Opposite, on the west side, was seen the peculiar sharply defined shadow of Adam's Peak in magnificent grandeur. Like a dark pyramid of mist, it stood out from the gray background, which gradually became brighter. The higher the sun rose the lower the shadow sank, until finally it lay deep on the mountains at our feet. In two hours and a half after sunrise it faded away. This phenomenon is so peculiar and majestic that it keeps one from paying full attention to the splendid view presented from this lofty peak in every direction over this tropical island, so extraordinarily blessed. It was strange that half an hour after sunrise there appeared by the side of the principal shadow of the mount two others, paler, starting from the top and lower down diverging in direction; these shadows disappeared gradually.

The descent under the scorching rays of the tropical sun proved very troublesome; here and there we passed over smooth granite walls, steep places of 65 deg. Yet the rare spectacle of natural beauty was so grand and unique that I can well recommend the ascent of Adam's Peak to every tourist. There is more occasion to visit this peak than the sacred mountain of the Japanese, the Fujiyama.—For our illustrations and the accompanying description we are indebted to "Illustrir Zeitung.

UPPER UVA, CEYLON, AS A STATION FOR BRITISH TROOPS.

By Anopheles.

[In the "*United Service Magazine.*"]

The transport by sea of a large body of troops after the experience of the South Aftican War excites little comment and with our extensive mercantile marine now presents comparatively few difficulties, provided careful arrangements have been previously made. The ease and celerity with which the British troops were despatched from India to Natal was a momentous movement, the wide-reaching consequences of which are not yet, perhaps, fully appreciated. But it is well known in military circles that the Indian contingent prevented the Boers on the outbreak of hostilities from carrying their victorious arms to the Indian Ocean. At the same time it is fully recognised in the same circles that the Indian Government was reducing the number of white troops to an extent which would be dangerous or impracticable if an unruly native population or harrassed frontier had been engaging its attention.

In the recent Chinese troubles (and further troubles in the near future are likely to again arise) the Indian Government was called upon for aid; thus in our last two campaigns India has on each occasion been called upon for troops, and on each occasion she has gallantly responded to the call. It is the opinion of all thoughtful men that to rely on India for troops in an emergency is a dangerous proceeding. More particularly at the present time when our restless Northern neighbour is pursuing his usual tactics in Manchuria and Thibet. From her geographical position India is admirably situated to deal with any crisis in the Oriental region; on the one hand she can strike rapidly to the west, and other equally rapidly to the east; but when by so doing she renders herself open to attack, and a staggering blow delivered to her would have such far-reaching consequences, it is a serious matter to weaken her unless the point at issue is one of vital moment. It is with diffidence that I, a non-batant, mention the word strategy or deal event in a cursory manner with questions of that military science; but I think even a layman can grasp the strategical importance of the geographical position of India when he considers that officers still on the active list have seen India sending troops to Persia, Cyprus, Egypt, the Soudan, the Cape and China more than once. Granted that she has done this with impunity in the past, it by no means follows that it would be a good policy to do so in the future. What would have been the condition of Natal, and indeed the state of affairs at the Cape at the

present moment, if India from internal causes had been prevented from sending a contingent to South Africa? The point I wish to bring to notice is this—that judging by our recent military history it is not only advisable, but perhaps vitally important to have ready at hand to send in any direction, and at the shortest possible moment, a well equipped, healthy body of men, complete in every detail. to th se portions of the globe where hitherto India has been called upon to send her troops. Now, what are the conditions necessary to fulfil the above?

1—A favourable geographical position.

2—A country not liable to either external or internal attack.

3—Proximity to a good harbour with sufficient shipping.

4—Proximity to a railway.

5—An extensive country fit for military purposes.

6—Adequate local supplies, such as cattle, fodder, &c., &c.

7—A healthy climate for the troops.

The geographical position of Ceylon is practically the same as India. Colombo is the Clapham Junction of the East, where all the large Orient liners of the P & O, Orient, Clan, and other Companies call regularly, and where, consequently, the shipping necessary for the despatch of troops could be obtained and collected. The new breakwater and batteries now under construction will make Colombo secure from the elements and the enemy.

A glance at an atlas will, without argument, satisfy conditions 1 and 3.

Condition 2 is amply fulfilled. The insular position of Ceylon does not allow of its invasion as long as we command the sea, and the loyalty of the native population is such that the present governor, Sir West Ridgway, unhesitatingly offered the services of the only English regiment in the colony for duty at the Cape during the dark days of 1899.

The Ceylon Government Railway meets my fourth condition. It passes close to the country I am about to describe, and has stations at Diyatalawa and Bandarawella, in close proximity to ground in every way suited for a military camp, and within ten hours' journey of Colombo.

With regard to 5; Ceylon, to the majority of people, conveys the idea of a hot, moist, tropical country, enervating to a high degree, if not actually unhealthy. But the hill station of Nuwara Eliya at any rate is now becoming known, and it will not be strange to many to learn that other parts of the hill districts of Ceylon boast of an almost English climate; I may remark, parenthetically, in many respects a good deal better? I am not, however, advocating the claims of Nuwara Eiya. It is far too enclosed for the manœuvres of any but a very small body of troops, and even the open country in its near neighbourhood *(the Burrack and Moon Plains) is so studded with bogs and morasses that the movements even of a company would be largely confined to the high road. At the present some thirty or forty sickly men regain their stamina there. after the enervating climate of the low country. Hitherto the Sanatorium has been open from the middle of September till the burst of the south-west monsoon at the end of May or beginning of June. Nuwara Eliya, * from a social point of view, with its racecourse, golf links, club, and so forth, is a pleasant place enough in fine weather, but can scarcely become a station for practical, serious soldiering. In the neighbouring province of Uva can however, be found all the conditions necessary for the military training of 10,000 or more infantry in a healthy country, and with unrivalled climate. This appears such a startling statement that I propose to enter somewhat fully into the physical characteristics of the Province, its climate, and the health of the troops at present stationed there.

I cannot better describe the scenery of Upper Uva than by quotations from an account of a prolonged tour made through the Province in March, 1819, by Dr. John Davy (brother of the famous Sir Humphrey Davy), taken from his 'Account of Ceylon,' published in 1821. Dr. Davy was on the medical staff of the Army in Ceylon, with the title of Physician to the Forces. He travelled from Colombo to Uva *via* Ratnapura, and entered the Province from the Haputale (south) side, over the Idalgashena Pass, and from no point of view is the glorious scenery of Upper Uva seen to better advantage. * He says:—(Familiar to Ceylon readers.)

Dr. Davy visited Uva again later in the year 1819. His first tour was in March. On the second occasion he made his trip from the Nuwara Eliya side (about twenty miles north-west of Diyatalawa), and proceeded only as far as Fort MacDonald six miles north of the camp.

The amphitheatre of hills surrounding the plains of Uva on the west and north effectually prevent the clouds and rain of the south-west monsoon from reaching them. Sir Samuel Baker, in his 'Eight Years in Ceylon,' gives the following account of this curious phenomenon seen during the south-west monsoon, when, while the western side of the island is enveloped in mist and rain, the wet weather terminates abruptly at Hakgalla, and the panorama of Uva is seen in all its beauty. He says:—(Familiar to Ceylon readers.)

I can do little more than refer to a very interesting paper on 'The Botany of the Ceylon Patanas,' by Mr Pearson, B A, published in the proceedings of the Linnæan Society, vol. xxxiv. page 300, which will repay perusal. He enters very fully into the origin and present condition of this open country, and draws a somewhat close comparison between it and the savannahs of South America. He roughly estimates the extent of this patana, savannah or down country, as extending over 300 square miles, the far greater portion of which is in Upper Uva. He summarises his conclusions as follows:—

"An examination of such evidence as exists with regard to the origin of the patanas of Uva, and their western extensions up the slopes of the central ridge, leads to the following conclusions. On the Uva slopes below 4,500 feet (the lower limit of the Rhododendron) the peculiarities of the climate have co-operated with the periodically recurrent grass-fires to transform an open forest of low xerophytic trees with an undergrowth of grass (*i. e.* a savannah forest such as is still found on the eastern boundary of the plateau) into barren grassy plains. These plains, being almost completely denuded of soil, must be regarded as being

* Nuwara Eliya has a rainfal of 99·37 inches, and 2·2 rainy days; average of 26 7-12th years.

* The camp of the Boer prisoners at Diyatalawa is six miles from Haputale at the southern edge of the plateau.

of the nature of a permanent savannah, the natural re-afforestation of the greater part of which is impossible under the present climatic conditions."

The above descriptions, written years ago by Davy and Baker, apply equally well to the present condition of the country. I may say that its general appearance is very similar to the South Downs of England, more particularly their steep escarpments in the neighbourhood of the well-known Berkshire White Horse. In place, however, of the elastic turf which makes those downs the finest galloping ground in the world, the hills are covered with a short, coarse grass which frequently grows in clumps, which makes progression on horseback somewhat difficult. In the convolutions of the hills where the ground is marshy, small clumps of trees and jungle grow thickly, preserved by the wet from the summer grassfires. These marshes, unless the country is well-known, likewise impede the horseman, who is liable to be badly bogged if he endeavours to ride over them. In spite of these difficulties and drawbacks a flourishing pack of foxhounds (the Errebodde hunt) holds its annual meets on these downs, and many a good gallop is enjoyed by the sporting planters in pursuit of the wily 'Jack.' The hills are composed of gneiss, for the most part unstratified, but in many places convoluted and distorted. Above this is the mica-schist, occasionally garnetiferous, in many sections on the hill sides it lies beautifully stratified directly on the underlying gneiss; in other places quartz is interposed, and its presence has no doubt given rise to speculation as to its being auriferous. Bands of iron pyrites are not uncommon. The soil is composed of these disintegrated rocks with outcrops of gneiss. It is a lttle difficult to say how far Government rights extend, for as far as I can gather no complete survey of the country has as yet been made. But the question of the destruction of crops by the movements of troops is one of no great moment as there is but little cultivation, and the few paddy fields in the folds of the hills are of limited extent, and can be easily avoided.

I am told by competent authority that the country cannot be surpassed for instructional purposes in scouting and outpost duties; if anything it is too difficult, owing to the irregular and confused character of the ground. I am informed that many parts of the surrounding amphitheatre of hills, with their rocky, steep and frequently precipitous sides, closely resemble the kopjes of South Africa. As a country for infantry, both mounted and dismounted, it is unrivalled, but owing to the absence of roads and other drawbacks it is at preseut not suited for artillery.

The climate is a decidedly good one, certainly for nine months out of the twelve. From October to January the north-east monsoon brings very wet weather with violent thunder-storms; towards the end of January the weather clear and becomes fine and warm in the daytime and very cold at night, hoar frost being probably not unknown on the patanas. The burst of the south-west monsoon in May, which brings wet weather to the Colombo side of the island, only produces a few showers, but a persistent wind blows from this direction until September and the gradual setting in of the other monsoon. From the middle of June to the end of September men would take little harm from bivouacking in the open air, as the nights are perfect and not too cold. The maximum shade temperature in summer is probably not more than eighty-four degrees, and the minimum fifty degrees. The rainfall is between fifty and sixty inches, * the far greater quantity falling in October, November and December. In such an ideal climate and situation, 4,000 feet above the level of the sea, at the present is the camp for the Boer prisoners at Diyatalawa in the Province of Uva. And in this camp some 6,000 men have lived a healthy but monotonous life for the last twelve months; monotonous because 5,000 of them are prisoners, and the remainder British soldiers occupied in the deadly monotonous duty of looking after them. If Diyatalawa can justify itself as one of the healthiest stations in the East when its occupants are prisoners and jailors, how much more is it likely to justify it were it occupied by men in the full enjoyment of their liberty?

By the time these lines are in print it is possible that the war will be over and the prisoners, or many of them, will be returning to their own country.

What is to become of Diyatalawa camp, with everything now ready for the occupation of some 6,000 troops? Will it be sold for old iron or be kept permanently as a station for British troops? It would be a real boon if only the English regiment in the island was stationed here instead of being broken up into fragments at Colombo, Kandy, Trincomalee and Nuwara Eliya, where the rout in duties of a garrison inevitably tend to mental stagnation and peofessional deterioration.

When dealing with the sanitation of an area, the most correct method of coming to a right conclusion regarding it is by enquiring into the diseases of the native population, and discriminating between the preventible diseases and those that are dependant on local conditions. This method should be followed in preference to that frequently adopted of judging of a locality by the health of those newly arrived In it. in this instance the latter method would be particularly fallacious, inasmuch as of the two British regiments stationed here, one came from the hardships of the investment of Ladysmith, and the other from the malarious district of Dum-Dum, after long service in India. In spite of these drawbacks, the medical officer in charge of the former of these regiments writes in most enthusiastic terms of the physique and healthiness of the men after they had four months' experience of the place, *i. e.* after they had got rid of the diseases they had brought with them or contracted from the Boers. The latter regiment has been here for nearly nine months, and was in a very sickly condition on arrival. Some seventy men have been either invalided home or sent away for change, but how far their complaints were due to local causes or were legacies from Dum-Dum and elsewhere it is difficult to say, but India has probably most to answer for. With regard to malaria, which was rife in the regiment on arrival, it is noteworthy that an examination in August of 600 men, which included a draft of 150 men direct from home, showed that only two men had an attack of malarial fever for the first time here. One of these was a man of the draft. It is interesting in this connection to note that only three speciments of the genus *Anopheles* have so far been captured here; one by Mr. Green, the Government Entomologist, and two by myself.

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* Bandarawela three miles from Diyatalawa and with a similar climate has a rainfall of 64·89 inches; 40·81 of which falls in the north-east monsoon. It has 127 rainy days: average of twenty-five years. Compare Nuwara Eliya.

If the species had been abundant, many more of the fresh arrivals would surely have been infected with the malarial parasite, with such a large number of malarious cases open to the attacks of the mosquito. *

The native population is remarkably free from disease; the Colonial surgeon informs me that malarial fever is not endemic in the villages round Diyatalawa camp, but it is frequently introduced by the villagers who go on pilgrimages to such malarious places as Tissamaharama and Wellawaya. He also states that the last quarter is the most unhealthy time of the year. Cholera is occasionally imported from the low country, and veneral diseases are not uncommon.

A final word as regards supplies. The camp is about half a mile from the railway, from which supplies are sent into the camp by means of an aerial train. Wood in abundance is obtained from the neighbouring Government forests; the water is good, and can be obtained in reasonable quantity even in the dry weather. Slaughter cattle and vegetables can be obtained to a certain extent locally. The country is suitable for mounted infantry, but fodder is scarce, even the grass which springs up after the periodical burning is very coarse and lacks nourishment; it could be used for bedding, but some method would have to be found to rid it of the ticks of which there are a great number. To buy up the paddy fields and cultivate them with guinea grass (*P. maxmium*) or Mauritius grass (*P. muticum*) would be a serious question. But a trial on an extensive scale on the hill sides should be made of *Paspalum dilatatum*, which grows well at Ootacamund and is a valuable grass for cattle. It is supposed by many to be of Ceylon origin and flourishes on any poor soil, provided it has plenty of water, and at a suitable elevation it will stand the extremes of heat and cold. It is thought very highly of by the farmers of Victoria and New South Wales.

Ceylon, Aug. 31, 1901.

* In the month of August, with an average strength of 862, the average number of sick was twenty-seven, one-third of which were venerial cases. These figures tend to show that the sickness in the regiment was not due to local conditions.

PRODUCE AND PLANTING.

The news received by cable from Simla that the Indian Government intend levying a cess on exported tea at the rate of one-fourth of a pie per pound should stimulate the work of pushing Indian tea in foreign countries. The proceeds are estimated at three lakhs of rupees. Legislation will probably be undertaken in the winter.

The *Times* has the following on the Indian tea cess: "The decision of the Government of India to levy a cess on exported tea at the rate of one-fourth of a pie per pound has been taken in response to a memorial presented to the Viceroy in the spring of the present year by planters representing no less than 78·28 per cent of the capital invested in the industry, and owing 409,000 of the 520,000 acres devoted thereto. The memorial asked that the cess might be limited to five years, and that the proceeds should bo devoted to promoting the consnmption of Indian tea in India as well as in countries outside the United Kingdom, and otherwise in such manner as might be determined by a committee of planters to be approved by Government. The estimated proceeds of the cess, three lakhs of rupees, are about equal to the receipts from a similar charge levied in Ceylon on all exported tea. Owing to the excessive production in both countries in recent years, the supply to the United Kingdom has much exceeded the demand, and prices have continued to fall. Hence the memorialists urged that tea growing in India could only be continued on a remunerative basis by comprehensive measures being taken to open new markets. A voluntary cess has been in operation for some time, but has only yielded about half the amount that will be obtained when statutory authority for the impost has been given. The memorial pointed out that the proposal affected the tea industry alone, and its adoption could have no adverse influence upon any other trade or industry or on the community in general."

We reported in our issue of the 25th ult. Mr. Consul Playfairs' views on the decline of the Chinese tea trade, and Mr. J Scott, Acting Consul-General at

CANTON,

writing about the methods of the Chinese, says:—"The once important and lucrative tea industry has been almost ruined by Chinese apathy and neglect. The growers in the interior pay little or no attention to their plants, and do not trouble to renew the old bushes as they become decayed. The leaf is picked anyhow and at any time as prices appear favourable, with the result that, carelessly handled and fired, the tea, on reaching the London market, is frequently found affected or deficient in strength, body, and colour. It does not, therefore, come as a surprise to learn that the steady decrease in the tea trade has continued during the past year. Thirty years ago Canton exported to Europe some 13,000,000lb of black tea, and nearly 2,000,000 lb. of green tea. Today Canton export is represented by less than 1,000,000 lb. consisting chiefly of Congou. The well-known scented capers for which Canton was famous, and of which some 7,000,000 lb. were exported in 1872, figure in the Customs returns for 1901 at an export of 5,790 lb. only. These figures do not, however, give an accurate return of the entire export, as many shipments are arranged in Hong Kong, to which port the tea is conveyed by junk, and does not, therefore, pass through the hands of the Imperial Maritime Customs. The following figures, for which I am indebted to an actual dealer, provides a comparison in the trade in scented capers during the past three years: 1899, 4,900,000 lb; 1900, 3,700,000; 1901, 3,000,000 lb. A further depressing feature is that the monthly returns of deliveries in London also mark a decline which would lead one to suppose that Canton scented capers are rapidly going out of consumption. The season now under review cannot be said to have been a favourable one as regards quality, nor was it remunerative either to foreign buyers or native sellers. Taken all round, the various crops during the season were of a fair average quality, but there was a considerable quantity of leaf left on the hands of natives from the previous season. This they had to work off by mixing it with the new season's leaf, a practice that no doubt had a detrimental effect, and which would have been accentuated had not scenting flower been abnormally cheap and abundant, whereby it was possible for the teas to be scented above the average."

The Japanese seem greatly interested in the American tea-growing experiments. Sinko Hatto, a Wealthy Japanese now residing in New York, has been appointed by his Government to make a thorough study of tea growing conditions in South Carolina. Mr. Hatto says that his Government had been greatly interested in the published reports from the plantations in South Carolina and desired to got facts as gathered by a personal representative.

Coffee planters may well ask to be saved from the ingenious people who seek to produce adulterants to their product. In Austria they make a product called coffee of figs, which is supposed to be appreciated in Germany and Austria-Hungary. Nutritive power is claimed for it. It is obtained by drying fruit—especially figs—and mixing them with coffee. It acts

as a colouring agent, and diminishes the excitant quality of the coffee and corrects its taste—save the mark! Several establishments in Algeria now manufacture fig-coffee, which is already used in Europe.—*H. and C. Mail*, August 8.

TEA IN PACKETS: COLOMBO THE MODEL.

Mr. H. Drummond, Deane writing from Peermaad, under date, 18th August, to the *Madras Mail*, says:—"I have read with interest the articles on the 'Tea Markets Expansion Commission' in your issue of the 15th instant, and I am at one with you in wishing all success to the enterprise of Messrs. Yule and Co. But it is to be deplored that the teas are not packed either in lead or at least damp-proof paper as made in China. Another fatal economy, peculiar to Calcutta merchants, is the want of firing machines for refiring teas before packing into packets. Contrast this with Colombo where I venture to state from experience no firm of any importance dealing in packet teas, or indeed acting as Agents for tea estates, is without some sort of firing machine, without which no repacked tea will maintain its flavour or aroma for any reasonable time. The consequence of this fatal parsimony will be that in damp whether within a month of distribution the teas will become mouldy and unfit for consumption. Yet the small dealer, as is well-known, will sell every packet if possible. Consequently, for every two packet of tea going into consumption and appreciated, the probability is that the moiety will cause disgust to the would-be convert. If it is found too expensive to put up one-pie packet in lead, at least give the tea a chance by packing it hot from a firing machine, and with every 100 packets supply an air-tight tin case with printed instructions urging the necessity on small dealers of keeping the tea free from damp. Any tea expert will bear me out in these remarks which apply to any teas sold in a climate such as Calcutta and Southern India. Possibly in the far North the climate, being drier, more resembles Europe where such precautions are not so necessary."

GREEN TEAS—AND GREEN TEAS.

We trust our readers will feel themselves enlightened by the "prodigious" correspondence with which Mr. Judge of Calcutta favours us today as Agent for the "Drummond-Deane green tea process." It is marvellous, however, how hard it is to get some people to give up misconceptions. For instance, in an editorial in "Indian Gardening and Planting" of August 21st, discussing Mr. Hart's letter which has set Mr. Judge to write, the editor says:—

A comparison of Mr Robert Hart's letter and our article, which it professes to set right, will show that Mr Hart and ourselves have been writing about different things, and that therefore his letter is no criticism of our article. In the first place, our article was called for by certain statements in the *Ceylon Observer* praising and advocating the artificially coloured teas produced at the Central Factory in Ceylon.

Mr. Judge himself too, uses the same term in this application. But surely he and the editor have not still to learn that the teas produced at Ambewatte Mills are *not* "artificially coloured," and that this has been vouched for not only by local and American experts, but demonstrated to the satisfaction of leading Ceylon planters on the "Thirty Committee," who have been allowed to inspect the process? The sooner our contemporary, therefore, withdraws this allegation and apologises to the *Ceylon Observer*, the better. Even the local "Times" has been lately coming round to admit the superiority (including the purity) of Ambewatte-made teas. The sales in the London and American markets and the prices realised, have long ago shown where the superiority lay; but the drawback is in the comparatively costly means of preparing these teas as compared with the easy and economical Drummond-Deane process. Were it not for this, Ceylon planters and agents would probably ere now have freely followed the example set them in the Ambawatte Mills. As matters stand, we can only wish well to both processes; for we want to see a greatly increased quantity of green tea made before the end of this year, and although the Ambawatte Factory was stated to be equal to turning out 3,000,000 lb. per annum, we fear it is not going to do much more than one half of this quantity for 1902; although it is expected to turn out 250,000 lb. a month from now up to the end of the year and will no doubt continue at that rate during 1903.

REDUCTION OF OUTPUT: AND TEA FROM LOW AND MEDIUM ESTATES; THE DUTY, &c.

It is pointed out that without any combination the proprietors and managers of estates at a low elevation, to a great extent, control the situation as to the quantity and quality of teas that may be turned out If they pluck carefully and fine, to make good tea, estates higher up must go one better in order to secure proper value for their teas; and the result will be careful plucking all round and a considerable restriction of output. This, of course, would quite meet the proposal of Mr. E. J. Moss, of Foochow; and so long as there was a satisfactory demand—as at present—for good and fine teas, to study quality rather than quantity should be the more profitable policy. But, unfortunately, there are apt to be swings of the pendulum even in Mincing Lane, and when one of these occurs, there is a great temptation again to go in for the manufacture of common teas.

The Mangosteen on the Nilgiris—is now well established, and yielded a fairly good crop at Burliyar. It will surprise many people to learn that "the first two fruits of the season were received on 25th June 1901, but the main crop did not ripen until October and November:" an interval of five months between the first ripening and the main crop!—*Indian Gardening and Planting*, Aug. 21.

TOBAGO AND THE WEST INDIES OVER 200 YEARS AGO.

(*By Old Colonist*)

I have been favoured with a copy of a very interesting old book entitled, "The present prospects of the famous and fertile Island of Tobago, with a description of the situation, growth, fertility and manufacture of the said Island," *by Captain John Poyntz*, first published in 1683, exactly two years after the work of our own Captain Knox on Ceylon. Tobago, as all readers of the *Tropical Agriculturist* know, is a very tiny island, 26 miles long by 6 or 7 broad, lying within 18 miles of Trinidad, to the Government of which it was annexed only 12 years ago, after rather a chequered history. It is only about 1-15th the extent of Trinidad and both together would only make 1-13th of the area of Ceylon. Yet, there is a certain interest attached to anything published 220 years ago, and the minute details of the product of this little Gem of the West might have been intensely interesting to the *Tropical Agriculturist* of today, had the descriptions been a little less exaggerated.

The literary style of Mr Poyntz, like that of good Mr Robt. Knox, is quaint in the extreme:—"The courteous reader is here presented with the present prospect of the Island of Tobago, about 40 leagues distant from Barbadoes; but far excelling that Island or indeed any other of the Caribee Islands in the fertility and richness of the soil. Yet exempted from those affrighting and destructive hurricanes that have been often fatal to the rest of the Caribee Islands. I am persuaded there is no island in America that can afford more ample subjects to contemplate the bounty of the Great Creator than this of Tobago, and I speak not by hearsay, or as one who has lived always at home; but as one who has had experience in the world and seen almost all His Majesty's *Foreign* plantations, and after having viewed them all, have chosen this Island to take up my *quietus est* in."

The "courteous reader" is now introduced to an array of plants, fruits, birds, beasts, and fishes rarely before heard of from one island, and some of which to this day are unrecognisable. I doubt for instance his plethora of luscious grapes as I have never found such in a *moist* tropical climate.

Tea, also, he says: "grows naturally and plentifully here, meaning such tea as is frequently sold in English coffee-houses." Poor Poyntz had probably seen the Paraguayan article, but *Thea Sinensis* not at all likely. It might here be observed that tea and grapes are never produced commercially in the same country, the conditions which favour the one being the opposite of what would suit the other. Pineapple, he confesses, "*is a fruit of that excellency that I want Rhetorick and Oratory to express it.*" The *papaw* and *mammee* are grateful and appetising.

"The plantain of all fruits the Negro loves best. A sovereign wholesome food, some eat them raw when nature has ripened them; others boil them green. Now to roast them they are bread, to boil them they are sauce or marmalade, but to barbecue or dry them in the sun they may rub them to a flour." (Curious to note the idea of desiccating the plantain, never yet commercially carried out.*)

"The coconut the Indians idolize it, and call it God's tree: because it gives both meat, drink and cloth. It is true beyond dispute that the nut of itself is sweet beyond the sweetest almond and the liquor to my liking beyond *Florens* or *Frontinack*. Of the prodigious pumpkins, I blush to express their magnitude!" The book altogether is more curious than instructive, I have already stated that the date of publication almost coincides with that of Robt. Knox's Ceylon, and is written in the same quaint style. But here the similarity ends. Robt. Knox had no special axe to grind, was a man of inflexible honesty who studied and wrote from the sheer love of acquiring and imparting reliable information.

Captan Poyntz was evidently a man of quite another type. Had he lived today he would have unquestionably been a great success as a Company promoter: a scrupulous veracity being by no means his strong point, and the whole object of his glowing description crops out in the concluding chapter:—"Showing that he had acquired from the *Duke of Courland* 120,000 acres of land on the said island for a Joynt Stock Co. for subscriptions of any persons who are willing to be adventurers in the same."

The little island, since that day, has seen many vicissitudes, now British, now Dutch, French and Spanish, but finally conceded to Britain. And, small though it be, it is worthy of more attention by trained tropical planters than it has hitherto obtained. Being beyond the zone of eruptions and hurricanes, with good soil in a healthy, forcing climate, it offers excellent prospects for the planter and fruit-grower.

No leaf blight there. No frost to frighten the orange-grower. Investors of recent years are, I know, well satisfied with their returns.

The Season Upcountry this year is what would be described twenty-five to forty years ago as "a perfect coffee-blossoming season." Indeed, where a little coffee is still found, as in Dumbara, there has been a wonderful blossoming display; but then the rain is wanting to bring the pin-point beans to maturity, and in place of many thousands, probably, only as many hundreds of bushels will be gathered. In respect of "tea," a sign of the season is the great extent to which the bushes are flowering—not so much as yet in the higher as in the medium and lower districts, and this, of course, means a check to flush. In some cases, coolies may have to be put on to strip off the flowers.

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* Surely it has: plantain or banana flour is made in Jamaica and Queensland and desiccated plantains are sent from Singapore, we believe?—Ed, *T.A.*

A NEW WEED CUTTING MACHINE.

On a recent broiling, sunny day, I journeyed up through the beautiful Thames valley, branching off at Oxford to the staid and picturesque old town of Woodstock, to see a new machine with which Mr Angus, the Duke of Marlborough's agent, is more than delighted, for it has rid him of one of his greatest annual worries. Every spring the famous Blenheim lake yields a vast crop of tangled masses of weeds, which give it the appearance of a green field, and effectually puts a stop to boating and sailing, and to a lesser extent fishing, during the summer months. The clearance of these weeds has hitherto been a great undertaking, not only tedious and laborious, but costly. Now, thanks to the new invention, the work is carried out speedily and at a comparatively small cost. I should explain at once that this is not a machine intended to drag up the weeds by the roots or to dredge a lake of mud, but a weed cutter pure and simple, working on the principle of the reapers now used by every farmer except in mountainous districts, a boat taking the place of the iron wheels used on land, while the horse is represented by an oil motor or a steam engine.

It was a short walk from the entrance gates where Mr. Angus met me, down the sloping bank to a narrow backwater, where the remarkable little vessel was waiting us, steam up, and apparently fizzing over with anxiety to begin its arduous work of cutting a 1Cft. channel through the weeds. As orginally designed by Mr. Hall, it was intended to be worked by an oil engine, but the intricacies of these are somewhat beyond the knowledge of the ordinary estate hand, and Mr Angus decided to dispense with the oil motor in favour of a 6-h.p. steam engine, which does its work very efficiently, and is certainly the very thing for a large expanso of water such as exists at Blenheim or for keeping open the navigation of canals, sluggish rivers, and tho like. In the larger illustration will be noticed two huge levers standing up diagonally from the sides of the boat. At the other end of these are to all appearance ordinary reaping knives. Those are under water in the photograph, but their position will be understood by a reference, to the diagram of a small set of apparatus having one knife only. By raising the lever the knives sink in the water to a depth which can be regulated, and may be anything down to about 4ft. When there is no weed cutting to be done, and the boat is simply required to travel, then the levers are depressed level with the gunwale of the boat and the reapers rise up just above the surface. It will be seen that the boat is propelled by two stern paddles. Between them is the rudder, and as the rudder is moved to port or starboard, the paddles have a lateral movement with it and help considerably in steering which is a decided advantage when dense masses of weeds are being cut. The two sets of reaping knives do not quite meet under the stern, but there are guiding rods which carry the weeds, passing exactly down the centre of the boat on to the knives and very few escape.

I had not been on board five minutes before we were steaming through a terrible looking bank of weeds at a pace of between two and three miles an hour. The machine worked smoothly, and without the slightest hitch. The power of the knives must bo enormous. A very intelligent man who was steering the boat told me that on one occasion they accidentally came on a piece of wire cable, which some men who had been working a steam plough or other piece of agricultural machinery had thrown into the lake. The knives cut it through instantly but the mechanism of the little launch was none the better for the accident. It will be understood; however, that knives which can cut through steel cable may be relied upon to sever anything in the way of weeds.

Leaving this end of the lake, and going through the fine bridge which divides the upper and lower waters, we next attacked a bed of water lilies, and here again the machine was as effective as ever. When travelling in open water it steamed at from four to five miles an hour, so far as I could judge. Mr Angus kindly favours me with the following notes concerning the particular machine he uses. It will bo seen that the Blenheim weed-cutter is a somewhat expensive one. In the printed particulars of the invention I note that what is recommended by Mr Hall is a standard size, having knives five feet wide to work four feet or less under the water. In these particulars it is said that the machine can be clamped to the gunwale of any boat or punt, and that it can be worked by hand or engine power. Where worked by hand power, one man would have to row the punt while another turned the wheel which works tho knives. The particular machine which I saw at Blenheim is, however, undoubtedly the most economical in the long run where large areas of water have to be dealt with. It will be seen from the smaller illustration that in the cheap machine to be fixed to the purchaser's boat the cutter bar extends on one side only. But to come to Mr Angus's notes. He writes :

This machine, invented and patented by Mr Charles P Hall (His Grace the Duke of Bedford's agent), Estates Office Woburn Beds, is in my opinion one of the most valuable inventions for weed cutting on the market. Here at Blenheim where we have two sheets of water measuring close on 120 acres, it has been in use for the last three weeks with most satisfactory results. The lakes have been partially cleared of weeds each year by see-sawing shackled scythes from a punt. This method was most expensive and inefficient; the weeds were cut in crescents, those near the ends of the scythes being only topped.

By means of this steam weed cutter we can cut from 1 ft to 4 ft below the surface of the water, and take a breadth of 10 ft 4 in. In my opinion if the work is commenced early in April or the last week in March no weeds will ever see daylight. If this is so the enormous work of bringing to shore thousands of tons of matter will be avoided and the weeds will no doubt become weaker every year. The weeds which are our greatest bane are the *Callitriche stagnalis* (the water star wort), and the *Hippuris vulgaris*—the mare's tail. Both are easily cut with the machine in question. The flat-bottomed little vessel which carries the machinery is 27 ft 6 in long, 5 ft 3 in broad, and draws about 1 ft of water when two men and the necessary coals. &c. are aboard. The boiler is 6 h.p and this drives a vertical reversible engine which not only works the propellors—stern paddles—but the two separate reaper knives. 2½ cwt of coal a day are used, and a man and a boy are the only hands required. The price of the machine in the form I describe is £225. Cutters worked by petrol engines or electric ones are no doubt cheaper, but for reliability and simplicity I cannot but think a steam driven one is best.

In the case of the Duke of Beaufort's Woburn estate, the machine resulted in a saving of about 75 per cent as compared with the expense of weed cutting by the old method. So far as I was able to judge, the machine used at Blenheim does its work as efficiently as any machine of the kind which is likely to be made. The less powerful and smaller machines will, of course, do their work more slowly ; of them I have no experience. The machine does not clear away the weeds, but merely cuts them. The removal of the weeds from the lake has to be done afterwards from the bank. A rope is generally run out and surrounds a mass of cut-weeds, draws them ashore, and they are lifted out by means of rakes. It should not be very difficult to devise a machine which would lift weeds from the water and deposit them in a flat bottomed craft of some kind, but this would only be of advantage in large sheets of water.

It would bo very interesting to know what view the fish take on weed cutting machinery. Those who desire to preserve fish should certainly cut their weeds with the greatest possible discretion, leaving patches here and there for shelter to the fish from

the light. It is a point of the greatest importance that care should be taken not to cut the weeds in the spring until after coarse fish have spawned, and the fry have become large enough to "flee awa'" on the approach of the knives and paddle wheels—the latter, I think, more disturbing than the former. The makers of the machine, I notice, recommend the cutting of weeds just before they reach the surface, and to cut them again and again throughout the season in order that the leaves may never breathe, asserting that if this is done they will become so weakened that they will gradually die out. This process, however, may mean the almost total destruction of one year's brood of coarse fish. Land agents and others who have the management of these matters should certainly make themselves acquainted with the times at which the various fish in the waters on their estate spawn, and watch the hatching of the eggs and growth of fry in order to ascertain when the weed cutting may be carried out without injury to the fishery. JOHN BICKERDYKE.
—*Field*, July 26.

PISCICULTURE.

Now that interest is taken in the East anent the importation of trout ova from Home with a view to the introduction of that game fish to Ceylon, the Doon, the Neilgherries, and Kashmir, it may not be out of place or devoid of interest for us to give a short resume of the necessary process and period of incubation. This we are enable to do through the courtesy of a friend, an expert, who has furnished us with a lengthy communication regarding the acquarium and exhibit of hatching apparatus at the International Exhibition now being held at Cork. From this letter we are enabled to produce the following article :—

"As most people are probably aware salmon or trout designed to supply ova for artificial propagation are caught some little time before the breeding season, and impounded in small enclosures where they can be kept under observation. The males, which can easily be distinguished by the colour of their bodies and the shape of the lower jaw, are separated from the females, and the latter are divided accordiug to the time which appears likely to elapse before they are ripe. While ripening, the spawn is held in the tissue of the roe or ovary, but when thoroughly ripe the ova becomes detached and are loose in the general body cavity. This process completely alters the appearance of the fish. A hen fish with spawn not yet ripe is of compact form and firm to the touch, but once the ova are ripe and detached, if the fish be held up by the tail, the ova falling away to the front end of the abdomen eause the shape of the fish to "bag" in most unmistakable manner. The hen fish is now ready for "stripping." The operator holds her tail downwards, over a pail or can, and very gently presses the lower side of the body. After a few kicks by way of protest, not unnatural under the circumstances, she begins to yield her eggs in a continuous stream, her quota being about eight hundred to every pound of her weight.

Once "stripped" she goes back to the water none the worse for having been artificially relieved of all family cares. It is then the turn of the male, and when enough of his contribution has been poured on to the eggs, the latter are stirred round and round with the hands, and then covered with water. Fertilization is rapidly effected, and after an interval the eggs are washed and laid in the hatching trays. With reasonable care and gentle treatment absolutely no harm is done to the parent fish; but artificial progagation is only too often brought into disrepute by ignorant and clumsy operators, who wrench the spawn from the bowels of the fish without knowing or caring whether it is ripe or not. A big fish, even if quite ripe, is not too easy to handle, and in such cases resort may be had to the "straight waistcoat" exhibited at Cork. It is used by Mr. Fitzherbert in his hatchery (perhaps the best appointed in Ireland) on the Boyne, in which a million and a quarter salmon fry were hatched last season.

Around the walls of the Irish Exhibition building is arranged a series of hatching-boxes as used at the principal salmon hatcheries in European and America. A number of these are fitted with water-supply and drain, but, of course, contain no ova, as no salmon or trout could be induced to postpone their family arrangements for the convenience of visitors to the Exhibition. Indeed, the few thousand rainbow ova which were hatched in the watercourse of the trout-farming exhibit in the grounds were probably the very last clutch of the season. At Cork the apparatus, although entirely practical in installation, is displayed in such a manuer that all the details can be seen. In addition to those from other nurseries, incubating and hatching boxes are exhibited from Herr Jaffe's hatchery at Sandfort in Hanover. The incubating box, filled with boat-shapped trays of wood and coarse perforated zinc, will accommodate 24,000 ova, until the eye of the embryo can be seen. The coarse zinc of the trays does away with the necessity for a filter, and as the sediment can readily be shaken through to the bottom of the box, where it does no harm. When the eggs are "eyed"—(that is when the eyes of the embryo can be seen through the shell)—they are best transferred to the "hatching-box," with narrower trays fitted with finer zinc; or the coarse trays in the 'incubating-box' may be replaced by others of the same size fitted with No 9 zinc: but Herr Jaffe prefers the narrow box on account of the greater concentration of water. The 'incubating-box,' although certainly desirable is not absolutely indispensable, as the 'hatching-box' can be used for the whole process. Once 'eyed,' the ova are so hardy that the trays can be lifted bodily out of the water and all sediment washed away by the use of a garden syringe. Hatching takes place about twelve weeks after fertilization in the case of salmon, which spawn mostly in December and much sooner with rainbow trout which as a rule do not spawn much before March. In the case of salmon fry, much trouble and expense can be saved by using the 'floating redd,' another of Herr Jaffe's devices. One of them (in which the young rainbows were hatched) can be seen in the watercourse. It is simply a floating box with zinc sides and accommodation for the trays. The "redd" for practical purposes would be moored in the natural stream in which it was intended to ultimately liberate the fry. Eggs, taken from the "incubating-box" as soon as "eyed," are placed on the trays of the "redd." Here in due course they hatch, and when the babies are about six weeks old they are allowed to escape through the door at one end of the "redd," and seek their own way to fame and fortune.

Trout intended for farming purpose are hatched at Herr Jaffe's establishment in "hatching-boxes," and transferred when about ten days old

to a "floating nursery." One of these latter may be seen, stocked with babies, in the watercourse. The youngsters are fed four times a day with finely grated liver, and in about a month's time will be transferred to one of the ponds.

Among the other patterns of "hatching-boxes" exhibited are those from Scorton (Lancashire) and from Dumfries, N.B. In both of these patterns the eggs are accommodated on glass grills. In the boxes from the Dee Fishery, and from the Surrey Trout Farm, the trays are of peforated zinc. Both have partitions in the lower parts of the box for even distribution of the water. In the Midland Fishery box the trays rest on wires, and oscillate, for the purpose of shaking out the silt, to a touch of the hand. America is represented by boxes from Craig Nook on the Atlantic, and Battle Creek on the Pacific side.

Of the different forms of apparatus shown, it may briefly be said that all are equally efficient in skilful hands. The palm must, therefore, go to the kind that best combines economy of construction with simplicity of management. On this account little difficulty will perhaps be felt in selecting the Sandfort pattern.

In India there is no possibility of establishing a Salmon Fishery. Trout-farming, however, is a most profitable industry, and we hope to see it in time firmly established in Kashmir, where the authorities, the climate, and the natural features of the country and mountain streams are favourable to the venture. In Germany it has proved capable of acclimatization; and we trust that the results of recent importation of ova to the East will be such as to encourage private enterprise in the future, if not State; for the public importance of such fisheries is now well enough understood all over the civilized world, and its prospective value to Kashmir and other favourable localities in, or bordering on, our Indian Empire cannot be overestimated.—*Indian Field*, Aug. 21

CHINESE TEA.

To the Editor of the "Home and Colonial Mail."

SIR,—I noticed a paragraph in your issue of last week in which you commented on the report that there was a large demand for China tea in the tea-room of the House of Commons, which you supposed was an indication of the spread of the Imperialist idea. Has it occurred to you, Sir, in reading the reports of the various Consuls in China, that it might easily be believed, if one judged by these reports alone, that China was a portion of the British Empire? It is quite necessary that the British Consuls at the Treaty Ports should record facts about the tea trade, but it seems strange to find them actually pointing out the excellence of Chinese tea, and depreciating Indian and Ceylon tea. I have frequently noticed that in these Consular reports it is assumed that the falling-off of the trade in China tea is a circumstance to be deplored. This may be, for aught I know, perfectly legitimate on the part of a Consul at a Chinese port; but when we consider that British-grown tea has taken the place of China tea in most of the markets of the world, there should be nothing very depressing in the fact to a British subject, even if he be a Consul in China.

The British Consul at Fu-Chau in his last report, which has been printed in several of the leading home journals, describes the tea trade of China as a vanishing industry, and attributes the decline to the Indian and Ceylon competition, and to the obstinacy of the Chinese tea grower, who refuses to reform his method, as well as to excessive export duty as regards the neglect of the grower to use due care in the manipulation of the leaf when growing and being picked, as well as in the preparation for export. The Consul says: "The means of ensuring this has been repeatedly indicated to him and put within his reach, but with no result. He has been in turns implored, scolded, and lectured, but all to no purpose. Some years ago a crcular was issued by Sir Robert Hart, warning tea growers that, owing to the superior methods prevailing in India, the trade was slipping away from China. It was recognised by Europeans interested that the progress made by India and Ceylon had been secured by the substitution of machinery for hand labour. Machinery was accordingly imported. While Formosa was still Chinese the Governor imported into the north of the island, not only the machinery considered desirable, but even an expert from Assam. But neither in Formosa nor in Fu-Chau have those devices proved of any avail. Next there is the change which has come over the public taste in Europe. When Assam and Ceylon entered into the competition with China it was soon apparent that the liking for their products was increasing rapidly, and China tea was in no long time hopelessly distanced."

Now there is nothing to complain of here, but note what follows. "It is likely that, as regards delicacy of flavour and aroma, the teas of China are still assured of the suffrages of the cultivated few. Teas from the nearer East are admittedly coarser of taste and contain a larger percentage of tannin, on which account they are condemned by medical men as prejudicial to digestion. But they make an attractively dark brew and are economical. Thirdly, the trade in Indian and Ceylon teas has been fostered by judicious and persistent advertising, to which the Chinese merchants will not resort. Lastly, the trade is crushed by an excessive export duty."

The Chinese tea growers, if they do not advertise, as the Consul points out, are at least fortunete in the fact that they practically receive free advertisements of the excellence of their tea from the officials of a country whose sons are actually competing with them in the growing of the product, and who have to trust to their own enterprise in the competition for the tea markets of the world.—I am, Sir, yours, &c.,

AN INQUIRING PLANTER.

—*H and C Mail*, Aug. 8.

PLANTING NOTES.

THE ONCE IMPORTANT AND LUCRATIVE CHINESE TEA INDUSTRY—(writes the British Consul-General at Canton) has been almost ruined by Chinese apathy and neglect. The growers in the interior pay little or no attention to their plants, and do not trouble to renew the old bushes as they become decayed. The leaf is picked anyhow and at any time as prices appear favourable, with the result that, carelessly handled and fired, the tea, on reaching the London Market, is frequently found affected or deficient in strength, body, and colour. Thirty years ago Canton exported to Europe some 13 million pounds of black tea and nearly two million pounds of green tea. Last year's export was less than one million pounds, consisting chiefly of Congou. The monthly returns of deliveries in London also mark a decline, which would lead one to suppose that the well-known scented capers for which Canton was famous are rapidly going out of consumption. The recent decision of the Chinese Government to lower the export duty on tea to 5 per cent *ad valorem* may have some beneficial effect upon the trade, and will enable low-priced Chinese teas to compete more favourably with those of India and Ceylon,

Government Analyst, Trinidad.—We have from time to time noticed and quoted the good work done by Professor Carmody. F.L.C., F.C.S., in Trinidad. We have now secured a copy of his annual report for 1901-2 showing in detail the work done. Of samples analysed the number was 2,210 against 1,747 in the previous year. Not only agricultural and industrial, but Customs, criminal and miscellaneous samples are detailed. Altogether a notable record of work.

The Coconut Crab.—The following paragraph occurs in *Nature*, 24th July:—

To the *Notes* from the Leyden Museum Dr R Horst contributes some remarks on the habits of the coconut-crab, based upon observations made on captive specimens at Batavia and living examples near Bantam by Mr C P Sluiter. Recently some doubts have been expressed as to whether it is in the habit of ascending palm-trees. Mr Sluiter has, however, seen these crabs climb to the top of mangrove-trees and palms fully 60 feet in height. What they did when at the top he was unable to ascertain, but from observations made on captive specimens, he considers it probable that they were engaged in opening young coconuts and devouring their contents. Whether they have the power of opening ripe coconuts could not be determined, the specimens under observation merely fumbling such as were given them without attempting to penetrate the shell.

Can any one tell us of crabs being found on coconut palms in Ceylon? They are not once mentioned in our Manual of the Coconut palm.

Infused Tea Leaves as Manure for Roses.—In the proceedings of the Agri-Horticultural Society of India, which we publish in another column, will be found an enquiry from Messrs. Andrew Yule and Company, the Indian Tea Expansion Commissioners, as to whether infused tea leaves make a good manure for roses. It may be well to state the case fully for the benefit of our readers. The leaves of the tea plant, when plucked for the manufacture of the tea of commerce, are first withered or wilted, then passed through a rolling machine by which the cells in the leaves are broken up. This mass is then "fermented," and lastly dried by hot air in the tea dryers. The infusion of the tea in boiling water liberates the theine, or active principle, a large proportion of the tannic acid, and the essential oil. It is these organic substances that go to form the infusion of tea which we value so much. The organic matter, *i.e.*, the tissues, as well as some of the mineral constituents of the leaf, are left, and it is this that Messrs. A. Yule and Company wish to utilise as manure for rose bushes. If the infused leaves are treated in the same way as other leaves for the production of leaf-mould, *i.e.*, by rotting, there is no reason why they should not make a good manure for roses or any other plants. But to apply the infused leaves, *without* putting them through the process of decomposition, would be to court disaster for the rose bushes. If Messrs. A. Yule and Company desire to realise some revenue from the infused tea leaves, they should sell to native nurserymen, or "charawallahs," or to any one else who grows roses and garden plants. There is, however, one purpose for which infused tea leaves are largely used at home, and that is, for cleaning carpets in dwelling houses. The damp leaves gather up the dust, and thus render the housemaid's work easy.—*Indian Gardening and Planting.*

Manure for Roses.—Artificial manures, say a German contemporary, if properly chosen and applied, are the most useful, as by their use vigorous growth and fine flowers are obtained. Raw bone-meal, in point of usefulness, is preferable to manures containing phosphoric acid; but the manure most to be recommended is potash, and two dressings afforded during the summer have all the favourable results which one can desire from a manure.—*Indian Gardening and Planting*, Aug. 21.

Tea in Ceylon in 1802.—We are indebted to an upcountry correspondent for the following "cutting" from the London *Observer* of July 27th, 1902, reproducing what appeared in the same paper, one hundred years earlier or in July 1802:—

"A late attempt has been made by a naturalist of eminence to cultivate the tea plant in the island of Ceylon, but notwithstanding almost all the trees, plants and flowers of this part of the globe seem collected there the experiment has totally failed."

The second attempt made with tea was well-nigh 50 years later by the Messrs. Worms on Condegalle, also without success.

Economic Products in Trinidad.—Mr J L Hart, Superintendent of the Trinidad Botanical Gardens, in his annual report for the year ending March 31st, 1902, states that ginger can be very successfully cultivated in Trinidad, as the plant grows well and rhizomes are of excellent size. A plot devoted to this product yielded at the rate of ten tons per acre of the undried rhizomes. Kola grows fairly well, but as it takes some years to come into bearing no results have yet been obtained. A plot of turmeric has yielded at the rate of two tons per acre of green tubers. Cloves are found very difficult to rear through the early stages, but grow well when established. The section devoted to black pepper has made fair progress, but the plants have not yet reached their fruiting stage. The camphor-tree grows rapidly in Trinidad, but never attains a large size. Camphor and camphor oil, both of good quality, have been produced, and it is intended to grow a plot with a view to testing the feasibility of growing it on a commercial scale.—*Chemist and Druggist*, August 2.

The late Mr. Oliver Collett.—*Nature* of July 31st has the following:—

Natural science in Ceylon has sustained a severe loss by the untimely death of Mr. Oliver Collett, F.R.M.S., who, while carrying on actively his vocation as a tea planter, found time for excellent original work both in the field and laboratory. He devoted himself especially to the Mollusca; and a genus and several species of land shells bear his name. As a member of the Ceylon branch of the Royal Asiatic Society he contributed various papers on zoological questions. He also brought his scientific knowledge to bear on some economic questions in connection with the cultivation of tea, and was much esteemed by his fellow planters, being at the time of his death Chairman of the local Planters' Association. Mr. Collett, who was thirty-five years of age, possessed a very attractive personality, and many, both at home and in Ceylon, who were brought into contact with him by common interests, deplore the loss of a charming friend and an enthusiastic naturalist. He died on June 13th, somewhat suddenly, at Colombo from an attack of dysentery.

TRADE FOR FIRST HALF OF 1902.

Tea Exports.—Quantity.—The total output for the six months was 78,291,151 lb against 79,019,338 for the same period last year. Of this, 56,320,866 lb were shipped to the United Kingdom against 59,113131, a decrease of 2,792,265 lb, while shipments to Russia, China, America and Africa shew an increase of about 3¼ millions and to Australia a decrease of about one million. The quantity of Tea offered in public sale in Colombo was 28,805,342 lb against 26,620,270 lb for the same period last year. Quality.—The quality though not as good as last year, has been up to the usual average.

Prices.—The average prices at the Colombo Sales have been better than those that obtained for the same months in 1901.

Average 90	..	..	31·52
„ 1902	..	..	33·81

During the earlier part of the year prices ruled from 32 cents to 37 cents against 27 to 35 cents, but the position was reversed for two Sales at end of March and early April, but resumed the higher range during April and May, falling 1 to 2 cents in June below 1901. The price of Common "Leaf" Teas has been fairly well maintained all through the half-year, but Medium Teas have suffered in consequence, and have shewn exceptionally good value to buyers, particularly during the months of May and June. Fine Teas have commanded good prices all along. One of the chief features of the Sales has been the price of Dust, which during the latter part of the half-year rose to 26 and 27 cents, having been bought by Russian Firms for shipment to China, to be manufactured into "Brick" Tea.

Green Tea.—There has been a material increase in the quantity manufactured, viz., as per Thirty Committee returns 1,414,391 lb against 677,887 in 1901. The prices for this class of Tea have fallen from the good rates ruling early in the year, but the demand at present quotations is good, having apparently been stimulated by the reduction in price.

Plumbago opened the new year with a sharp recovery in value, and a considerable amount of business was transacted at these higher prices, chiefly in the direction of the United States of America, which have taken about 3,000 tons more than during the same period in 1901. The advance has since been lost to a great extent, except for best kinds; these seem to be scarce and are fairly, firmly held for price. Exports amounted to cwts. 264,804 in 1902, against cwts. 187,437 in 1901, and nearly reached the record figure established in 1899. Evidently mining operations are stimulated by higher prices, as the increased quantities exported could have hardly all come out of local stocks.

Cinnamon.—This trade has been dragging. Values have kept fairly steady and are practically unchanged.

The exports during the six months amount to :—

Quills 749,059 lb against 789,822 lb in 1901.
Chips 742,618 „ „ 649,845 „ „

Products of the coconut palm show the following exports ;—

	1902.		1901.	
Coconut Oil	cwt.	168,148	cwt.	155,810
Copra	„	115,119	„	135,940
Desiccated Coconuts	lb.	5,565364	lb.	6,907,531
Poonac	cwt.	67,505	cwt.	51,937
Coconuts	nuts	7,542,186	nuts.	9,170,807

Coconut Oil.—The United Kingdom and India continue to take the bulk of our production, but lately an increased export has again sprung up for the United States of America.

Copra exports have slightly fallen behind.

Prices have been very high all through the six months for both oil and copra, and although they have dropped somewhat, they must still be considered highly satisfactory to those that have invested in coconuts.

Poonac exports are higher, in sympathy with the increased export of oil.

Cocoa keeps about up to last year's quantity shipped :—

1902 cwt. 26,020 } first six months.
1901 „ 28,532 }

Prices have experienced a drop and the business in this article seems to have been dull.

Mr. Renton, the Tea Commissioner for the Continent, has suggested a different mode of preparation for the Continental Markets, and if this hint is being acted upon by planters, it may lead towards our product coming more into favour there and ensuring a better price.

Cardamom shipments are considerably ahead of last year;

314,138 lb. against 248,252 lb.

and prices have suffered a considerable drop since the commencement of 1902.

The shipping visiting this port is apparently still steadily on the increase and approximately 10 per cent more than in 1901.

Freights.—Merchants were startled during the course of the period under review by a combination of the British Ship Owners interested in the business of this Port being formed in England. At first this move was viewed with little favour, local shippers fearing it would naturally lead to an enhancement of freights. However, so far, their apprehensions have not been realised; the combination has been at work now several months and freights are practically what were before.

Cotton Goods.—Cotton has fluctuated greatly during the period under review, Upland Middling opening at 4 17-32d in January against 5 17-32d at the beginning of 1901, 5⅜d being recorded at the end of April this year and 4 31-32 at the end of June. Futures are quoted steadily lower as far as March-April next, a record American corp being expected. Exports of cloth to Ceylon from the United Kingdom during the six months ended 30th June show a very large falling-off, costs apparently varying much in relation to cotton prices, while local values have been much as they were at the beginning of the year, lines in short-supply doing slightly better, others showing a somewhat weaker tendency.

Rice.—Prices opening in January with R3·45-R3·86 for Soolye receded slowly to R3·10-R3·70 in February, recovered slightly in March and closed firm at the end of June R3·28-R3·50.

The total importation for the six months was:—

1902	..	..	1,489,957 bags.
1901	..	...	1,343,440 do.

The local market has been very firm during the past half-year, and this has led to the introduction of inferior qualities to suit the demand for cheap rice for the planting districts.

Coal.—Imports have received a check and have fallen behind last year's quantity.

Cardiff	...	...	180,029 tons.
Indian	...	...	137,229 „
Others	...	...	476 „
		Total...	317,734 „

against 342,625 tons in 1901. With lower prices ruling Cardiff coal has pushed a certain amount of Indian coal out of the market, as steamers are taking by preference the comparatively dearer article and thereby ensuring better quality, saving of labour, &c., which compensates for the difference in price.

Exchange.—The year opened with six months sight credit bills quoted at 1/4 13-32, and Bank demand drafts 1/4 1-32. A temporary advance of 1-32nd took place about the middle of January, but was of short duration, and rates reverted to the former figure and remained steady till toward the end of February, when 1/4 7-16 was again touched for six months' credits. During March-April rates steadily gave way, and six months' credits were freely bought at 1/4 9-32. This

was practically the rate up to the end of June, although at times 1/4¼ was touched. Closing rates were :—

6 months' credits 1/4 9-32
Bank demand 1/3 15-16

The six months' discount rate in London at the commencement of the year was 3/3-16 per cent, and this was the highest quotation during the half-year. It fell to 3 per cent during January, and shortly afterwards reached 2⅝ per cent, the closing quotation being 2/9-16 per cent, the lowest point touched.

Chairman.—It will be necessary to appoint a Chairman, Mr. Stanley Bois' term of office having expired.

Committee.—It will also be necessary to elect two members of Committee in place of Messrs. W. Shakespeare and F. C. Allen who retire by rotation.

Accounts.—The accounts of this Chamber for the past half-year, duly audited, are laid on the table.

Membership.—The number of members of this Chamber is 71, as against 69 in the previous half-year.

AMAZONIAN RUBBER.

TRAMWAY CONCESSION IN PARA.

From Mr Consul Churchill's brief report from Para we learn that the total exports of Amazonian rubber, including that from the States of Para and Amazonas and the Republics of Bolivia and Peru, during the year 1901, stating qualities, quantities and their destinations, were as follows :—

	Europe, Tons.	United States, Tons.	Total. Tons.
Fine	7,949	8,052	16,001
Medium	1,562	1,890	3,452
Coarse	2,557	4,284	6,841
" Caucho '	2,723	1,322	4,045
Total ...	14,791	15,548	30,339
„ 1900...	—	—	25,807

Of the rubber exports of Para, amounting to 12,040 tons, valued at £2,659,160, we find that the United Kingdom took 4,609 tons, valued at £1,118, 209, and the United States, 6,679 tons, valued at £1,361,553.

Mr Churchill's report also contains the information that concessions have been, and are about to be, granted for various purposes ; such as improvements to the port and sewerage, but the concession holders must find their own capital. The port will require an expenditure of at least £2,000,000.

Capital will also be required for the conversion of the present tramway system from animal to electric traction. It is understood that the change will take place within the next two or three years. Tramways are very extensively used in Para, and the enterprise should be lucrative.

EDIBLE TUBERS.

With reference to the description of an edible tuber, which we reproduce on our seventh page today and which we had previously referred to Mr. Nock of Hakgalla as one of the most practical authorities on the subject in the island, that gentleman writes to us :—"The edible tuber, *Coleus Copsini*, is a plant I do not know, but from the description it appears to be very much like the 'Innala' or 'country potato' of the Sinhalese, *Coleus parviflorus*, of Botanists, and is a vegetable that I don't think ever likely to be much cared for by the European population. It is, however, a product that should be introduced to the Garden here, and if it should prove distinct from the 'Innala would add one more vegetable for native gardens. Since writing the above I have looked into the last *Tropical Agriculturist* and find on p. 78 a paragraph on *plectranthus* as a vegetable. Plectranthus is only another name for Coleus and the very specimen, named in the accompanying slip, is called *P. Coppini*, so my view at first still stands good. We should have it, but I have not much faith in its ever becoming a favourite or taking the place of the potato."

A NEW EDIBLE TUBER.

COLEUS COPSINI.

[By Edward Heckel, in the "*Agricultural Gazette* of New South Wales.'

A good deal has been written lately on the Ousounifing and its tubers, the use and cultivation of which are steadily increasing in the French tropical colonies. It has been incorrectly called Plectranthus Copsini; but, judging by the structure of the stamen, it is really a coleus. Being a new species, it is as well to give it definitely the name of Coleus Copsini. Some deficiency still exists in the history and knowledge of this plant and its tubers, particularly as regards the chemical analysis of the latter. I have thought that it might be of interest to give the results of the researches made by my friend, Professor Schlagdenhauffen, of Nancy, at my request, using the tubers from the last crop, of November, 1901, raised in the Colonial Botanical Garden at Marseilles. It is a very remarkable fact that this Soudanese plant will pass through all its stages of development in our short summer season of about four months.

From this fact, and also because it has not a name indigenous to the Soudan, I am persuaded that it originates in Abyssinia, like a great many more edible tubers belonging to the same class, Coleus. Beside this it resists very well the cold of the early part of November, and the first tubers introduced from the Soudan flowered early in October in Marseilles in the open air, producing fine heads of blue flowers, which only the cold of the end of November withered before they had turned into fruit; but each year I have obtained from eighteen to twenty stems; six to seven tubers per stem. These were heavier and larger in 1900. It would thus appear that cultivation favours the improvement and development of these tubers, and I intend to continue my experiment with the view of cultivating the plant in the southern districts of France. Another reason for this is that the results of the chemical analyses and culinary uses made by professor Schlagdenhauffen of the tuber encourage its introduction as human food—for cultivation, at any rate, in our southern districts.

We shall see from the analysis that the tuber contains fatty substances, is rich in starch, glucose and saccharose. It certainly contains but little albuminous matter, but is, nevertheless, a perfect food.

Its taste when cooked is very agreeable, resembling that of Japan Crosne, or salsify, while it is richer in alimentary equivalents than either of these legumes.

In a somewhat dry lot of 30 tubers were found five or six weighing 0·015 lb ; eight about 0·012 lb ; three to two 0·007 lb; and the remainder about 0·005 lb (This would amount to, say, 66 to 250 to the lb.)

The largest were 1⅝ inch long by ⅝ inch thick ; the average were between 13-16th inch long by ½ inch thick, and the smallest were ½ inch long by ¼ inch thick.

In a fresh state they contain nearly 80 per cent of water. They dry very quickly, and after being exposed to the air for some days they shrivel, and only show about 75 per cent of moisture.

When the dark brown or black skin is removed, they are white at first, but darken in a few moments;

moreover, the knife used turns black, which is an evident proof of the presence of a good deal of tannin, not only in the skin, but also in the body of the tuber. This, when stripped of the skin and thoroughly dried, has the appearance of a chocolate-coloured and very hard substance, which can be reduced to a fine powder by a pestle. This powder is submitted to the action of either, of petrole, chloroform, alcohol and water, then the residue is calcined to ascertain the weight of the ashes, and the percentage of cellulose and ligneous matter can then be calculated.

Successive analyses gave the following results as to the composition of these tubers:—

	Per Cent.
Fatty matter	2·50
Glucose	0 68
Saccharine	4 67
Not defined	·35
Gum and pectic matter	65 05
Albuminous substances ..	78
Starch	4 00
Ashes	4·26
Cellulose, ligneous matter and loss	40·71
	100·00

The ashes consist of sulphates, phosphates and carbonates.

The weight of the potash is 2·49 per cent, and of the soda 1·34 per cent.

These tubers, as is well;known, replace in French tropical colonies the potato, which does not produce any tubers, but grows all into leaf. In the Soudan they are very much appreciated even by Europeans. When the tubers are scraped in the fresh state their odour is very much like that of potatoes. A very simple way of cooking them is to immerse them in nearly boiling water for 20 minutes, when the black skin can be easily removed, and the fleshy part which remains is white. Add a little chopped parsley, butter and seasoning and serve hot. Prepared thus, they have a most agreeable taste, resembling that of Crosne of Japan, or salsify.

Note.—This appears to be a plant worthy of trial in Australia. As M. Heckel points out it is probable that with cultivation the tubers may be greatly increased in size. In some of the arid western districts potatoes can only be grown with difficulty, and this tuber may in time prove a good substitute for them. As a crop for pigs also there should be a future for it.

THE KLANG COFFEE CULTIVATION COMPANY.

PARA RUBBER GROWING SUCCESSFULLY.

The yearly meeting of the Klang Coffee Cultivation Company was held yesterday afternoon at the office of the Company, Weld Quay. The Directors consider the past year's working satisfactory, and the future prospects certainly favourable. It has been decided to plant up the whole Estate with Para rubber, but this will not interfere with the coffee for at least four years, when it can be decided which product it will pay best to continue cultivating. The Para and Rambong trees previously planted are growing strongly, and an experiment was made about four months ago in tapping three Para trees three years old, which yielded some ¾ lbs. good rubber valued in England at 3s 2d per lb.—*Penang Gazette*, Aug, 19.

THE OLDEST PARA RUBBER TREE IN PENANG.

Mr C Curtis, F L S, has been writing on "The Penang Gardens Rubber Tree." The tree in question is one of about two dozen young Para rubber plants which were received from the Singapore Botanic Gardens towards the end of 1895 and planted out in the early part of 1896. It so happened that the tree in question was planted in poor gravelly soil on sloping ground, which, by the subsequent cutting of a road, converted the site into a dry bank. Hence the tree cannot be said to have grown up under the most favourable conditions. When the tree was some ten years old, the question of the best method of extracting coagulating rubber, and the probable yield, commenced to interest the planting community, and this tree, as being the largest in the Penang Gardens, was selected for experiments which have been carried on from time to time. In June 1897, when the tree was approximately twelve years old, it was thirty-six inches in circumference at three feet from the ground, and yielded one pound of dry rubber. In November-December of the next year the yield was three pounds; April-May, 1899, two pounds, eight ounces; November-December, 1899, three pounds, four ounces; October-November, 1900, three pounds, twelve ounces; and in August-September, 1901, when the circumference of the tree was sixty-six inches and its height about fifty-five feet, the yield was two pounds, two ounces. Mr Curtis points out that the interest in this particular tree lies in the fact that it has been tapped successively six times, from the eleventh to the fifteenth year of its age, that it shows no signs of deterioration and that the incisions made are all healed up. Since December, 1900, its growth has been slow, the present circumference of the main stem being only sixty eight inches; that is an increase of only two inches in a year and a half. Mr Curtis is of opinion that probably, under existing circumstances, this tree has almost attained its maximum size. He also states that one hundred such trees could be grown to the acre without being too crowded. It will thus be seen that the average yield per tapping amounted to two pounds eight ounces, so that at this estimate, and taking the price of rubber at three shilling per pound, an acre should produce a crop valued at thirty-seven pounds ten shillings at each tapping.—*Pinang Gazette*, August 20.

COCONUT PLANTING IN THE STRAITS.

"Spero," writing in the *Straits Times* of August 21st, says:—May I ask if any of your readers can inform me whether or not coconut cultivation is considered to be on the increase in the Native States? One seems to hear more about it than one did, but perhaps it is not so much of the coconut tree itself, as of its enemies. My attention was drawn to this subject by an old friend of mine at home, who read in a recent issue of your paper the following statement—(copied, he said, from a Report of the Federated States United Planters' Association):—"Coconut planting does not increase in favour owing to the ravages of the beetle and the cost of keeping the trees clean". The above statement, as quoted, implies that the expenses entailed have been found to hardly warrant much attention being given to the cultivation, and, if this be the case, it must be very disappointing to those of the planters who, under the inpression that coconuts had stood the test of hundreds of years, and had always been considered a sound investment, chose this form of agriculture in preference to those more speculative. My correspondent goes on to say, "surely trees which are scrupulously kept clean, and under constant supervision are in less danger than others;" there would seem to be a good deal in this argument. I am told that the Government is trying hard to enforce the Coconut Enactment as regards the holders of native plantations where a great part of the trouble must surely lie. But it is not on the

results from native holdings that the Planters' Association are likely to frame their reports. Thus it would be interesting from the would-be investor's point of view, if from no other, to ascertain the extent to which European cultivation has suffered by the "ravages of the beetle" to warrant the Planters' Association taking such a gloomy view of the situation. It must occur to the least observant that the prominence of such statements without more detail is hardly calculated to bring the cultivation in question into further favour, and in the Native States there must be many who have a large interest at stake.

"FORCED" PLANTAINS.

Mr. C J Stracey, in your issue of the 20th inst., refers to the statements of "A Correspondent" on "forced" plantains which appeared in your columns a short time ago, and says the practice of artificially ripening the half-green fruit "has not been discovered to produce deleterious effects on the consumers." He admits that this process robs fruit of its freshness and flavour, but he thinks that the practice is defensible so far as the ryots on the Lower Pulney Hills are concerned, owing to the desire they have to get a quick and regular sale for the fruit they so extensively grow. The question is not whether the plantain ripened by an artificial process is deleterious to the consumer but whether it is really worth spending money on it in its deteriorated condition. If this process destroys the freshness and flavour of the fruit there can be no real pleasure in buying and consuming it. Europeans are chary of eating the soft, pulpy, flavourless, artificially-ripened plantains sold and are greatly provoked when such are placed before them on the table for consumption. The people of India are not so careful and often eat fruit in a semi-decayed state, which may sometimes be the cause of bowel complaints. The article on "forced" plantains has already taken effect. I know of several Europeans who have taken action since they read it and ordered their cooks not to bring artificially ripened plantains any more. I have heard of complaints made by consumers about the unsatisfactory nature of the plantains put nowadays on the Madras market. They cannot understand, they say, why plantains have such an altered taste. My article has now enlightened them as to the cause of this. Plantains come from various parts of South India to the City for sale, I understand. My counsel is that, if Madras purchasers would sternly resist such an indefensible method of ripening them and refuse to buy them, the growers and the retail dealers would soon be brought to their senses and put only naturally ripened plantains on the market. This would set an example to the whole of South India, and to the fruit-growers on the Lower Pulneys in particular, who evidently are much to blame in openly carrying on the practice. A great future lies before the plantain, not only because of its fruit but because of the fibre which can be extracted from the stalk and made into ropes. Some of the finest and strongest ropes can be made from certain species of plantains, which, if cultivated for fibre as well as for fruic, might become a source of wealth to the ryots of the Presidency. Thousands of plantain stems are cut down and thrown away as worthless, if they cannot be utilised as leaf-plates. The waste in fibre by this action, and the consequent loss in rupees must be very great. If plantain growers were taught how valuable the plantain stalk is in fibre, and if they would avail themselves of the fibre-extracting appliances which can be procured cheaply, they would benefit themselves to a large extent. They might grow the *Musa textilis*, which is the plantain so extensively grown in the Philippines. This plantain is well-known in India. It is called in Tamil *Peyan vazhai*, or the "demon plantain,"—*Madras Mail*, Aug. 25.

FRUIT PULPING.

An account is given in the Annual Report on the Saharanpur and Mussoorie Botanical Gardens of some experiments made in the new Californian industry known as fruit-pulping. The idea is to boil down the fruit until it has assumed a semi-solid condition and then evaporate the remaining moisture, so that the pulp can be wrapped in oiled tissue and packed in an ordinary deal box. Experiments were made with peaches and mangoes, but the result was not encouraging. One hundred and fifty peaches, weighing 19½ lb produced 2 lb of dry pulp, costing 12 annas per lb, without counting the cost of stoning the fruit, boiling, straining, evaporating, putting up the bricks in an atractive form for sale, etc. Thus the cost of producing peach-pulp bricks is at least Re 1 per lb; and as the better class of peaches sell readily Rs 2 to Rs 3 per 100 and second-rate fruit at Re 1 per 100, it would noo be worth the time and trouble of growers to adopt the pulping system. Moreover, it was found that the pulp-bricks would not remain hard and solid for more than a few days in the moist climate of the rains.—*Madras Mail*, Aug. 25.

THE COCONUT PEST IN THE STRAITS

Mr E V Carey writes from Klang to the *Malay Mail* as follows :—As instancing the danger of having any sort of rubbish lying about an estate, or in private compounds, the following little anecdote may be of interest. Some four months ago I had to discard a number of old sacks ; these were thrown in a heap on the ground, covering a space just six feet square, and left there. Last week I have happened to notice them, and stood by whilst they were being removed. From this one little heap no less than 201 larvae of the rhinoceros beetle were collected. I am sorry for the *one*, but this is a true story, so I can't very well leave him out. Moral let every one keep his grounds scrupulously clean, and have even the insignificant and harmless-looking collections of rubbish promptly burned.

THE USES OF CASSAVA.

In the *Cosmopolitan*, Mr. Packard points out the astonishing agricultural possibilities of cassava, better known as tapioca. It is a bushy shrub growing to about five or six feet in tropical and sub-tropical climates,

and its roots produce more starch per acre than any other vegetable or grain. In South Alabama, Mississippi, Georgia and Florida its cultivation is spreading with great rapidity. It thrives best in the light sandy soil which before was thought not of mnch worth. The average yield of the roots gives eight tons to the acre. The starch from these roots costs only 24½d per lb., and it is said to be far superior to wheat starch at 3d per lb. The gain in using cassava for fattening animals, as compared with the old methods, is stated to be about 30 per cent on a seventy-day test. Hitherto artificial fertilisers have been used for cassava in America, but now it is fonnd that several kinds of beans and peas growing freely in the regions where it is cultivated form perfect natural fertilisers for it. Tapioca is cultivated in the Straits Settlements, and would no doubt thrive eqnally well in many parts of India.

GEM-MINING IN QUEENSLAND.

has latterly attracted considerable attention, and with the view of obtaining some accurate information respecting the condition and prospects of this branch of the industry, it was considered desirable that an examination of the Queensland sapphire and opal fields should be made by persons specially qnalified for the task. Accordingly Mr B Dunstan, Assistant Government Geologist, was deputed to visit the sapphire fields at Anakie in the Clermont district, and to Mr Jackson, also of the geological survey staff, was assigned the duty of inspecting the opal centres of the State from Cunnamulla to Winton. With respect to sapphire-mining at Anakie Mr Dunstan says that only a small portion of the extensive tract of sapphire-bearing country has been explored, the principal camps being confined to an area not exceediug 10 sqnare miles. The sapphire deposits are found in much the same manner as shallow alluvial gold or tin, and vary in thickness from a few inches to several feet. The stones are blne, yellow and green, of numerous tints and shades, the green and yellow being the most beautiful. The yellow stones are rare, and the blue are of so dark a shade as to appear almost black, and cannot compare with the brilliantly tinted stones of Siam, Burmah, or Ceylon. Green stones, nncommon in other parts of the world, are fonnd in abundance at Anakie, and their comparative rarity and frequently great beauty have created a growing demand for them. Amongst other stones found at Anakie is the hyacinth which, when cut, forms a richly coloured gem of a deep blood-red colour, and the Oriental cat's-eye, rejected as valueless nntil the skill of the lapidary disclosed the peculiar lnstre that is occasionally very marked and effective. More important, perhaps, was the discovery that the sapphire deposits are also diamentiferous, and one diamond weighing 1¼ carats, and absolutely colourless, was purchased by Mr Dunstan, and is now to be seen in the Geological Museum.

Mr Dunstan estimates the number of persons engaged in gem-mining at Anakie at the time of his visit to be 200, and the warden sets down the valne of last year's ontput from the field at 6,000*l*.

The production of opal in 1901 was estimated at 7,400*l*.—*Board of Trade Journal*, August 7.

PRODUCTS AND TRADE OF JAVA FOR 1901.

The year 1901 can scarcely be regarded as prosperous for the Island of Java. Against a large sugar crop, there was a falling-off in the production of coffee, rice and coprah, while the import trade left mnch to be desired.

The Coffee crop was very small. On the eastern side of the island the trees suffered a good deal from the effects of the ernption of the Kloet. The mud streams destroyed a few estates, and others were injured by falling stones and ash, and the blossom, then very nearly coming out, was more or less ruined. Government have abolished the export duty, which amounted to abont 10d per 112 lb., and this may assist in resuscitating the culture. The production of the coffee crop from private estates in Java last year was 175,000 piculs Java and 118,250 piculs Liberia, while next crop is estimated at 389,500 piculs Java and 93,600 piculs Liberia. The Government crop was again small, amounting to 78,200 piculs Java and 30,417 piculs Liberia coffee.

Quinine.—Notwithstanding the increased monthly shipment of cinchona bark from Java to Holland during 1901 prices realised were satisfactory. The quantity of snlphate of quinine produced by the Bandong factory and sold at auction in Batavia during 1901 was 1,014,000 ozs. (English). The average price paid was 1 1-10th d. per oz., the equivalent of 1 7-10th d. per unit. The bulk of the quinine was shipped to the United States and London.

Tea.—The season's production exceeded any of its predecessors. The export has almost entirely been shipped to Holland and London, though regular small parcels of specially-prepared tea have been forwarded to ports in the Persian Gulf. Attempts are being made by Java planters to prepare their tea in tabloid form, which is considered in some qnarters to be most suitable for the markets in Russia.

The Copra crop was much interfered with by rain, and was consequently below either of the two preceding years as regards quantity. Prices have been nnprecedentedly good.

Fertilisers.—Large quantities of sulphate of ammonia and blood manures from the United Kingdom and the colonies continue to be used all over the island. Groundnut-cake from the Madras coast and bean-cake from China also find mnch favour, and the imports of all kinds are increasing.

Oil.—The prospects of an increased bnsiness being done in liquid fuel have not so far been realised, but a considerable number of local industrial undertakings use this fuel in preference to coal.

Consul Davids.

MICA PRODUCTION IN 1901.

In the *Iron Age* (New York) of the 17th ult. it is stated that the United States' Geological Survey has completed the report upon the production of mica in the United States in 1901, from which it appears that the total output of sheet mica dnring that year was 360,060 lb, valued at 98,859 dols, and of scrap mica 2,171 tons (of 2,000 lb), valued at 19,719 dols. In 1900 the production of sheet mica was 456,283 lb, valued at 92,758 dols, and of scrap mica 5,497 tons, valued at 55,502 dols. Mica has been fonnd in many of the States, but in 1901 was produced only in New Hampshire, New Mexico, North Carolina, and South Dakota, by far the larger amonnt being obtained from North Carolina.

The production of mica in 1901 in detail was as follows:—New Hampshire, 65,800 lb of sheet mica and 255 tons of scrap mica; New Mexico, 3,100 lb of sheet mica and 140 tons of scrap mica; North Carolina, 266,160 lb of sheet mica and 1,775 tons of scrap mica; and South Dakota, 25,000 lb sheet mica; total, 360,060 lb of sheet mica and 2,172 tons of scrap mica. Idaho, Maine, Nevada, Rhode Island, and Virgina, which were producers of mica in 1900, had no production during 1901, and of the other States, with the exception of North Carolina, there has been a very noticeable falling-off in the production. In North Carolina there was a decided increase in the prodnction of plate mica, but a large falling-off in the prodnction of scrap mica.—*Board of Trade Journal*, August 7.

COLOURED AND UNCOLOURED GREEN TEAS.

(TO THE EDITOR OF THE "HOME AND COLONIAL MAIL.")

SIR,—I notice in your issue of July 18th that you have published a letter to me, from my old friend, Mr Hart, on the subject of finished and unfinished green teas. He is of opinion that the Canadian buyers will consult their best interests by using at once the teas he recommends, the finished article. My reply, copy of which is attached, states the case for Canada, and explains why the finished teas cannot be used at present) —Yours faithfully, ROSS W. HAYTER,

50, Front Street East, Toronto, July 28, 1902.

Robert Hart, Esq.,

Sir,—Thanks for your letter on the subject of finished and unfinished Greens from India and Ceylon. We are not in a position yet to go into questions of the relative merit and quality of the "finished" article, as it is only during the last month that any samples of finished Greens from India have been shown. It may be, as you say, that they are superior and will fetch higher prices. This may happen when they become known and have been well advertised, like uncoloured green Ceylons have been. At present the Ceylon and Indian Greens that are wanted in Canada (I speak for Canada only) are the "unfinished" (to adopt the proper title) Ceylon Greens, and have been extensively advertised as such, as distinct from the coloured teas of Japan and China. They have got a firm hold of the public taste here. The reason is quite evident. When Mr Larkin and Mr Mackenzie undertook to push Ceylon Greens, the "finished" teas you are now making were unknown here, all the Ceylon and Indian Greens being of the "mamuna" type, and some of them excellent in both style and cup, brisk and pungent, and better than the finest Japans that can be bought here, and with plenty of the character that is wanted in Canada, which is, after all, the main point. In fact they have proved to be quite suitable. These are the teas that at a tremendous expenditure of energy and money on the part of Mr Larkin have got established, and, unless the supply of the "unfinished" type falls off, as you seem to think it I may, I predict that it will hold its own for some time to come. The public here have been educated up to the appearance, and are shy of a Ceylon Green that looks green, suspecting colouring matter. The keeping qualities, too, are all right. I have some that I have had nearly a year, and they are perfectly sound whereas a black tea would have gone off.

The motives you attribute to buyers here for using these teas is hardly a fair one. They had to use them or none, as there were no "finished" teas available when they commenced to push them, and the great point in advertising these teas is that they were natural uncoloured teas. You will understand, therefore, that Mr. Larkin takes but a small interest in these "finished" greens, so far as his own business is concerned, although he takes interest in them from another point. He can get gardens in Ceylon to make as much of the sort he requires—or as much as Canada requires—without much trouble, and also at the prices Mr. Larkin and others are prepared to pay.

There will no doubt be a market for both sorts as time goes on, but it will be some time before they get in here and displace the unfinished type, which has got a three years' start. I don't wish you to think that I am extolling the merts of "unfinished" greens as against the "finished," for I have had no opportunity yet of forming an opinion; what I want to make clear is that for Canada at present (for the reasons before stated) the unfinished teas are what as wanted both as regards appearance, cup quality and price. They beat the Japans used in Canada on all points, prices not being the least important.—Yours faithfully, ROSS W. HAYTER.

50, Front Street East, Toronto, July 28, 1902.

NOBODY'S BUSINESS.

(To the Editor of The Home and Colonial Mail.)

SIR,—It is satisfactory to see that some interest is being aroused in the extension of the use of China tea among those who are prepared to pay the highest prices—in the tea-room of the House of Commons and also among our richest consumers. Imperialism only interests itself in those who protect themselves, i.e., self governing colonies. Regarding reversion to China teas the cause is not far to seek. The blenders catering for the masses provide an article in which strength, more than ever, is the chief consideration. What those who are prepared to pay highly require is a good flavouring tea with most of this pungent character eliminated; substituting in its stead a brisk, light, flavoury tea. The masses will for the present stand by the stronger compound; unless they, as is so often the case, imitate their betters. Nor am I sure that 30 per cent of the public really care for strength in preference to delicacy of flavour. Fifteen years ago, when Ceylon teas so successfully and exclusively won the markets, they were thin and flavoury; and I well remember going round dealers' tasting rooms and being assured that, notwithstanding the public approval, they and some Indians were fetching far above the value put upon them by specialists. Having both Ceylon and Indian investments, I am writing in the interests of both, and am convinced that a delicate, light, brisk, pleasant tea of flavour can be blended from British-grown teas, as acceptable to delicate palates and as satisfactory to the doctors as anything China can produce. It would also be able, strength for strength, equally to bear with China tea the test in the laboratory. The one great evil of the ordinary pungent blend of commerce is that it is inclined to be "leathery", if drunk weak. Darjeelings, Ceylons, and some Dooars, and many other gardens from various districts could, by lighter rolling and brisker firing, produce an article which would please a finer taste and reassure the doctors. If this question were as fully advertised as Ceylon teas were fifteen years ago it would, as then, soon become the fashion now, as it became then.—I am, Sir, yours, &c., W. FORBES LAURIE.

—*H. and C. Mail*, Aug. 15.

MANURING TEA.

Mr Henry M Alleyn, the Ceylon planter to whom we owe a new system of plucking, which has been very largely adopted to the advantage of Ceylon gardens, favours us in this issue with his views on manuring, a subject which Indian planters would do well to study, as it is the backbone of the industry in many parts of Ceylon. Mr Alleyn pins his faith to manuring for quality, and we may state here that he has applied in India and Ceylon for patent rights in a new mixture of this own composition, with which he claims to effect the object of improving quality in tea manufactured.—*Indian Gardening and Planting*, August 28.

PAPER BUILDINGS.—The *Paper-makers' Monthly Journal* reports that a Russian nobleman has upon his estate at Savinowka in Podolia a paper house of sixteen rooms, built in New York, at a cost of 80,000 roubles, and its architect declares that it will last longer than a stone building. Bergen, in Norway, has a church built of paper capable of seating a thousand people.

PLANTING NOTES.

The "True Green Tea."—Messrs. Wm. Jas. and Hy. Thompson's tea circular, dated 31st July, has the following :—

"It has now been proved possible to make in India and Ceylon, without artificially colouring the leaf, the true "Green tea" of commeice, with pure and delicate flavour, and also the distinct variety called "Uncoloured tea," each so attractive in quality as to almost ensure a market provided a regular, abundant and uniform supply of equal value can be guaranteed. We entirely confirm what we wrote on this subject in our annual review."

Rubber Exploiting in Peru.—A report by the United States secretary of legation at Lima, Peru, in regard to the formation of two rubber exploiting companies was referred to in The *India Rubber World* of June 1[page 280.] It has been learnt that the company with £26,000 capital, to operate in the province of Sandia, department of Puno, Pero, is the Tambopata Gum Co., organized by Señor Pedro D. Gallagher, of Lima The new company to take possession of 50,000 acres of rubber lands near Marcapata, in the department of Cuzco, and east of the city of that name, was organized by Don Manuel Elguera, also of Lima, and a brother of the mayor of that city. It was Señor Elguera, by the way, who secured the concession in the Béni country, in Bolivia, now being exploited by the Andes Co., of Baltimore, Maryland.—*India Rubber World*, Aug. 1.

Seeds for Indigo Planters.—In the *Natal Mercury* of July 4th it is stated that a possible new industry of considerable interest is in front of Natal. Mr A M Baily, accredited by the Government of India, and also by the indigo-planters in that country is at present in the colony making inquiries in regard to the indigenous indigo-plants of Natal, with a view to obtaining a large supply of indigo-seed for the use of Indian planters. It is probable that some hundreds of tons of the seeds will be required every year. It is suggested that this would be a valuable crop to grow in Natal, for seed purposes if for no other. The yield of seed for plants growing six feet apart is stated to be about one pound per plant, or 1,210 pounds per acre. The present price for the seed is 1s 6d per lb.—*Chemist and Druggist*, August 16.

Mozambique.—There is a considerable falling-off in the value of the exports during the past year. These consist of groundnuts, copra and a small quantity of ivory and calumba root. Formerly india-rubber was despatched in important quantities to Hamburg and elsewhere; but the export of this valuable commodity was stopped in the early part of this year, the authorities stating that, owing to the admixture with the rubber of foreign bodies for the purpose of increasing its weight, it was acquiring a bad reputation on the European markets, and that until such time as the collectors of the juice could find means to procure a rubber calculated to create a demand for produce of this country, no more should be despatched. Naturally, this somewhat arbitrary order had a disastrous result, for many of the traders, who had accumulated large stocks, found themselves unable to put their produce on the market. The Governor-General has now withdrawn this prohibition—*Gutta-Percha Trades' Journal*, August 4.

Peru.—The india-rubber industry is likely to progress, as from all accounts the forests of Peru contain innumerable rubber trees. From July 1st, 1900, to July 30th 1901, grants amounting in the aggregate to 1,240,000 acres of forest land, said to contain valuable rubber trees, have been made by the Government. These lands lie in the Departments of Huanuco and Cuzco. The periods of grants are either five or ten years. The royalty claimed by the Government is 2s for every quintal of rubber which is exported. During the same period six other concessions were granted under somewhat different conditions. One of the grants comprised 4,942 acres and others 1,235 acres each. These grants are divided into plots called "estradas." Each "estrada" contains within its boundaries 150 rubber trees. The royalties levied in this case are 20c annually for each "estrada" and 20c for each hectare of land which the estradas cover.—*Gutta-Percha Trades' Journal*, August 4.

Tea in India and Ceylon.—Says "*Indian Gardening and Planting*," September 4th :—"In respect of the acreage figures it should be remembered that the procedure of the planters in the two countries is different. In India when land gets worn out, it is customary to extend and plant fresh land. This has been somewhat contemptuously styled a *jhuming* policy. But so it is; the old land produces little, still it is often kept up and swells the nominal total of acreage in cultivation. In Ceylon the practice is to make the most of existing cultivation, by forcing manure, which keeps up the output when the soil flags. Yet not content with thus forcing output of tea from old land, the Ceylon planters have gone ahead faster than the Indian in the typical Indian system of extension, for which the *Ceylon Observer* seeks to blame us." [Not so, we maintain, India in four years planted 17,000 acres more than Ceylon; and there has been no planting here at all for two years; while nearly all Indian Tea Company Reports up to this date, speak of "extensions."]

Cacao-Planting in Dominica.—Mr. G. W. Penrice writes to *The Times* in a very cheery way of this island. He says :—

It is very probable that newcomers landing at Dominica will be told that the Crown lands are no good, and may be advised to buy ready-made places on the coast, where the labour of clearing and preparing the land for planting will be avoided, but this advice should be ignored, for although the land on many of the coast estates is still very fertile, it is not to be compared to the virgin land in the interior. Some of the cocoa trees which I planted 18 months ago on my property are quite equal in size to many trees that I saw on some of the plantations on the coast, and which I was told had been planted three years. Of course, the taking up of Crown land entails a certain amount of roughing it during the first year, as it takes some time to erect dwelling-houses, &c., but these discomforts become things of the past and are soon forgotten. It is not advisable for any one to go to Dominica with the intention of planting unless possessed of at least £2,000, but given this sum, together with the exercise of some tact in the management of the natives, success must follow.

INDIA RUBBER.—The India Rubber Industry is one of the most remunerative in Russia, and is conducted by wealthy companies. British dealers in the product should bear this in mind and afford every facility to purchasers of the commodity in question.—*Board of Trade Journal*, Aug. 14.

RUBBER IN THE STRAITS.—We are much indebted to Mr, F Pears for his letter in correction of our estimate of the area under rubber in Johore, which he would raise from 200 to at least 1,000 acres. We had less information about Johore than any other division of the Straits; but we would like to hear from residents in the other States as to our figures, which ran as high as 2,926 acres for Selangor.

TEA GROWING IN AMERICA.—America persists in her attempts to grow tea. According to the *American Grocer* of the 30th July "Texas is to have a tea farm at Port Lavaca. A start has been made with 500 plants. This is in line with similar experiments made fifty years ago." In the same journal we read the following:—"Sinko Hatto, on behalf of Japan's tea interest, has been appointed by his Government to make a thorough study of the tea-growing conditions in South Carolina."

THE MUNGPO CINCHONA PLANTATION.—Dr. Stuhlmann, Director of Agriculture in German East Africa, has reported upon various Indian products; among others upon Cinchona. As he says, the bark is chiefly cultivated by the Government. He deals specially with the Mungpo plantation, near Darjeeling, where an area of 40,000 acres is reserved. About 200 acres are planted with cinchona every year, so that about 1,500 acres are always occupied by this product, the trees being only maintained for about eight years, then rooted out and the ground left to rest. One plot has, says Dr. Stuhlmann, been resting for 15 years after producing a crop of *Cinchona succirubra*, and it will still be necessary to manure with bone dust before planting *Ledgeriana*. Wherever the soil is suitable *Calisaya, var. Ledgeriana*, is preferred but it requires good drainage. *Officinalis* does not succeed at Mungpo.—*Planting Opinion*, Aug. 23.

BANANAS—are now-a-days quite common objects of merchandise, and to a certain extent the banana peel has ousted the no less dangerous orange peel as a trap for the unwary in the London streets, but now the fruit will probably become even more common, for an agreement of considerable importance to Jamaica has just been entered into between Messrs. Elder, Dempster & Co. (Imperial West India Mail Service) and the United Fruit Company of Boston. The Direct Mail Company are under contract with the Government to run a fortnightly service of steamers, and to bring over from Jamaica 20,000 bunches of bananas by every steamer. Sir Alfred Jones has all along been anxious to make the service a weekly one, but the supply of fruit on the south side of the island was insufficient. This difficulty has been overcome by the agreement with the United Fruit Company, which does most of its own fruit farming, and undertakes to supply the extra steamers of the British line, which are to run from the northern side of the island to Manchester.—*Grocers' Journal*, August 2.

A NEW WEED-CUTTING MACHINE.—A Ceylon official is good enough to send us the extract from *The Field* on this subject which we reproduce elsewhere and to ask:—"Would not this be worth trying on the Colombo Lake?"—We commend the extract to the attention of the Chairman and Members of the Colombo and Kandy Municipal Councils—and also of the Local Board, Nuwara Eliya, where Lake Gregory is being steadily encroached on by vegetable growth, weeds, rushes, &c.

JAVA TEA.—As foreshadowed in the British Consular report for 1900 the season's production of Java tea in 1901 exceeded any of its predecessors. The bulk was almost entirely shipped to Holland and London, though regular small parcels of specially prepared tea were forwarded to ports in the Persian Gulf. Attempts are being made by Java planters to prepare their tea in tabloid form, which is considered in some quarters to be most suitable for the markets in Russia. Statistics of Exports for the last four years are as follows:—

1898	..	12,110,724 lb.
1899	..	12,841,702 lb.
1900	...	15,406,984 lb.
1901	...	16,750,872 lb.

Planting Opinion, Aug. 23.

DESTRUCTION OF PESTS.—There has just been issued from the Agricultural Department at Ottawa a valuable pamphlet whose title runs thus:—"Agricultural College, Bulletin No. 122. Spray Calendar—directions for treatment of insect pests and plant diseases. By W Lockhead, Professor of Biology and Geology, Orleans Agricultural College, Guelph. 1. Thorough intelligent spraying pays; 2. Spraying is a insurance; 3. Clear up refuse, gather up fallen leaves and fruit in the fall and burn them; 4. Protect birds and beneficial insects. Published by the Ontario Department of Agriculture, Toronto." There are a large number of recipes for "extirpation," with instructions of the mixing of ingredients, and notes as to how and when to apply them to the affected trees, vegetables; &c. Altogether it is a little work of great value to the market gardener and private grower. Such a work must spare the "Inquiry Department" at Ottawa much work and save much time just when a loss would be of importance. For such a work a large sale might be guaranteed in this country.—*Gardeners' Chronicle*.

IMPROVEMENT IN COCONUT CULTURE.—An old resident writes:—

"It would seem that the coconut does not admit of exploitation to any great extent—being indigenous and apparently unimprovable by pruning and grafting. "Selection" of seed, or "fertilizing" flowers to that end, might do something, but life is short—and a coconut tree is not a gooseberry bush!"

[Careful selection of fully-grown, ripe nuts from a good district for the nursery is the only precaution we have heard of. It might be well to experiment in Ceylon with seed-nuts from the Straits or Java. Decandolle puts the Eastern Archipelago, extending up to Sumatra, as the original habitat of the coconut palm, from whence the nuts floated away both to Eastern and Western shores. Experiments in fertilising flowers ought to be tried in the Heneratgoda Gardens, if deemed of sufficient importance. What do Messrs. Lamont, Jardine and W H Wright say to this idea?—ED, *T.A.*]

A GUTTA-PERCHA EXPEDITION TO THE SOUTH SEA.

The Committee has sent Herr Schlechter to German New Guinea to explore this possession for Gutta-percha. The expedition was a complete success, Herr Schlechter having discovered at the foot of the Bismark Mountains, and elsewhere gutta trees and vines giving an excellent quality of gutta, equivalent to "gutta-merah" and other finer sorts. Samples sent to Germany are now undergoing a detailed technical examination, but we may now feel sure that our cable industry can be provided with gutta-percha from the German colonies. This discovery is the more important as the supply from Northern Borneo and other gutta countries is rapidly declining, at least, for the better sorts. For this reason a Bremen merchant, Herr Oldemeyer, had promised a prize of £150 to the explorer who should find in a German Colony a wild-growing gutta plant giving a good latex. Of course, the prize is due to Herr Schlechter. West Africa is concerned in this discovery. Herr Schlechter has sent to the Botanical Gardens at Berlin cases of young plants from seeds of the newly discovered gutta trees and vines, and these plants are now being submitted to a trial of the West African climate, in the Botanical Gardens of Victoria (Kamerun) and Togo. These countries being nearer to Europe and better suited for plantation than the far-off and ill-developed islands of the South Sea, it would be a great gain if the gutta plants could thrive there.—*Gutta-Percha Trades' Journal*, August 4.

GOLD IN BRITISH GUIANA.

Reuter's agent, writing on July 31st, makes the following remarks :—

Although a British possession with undeveloped wealth of greater magnitude almost than that of the newly acquired colonies of South Africa, it is being left almost entirely to American and Continental capital to exploit it. The conviction has been firmly implanted in the British mind that British Guiana, or Demerara, is a sugar-cane growing country and nothing more, but the mistake of this must be evident when it is mentioned that only a fringe of the vast territory of 109,000 square miles is under sugar-cane—about 150 altogether being cultivated—and the greater part of the interior is as unknown as is the centre of Africa. The United States have just resolved to send parties to explore the interior of Brazil, the neighbouring country, and it is not improbable that this will be followed by a similar expedition to British Guiana. Gold, diamonds and balata are riches which the interior possesses and which at present are being worked with spasmodic efforts. In the case of the first-named industry little real attempt has been made at development, but a German company, known as the Omai Syndicate, have just completed the erection of a large plant to work the gold on up-to-date principles. Negotiations have also been entered into with a Dutch company with a proposed capital of £250,000 to take over and work gold claims in the Barima district. With regard to the diamond industry, American capital is for the greater part, invested, and splendid returns have been received.—London *Times*, Aug. 15.

COCOA AND OTHER PRODUCTS IN TRINIDAD.

Trinidad, July 30th, 1902.

WEATHER.—We continue to have very favourable weather for all growing cultivation.

PRODUCE.—Cocoa.—The weather has been favourable for the prospects of the December crop. Receipts from the country continue to diminish daily, but, owing to a much less active enquiry, prices locally have declined to a rate more in keeping with prices in European markets and we quote today $12.90 to $13.10 for ordinary, and $13.40 to $13.50 for good estates grade.

COPRAH.—Some lots have been offered lately, the price still holding at 3c. per lb., which does not correspond with London quotations, the market there being weaker.

BALATA GUM.—London quotations at 1s 8½d. and 1s 9d. per lb. C & F do not encourage local buyers as this article here fetches 1s 9d. per lb. for other markets.—*Trinidad Semi-Monthly Market Report.*

MOSQUITOES, MALARIA AND YELLOW FEVER.

We are indebted to a scientific friend for the translation respecting "mosquitoes and yellow fever in Cuba", which appears in our daily and *T.A.* It is the most striking testimony we have yet seen to the vital importance and utmost practical value of the discovery made by Dr. Ronald Ross. We are all proud that a British surgeon should have been the first to demonstrate the connection between the "wee scoonrels" (of the teased tropical Scot) and fever; but it reflects on our national enterprise that, apparently, our American cousins should be the first, in Cuba, to demonstrate the great and absolute saving of life from putting in practice the lesson taught by the discovery. We know from reports received by us, but not yet read, that Sir Wm. Macgregor, who is M.D., as well as Governor, has not been idle in Lagos, West Africa; but we do not think results like those reported from Cuba have been attained, or we should certainly have seen much made of them in the London press. To have saved 291 lives in six months in Cuba (a hotbed of yellow fever) is a most notable result; and how it has been done can be seen elsewhere. Surely, effective steps should be taken to get rid of mosquito-breeding stagnant pools and drains in several roads of this city in the interests of public health? But still more ought steps to be taken by Government to conquer and kill out mosquitoes in malarial districts where Surveyors, Irrigation and Railway Officers—apart from the natives—suffer so much from fever. After the example shown in Cuba it will be a disgrace if the Indian and Ceylon authorities, to delay any longer to engage in an anti-mosquito campaign.

MADRAS AND WEST AFRICAN PEANUTS.

A CONSUL-GENERAL'S REPORT.

In course of a report on French methods of pea-nuts crushing, the United States Consul-General at Marseilles gives some interesting particulars regarding Madras and West African nuts. The yield of oil from decorticated peanuts from the Madras coast, which constitute the largest import for the Marseilles soap trade, is from 39 to 40 per cent of their weight. The resultant cake contains from 7 to 9 per cent of oil. The price of the oil depends largely upon the purpose for which it is intended. Oil from Madras decorticated nuts, utilised by soap manufacturers, brings 58 francs per 100 kilograms ($11·19 per 220 pounds) naked, first pressure, delivered at buyers' stores. The finest edible oils are obtained from nuts imported in the shell, these coming from the West Coast of Africa, chiefly from Ruffisque and Gambia. Oils from these nuts are worth from 75 to 80 francs per 100 kilograms ($14·47 to $15·44 per 220 pounds), naked, first pressure. Hand decorticated Mozambique nuts give an oil now worth from 74 to 75 francs ($84·28 to $14·47). The second pressure oil from Ruffisque, Mozambique, and Gambia nuts, which is suitable for illuminating purposes, is worth from 68 to 70 francs per 100 kilograms ($13·12 to $13·51 per 220 pounds). Ground-nut cake brings from 12·75 to 13 francs ($2·46 to $2·50) per 100 kilograms at mills, or 13·25 to 13·50 francs (2·55 to $2·60) delivered f o b Marseilles in bulk, that is to say, without bags. There is usually a difference of 3 francs per 100 kilograms (58 cents per 220 pounds) in this market in favour of ground-nut cakes over cotton seed cakes. The latter are worth delinted, 10 francs ($1·93) per 100 kilograms at mills. Marseilles oil cakes are sold most conclusively for cattle food. The soap mills of Marseilles consume on an average 3,000 to 3,500 tons of ground-nut and other seed oil per month, and about the same quantity of copra and palm-kernel oil.—*M. Mail*, Aug. 27.

MOSQUITOES AND YELLOW FEVER IN CUBA.

(*Translated for the "Ceylon Observer."*)

It has long been a matter of general knowledge that the mosquito is the principal agent in the dissemination of yellow fever and malaria. Since the beginning of 1901 a determined attempt has been made by the Americans to rid Havana (in Cuba) of these noxious insects. Two methods have been used for exterminating them :—first, every house in which there is a case of yellow fever, and the three or four houses in its immediate neighbourhood, are thoroughly fumigated, thus destroying the mosquitoes within them ; secondly, and as a general measure, all standing pools throughout the town and suburbs are either drained or filled up. These pools are well-known to be the favourite breeding ground of the mosquito, the larvæ of which develop in still water from the eggs laid on its surface, and live in that element until their transformation into perfect insects. Sheets of water, which cannot be got rid of in that way, receive a layer of petroleum on their surface. When the larvæ come up to breathe, the petroleum clogs their breathing passages and speedily kills them by asphyxia.

In Havana there is now a staff of 100 men, whose sole business is the destruction of mosquitoes. Already excellent results have been obtained by their agency. Before 1901 yellow fever was permanent throughout the summer. In January there had been 23 cases and 7 deaths. The war on mosquitoes began in February ; and in that month there were 8 cases and 5 deaths, in March 2 cases, in May 4 cases, in June *none*. In September there were 2 deaths against an average of 70 previously. At the same time cases of malaria have sensibly declined in number, which is not to be wondered at, since mosquitoes are the main factors in propagating that disease. In September there were 11 deaths from malaria against an average of 32 up to that month.

In short from April 1st to October 1st, 1901, there were only 5 deaths from yellow fever, instead of 296 [a saving of 291 lives in 6 months!] These figures are eloquent enough in themselves to render comment unnecessary, on our part, upon the good work of the Americans through their vigorous action in Cuba. It is earnestly to be hoped that the example they have set may be followed everywhere.—*From the "Revue Scientifique," April 19th, 1902.*

A CEYLON VIEW OF THE CASE FOR MANURING.

I notice in your editorial of 24th July that you advocate the adoption by India of the manuring systems in vogue in Ceylon in preference to the Indian methods of extension so much practised hitherto. It is unquestionably true that continued extension of a garden to compensate for declining yield merely means increased cost of production per lb. Yet the other system, which, if carried out on certain lines, will give largely increased crops and at the same time often *reduce* the cost of production *per pound* of tea, is not without its disadvantages which are becoming more apparent every day under the increased area operated upon within the last few years. In the first place overproduction is unquestionably increased, and, in estimating the financial return, allowance is hardly ever made for the effects on the market, that immediately result from the adoption of such schemes by any reasonable number of estates—and in tea, where each company knows what its neighbour is doing, such new methods of cultivation cannot be confined to one or two individuals, but are quickly taken up by many others who often look upon the figures shown them as their only salvation.

If an apology were needed for the action of Ceylon in this matter, it is to be found in the fact that with our poor soils the necessity for costly artificial manures is imperative, if estates are not to deteriorate.

It is with present prices impossible to provide the necessary money for such increased expenditure, so that proprietors are driven to employ such quantities and qualities of artificial stimulants as will *greatly* increase the total yield, often by 50 per cent or more and thereby in the cheaper harvesting off the same acreage permit the cost *per lb.* of made tea to remain at the same figure, or under certain circumstances to be reduced.

Yet there is a nemesis that invariably follows such action : firstly in the drop in value of the teas owing to overproduction ; and secondly and more seriously in the slow but steady decline in quality of the crops grown by such means.

This decline in quality so not at first noticeable but in the second and third year generally

becomes very perceptible. It is due to the exhaustion of the soil as regards its available mineral and organic matter by the very much increased network of root growth formed to support the bush stimulated by large soluble supplies of Nitrogen, Phosphoric Acid and Potash manures.

There are other technical reasons, dependent on the character of the measures used, that add to this tendency. As such, however, come under certain discoveries as regards manuring *for quality*, that will shortly be brought before the industry as soon as protection for the invention is secured, they may for the present be passed over.

If, however, India generally is as fortunately situated as Assam, there is no need for the adoption of Ceylon systems of "forcing" or "thorough" cultivation as they are called by those who oppose or who practise these methods of tea culture.

Mr Mann in his report to the Indian Tea Association has treated the question in a most thorough manner. His recommendations, if followed, will insure that the fields are preserved in a first-class state of vigour by the use of *natural* manures, which, though according to the new discoveries they may not directly improve quality, will yet certainly not cause any deterioration therein. The cost of such treatment is also almost negligible and, if similar methods were possible on the steep estates of Ceylon, they would be far and away preferable to any systems of cultivation at present in vogue.

Unfortunately such is not the case. The character of the land and soil in Ceylon is entirely different from the flat alluvial of Assam, while natural manures, except in small quantities on a very few favoured estates, are comspicuous by their absence. That the last word has been said as regards Ceylon methods of manuring is not the case. No industry in these days of competition can afford to remain stationary, and it is almost a matter of certainty that the next few years will see the adoption by Ceylon, and it is hoped by India, of the improved methods of manuring for *quality*, in contradistinction to *quantity*, that will shortly be brought within the reach of those desirous of increasing their yearly profits at other than their neighbours' expense.

That it is also still possible for the tea industry to reduce cost of production is clearly shown by the success of the new system of plucking that I am responsible for and by the attention it is attracting throughout Ceylon, where the experience of plucking goes back for over twenty-five years but is yet found capable of improvement.

HENRY M. ALLEYN.

Ceylon, 18th Aug., 1902.

—*Indian Gardening and Planting*, Aug. 23.

QUININE MONOPOLY IN JAVA.

It is stated that an agitation has arisen among the cinchona growers of Java to induce the Dutch Government to take over the quinine manufacture, and to convert it into a State monopoly. The planters are under the impression that, as Java is the principal source of production of cinchona bark, the Dutch Government by monopolising the industry would have it in their power to adjust the price of quinine in the world's markets to almost any height they thought fit. The attitude of the Dutch Ministry towards this scheme is not known, but it is significant that the Governor-General of the Dutch East Indies has empowered the officially-appointed Director of the Government Experimental Institute for cinchona cultivation to take over the management of the Bandong quinine Factory, retaining meanwhile his directorship of the Institute. Should the monopoly be carried out, the first effect would be the prohibition of all export of cinchona barks from Java. It is believed, however, the *Sud. d. Ap. Ztg.* says, that the Dutch are too cute business men to enter upon a course of action which might lead to a profitable industry slipping out of their hands through the stimulus to cinchona growing that would naturally be excited elsewhere—in Ceylon, for instance. —*British and Colonial Druggist*, Aug. 15.

PLANT TREES

What do we do when we plant the tree ?
We plant the ship which will cross the sea:
We plant the masts to carry the sails,
We plant the plank to stem the gales,
The keel and keelson, beam and knee:
We plant the ship when we plant the tree.
What do we plant when we plant the tree ?
We plant the houses for you and me,
We plant the rafters, the shingles, the floors,
We plant the studding, the laths, the doors,
The beams, the siding, all parts that be,
We plant the house when we plant the tree.
What do we plant when we plant the tree ?
A thousand things that we daily see,
We plant the spire that out-towers the crag,
We plant the staff for our country's flag,
We plant the shade, from the hot sun free,
We plant all these things when we plant the tree

HENRY ABBEY.

—*Agricultural Journal*, Natal.

YIELD OF RUBBER.

To the Editor of *India-Rubber and Gutta-Percha Trades' Journal.*

Dear Sir,—Some time ago you asked for some further particulars about two cultivated rubber trees, nineteen years old, having yielded twenty five pounds of rubber each, as per the following paragraph :—"From the *Penang Gazette* we learn that upon reliable information two cultivated rubber trees of nineteen years old have recently been tapped, and gave 25 lb of rubber each. At least ten of such trees could be grown to the acre, and the result would be 250 lb of rubber per acre in nineteen years, as against 9¼ lb in Assam in twenty-six years. Our contemporary does not state what species the trees belong to, and we rather question whether any trees have been cultivated for so long as nineteen years. Perhaps some of our readers in this locality can give us some further information." The two trees referred to are situated in Kwala Kangsar, Perak, and *Ficus Elastica*. Mr R Derry, Superintendent of Government Plantations, Perak, in his report for the year 1900, says : "The largest tree at Kwala Kangsar is about ninety feet high, and eighty-eight feet at three feet from the ground. Measuring all round the aerial roots the branches extend to 36 paces, and the largest leaves obtained 13 in. × 7 in.; its age is nineteen years." Again he says : "From the latter (referring to the two nineteen-year-old trees) 25 lb of rubber has been got from each tree and the tapping was far from being exhaustive."

Our returns here from *Ficus Elastica* are likely to be far in excess of those officially recorded by the Government Plantation in Assam, which, indeed, so far, do not offer much inducement for private enterprise in this direction.—I remain, dear Sir, yours faithfully,

FRANCIS PEARS.

Lanadron Estate, Muar, Straits Settlements, June, 27th 1902.

RUBBER TREES AND WHITE ANTS.

Replying to a correspondent of our contemporary, Mr E E Green gives some useful information:—"Your correspondent 'Rubber' does not say whether the 'white ants' are attacking the outsides or insides of his trees. There are many different species of termites (white ants) in Ceylon. Most of them confine their ravages to dead wood; but others certainly do attack living plants, though it is usually the more functionless parts of the plant that attract them. For instance, one species eats away the heartwood of tea plants; but leaves the outer-growing parts (cambium layer, &c) untouched. I should be glad to receive specimens of the termites that are damaging the rubber trees, together with exact particulars of the nature of the injury. If the point of attack is external, an application of 'Gondal Fluid' (invented by Dr. Geo. Watt) might be tried. It should be painted on the base of the stems. A band of some sticky compound might prove useful. The ants would find great difficulty in crossing this. An Indian paper (*Indian Gardening and Planting*, September 20th, 1900, p. 190) gives an account of successful experiments conducted by the Agricultural Society of India, with a compound called "Atlas Preservative A." This mixture was applied both to dead wood and living plants, with satisfactory results in every case. The termites refused to touch the plants that had been so treated. Unfortunately the paper does not give the name of the maker, or tell us where the preservative can be procured. But, if these termites are internal feeders, nothing can be done beyond the destruction of their nests when found. The difficulty is to be sure that you have found the nest of the actual species that is doing the damage. In the case of the species that hollows out the stems of tea plants in Ceylon, I have never been able to trace any definite nest."

EUCALYPTUS COCCIFERA.

With reference to Mr Divers' letter on Eucalyptus at p. 140 of your issue of March 1, I desire to say that in my opinion there is no doubt that Eucalyptus coccifera is a good species and quite distinct from E. amygdalina. The former is a shrub or small tree, chiefly found near the submit of Mount Wellington, Hobart, Tasmania; the latter is usually a fairly large tree, widely diffused in Tasmania and Australia, and known as Peppermint. E. coccifera does best in England, because it never grows naturally except in cold localities. E. resinifera is the "Forest Mahogany" of New South Wales and grows naturally in rather warm situations, i.e., at no great elevation above the sea-level. Of course, like many other species, it can be gradually acclimatised into somewhat colder places. E. ficifolia is a small Western Australian species with beautiful masses of flowers, varying from pink to scarlet. It grows well about Melbourne (Sydney is too warm for it, except in exceptional circumstances), and seed can be purchased from any good Melbourne firm. It is apt to die off at the collar if the situation be too moist.—*J. H. Maiden, Sydney.*

RUBBER CULTURE IN THE CAMEROONS.

According to private information to the *Tropenpflanzer* the rubber culture in that province makes further progress. At the Molive plantation the growth of the Kickxia trees is very favourable and also this year's plants developed well. Dr. Preuss, the director of the botanical gardens at Victoria-Cameroons, writes, even in March, that the Kickxia is the only rubber tree that may have a future in the Cameroons, for already very young trees give good rubber. On one tree, which had three fruits one month ago, there are now blossoms and fruits of all sizes. This year he has distributed 115,000 Kickxia seeds. The trees do not give much shade. One would therefore do best to plant them thickly between the cocoa trees, provided this does not damage the cocoa trees. Mr Preuss is now planting a big ground with Kickxias at various distances from one another. Regarding Castilloa Elastica, the trees which have not been attaked by caterpillars are getting on all right at the Molive plantation and Mr Eigen thinks there is little to be feared during the rains. Mr Preuss is sure that, with some attention, the greater part of these caterpillars can be removed. As a rule they do not sit in the bark itself, but just underneath the outer skin and can hardly be noticed from the outside, but can easily be found by passing the fingers along the soft parts undermined by them. The bark has then to be removed quickly and no time must be given to the larvæ to retreat into the interior of the stem. Mr Eigen tried to protect the Castilloas against the beetles by putting lime and clay on the stems, but this had no effect during the rainy season, as it was washed off by the rains. Sticky girdles are, of course, quite useless as the beetle flies into the trees. The only effective remedy during the rainy time seems to be the painting of the stems with tar. Dr. Preuss discovered the caterpillar also in the Kickxias, where it had made passages in the bark but could not enter the wood. It has now disappeared.—*Gutta-Percha Trades' Journal*, August 4.

LIFE IN THE WILDS OF BRAZIL:

A RUBBER INSPECTOR'S TRIALS.

RUBBER ESTATES OF PARA v. F S CLARK.—Before Mr Justice Darling and a special jury an interesting case was heard on July 23rd, in which a vivid description of life in the wilds of Brazil was given. Mr Clark went out to Para in 1899 as an inspector in the employ of the Rubber Estates of Para, Limited. He fell ill, and in consequence his agreement was cancelled and he returned home. Subsequently proceedings were instituted to recover from him the balance of an account for goods supplied from the Company's stores. Mr Clark counter-claimed for wrongful dismissal and breach of agreement "to provide properly furnished house and accommodation" and "all necessary medical stores." His Lordship intimated that there was no wrongful dismissal and that the breach of agreement was the only matter that required investigation.

Mr Clark described his accommodation at Canhanton as a long shed, part of which was a house and part of which was a store, the whole covered with a roof of corrugated iron. The sleeping accommodation consisted of a small room in which seven or eight officials hung up their hammocks. The only alternative was to sleep on the verandah. As for furniture, there was only one or two chairs, and scarcely anything else. They had to use soap boxes instead. The food was mostly third-rate tinned stuff, and as a delicacy was added dried cod fish. In reply to his Lordship, Mr. Clark stated that there was no chance of shooting any game, a parrot being about the most that could be obtained. At another station where he was sent to the accommodation was even worse, the roof leaking badly. When they arrived at first the room was full of sick natives suffering from fever, dropsy, bad throats, and so on. They had to turn them out, and as a consequence about a half of them died. There was no doctor, and when he fell ill the only attendance he could get was a chemist's assistant who used to come up to practise on the natives. As he did not like the looks of this assistant he did not undergo treatment.

Ultimately Mr Clarke was sent to Para, where he received notice of dismissal. His health had been bad ever since. In cross-examination Mr Clarke stated that, as they could not drink the water, they had to drink beer.

On behalf of the Company it was stated that the accommodation was only temporary and as good as could be expected under the circumstances. The Company's manager at Para said that no complaints had been made, otherwise he would have done all in his power to mitigate matters. Judgment was given for the Company with costs.—*India-Rubber Trades' Journal*, August 4.

EXPERIMENTS WITH LIQUID FUEL

The question of liquid fuel is receiving my general attention from planters in Ceylon. When it is mentioned that it has been estimated, by a competent authority that planters have spent for oil to date this year R60,000, and that to produce the same result with liquid fuel R30,000 only would be required, it will be seen that consideration of the subject is profitable to the planter. An up-country correspondent writes to us:—"I have just returned from Nawalapitiya where I went to see a Hornsby Ackroyd Engine, 9½ actual horse-power, tested with liquid fuel. Messrs. Brown & Co. have been driving their workshops there with a 9½ horse-power Trusty Engine, but to test the liquid fuel at the instance of Messrs. Delmege Forsyth & Co. they put a 9½ horse-power Hornsby Ackroyd Engine alongside of the other and the 9½ horse power Trusty Engine used ·80 of a gallon per hour to drive the workshop while they used only ·75 of a gallon per hour working with liquid fuel in the Hornsby. They tested the Hornsby for an hour to 9½ actual horse-power working with liquid fuel and it used ·84 of a pint per horse-power per hour. No alteration is required in the engine and it was worked as easily with liquid fuel as with bulk oil and the one or other could be turned on or off at will and the engine continued to give the same result. This is a very great matter for the planting community as it reduces the cost of power to under half of what it was before. Liquid fuel at Nawalapitiya costs 20 cents per gallon getting it in casks; Bulk oil less rebate 45 cents. If Bulk installations are arranged for the liquid fuel the cost of freight will be much reduced. The cost of liquid fuel in Colombo is 12 cents; freight and sending it in casks is 8 cents per gallon."

SOLUBLE TEA SYNDICATE, LTD.

The memorandum and articles of association of this new Company are given in the *Gazette*. The objects for which the Company is established are, among others:—

(1) To purchase or otherwise acquire in Ceylon or elsewhere any patents, *brevets d'intention*, licences, concessions, and the like conferring an exclusive or non-exclusive or limited right to use, or any secret or other information as to any invention in relation to the manufacture of soluble tea and in the processes by which the same is effected, and any improvement in such manufacture, and any advantages and benefits incident to or be derived from the same.

(2) To enter into any agreement or agreements for effecting such purchase, and in particular into an agreement with Montagu Kelway Bamber and John Roger for the purchase of their inventions and patents in connection with the manufacture of soluble tea and in the processes for effecting the same and any improvements thereon for a sum of One thousand Pounds (£1,000) sterling in cash and Sixty-one thousand Rupees in ordinary shares of this Company, and a further sum of Three thousand (£3,000) sterling and Six thousand (£6,000) sterling to be paid to them out of the profits earned by the Company during five years from the incorporation of the Company, or out of the profits to accrue to the Company from the sale of the business thereof within such period of five years, as provided in the said agreement with the said Montagu Kelway Bamber and John Roger, and subject to the conditions therein contained.

The nominal capital of the Company is R500,000 divided into 5,000 shares of R100 each with power to increase or reduce. The signatories to the memorandum and articles of association are:—Messrs John Spicer, E Ernest Green, John Roger, M Kelway Bamber, J A Henderson, W T Highton and G W Suhren each—taking a share. The first Directors are to be as follows:—Messrs John Spicer, Frank Liesching, Montagu Kelway Bamber, and Francis Theophilus Turpin.

CONTRACTS AND COCONUTS IN CEYLON.

[BY A SETTLER.]

We were partners, Jack Ohren and I, and had lost rupees and time in many wild schemes by way of making a fortune in Ceylon. Our latest venture was a coconut estate. We had secured a Government contract for the supply of wood as fuel on the railway engines running between Colombo and Nanu Oya. It was necessary to live near the railroad and in a district where this fuel should be easily procurable. We pitched upon a village close by Veyangoda, about forty miles up the line from Colombo. Plenty of jungle lay around, and the station was within a mile. We experienced some difficulty in discovering a habitation; the only one available was an old house standing in about 100 acres of coconut land. It appeared to have been untenanted for years; there were no doors, the verandah was broken down, and great vines thrust their way from floor to roof. As for the plantation, it had returned to its original state of jungle. However,

we concluded that the place would have to do. The landlord had notice of our coming; he was an old Cingalese gentleman of venerable appearance, and received us with much ceremony.

A PALAVER FOR A LEASE.

Two wooden chairs were placed for us under a banyan tree and some bottles of beer procured from somewhere brought forward for our refreshment; but as these had stood for some time in a temperature of over 100 degree the beverage was flat, warm, and undrinkable. We accepted some arrack, guaranteed to be sixty years old; it was a liquor resembling curacoa with an aftertaste of coconut. Grouped behind our host stood the greybeards from the village; all the male population of the neighbourhood squatted round in a wide half-circle; the females were not *en evidence*, but a sustained giggling in the bushes, and the occasional glimpse of a bright-coloured garment, revealed their presence.

Proceedings opened with a speech from our prospective landlord who began by asking a favour. His nephew, educated at a mission school, desired a post as clerk in the Kachcheri (Government offices). The young man was brought forward and salaamed profoundly. I promised to use my influence in this direction, and referred to the object of our visit; we wanted a lease of the land and dwelling-house for a term of years—how much? At this there was quite an outcry: the day was young, and tomorrow would bring another day. Why hurry? It surely would be an honour and blessing to the village if the Mahatmayas took the place; they could live there for ever and a day without fee or payment; but the owner was a poor man, what would we offer? It was good land, the best in the island, and the house walls were so thick that an elephant, or a drove of elephants for that matter, could not push them down—such mangoes and bananas were never grown elsewhere. These remarks were not addressed directly to us, but shouted from one to the other with much noise and gesticulation. Some individual made an assertion, and this would be taken up and repeated in chorus all round the circle. A wild-looking man, with hair tangled to his shoulders, jumped about like a marionette, relating, amid much excitement, a story about his cow. It appeared that the animal had strayed into this Garden of Eden about which we were in treaty and was lost for some days. It returned to the bosom of his family so fat that no one could recognize it. Two of this man's comrades beat their naked breasts and tore their hair, declaring that their friend spoke the truth. The cow was wellnigh bursting its hide with fatness. At this juncture I rose to a point of order and suggested that the meeting should now disperse, leaving the landowner, two of his friends, and ourselves as a Committee to determine the point at issue. This brought the crowd up with a sharp turn, the noise was hushed, and they departed.

METHODS OF COMPUTING RENTAL.

The native method of estimating rental of coconut land is somewhat primitive. Records of the estate for the past hundred years were produced written in Cingalese characters on palm leaves, and the number of nuts averaged; it was then cheerfully proposed that we should pay an annual rent equal to double that value. It was no easy task to persuade them that this demand was unreasonable; in letting the place they would be at no expense in collecting crop and so on. We offered half the rent. After another visit a few days later we got a lease on this basis, and entered into occupation.

First of all the bungalow was made habitable with a new roof and a clean cowd-ung floor; the fallen trees were useful in propping up the verandah; two camp beds, some furniture, and a few kitchen utensils bought in Colombo completed our household equipment. We then turned our attention to the plantation. All jungle growth was cut down, the land irrigated and manured, and fresh saplings planted in place of those coconut trees which had fallen. We calculated that the yield of nuts would be increased fourfold in a few years. Then agreements for supplies of wood were negotiatad with neighbouring owners of forest land; we bought some bullocks and waggons, and engaged a gang of coolies; the wood was carted each day, cut in lengths, corded, sent to the depot, and piled in the yard, ready to be put on board the railway engines. Then a bright idea occurred to me. It was ever thus. I was always brimming over with bright ideas, which when tried in the balance, were generally found wanting, so far as pecuniary advantage to ourselves was concerned. Many passenger boats called at Colombo—P. & O., British India, Orient, and Messageries Maritimes; occasionally two or three would be lying in the harbour at the same time. We would raise chickens and sell them on board. Two incubators were purchased; it was easy to keep up the required temperature during the day in the sweltering heat of Veyangoda; at night the lamps wanted a little care.

OUR POULTRY YARD.

Our bungalow had soon so large a feathered population that there was scarcely room to turn. Turkeys, geese, ducks, and chickens, we reared them all and they roosted all over the place. Having raised our fowls, the next step was to dispose of them, and this part of the business proved more difficult than I had expected. The chief stewards on board the ships willingly accepted our hospitality in the shape of tiffin, or dinner, at the Grand Oriental Hotel. Champagne is expensive; it takes off the profit on a small deal, and they were not liberal with orders. We had scarcely taken into account the ice chambers with which all these big liners are provided. My first sight of one of these was a revelation, rows and rows of ptarmigan, larks, ortolans—everything was there, to say nothing of tons of beef and mutton. On my last visit I bought two English pheasants from the steward of a P. & O. boat. I gave a good price for these, and took two men home with me to help eat them. The pheasants were delivered to the appu (head servant) with many injunctions as to careful cooking and so forth. We sat down to dinner expectant—"Shot in old England, my boy"; soup was served, then an entrée. Our cook was a dab on entrées, but it was well not to inquire too closely into their composition, and then came beef, the same tough old beef. "Appu," I said, "where are those birds I gave you this afternoon?" "Master had birds I bring in just now; master eat plenty, and say very good." It was too true: the cook had cut the pheasants into small pieces, and served them up as "salmi" of jungle-fowl. In connection with our poultry-raising experiment, an aunt of mine in Somersetshire forwarded us a

crate of English fowls, Orpingtons and Minorcas; these arrived in good condition, but after a time they one by one sickened and died; the cobras accounted for some, others succumbed to heat apoplexy. Altogether they did not take kindly to the climate. I had not the heart to write and tell the old lady about this, but some elephants' tails that Jack had in his possession came in handy. I got these mounted and framed in a case, with an inscription to the effect that it was presented to me as first prize for an exhibit in the Trincomalee Poultry Show. It occurs to some people even now, who see the case hung up in the old home, that it is a somewhat incongruous prize for a poultry show; but my relative explains that Ceylon is such a queer country.

A SERIOUS CONSPIRACY.

In the meantime the timber business was prospering; we had settled down to a pastoral life and were happy. Then the blow fell. Our men returned one day with empty waggons, and reported that the proprietor of the place where they had been working had met with a domestic misfortune; his mother and grandmother had suddenly died, and no timber could be removed on that account. On sending to three land-owners the coolies came back empty-handed with the same tale. We were liable to a penalty of a thousand rupees for breach of contract with the Government. We started off at once, provisioned for a week. If these people could not let us have wood, we must go further afield and make fresh arrangements. A Winchester repeater was taken along and revolvers. It was not contemplated to use these seriously, but the villagers in the interior bore a very bad character; a display of force might be necessary. We also carried a gun for snipe and hare. Something in the way of game must be shot each day for food. Tinned meat gets monotonous. As our procession approached the forest belonging to that orphan who had first refused to supply, there was an ominous tom-tom beating and blowing of horns. The wood lay stacked under the trees in corded bundles, and our frightened coolies proceeded to put it in the carts. This was the signal; they were instantly surrounded by a horde of naked savages, all carrying knives and screaming like demons possessed. Our appearance from under the waggon tilt, and a rifle-shot fired in the air, caused a general stampede, although they did not run far. I inquired for the landowner; he could not be seen, but the Aratchi (headman of the village) was dragged forth much against his will. It was then we learned the true inwardness of all this trouble. Our landlord's nephew, thanks to the letter I had written for him, had obtained a billet as clerk in the Kachcheri; he had ferreted out the particulars of our contract, and then communicated to these people the astounding fact that we were receiving more money for wood than we paid for it. The result had been that each native owning a strip of jungle immediately sent in a tender for the supply of fuel for the Government locomotives; they had no thought of keeping faith with us. I showed the headman my repeating rifle and partially explained its mechanism, assuring him that from a distance of twenty miles, more or less, it must hit the mark every time, and would fire a thousand shots without a reload. He was much interested, and no doubt made up his mind to steal it if an opportunity occurred. After seeing the carts loaded and despatched we set out to call upon the native chief of the district (the Adigar), with the intention of lodging a complaint as to the unruly conduct of his people, and making some agreement with him for the regular supply of wood. It was three days' journey to this gentleman's residence, and we never got there.

IRREMEDIABLE DISASTER.

On the evening of the second day we halted under some palms by a well, lighted a fire that the smoke should keep off the mosquitoes, and prepared to encamp. I noticed a man hiding behind some bushes near by, and reached for a revolver, not doubting that our friend, the Aratchi, had sent some one to annex that rifle. But it was not so. I fired a shot in his direction, when the man broke cover and came rushing frantically towards us. It was our Tamil timekeeper; he could have come up before, but had taken a short cut across country, and waited here in order to make his entrance with proper dramatic effect. The poor fellow threw himself flat on the ground, moaning piteously. He was covered with blood, and presented a most woeful appearance. Many of these sanguinary stains were artistically smeared on his body quite recently, but his tale was bad enough for anything. Disaster has indeed overtaken us. Our coolies, in attempting to remove another load of wood, had been attacked and severely beaten, two of them tied up and tortured, bamboo splinters put down their finger nails; the bullocks were also shamefully maltreated. This was not all: the mob had looted our bungalow and burned the store of wood. We held a council of war. It would be worse than useless organizing a punitive expedition to the offending village; no one would be there, while we might do some damage and get into legal difficulty. It remained only to return home as quickly as possible, and this we did, to find desolation; everything portable was stolen or destroyed, and the coolies had run away not to return for many days. The most extraordinary feature of the whole affair to an Englishman unacquainted with Eastern ways was the fact that everyone at Veyangodda professed to know nothing whatever of the outrage; they had neither seen nor heard any disturbance. This occasioned some delay, as the rioters had to be identified, and it is impossible to say if the real culprits were eventually caught or not. The native police are not particular, so long as they get someone; but about a score of men were found for the next assizes. I saw them in the dock, and a sorry-looking lot they were.—*Pall Mall Gazette*, Aug. 12.

PLANTING NOTES.

Rubber.—The attention of the Committee of the Liverpool Chamber of Commerce had been drawn to the desirability of urging the Colonial Government to instruct the natives, in a systematic way, in the best methods of preparing rubber of different kinds for European markets. It was pointed out that the market price for rubber is at present so low that it would be well to encourage the natives to attend to the production of and to prepare the best qualities of rubber only; that when the heavy porterage on the coast is taken into account it is essential to get the highest qualities of rubber, free from water, in order to be able economically to work at greater distance from the coast; and lastly that so long as there is free competition amongst the coast merchants the native may rest assured that he will get the full market value for his produce at the shipping port. It was resolved again to press the matter upon the attention of His Majesty's Government.—"Liverpool Chamber of Commerce."

THE EXTRACTION OF SARSAPARILLA is free to every inhabitant of the Republic of Guatemala who obeys the necessary rules. A written request for a licence, drawn up on stamped paper, must be presented to the political chief of the district, stating the locality where he proposes to work, the number of workmen employed, the length of time for which the licence is desired, &c. The person holding such licence may put up houses, huts or any necessary workshops under the condition that, on the expiration of his licence, such improvements remain the property of the Municipality or Departmental Government. One indispensable condition is that at least two roots be left on each plant, so that it may grow again, and, of course, persons holding licences for the extraction of sarsaparilla are expressly forbidden to engage in the extraction of rubber or any other substance than that named in the said licence. A minimum duty of one dollar (currency) must be paid on every one hundred pounds of sarsaparilla obtained, and the offices where the duty is to be paid are specified in the regulations. The licence is withdrawn if it is proved that the person holding it has destroyed all the roots of one or more plants, or has broken any other of the rules laid down.—*B. and C. Druggist*, August 22.

ELECTRIC POWER PLANTS IN THE PACIFIC STATES OF AMERICA.—In a paper recently read before the New York Electrical Society, by Dr. F. A. C. Perrine, a full account is given of the the progress made in utilising the waterfalls and rivers along the Pacific slopes of the Rocky Mountains for the development of electric energy and its transmission over long distances for use in town lighting, and for motive power in the mining and manufacturing districts of the Pacific States. Power is transmitted for distances rising from 50 to 80, to 150 and even 218 miles! After this, how long is it to be before the Colombo Electric Company utilise the great waterfalls from Maskeliya to the Kelani Valley? Here is a case in the Far West, or very nearly the Far East from Ceylon :—

"One of the most remarkable installations is that at the Snoqualmie Falls, Washington State. These Falls are situated in the Cascade Mountains, amidst most beautiful surroundings of river, gorge, and magnificent spruce forests. To provide the power-house here, the startling plan was adopted of excavating a cavern within the very rock over which the Falls plunge. This was rendered necessary owing to the spray from the Falls, which made it impracticable for any power-house to be established at their foot, and to have gone further down the river to a suitable site would have involved greater expense than the present work. To reach the cavern in which the power house is situated entrance is made by a little cabin near the fore bay to a shaft in which an elevator works, and which also contains the penstock, and 250 feet below the surface the machine-room is reached, in which are located six 1,500 kilowatt generators. This plant was one of the first in which aluminium was used for its transmission lines. The lines are carried over difficult mountains, and through continuous forests of dense spruce and fir, which have been carefully cleared along the route to prevent the trees falling and interrupting the service. Current is transmitted at 60 cycles to the cities of Seattle and Tacoma, where it is employed for lighting and for operating the railways. In Seattle the current is transformed by rotary convertors, but in Tacoma motor generators are used for this purpose and regulation obtained by a combination of synchronous and induction motors."

JAPANESE CAMPHOR.—The Nippon Camphor Company (Limited), of Kobé, has been taken over by the Monopoly Bureau of the Formosan Government, and is carrying on the business as hitherto under the name of the Kobé Branch of the Monopoly Bureau of the Formosan Government, at No. 4 Fukiai, Kumoidori, Kobe Japan.—*Chemist and Druggist*, August, 30.

OIL OF THE ATLAS CEDAR.—The essential oil of the Atlas cedar, which has recently been strongly recommended as a remedy for venereal diseases equal to sandalwood oil, has been chemically examined by Boisse (*Bull. Comm. 1902, 291*). The most important point which this examination brings out is that the oil contains sixteen per cent of a sesquiterpene alcohol. As is well-known, ordinary cedarwood oil only contains about two per cent of such alcohols, whilst it is to the presence of a large amount of such bodies that sandalwood oil owes its efficiency.—*Chemist and Druggist*, August 9.

PISCICULTURE!—The disciples of Izaak Walton in Ceylon will, we are sure, appreciate the article we reproduce from the *Indian Field* on this subject. (See page 252.) The article is published by our contemporary in view of the interest now "taken in the East anent the importation of trout ova from Home with a view to the introduction of that game fish to Ceylon, the Doon, the Neilgherries, and Kashmir" and consists of a lengthy communication regarding the acquarium and exhibit of hatching apparatus at the International Exhibition now being held at Cork which gives a short resumè of the necessary process and period of incubation.

"CEYLON TEA ABSOLUTELY REPULSIVE"—Such is the courteous expression of personal opinion used in a letter to the press by Mr. Arthur Stanhope Aldrich, H.I. Japanese Majesty's Consul at Wellington (Palmerston North?), a copy of which he sends us with his compliments. It is considerate of Mr. Aldrich to do so; and in return we are not only replying to some of his statements at once; but are sending him a copy of our little pamphlet on Ceylon tea, showing the wide appreciation of its good qualities, by the best judges of tea in the world—in the United Kingdom, Russia and Australia. The people of North America are far behind as tea-drinkers and have to be educated up to the standard of the best teas. It is all very well for Mr. Aldrich to stand up for the country he represents; but his "absolutely repulsive," as applied to Ceylon tea, is too much and very unjustifiable altogether and he has to be told that Canton merchants, dealing with the finest and most delicate of China teas, have confessed the very high qualities of our teas which can be got of as delicate a flavour as any from China. Of course, there is such a thing as bad tea to be got under the name of "Ceylon," but not nearly in the same proportion as there comes from China and even Japan, where Prussian blue and other deleterious substances are used to colour the tea. Mr. Aldrich has evidently much to learn about Ceylon tea, as well as about the doings of the Chinese and Japanese in regard to much of their teas.

Correspondence.

To the Editor.

LIVE STOCK AND SINHALESE CATTLE IN TRINIDAD.

Government Farm, Tiinidad, B.W.I., Aug. 13.

DEAR SIR,—May I ask you to again kindly accept the Annual Report on the working of the Trinidad Government Farm?

The Farm is placed in a new situation and greatly enlarged, and I trust that its usefulness to the Colony will be increased.—Yours truly,

C. W. MEADEN, Manager.

[We quote at once the parts referring to the Sinhalese cattle:—

THE HERD.

PURE BRED ZEBUS.—This section of the herd has been increased by the addition of seven heifers. A bull and two cows are on their way out from India. Thus augmented, the Zebu section will be in a position superior to any in its history, in number, stature and general form.

MILCH HERD has been increased to 147 breeding cows all in good profit, these will be steadily increased and with the help of the Tobago branch a sufficient number of cows will be established so as to furnish from them the animals required to supply beef for the institutions. In three to four years' time we should be in a position to do this, and the cost of doing so will be covered by the annual revenue or without additional expenditure.

CINGALESE.—There is nothing worthy of remark concerning these; two calves were born, one being deformed had to be destroyed. The general health of the herd has been good, a few acute cases of mamitis occurred amongst the cows, but yielded to iodine treatment. Six adult animals died from injury, four caused by falling into deep open drains and breaking their backs before help arrived. This will occur until the drains are ploughed in. Two deaths occurred from injury inflicted by other cows. Ten calves died from various causes, chiefly dysentery.

114 calves were born of the following breeds:—

Bulls.		*Heifers*	
2		4	Pure bred Zebu.
39	...	36	Half do
4	...	2	Crossbred Red Poll.
8	...	6	Crossbred Guernsey.
8	...	5	Crossbred Zebu.
2	...		Cingalese.

The bulls in the public pastures are in good condition; a cross-bred Red Poll and a Guernsey are at San Fernando; others in the Queen's Park, Arima and St. Augustin are well bred Zebus. A new pasture was opened at St. Augustin and upwards of a hundred cows have been entered. This is mentioned to show that if good bulls and accommodation is provided an increase of stock soon is evident. Arrangement is being made to place a pure Zebu bull at Mayaro and others in different districts if places can be provided.

The sale was not so successful as in former years and in justice to the Farm should not have been held owing to the unsettled condition of the place; but as the sale is a fixture looked forward to with considerable interest both locally and in neighbouring islands, it would not have been desirable to omit it.

			Dollars.
One heifer, Zebu	...		67
One pure Zebu Bull	..		150
Five ¾ Zebu Bulls	...	33 00	165
Five ½ Zebu Bulls	—	25 40	127

Of the animals sold the Zebu bull went to Berbice. 35

The report is a very full and useful one dealing with a variety of cattle, an Agricultural Show, Butter-making, the Stud, Pigs, Poultry, Milk Analyses, List of Stock, Sale of Artifical food.—ED. *T.A.*]

SEYCHELLES GUANO.

London, E.C., Aug. 13.

DEAR SIR,—In the *Overland Observer* received this week some interesting "notes from the Seychelles" are published, and, it is stated, that the exports of guano are steadily increasing. You may have forgotten that some two years ago I called attention to this deposit of guano which, though poor in ammonia was specially rich in phosphate of lime, containing from 58 to 61 per cent of this valuable manuring constituent in a form admirably adapted for tea, coffee and sugar-cane, when mixed with crushed cake such as castor or rape in order to supply the necessary nitrogen, and assisted by the admixture of sulphate of potash for the supply of the dominant element of the mineral portion of the above crops.—Yours,

JOHN HUGHES.

PECULIAR STONE FROM WATTEGAMA.

Aug. 15.

DEAR SIR,—I have sent by this train a small parcel containing a peculiar iron-stone which on breaking showed some different growth inside. Perhaps you can get an opinion on it.—Truly yours, J. H.

[We sent it to Mr. Kelway Bamber who kindly writes:—"I am afraid I am not geologist enough to give the correct name for the piece of rock you have sent me, but it is very similar to some gneisses, and the colouring is evidently due to the weathering, combined with an irregular infiltration of water and air, which oxidises the iron compounds in the rock, with the production of the brown colour, in the immediate neighbourhood of the infiltration."—ED. *T.A.*]

RUBBER IN JOHORE.

Muar, via Singapore, Aug. 22.

DEAR SIR,—Referring to your rough approximation of the area under rubber in the Malay Peninsula, I can assure you that Johore at a very low estimate can account for one thousand acres. I can give no exact figures, as no returns are published; but I know what the few Europeans in the territory are doing, to which must be added the Malay and Chinese efforts in this direction. I must say also that these latter seem to be awakening to the fact that it is a good thing to go in for, judging from the enquiries I get for plants.—Yours faithfully,

FRANCIS PEARS.

RUBBER CULTIVATION IN THE MATALE DISTRICT.

Keppitigalla, Matale, Aug. 22.

DEAR SIR.—Having read the article under the above heading in the *Tropical Agriculturist* for August, 1902, from which it is inferred

that Para Rubber is unsuitable for this district, and that Castilloa is preferable—which deductions are mainly based upon *experiments* made with a few trees, and most probably growing in a favoured locality, viz., near a river—

1. do not think such figures can be used as an estimate over a large area; not that I for one moment doubt them, but as they are acknowledged experiments, they cannot have the same weight as the actual results gained over a large number of trees.

2. Prices quoted for samples cannot be depended upon, especially when the brokers know there is no bulk behind them. A sample of Para Rubber sent from this estate, when I first started tapping, was valued at 4s. 1½d. per lb.; but when the first *lot* was despatched, which was every bit as good as sample, it sold for 3s. 6d. This proves that a price quoted for a sample is not given when the article is sent in bulk, especially for a new product.

Therefore I now give you a few figures of the actual results of tapping, for the first five months of this year, January to May, 1902, and trust the figures will be of interest to all concerned, as I believe they are the first published from any estate in Ceylon; and as Para Rubber is still in the experimental stage these figures would provide some data to work upon.

I have had the actual results from one or two of the Kalutara estates given me; but I must admit that I cannot hope, at any rate at present, to compete with them, in either the quantity per tree of dry rubber or the low rate per lb. of gathering the latex; or it appears the trees in Kalutara are capable of yielding nearly twice the quantity of rubber obtained here. But in prices Matale can quite hold its own. At the last sales in London four boxes of Keppitigalla rubber was sold at 3s. 6⅜d per lb. against about seven cases of Kalutara at 3s. 6d.

Much higher prices than these have been gained by the latter mark at previous sales. The trees growing on this estate are about 8 miles from Matale town, as the crow flies, at an elevation of about 600 feet to 1,400 feet, ages of trees from 8 to 11 years; the largest girth one foot above the ground is 47 inches. Temperature in shade 77 to 92 degrees highest recorded in April. Average rainfall 70 to 80 inches. The trees are not inclined to spread, and grow straight up, with few side branches, and make an excellent light shade for cacao planted 12 feet apart in line, and 24 feet from line to line, thus giving about 150 trees to an acre. Tapping proceeds throughout the year, and each tree has two series of tappings lasting about two months.

Now we come to results:—Number of trees tapped once 3,903:—Since October 1901, and dry rubber from first tapping 2,128 lb. or just over half lb. per tree. Some of these trees were tapped again in June-July, and gave equal results, thus making 1 lb. rubber per tree per year. By the above figures, it will not be too much to estimate three-quarter lb dry rubber per tree all round, having 150 trees to the acre. The best results are not always gained from the largest trees, as many of the smaller trees yield twice as much.

An experienced person can tell fairly well by the appearance of the bark whether a tree will yield well or not. A tree with a greyish, and hard-looking outer bark very seldom yields well, while on the other hand a softish-looking bark, almost flesh-coloured, is sure to give a good yield.

The proportion of scrap rubber to best quality is very small indeed, about 4 per cent only.

Number of pounds dry rubber gathered from January to May, 1902, 1,362 lb.

Best quality	1,302 lb.
Scrap rubber	60 lb.
Total	1,362 lb.

Cost of tapping and curing 1 362 lb dry rubber	R570 63
Transport, rail fare, boxes, &c.	R 31 13
Cost for the year: 1,600 collecting tins ...	R 48 00
Cost for the year: 1 doz. tapping knives ...	R 30 30
48 coagulating tins ...	R 9 60
Total cost accessories for 12 months ...	R 87 90
Jan. to May 5 months 'share of accessories	R 36 60
Total cost in Colombo for 1,362 lb. rubber	R638 36

or cents 46·86. per lb.

Most of the rubber was sold at 3s 6d per lb., and the scrap rubber at 2s.

From the above facts it remains for your readers to judge whether Para Rubber is suited to the Matale district or not.—I am, sir, yours faithfully,

FRANCIS J. HOLLOWAY.

Samples of rubber sent.

[Which can be seen by any one interested, at the *Observer* Office.—Ed. *T.A.*]

TROUT FISHING IN CEYLON.

Aug. 26.

Dear Sir,—This sport has so far been more or less in its infaucy, though I have had many a pleasant day's fishing during the past few years; but there's a real good time coming in the near future and I hope all interested in this most healthful, pleasurable pastime will now join the Club and so help to make things hum generally. I had occasion to be in Nuwara Eliya yesterday and, of course, made it convenient to have a couple of hours' fishing from 2 to 4 p.m. During that time I landed 28 fish. One a brown of just under 1 lb., I kept and the other 27, all locally-bred rainbows and real little beauties, ranging from 3 to 8 or 9 inches, I safely transferred from the Nuwara Eliya stream to the Nanuoya at Blackpool.

Had it not been that the capacity of the carrier had to be considered I have no doubt I could have transferred 100 at least before dusk for the stream simply swarms with young trout and I fished only a few hundred yards of by no means the best of it.

I have had better sport than this in Old Scotland, but I've often had much worse; and, though I did not succeed in landing two trout at one cast, with a couple of flies on, I had frequent double rises and might have done it had I used more suitable flies for such work.

I think the Club should present a few of those little fishes to all members of the Club within a reasonable distance of Nuwara Eliya, provided they have suitable ponds or streams which they will endeavour to protect from the rapacious curry-pot of our friend, Ramasamy.

This would help to start the general distribution of these fish, which is much to be desired, I think.—Yours faithfully,

JOHN FRASER.

PAPAIN OR PEPSINE.

August 1902.

DEAR SIR,—In your *T. A.* number of 1st Oct., 1898, page 236, I found an article about Papain. It is said:—"Out of many fruits you will only be able to obtain but a few ounces, whereas from the trunk of the tree and other parts of the plant you can obtain several pounds." I am intending to make a trial with Papain producing, but not knowing how to obtain it from the trunk I should be very thankful to anyone with experience for information,—Yours truly,

A DELI (SUMATRA) PLANTER.

[Who has had experience of Papain extracting or collecting in Ceylon? We should advise our Deli friend to make experiments on his own account and judge by the result and the report of his European Agents.—ED. *T.A.*]

THE SUPPLY OF COCONUTS FOR LOCAL WANTS AND EXPORT.

August 26.

SIR,—In reply to "Cocos Nucifera" in your issue of August 22nd, I would be inclined to say that local consumption of coconut products has increased prodigiously within the past 20 years, perhaps even to an extent beyond the supply made by extended cultivation. When I first came to Ceylon the use of coconuts was confined to householders in town and well-to-do owners of country gardens. But now-a-days coconuts for sale are a feature in every village bazaar throughout the hill as well as low country, and poor indeed is the Sinhalese who does not make use of the ubiquitous palm nut. However high the price offered by export dealers, native families, I believe, will not now forego their usual share of coconuts, so that in reality the supply for foreign trade comes from the large plantations rather than the small gardens.—Yours, etc.,

TRADER.

[Our calculation used to be 350 to 400 millon coconuts to supply the export trade and as many more for local food purposes. For the latter estimate, say, we have, 700,000 households using on an average 1 to 2 nuts daily—and take 1½ nut a day which will be 383 million nuts a year. In this way we may make up an estimate of 800 million nuts as a year's crop in Ceylon; but one estimate went as high for a good season as a thousand million of nuts.—ED. *T.A.*]

WATER BOTTLES AND FIRE—TESTED.

Aug. 27.

DEAR SIR,—I noticed in your issue of the 23rd instant a statement by a "Mr. Percy Burd of Cheltenham" on "Watter Bottles and Fires" which struck me at the time as rather tall and I thought it would be rather interesting to test its probability.

In the first instance it is a matter of some considerable difficulty to get a candle alight with a lens even in this country. The wax melts freely and the wick gets charred and glowing, but the candle does not burst into flame, at least in my experience.

Secondly, I have never seen carriage lamps fitted with burning glasses. They are generally made with plane glasses, the light being concentrated by means of silvered reflectors at the back and sides, which would make the feat still more difficult.

Thirdly, it is not difficult to compute from the data what the elevation of the sun was at the time and place mentioned. It is easy to see that the altitude of the sun must have been equal to the gradient of the road, for the sun's heat to have produced its maximum effect. The following table gives the elevation of the sun above the horizon at Canterbury at the beginning, middle and end of October, between 2·30 p.m. and 3·30 p.m., and the corresponding gradient

	At beginning of October.		At middle.		At end of October.	
	Elevation.	Gradient.	Elevation.	Gradient.	Elevation.	Gradient.
At 2·30 p.m.	27°	1 in 2	22°	1 in 2½	17°	in 3¼
3· 0 p.m.	24°	1 in 2¼	18°	1 in 3	13°	in 4⅓
3·30 p.m.	20°	1 in 2¾	15°	1 in 3¾	10°	in 5⅔

So that, even if the two first objections were waived, the writer was apparently travelling along a road about two and a half times as steep as the steepest carriage track allowed in England (1 in 15). If his carriage candles did get alight, it is improbable that the sun's heat was the cause.—Truly yours,

F. R. H. S.

USEFUL TREES FOR THE HILL COUNTRY.

Abbotsford, Aug. 29.

DEAR SIR,—If the tree on Glasgow Estate is *Acrocarpus fraxinifolius* it isn't in it with *Acrocarpus grandis*. I have both of these here and the latter is far and away the finer tree of the two; but trees vary so in different situations and conditions that one oughtn't to dogmatise. The seed of the

former I got from William Brothers about 11 years ago and the seed of the latter came from Java at about the same time.

The *A. Grandis* will, I think, be a magnificent tree ultimately, but at 5,000 and 6,000 feet, trees do not grow as quickly as most of us would like them to.

The *Gmelina Arborea* mentioned in *Indian Gardening and Planting* of 14th August sounds very promising for our higher elevations, but what about our local varieties, *G. Rheedii* and *Asiatica?* Are they large trees and at what elevation do they grow? Where can one get seed of this *G. Arborea* and Northern Indian tree seeds generally nowadays?

Mr. Gammie used to be most obliging in the olden times; but he, I hope and believe, is now enjoying his *otium cum dig* on the retired list, so please advise as to where one should apply.—Yours faithfully,

JOHN FRASER.

[Our correspondent must try the "Himalaya Seed Stores" whose full-page advertisement he will find in our *Tropical Agriculturist.* As to the trees referred to, here is what Trimen says of "Gmelina's":—

G. arborea, (Et-demata, Sinhalese) (*G Rheeder.*)

A large spreading tree, bark a greyish-yellow, rather rough, thick, branchlets and young parts covered with a very fine, white mealy pubescence.

Moist region up to 5000 feet; rather common, but often cultivated. Fl. March, 4 upper lobes dull orange-pink, lower one lemon-yellow. Also in India, Burma, Malaya, and Philippine Islands. The Flower suggest a Bignoniaceous plant. They appear along with the young foliage, the tree being deciduous. Wood yellowish-white even-grained, light, strong, tough, and durable; an excellent timber. The bark and the fruit are employed as medicine in bilious fevers.

(G asiatica.) (Demata, Sinhalese, Kumil; Tamil). A much-branched bush, bark yellowish-white, smooth, branchlets horizontal, rigid, often compressed puberulous, frequently much shortened and spinous at the end.

Open places in low country up to 2000 feet; common. Fl. September; bright sulphur-yellow Also in South India. The bark and roots are used in medicine. The fruits are eaten.

Dr. Watt chiefly dwells on their medicinal uses; save that in respect of the wood of "Arborea" he writes:—

STRUCTURE OF THE WOOD —Yellowish, greyish or reddish-white, with a glossy lustre, close and even-grained, soft, strong, does not warp or crack in seasoning, weight from 28 to 35 lb per cubic foot, breaking weight of a bar, 6 feet × 2 inch × 2 inch, 580 lb (according to Baker). It is light, has a good surface, is very durable, is easily worked, and takes paint and varnish readily, and is, therefore, highly esteemed for planking, furniture, carriages, boat-decks, panelling and ornamental work of all kinds (*Gamble*). Mason states that it is largely employed by the Karens for canoes, and by the Burmans for clogs. Owing to its extreme durability, it has been recommended as an excellent timber for making tea boxes, and has also attracted much attention as a very suitable wood for furniture, picture-frames, and similar work in which shrinking and warping have to be avoided. Buchanan states in his Statistics of Dinajpur that "it is much employed by the natives for making their instruments of music." The excellence of this timber for many purposes appears to have been first noticed and described by Roxburgh, who subjected it to various experiments which he describes as follows: "One of the experiments, and the most interesting, was made by placing part of an outside plank in the river, a little above low water mark, exactly where the worm is thought to exert its greatest powers. After remaining three years in this situation, though examined from time to time, the piece was cut, with the view of carrying a specimen of it to England, and to my great joy, I found it as sound and in every way as perfect throughout, as it was when first put into the river. Amongst other things, a valuable flood door was made of it, to keep the tides out of the Botanic Garden. It is now seven years and a half since the door (which is 4 feet square) was made, and though much exposed to the sun and water, yet it remains good; while similar doors, though much smaller, made of teak, were so much decayed a year ago, as to render it necessary to replace them." Since the date of the publication of the above experiments, the wood has come permanently into notice and is in considerable demand in Calcutta for furniture-making.

As for "Acrocarpus grandis," we find no mention whatever of "grandis" by Dr. Watt, or any other authority at our command. In fact Watt says the genus "Acrocarpus" contains but the one species "fraxinifolius."—ED. *T.A.*]

WATER-BOTTLES AND FIRE.

Stubton, Rakwana, Aug. 30.

DEAR SIR,—I have read several letters in your correspondence columns on the subject of "water bottles and fire." You may be interested to hear our experience. At 8-30 one morning, when standing on our back verandah, we noticed smoke rising from a table on which were placed three caraffes or bedroom table bottles, which had been cleaned and were to be refilled and placed in each room. We concluded from the distance that the smoke was steam only, rising from the damp table; but when we approached we found the smoke arose from one spot only and the table was quite dry. The heat from this spot was so great that it burnt our fingers. The table was charred. We then realized it was the effect of the sun's rays passing through the bottle; but as there were three and the sun fell full on each, we marvelled at the others remaining untouched; so, we changed their position. To our surprise no smoke or heat emanated from the other two, although removed to the same spot as the smoke originated from: but in a few seconds the wood was burning hot and smoke ascended from the first bottle although placed at the extreme end of the table on the other side. The bottles were all in shape globular; but the glass thicker of the one that attracted the sun and flatter at the base. Why were not the others, when placed in the same position, worked upon in the same way by the sun's rays? We can quite understand that the sun's rays passing through a bottle standing in a window-sill could set light to curtains.—Yours truly, M. BARTRUM.

P.S.—The bottles were empty.

[We referred this interesting experience to our scientific correspondent, "F. R

A. S., "who writes:—"I have read your correspondent's letter. There can be but one explanation of the facts. The bottles were all empty and only one burnt the table. The inference is that this particular one had sides thicker in the middle than at the neck or bottom, thus forming a meniscus lens, or burning glass, which would collect the parallel rays of the sun to a focus on the table. The large majority of caraffes are like the two others your correspondent mentions, with sides of equal thickness throughout: these would have no more effect upon the sun's rays than an ordinary pane of glass. It is curious to note that there would probably have been no burning of the table an hour or so later, as the rays would not then be concentrated enough for the heating effect to have been apparent. This can easily be tried if the bottle is still in existence."—Ed. *T.A.*]

THE USES OF "GLORIOSA SUPERBA AND POISONING THEREBY—AND ANTIDOTES.

Indian Museum, 1, Sudder Street,

Calcutta, Sept. 1.

Dear Mr. Editor,—I acknowledge with many thanks the receipt of copy of your paper for 20th August, 1902, containing notice of death of poisoning through eating a *Gloriosa superba* tuber.

I agree with you that the subject deserves further inquiry. Under the title of poisonous plants of Bombay (Journ. Bombay Natural History Society, VII. No. 4, 1893, p. 489) Major K. R. Kirtikar gives an interesting account of the plant which is illustrated by a coloured plate. He states that very few cases of poisoning are on record. The plant is known all over the country as a virulent poison; it is also said to be useful in fevers as an antiperiodic.

In a paper on "Poison Lore of the Hindus," read before the Indian Medical Congress, December 1894, by Dr. N. Subramanya Aiyar (Indian Medical Gazette XXXI, 1896, p. 5) we are told that *ginger decoction* is an antidote for "Gloriosa" poisoning. This writer also adds that the root divested of deleterious constituents is reported to be a great remedy for ascites.—I am, yours sincerely,

J. HENRY BURKITT.

BRITISH NORTH BORNEO:

Audi alteram partem.

Sir,—Your contemporary seems determined to hang British North Borneo. I do not know what actuates this desire, but certain it is he does not seem to mind whose opinions he takes. One day he publishes an account which the next day he has to correct. I look to see Mr Graydon's revised before long.

The Consular Reports show that by a Census taken in 1891 the population of Labuan was 5,853 and of Sandakan 6,350 (including respectively 25 and 127 Europeans).

The shipping (including native, with the neighbouring islands, Sulu, Palawan, &c.) of Sandakan is returned as follows:—

1886	.. 115 ships	.. 29,213 tons		
1890	.. 198 do	.. 64,210 do	Entries	
1898	.. 651 do	... 93,181 do		

The trade of British North Borneo amounted in thousands to:—

	Imports		Exports
	$		$
1885	648	..	401
1890	2,018	..	901
1898	2,419	..	2,881
*1900	3,178	..	3,336

(* According to Whitaker.)

To show the principal trades embodied in the above figures, the following statistics, showing a steady advance of prosperity—are entertaining:—

	1886.	1890.	1898.
Value in	$	$	$
Tobacco	1,618	396,314	1,358,666
Timber	27,626	44,584	214,343
Guttapercha	34,747	54,448	125,280
Sago	53,417	36,950	118,602
Rattans	67,100	64,961	80,315
India Rubber	8,535	21,581	79,600
Provisions	—	—	77,724
Birds' Nests	27,953	44,864	47,160
Camphor	8,711	14,193	37,047
Coffee	—	—	28,620
Salt Fish	—	—	26,777
Trepang	—	—	26,053
Damar	11,365	5,287	25,590
Hemp	—	—	24,590
Seed Pearls	—	—	23,795
Rice	7,933	6,321	14,248

I mention rice as it is an industry in which Ceylon is interested and one likely to be developed. The infinitesimal Fruit Trade referred to by Mr Fyers amounted to $5,412 in 1898.

The average rainfall might be put down at 100 inches for the whole country. Chena cultivation was generally in vogue.

I take the following extracts from the Consular Report of 1899:—"As regards openings in N. B. there is ample room for encouragement. . . Payable minerals will doubtless advance the prosperity of the country, but I look upon agricultural products as the backbone of B. N. B. . . The Government offer a limited number of free grants of land of 500 acres to young men with a capital of £2,000 or upwards for the cultivation of tea, coffee, &c. . . The mineral resources of the country cannot be said to have been fully investigated and much remains to be done in this direction. . . The climate is not unhealthy, but, of course, varies in different districts of this large country. . . Compared with other countries (I do not mean Singapore or Hongkong, which are collecting centres of trade) the tariff, as regards imports is very low indeed." From the same report I gather the highest rate of duty was 10 per cent—generally imposed. On a good many articles, (cloth, leather, metals, &c) 5 per cent. Building materials, food-stuffs, metals, &c. were on the free list. . . There was considerable trade with the neighbouring islands, but great room for development with a settled Government (over them *sic*). There were three engineering shops in Sandakan and about 200 Europeans in the whole territory. Readers are referred to the Straits and Singapore Directory for further information. The concluding words of the first part of the report are, "In my opinion North Borneo has a promising future." Up to the

date my information takes me, there are only signs of a steadily increasing prosperity, there is nothing to suggest a retrograde movement. I am anxious to know what has happened since then. Messrs. Fyers and Graydon agree about the railway "going nowhere in particular." They seem to have lost sight of its object, if they ever knew it, like a good many non-observant men have done. Consul Arthur Keyser in his 1899 Report, after saying that the development of the country as yet is only in its infancy, goes on to say "at Beaufort" (where the railway runs) "and for many miles round, the country is unpopulated and the land is without cultivation. Beyond the present cutting of the Railway lie vast ranges as far as the eye can reach. On the *further* side of these hills is the country which it is proposed to open up. . . . This *splendid stretch* of country is *full of possibilities* of development, and the railway is apparently being constructed in order to afford capitalists opportunity to investigate them. There is no road, only a jungle path." He points out that the cost is likely to be considerable and the engineering difficulties great.

In conclusion, I may say, I have no connection whatsoever with British North Borneo, nor with anyone connected with it and that I have not even the pleasure of knowing Mr W D Gibbon. I merely place the knowledge I have gathered together at your disposal for the benefit of your readers, lest they should be led away by your contemporary's remarks without a careful investigation of the case. As I am only quoting, what I have said will lose none of its value if I do not sign my name.--I am, Sir, yours faithfully,

A.

[Consular Reports should certainly be reliable; for British Consuls are not only men of honour, but strictly responsible for what they report. Here is what the "Statesman's Year Book" for 1902 states :--

"About 1,000,000 acres have been alienated by the Government on leases of 999 years for tobacco planting, pepper, coffee, and jungle products. There are 12 estates planting tobacco, 43 coffee and coconuts, 3 Manilla hemp, 3 pepper and gambier.

	1898. Dollars.	1899. Dollars.	1900. Dollars.
Revenue proper ...	505,369	546,129	588,026
Expenditure ...	633,051	568,347	1,386,055
Exports ...	2,881,851	3,439,560	3,336,621
Imports ...	2,419,087	2,456,998	3,178,929

The revenue includes sums realised by land sales and the expenditure includes payments on account of railways, telegraphs, and other public works, amounting for the year 1900 to 983,186 dollars.

Most of the trade is carried on through Singapore with Great Britain and the colonies. The chief products are timber, sago, rice, gums, coffee, pepper, gambier, gutta-percha, tapioca, sweet potatoes, and tobacco which is being planted on a large scale. Coal and gold have been found. The exports comprise mostly jungle and sea produce, wax, birds'-nests (edible), coco-nuts, gutta-percha, sago, tobacco, rattans, india-rubber, seed pearls, beche-de-mer, &c. A flourishing timber trade is stated to have been opened with China. Exports of leaf tobacco in 1900, 8,625 bales, valued at 92,000*l.* Shipping entered 1900, 110,908 tons; cleared, 111,385 tons; nearly all British. Borneo is now connected by cable with the outer world by a branch of the cable between Labuan and Singapore. A telegraph line has been constructed from Menumbok, where the cable reaches land, to Sandakan, where there is also a telephone exchange. A railway is in course of construction from Brunei Bay into the interior, and from there to Jesselton in Gaza Bay. It is expected that the whole length of 110 miles will be open for traffic before the middle of the year 1902."
—ED. *T.A.*]

FIRST SNIPE OF THE SEASON.

Kurunegala, Sept. 7.

DEAR EDITOR,—May I, again this year, claim the honour of having shot the first snipe of the season? I got one this morning at 7-30.—Yours, etc,

A. W. WARBURTON-GRAY.

[This is very early; has a snipe ever been shot in Ceylon before the end of August?—ED. *T.A.*]

THE PRODUCTION OF THE COCONUT PALM.

Sept. 8.

DEAR SIR,—I was much interested in "Traders' letter on the above subject. I agree with him that the local consumption of coconuts has grown enormously during the last quarter of a century; but I doubt if that alone explains the inelasticity of the exports of the products of the coconut palm. There never has been a year since the British occupation in which hundreds, and even thousands, of coconut plants have not been put down by villagers and small proprietors; and during the last 30 to 40 years the acreage under coconuts must have quite doubled. I am afraid the deficiency in fruit is due to backwardness in cultivation. Only the trees immediately round the villager's hut bear heavily: his garden is neglected. Even headmen, and proprietors of tens and hundreds of acres, do little in the way of cultivation. The trees look after themselves; they are unmanured; and their crops decrease or stand stationary. It is the exception, and not the rule, to plough coconut land, to weed round the trees, to manure them at regular intervals. Hence, I believe, the disappointing outturn, as exhibited in the export tables you publish.

COCOS NUCIFERA.

[Again, in many cases of small native gardens, the planting is so close, that if half the palms were cut down, the crops would be larger.—ED. *T.A.*]

PLANTING POTS.

Sept. 12.

DEAR SIR,—I have just seen "Planter's" query *re* planting pots. They are on the same principle as a flower pot, only narrower and have no bottom. These are laid down like planting baskets in nurseries for coffee, filled with earth and seeds put in. At planting they are carried to the field, earth and plant emptied out and placed in the hole, while the plot was taken away and kept for future use.

They are expensive to make and cost a great deal in transport and I should strongly advise "Planter" to use baskets as cheaper and more satisfactory generally.—Yours faithfully,

B. H. J.

THE JUNGLE CROW.

Abbotsford, Sept. 15th.

Sir,—I was very pleased and proud when some five or six years ago a couple of jungle crows settled down here as they are really handsome birds when on the wing.

They now swarm all over Upper Dimbula ; but as I feel quite certain they have either killed or frightened away large numbers of our small insectivorous birds, I have shot some six or eight of them during the past few months ; and I hope all who can hold a gun straight will join in exterminating the thieves and so help to safeguard our little, feathered friends. One crow actually attempted to enter a pigeon-cot in my kitchen verandah the other day, so like all crows they have cheek for anything.—Yours faithfully, J. F.

P.S.—Here is what "The Indian Field" of 4th inst. says of them under "The Game Destroyers of India":—

Crows.—An arrant egg thief and chick destroyer is *The Jungle crow.* Found throughout India and ascending to considerable elevations in the Himalayas capable of enduring heat and cold, it is one of the ever-present sources of game bird destruction. In portions of the hilly tracts it is so numerous that it is a wonder the black partridge, chukor, etc.; ever succeed in hatching out their eggs. *The carrion crow* also is answerable for the absence of many a young brood of chukor, but is not found in any numbers except in Kashmir and the neighbouring hills. The delinquencies of the jungle crow (*Corvus macrorhynchus*) were brought to our notice not many years ago in a forcible manner. We were in camp at about 6,000 feet in some hills which were evidently popular breeding grounds for chukor. A prolonged halt enabled us to look for nests. One we discovered in a corn field contained 16 eggs of the chukor, whilst on the edge of the scrub jungle were other chukors' nests with varying numbers of eggs, none of these were at all carefully concealed; in nearly every instance the jungle crows found them out. Near the camp were three or four large clumps of high trees and there the crows were breeding. Most of the young crows were hatched out, for the jungle crow breeds about April in the hills, and often somewhat earlier in the plains. We saw the parent birds flying with egg shells in their bills and on walking round found as we have said most of the chukors' nests were rifled. We wiped out that colony of crows, and thus did a good turn to the chukor as a small return for the harm we have so often done them.

PLANTING NOTES.

Ceylon Tea in Western America.—From Mitcham, Surrey, under date 18th July, Mr. Fairhurst sends us a copy of an advertisement of Ceylon Tea, cut from The Santa Cruz (California) "Surf"—which he says will shew "that the exploitation of the tea is not *quite* so unknown [in America?] as a letter in your paper lately would make it appear." The advertisement is certainly striking (2½ inches by 4) half of it showing a doughty warrior on horseback, the "Pride of Ceylon.' While below it we read "Finest Hill-Grown Tea—Registered Trade Mark." The rest of the letterpress is :—

Try "Pride of Ceylon" Tea, packed in Ceylon. One teaspoonful will make one quart—5 to 8 cups. Blue Wrapper, 50c per lb. ; Red Wrapper, 75c per lb. ; White Wrapper, $1.00 per lb. ; F. A. Peterson and Co., Direct Importers. 136 Pacific Ave., Santa Cruz. Also sold by:—Hinkle's Cash Store, 2 Pacific Ave; F. D. McPherson, 180, Pacific Ave; W. A. Husband, Seabright. Sold only in the original hermetically sealed packets.

Cotton Seed Oil.— In a circular which has just been issued to the shareholders of the Cottonseed Company (Limited), the directors state that a mill of commercial capacity has been erected on the company's riverside premises in London, and that in a trial run all that is claimed for the company's process in the treatment of cottonseed was fully established. A larger building is now being adapted to receive another mill of greater capacity, which, together with further mills of varying sizes, is now well under construction.—*Chemist and Druggist*, August 30.

The Orange.—The Orange is of comparatively modern introduction in horticulture. It is not mentioned in the Scriptures, nor by Herodotus, who lived five centuries before Christ, and who wrote a list of fruits then known, nor by Virgil, who wrote much about such matters one hundred years before the Christian era. The Orange came originally from the south of China, Burmah and India. It is found growing wild in the jungles in various parts of India. The Arabs introduced the Orange to their country, and thence it got to Syria and Southern Europe. This was probably the Bitter Orange. The sweet variety was brought to Europe about the fourteenth century by merchants of Genoa or Portugal. Thence the tree was passed by the Spaniards and Portuguese to the Azores and other parts of the "New World," and found congenial conditions. Mexico, Florida, California, proved to be highly suitable. The St. Michael Orange originated in the Azores ; the Pernambuco and Bahia (or Navel), were both named after provinces in Brazil. The Orange is now found growing in nearly every country where there is enough sunlight and absence of severe frosts.—*Journal of Horticulture and Cottage Gardener*, August 14.

Ceylon "Guano."—We recall a very interesting account by a sportsman in the "Days of Old" of a visit to certain "caves" in the backwoods of the Kalutara district whence the Sinhalese paddy cultivators were in the habit of excavating guano—the droppings of birds and especially bats—and conveying the same for use in their paddy fields, having fully realised the value of such manure. We mentioned this fact to Mr. Kelway Bamber who expressed a wish to see a sample. We hope still to get one of the Kalutara article ; but the first to reach us were two samples from a Hanwella resident of guano used by the cultivators in that neighbourhood. These are not "the real Simon Pure", being mixed with earth and poor in quality as Mr. Kelway Bamber kindly reports :—

"I tested those two samples of guano you kindly sent me some time ago, but they turned out of little value as they contained extraneous matter including earth, small stones, &c., especially No. 2. The following was their composition :—

	No. 1. Dark coloured.	No. 2. Light coloured.
Nitrogen... ...	2·80 per cent	1·12 per cent
Phosphoric Acid	1·76 ,,	trace
Potash	·19 ,,	·19 per cent

The first might be of value for application to local gardens, but would not stand freight charges."

The Future of Green Teas.—From a letter of Mr. Drummond Deane under date, Sept. 12th, we quote an opinion which may be of interest to green-tea makers, though each will no doubt judge for himself on the question raised:—

"I believe that for a time the coloured pure teas made by Ambawatte and Baraoora, may through a closer resemblance in *appearance* to the colourd 'Chinese' teas, help to open the doors of the American market, which is desirable; but I cannot lose sight of the fact that to the ordinary consumer the 'pure pan-coloured,' and the impure 'Japanese' or 'Chinese coloured' teas will in appearance resemble each other, which to my idea is not desirable. While as to the statement of Mr. Hart and, I believe, Mr. Galt, that only these 'pan fired' teas will keep and give full flavour, we have the report above mentioned on page 16, and also Mr. Hayter's letter from Toronto in reply to Mr. Hart which both go to prove that the panning process subsequent to steaming, is not necessary for *flavour* or for 'keeping qualities' of green teas. And I very much doubt if there is more profit in a coloured tea coloured by machinery panning and selling at say 7½ annas than in ordinary green teas selling at 5½ to 6½ annas in Calcutta or Colombo."

Green Teas for America.—The Editor of the *Indian Planters' Gazette* has the following satisfactory note on Mr. Judge's letter:—

"We are much obliged to Mr Judge for his letter, although he has been labouring under a misapprehension. Mr Hart's contention is that greens which have not undergone the final (long and expensive) process of panning,—which puts a hard greenish greyish appearance on them naturally (without the aid of deleterious foreign substances such as the Chinese use)—are not "true" or finished greens. The assertion is one of purely personal opinion on which parties can well afford to differ, for it is of no material consequence at the moment. After reading Mr Judge's letter, we are inclined to think that, in this matter, there will be found to exist a satisfactory demand and a good market for both unfinished and finished greens. In our notes, in our last issue, to which Mr Judge refers, we assumed that Mr Hart's dictum was in the main correct, for the simple reason that the United States, on the whole, prefer coloured greens, and the American market is the one we specially desire to capture, as it will eventually take the bulk of the green teas which British-growers will manufacture.

It was on this score that we wrote:—"What is wanted (*i.e.*, of course according to the gospel preached by Mr Hart,) is that the manufactured green teas shall in their finished state wear a greenish hue, *without being coloured by foreign substances*. This can only be obtained (by which we mean of course, on a *commercial* scale) by using the latest Deane-Judge machine, which the Baraoora Tea Company have alone got in use at present, and (we were careful to add) a certain amount of panning." We should perhaps, have italicised the last five words, for we never for a moment intended it to be understood that the Deane-Judge machine *itself* put the hard greenish greyish appearance on the dry tea, being fully aware that the process of repeated panning could alone effect this. Mr Judge clearly defines the work done by the latest improved Deane-Judge machines and the Drummond Deane System of green tea manufacture.

Green Teas—and Green Teas.—Ther is a current belief that low-country leaf makes as good green tea as high-grown. This is true, we believe, as regards "raw" or unfinished greens; but it is not so in the teas made according to the process used at Ambewatte. In teas so prepared, the superiority of highgrown leaf is readily realised. It remains to be seen how far the latest processes shortly to come into use, will succeed in turning out as good greens from low-grown as from high-grown tea.

Para Rubber at the Straits.—From an extract given on page 257 it will be seen that a Para rubber tree at Penang, about 17 years, old, has been tapped six times between the 11th and 15th year without suffering any harm giving 2½ lb. rubber each time on an average. Its size now (probable maximum) is 68 inches circumference main stem at 3 feet up. Probably 100 such trees per acre would do well, and if a price of 3s per lb. could be counted on, a return of £37 10s at each tapping, per acre, would be very good. The *India Rubber World* which has been decrying Straits rubber is said to be published in American interests. Can this be true? We doubt it.

An Effective Bird-Scare.—At this place it has been our study to preserve all birds by encouraging nest-building in every way possible, and in this blackbirds and thrushes have not been slow in taking advantage of the privilege afforded them. All this was very well so long as the birds fed themselves and their young upon worms and such-like; but when the Strawberry season came on, and the weather became hot and dry, and fewer worms were about, they turned their attention to the Strawberry-beds; nor in this were they in the least shy, for, until we endeavoured to let them know that Strawberries were to them forbidden fruit, they naturally appeared to have an idea that the garden and its fruit were all their own. The usual guys, &c., were set up, the scaring effect of which lasted only for the usual day or two, if indeed even for so long. Having in the house a couple of very talkative parrots, some of our people suggested trying the effect of placing these birds out upon the Strawberry-beds. One of them, a grey bird from the West Coast of Africa, talks fluently and his words are well pronounced; some of his speeches run thus: "Three cheers for the King; hip, hip, hip, hurrah! that is my loyalty;" "Elizabeth's got the blues; nothing new in that;" these and similar speeches alternative with splendidly whistled tunes, such as "Rory o' More," "Pop goes the weasel," The Campbells are coming," and similar other little ditties, with great force, finishing up always at the end of each speech or tune with a well-pronounced "What do you think of that?" putting great emphasis on the word "that." No. 2, a green bird from Cuba, has not such a full vocabulary as the African, but in its Spanish vernacular it made some queer noises; so that between the two blackbirds and thrushes evidently thought it best to give the immediate surroundings of these birds a wide berth, and our Strawberries were by these means very much preserved!—W miller, Berkswe.—*Gardeners' Chronicle*. Aug. 16

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; bookng necessary before the end of February, also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: J. P. WILLIAM & BROTHERS,

William, Henaratgoda, Ceylon. *Tropical Seed Merchants,*

Liber's, A.I. and A.B.C. Codes used. Henaratgoda, Ceylon.

ST. HELIER'S TEA COMPANY, LTD.

ANNUAL REPORT.

ACREAGE.

250	acres in bearing.		
29	do	planted in	1896.
34	do	planted in	1898.
313	acres.		
114	acres Jungle, &c,		
Total 427	acres.		

The Directors have now the pleasure to submit their Tenth Annual Report to the 30th June last, from which it will be seen that the debit balance of R1,776·41, being loss on last year's working, has been wiped out and a small credit balance of R99·19 remains in hand to be carried forward.

The crop, which was originally estimated at 105,000 lb. of made tea, has turned out only 97,288 lb, realising an average price of 34·66 per lb., as against 33·03 last year.

The cost of tea in Colombo, exclusive of the sum of R1,453·06 expended on capital account, works out at 24·43 cents per lb., as against 28·05 cents per lb. last season.

With reference to the loan of £3,000 on the security of the Company's estate, the mortgagees having decided to call this up on 15th October next, and the Company not being in a position from a financial point of view to meet the same, steps are being taken to replace the mortgage; and it is not anticipated that there will be any difficulty in so doing.

Mr H G Bois retires from the Board by rotation; but, being eligible, offers himself for re-election.

The shareholders will have to elect an Auditor for season 1902-03.—By order,

BOIS BROTHER & CO., Agents and Secretaries

WANARAJAH TEA COMPANY OF CEYLON, LTD.

REPORT OF THE DIRECTORS.

Acreage.

Tea in bearing	1,028 acres	
Planted in 1896	12 do	
Do 1898	20 do	
		1,060 acres in tea.
Timber Trees ..		20 do.
Forest ..		27 do.
Grass not available ..		27 do.
Total ..		1,134 acres.

The Directors have the pleasure of presenting to the shareholders the report, balance sheet and profit and loss account for the year ending 30th June, 1902.

The crop harvested amounted to 442,887 lb., against an estimate of 440,000 lb. The crop for 1901 was 436,945 lb.

351,617 lb. have been sold at an average of 44·70 cents.

Manure.—The estimate provided for 370 acres. The acreage completed was 389, at a cost of R10,077·23.

Factory and Machinery.—During the past season the Factory has been extended, and the Machinery increased at a cost of R12,907·32, which amount is debited to capital account.

After paying off an interim dividend of 5 per cent, and allowing 5 per cent depreciation on buildings and 10 per cent on machinery, there remains the sum of R75,884·03, including the balance brought forward, R36,087·77, which the Diretors recommended to be applied as follows:—

To a final dividend of 10 per cent, making a total of 15 per cent for the year	R37,800·00
To be carried forward	38,084·03
	R75,884·03

The estimated crop for season 1902-1903 is 450,000 lb. of made tea.

The Visiting Agent's reports can be seen by shareholders at the Company's Offices.

Mr J W Vanderstraaten retires from the Board by rotation, but is eligible for re-election.

The election of an Auditor for the current season rests with the shareholders.—By order of the Board,

BAKER & HALL, Agents and Secretaries.

CLUNES ESTATES CO. OF CEYLON, LTD.

REPORT OF THE DIRECTORS.

Clunes Division.

Superintendent:—R. O. De Saram, Esq.

Tea in bearing ..	390 acres.
Forest	174 do.
Total ..	564 acres.

Erracht Division.

Superintendent:— B. Alleyn, Esq.

Tea in bearing ..	501 acres.
Forest and Waste land ...	244 do.
Total ..	745 acres.
Grand total ...	1,309 acres

The Directors now submit to the shareholders the accounts and balance sheet of the Company for the year ending 30th June, 1902.

The total quantity of crop secured amounted to 364,941 lb. of tea a very disappointing result, being 88,059 lb. short of the estimate. The shortage was mainly due to the unfavourable flushing weather experienced in the first six months of the financial year. In spite of the smaller yield the cost of production compares well with most other estates in the District *i. e.* 21·17 cents per lb., whilst the nett average price realised was 29·03 cents per lb., against 25·60 cents per lb. obtained last year.

Capital Expenditure was incurred to the extent of R5,346·83 in providing increased withering accommodation on Erracht estate.

Depreciation of buildings and machinery is allawed for on the usual scale, and the Directors consider it advisable to put aside a sum of R1,500 against doubtful Coast advances.

After making the provisions alluded to above the result of the year's working shews a nett profit of R14,804·09. To this must be added the balance brought forward from last year, bringing the total to credit of Profit and Loss Account to R19,175·10.

In view of the present uncertainty regarding the immediate future of the Tea Market, and taking into consideration a rather sharp attack of helopeltis from which Clunes estates is at present suffering, the Directors consider it advisable to transfer R15,000 to Extension Fund, (thus obviating the necessity of borrowing money on capital account) and to carry forward the balance *i.e.* R4,175·10 to current year's account.

No Capital Expenditure is anticipated for this year, and the crop is estimated at 417,400 lb. of tea against a Working Expenditure of 82,918·37.

In terms of the articles of Association Mr V A Julius now retires from the Board but is eligible for re-election.

The appointment of an Auditor for the current year will rest with the meeting.—By order of the Directors, Whittall & Co., Agents and Secretaries

THE PENRHOS ESTATES COMPANY OF CEYLON, LIMITED.

REPORT OF THE DIRECTORS.

Directors:—E M Shattook, Esq and G W Suhreu, Esq.

The Directors have pleasure in laying before the Shareholders their Report and Accounts for the year ended 30th June, 1902, duly audited.

The amount of Tea secured was 237,229 lb.—210,120 lb on Estate account as against an Estimate of 207,000 lb, shewing an increase over last season of 10,977 lb, and 27,109 lb manufactured from bought leaf, a decrease as compared with last season of 7,919 lb.

The Comparative Table of the Estate Tea for the past six seasons is appended, and will doubtless be found of interest:—

	Crop in lb.	Cost laid down in Colombo.	Or without Manure.	Net Av. Price.
1896-1897	155·625	27·52	26·31	36·42
1897-1898	145·250	26·23	25·65	39·12
1898-1899	158·106	25·41	24·05	41·03
1899-1900	196 554	23·74	22 32	37·46
1900-1901	199.143	26·29	23·88	34 89
1901-1902	210·120	22·39	21·50	32·94

The total Crop secured cost, inclusive of Manure, 22·72 cents per lb. laid down in Colombo, and realised a net average price of 32·30 cents. Included in the Expenditure is a sum of R536·18, which has been spent in re-draining a further portion of the Estate. This work is being steadily proceeded with, some 199 acres having been treated up to date, and the improvement in the appearance of the bushes on those fields where the work has been carried on is already most marked. A sum of R933·09 has also been spent during the year on the upkeep of young clearings.

After payment of the Interest on Debentures, viz: R3,030·00, the nett Profit for the year comes to R16,727·52, or slightly over 11 per cent on the Capital of the Company. To this must be added the amount brought forward from the previous season, viz: R1,142·38, making the total amount available for distribution R17,869·90.

The Directors recommended that this be apportioned as follows:—

	R.
By payment of a dividend of 7 per cent	10,500·00
By payment of a bonus to Superintendent	1,250·00
By placing to Reserve Fund	2,000.00
By carrying forward to next account	4,119·90
	17,869·90

The acreage of the Company's estates is as follows:—

Old Tea	..	548¼	Acres.
Tea under 4 years	..	7¾	do
Tea under 2 years	..	44	do
		600	Acres.
Forest	..	42	do
Chena &c.	..	296	do
Total	..	738	Acres.

Mr E M Shattock retires by rotation from the Board of Directors but, being eligible, offers himself for re-election.

It will also be necessary to appoint an Auditor for season 1902-3.—By order of the Directors, LEE HEDGES & Co., Agents and Secretaries.

Colombo, August 18th, 1902.

HAPUGAHALANDE TEA COMPANY, LTD.

Report of the Directors presented to the eighth annual ordinary general meeting of shareholders held on Saturday, 30th August, 1902, at 12-30 p.m.

Your Directors beg to submit their Annual Report and Accounts for the twelve months ending 30th June, 1902.

The quantity of Tea manufactured for the season (including estate and bought leaf, but exclusive of that manufactured for other estates) was 135,150 lb as compared with 181,020 lb in 1900-1901. The serious falling-off in crop was due to the abnormally unfavourable weather experienced during the first few months of the period under review.

Estimating the unsold tea at a safe valuation, the amount relised for this product has been R41,392·98, equal to an average of 30·63 cents per lb.

After setting aside R3,293·58 for depreciation on buildings and Machinery, the sum available for distribution (including R5,492·13 brought forward from last account) is R14,658·96. From this sum the Directors recommended payment of a dividend of 5 per cent, absorbing R8,5000 and leaving R5,158·96 to be carried forward.

In terms of the Articles of Association Mr Keith Rollo retires from the Board of Directors and is eligible for re-election.

The appointment of an Auditor for the current season will rest with the meeting.

LEWIS BROWN & CO.,
Agents and Secretaries.

EILA TEA COMPANY.

DIRECTORS' REPORT.

Messrs. G F Walker, S Bois and H G Bois.

The Directors herewith submit their report and accounts for the year ending 30th June, 1902.

The following figures show the result of the year's working on the Company's estates:—

	Estimated Crop.	Crop. realised.	Cost per b. in Colombo.	Price realised.
Eila	252,550	237,175	19·50 cts.	27·22 cts
Kanangama	114,500	86,585	24·73 ,,	28·44 ,,
	367,050	323,760	20·90 cts.	27·54 cts

from which it will be seen that there was a shortfall in crop of 43,290 lb. but the cost of production was only 20·90 cents against an estimated cost of 21·46 cents for which much credit is due to the Superintendent. The shortfall on Kanangama estate was to a great extent due to the severe attacks of helopeltis and partly to an insufficient labour force and steps have since been taken to put this latter on a more satisfactory footing. At the end of the season helopelties was very bad on Kanangama and it is to be hoped that the measures employed by the Superintendent to cope with this pest will be successful. The visiting agent in his last report stated that the general appearance of the tea on both estates was satisfactory.

During the year a further instalment of £500 was paid to the Standard Assurance Company, in reduction of their loan per £7,000. The amount now outstanding is £5,000.

The net profit for the season after providing for 10 per cent depreciation on buildings and machinery is R7,676·83 out of which the Directors propose to pay a bonus to Mr. Dawkin which will

absorb	..	R 500·00
to pass the Reserve Account..	..	6,500·00
to carry forward to next season	..	676·83
		R7,676·83

The estate of the Company now consist of:—

Eila	..	716 acres Tea 5 years old and upwards
		240 do Forest.
		956 acres.
Knangama		215 acres Tea 5 years old and upwards
		108 do Forest.
		323 acres.

The estimates for the current season provide for a crop of 375,180 lb. Tea at a cost of RS3,935·65,

Mr S Bois retires in accordance with the Articles of Association, but being eligible offers himself for re-election. It will be necessary to appoint an Auditor for season 1902-3.—By order of the Directors, J. M. ROBERTSON, & CO., Agents and Secretaries. Colombo, 8th September, 1902.

THE TEA CORPORATION, LIMITED.

ANNUAL REPORT.

The following is the report issued for 18 months ending December 31st :—

Alfred Bull, Cyril Gurney, E H Hancock, T J Lawrance, R R G Norman and V H Smith :—Directors.

Frederick Tatham :—Managing Director in Ceylon. Antony Gibbs & Sons :—London Agents.

Report of the Directors and Accounts for the eighteen months ending 31st December, 1901, to be submitted to the annual general meeting of Shareholders on the 21st July, 1902.

The Directors beg to submit herewith the accounts of the Corporation for the eighteen months ending 31st December, 1901, and they regret to have to report that the conditions prevalent in the Tea Industry during the greater part of that period have led to very serious results, especially in the case of estates such as those of this Company, which in the main produce medium to low-grade tea. As Shareholders are well aware, prices were unprecedentedly low during most of the period in which this last year and a half's tea has been sold. Indeed, they were, generally speaking, fully 1d per lb. below those of the previous year, and even then the market was below normal. The restriction of production which was very generally practised—in view of the accumulation of stocks and the relations of supply and demand—involved an increase in cost, which naturally follows a reduction in crop.

The following figures indicate the results during the past three years :—

	Crop lb.	Cost of Production.	Average Sale Price Net.
1897-98	1,112,606	31 cts. per lb	5d
1898-99	1,234,442	26·10 do	5 15-16d
1899-1900	1,276,139	25·60 do	5 3-16d
1900-01	1,164,435	27·62 do	4½d
(6 months only) 1901	366,816	36·98 do	5 3-8d

From these figures it will be seen that the year's crop up to 30th June was reduced by over 110,000 lb, instead of showing the expected increase; that it cost 2 cents per lb more to produce, owing to this shortage and that the prices obtained for the tea average a figure which barely covers the cost. The prices for the succeeding six months showed a marked improvement, but owing to the usual comparatively small crop, and the extra expenses which are always incurred during that period, the cost per lb is nearly 10 cents higher. It is expected that the crop for the full year will not fall far short of that for 1900-01 and the cost should be reduced to about 26 cents. The falling-off in shipments from India and Ceylon did not immediately produce any effect on prices owing to the large stocks of Tea in London, but an improvement was shown in the late autumn, which has unfortunately not been maintained.

The loss on the Estates for the eighteen months is £318 6s 8d. After adding Debenture Interest, London Expenses, &c., there is a loss of £7,334 12s 5d, after deduction of Balance brought forward.

The expenditure on the work done at the Plumbago pits has been heavy owing to a large inflow of water. The amount of Plumbago won was about 80 Tons, but unfortunately prices ruling were low. In the last few months a considerable amount has been secured, a good vein having been discovered, which, when realised, should considerably reduce the Exploiting Account. The workings are at present let to Natives on satisfactory terms, involving no risk to the Company

As soon as the accounts for the last financial year were complete, the Directors invited all the largest Shareholders to meet and confer with them on the financial position, and in consultation it was agreed that accounts should in future be made up to 31st December ; hence the reason that the present accounts cover eighteen months. The Directors before the issue of this Report again met some of the larger Shareholders and consulted with them as to the financial position of the Company. The general feeling was that it was imperative to raise money to strengthen the position of the Company, and that after the matter had been considered at the Annual Meeting some action should be taken.

The Directors retiring in rotation are Mr Vivian Hugh Smith and Mr Reginald R G Norman, who, being eligible, offer themselves for re-election.

The Auditors, Messrs Broads, Paterson & Co , also retire and offer themselves for re-election.—By order of the Board, E. T. BARTLETT, Secretary.

15, Bishopsgate Street Within, E.C.

Dated 8th July, 1902.

PLANTING NOTES.

Cotton Seed—is, of course, known locally, and has been known for generations, as excellent food for cattle. Poonac is nowhere in competition with cotton seed, in the estimation of cart and milch cattle, as any one who has watched them make a rush for the milky morsel must know. But it would appear that only her immediate neighbours have been the chief customers of India for this product. Europe has now awakened to the fact that what was long considered a worthless residue in cotton-cleaning, is useful for man, as well as beast ! An Indian contemporary reports that :—

" A remarkable feature of the trade of the past year has been the development of traffic in cotton seed, of which 150,000 tons have been shipped from Bombay in the fifteen months ending last June, compared with only 1,800 tons in 1898-99. The whole has been sent to the United Kingdom, where a brisk demand has sprung up for this previously almost worthless bye-product of cotton industry for such productions, as the manufacture of oil and margarine."

North Borneo and Planting, &c.—are not treated after a flattering fashion by Mr. H. A. B. Fyers, Surveyor, in an interview with our contemporary. Here is the material part :—

" How far have the maritime parts of the country been developed ? ' ' Well—they have a railway there, and it is the funniest railway you ever saw or heard of. It was constructed before cart-roads were made, and the railway does not seem to have any approach roads at all ; and for sixteen miles it runs through a mangrove swamp and into which it almost disappears ! That is the Jesselton-Beaufort railway, and Jesselton is now the capital.' ' What of the agricultural activities and possibilities of the country ? Have you come across many plantations ? ' ' Precious few: there is some amount of tobacco cultivation round Darvel Bay—that is the North-east corner of the island—but only this year three or four estates there had their crops destroyed through floods.' ' Who are the planters ?' ' The majority of them are English and Dutch men. The chief centres for the tobacco are Darvel Bay and the valley of the Kinabatangau River.' ' Is there any other agricultural industry ?' ' Not to speak of. The Chinamen grow vegetables, which are all consumed in the country, and there is some fruit culture at Kudat, right to the extreme north of the island."

Monthly Shipments of Ceylon Black Tea to All Ports in 1901-1902.

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.	19 1. lb	1902. lb.
January ..	12617540	9056013	727093	612958	104240	151984	740574	714247
February	8333266	7455219	...	919709	135811	121158	1778987	1020948
March ...	7932090	8198179	1288010	896513	82055	91081	2012070	1713916
April ..	8474940	8521388	1297873	988698	111082	93198	2245142	2081904
May ..	10570686	9638555	937138	238239	63310	80669	1644160	2000522
June ...	11425044	12563050	835711	1984976	93699	166479	1730886	1828695
July ..	8488409	10724781	700557	1779011	189567	108785	2593243	1747960
August ...	6030406	7396614	949747	1065599	82595	208894	1612929	1574498
September *	6093129		485429		74896		1779523	
October ..	8989024		762616		181891		1840192	
November	6229472		1018996		190988		1539370	
December	12235867		830226		189520		990563	
TOTAL ..	105,497,339		9,699,734		1,539.986		20,638,208	

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.
January	138235	125795	275598	389215	14603250	11050212
Febuary	272221	115332	453774	385705	10974059	10018071
March	510734	566263	350874	311191	12175833	11777143
April	10030	807390	226776	290137	12365843	12782715
May	288333	242651	306644	436410	13810271	12637046
June	276827	403005	404687	714471	14766854	17660676
July	442100	464858	669163	846036	13083039	15671431
August	266787	461229	227578	678095	9170042	11384929
Septembr	214779		388213		9035969	
October	115545		273928		12163196	
November	504614		183124		9666564	
December	313534		366244		14875954	
Total ...	3,704,335		4.549 627		145,188,244	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902 lb.
January	...	64021	...	..	...	...
February	...	24839	..	4420	...	...
March	75583	14800	...	24210	...	..
April	13016	13676	...	8000	...	...
May	33889	70103	...	..	1714	..
June	12814	87340	..	74225	...	...
July	4478	40574	...	..	...	...
August	...	70900	..	..	...	...
September	5945		...	..	...	...
October	12921		..	..	...	..
November	16540		5615	..	...	..
December	15255		38547	..	1262	..
TOTAL ...	237.231		44,162	...	2,976	...

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901, lb.	1902. lb.	1901. lb.	1902. lb.
January ...	...	113332	..	...	...	177353
February ...	...	26480	...	515	..	56254
March ...	227889	62313	12173	100	315660	101423
April ...	79403	53610	7365	9165	99784	84451
May ...	65980	32676	1454	3280	103037	106059
June ...	23046	84184	...	4500	35860	250249
July ...	46896	194016	...	...	51374	234590
August ...	12260	105982	...	1600	12260	178482
September ...	15304	...	...	..	21249	..
October ...	28560	..	...	..	41481	...
November ...	36296	..	...	...	58541	...
December ...	11786	...	7612	...	27011	..
TOTAL. ...	797.796	...	28,609	..	1,110,774	...

* It is impossible to get the figures for the last month in time for publication; but see pages 284, 285 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	850	900	—
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	..	—	..
Ceylon Provincial Estates Co. Ltd.	500	505	505	505
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	50	60	..
Clyde Estates Co., Ltd.	100	25	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	65	—	...
Drayton Estate Co., Ltd.	100	—	..	—
Ella Tea Co., of Ceylon, Ltd.	100	25	—	—
Estates Co of Uva, Ltd.	500	210	...	..
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	950	..	...
Great Western Tea Co., Ltd.	500	650	—	650
Hapugahalande Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	500	—	..
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	105	110	—
Kalutara Co., Ltd.,	500	—	230	..
Kandyan Hills Co., Ltd	100	—	40	—
Kanapediwatte Ltd.	100	45	...	—
Kelani Tea Garden Co., Ltd.	100	..	85	—
Kirklees Estate Co., Ltd.	100	100	—	—
Knavesmire Estates Co., Ltd.	100	...	45	—
Maha Uva Estates Co., Ltd.	500	—		—
Mocha Tea Co., of Ceylon, Ltd.	500	700	—	—
Nahavilla Estate Co., Ltd.	500	250	...	—
Neboda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co, Ltd.	100	—	75	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	—	30	..
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd	500	.	...	—
Rayigam Tea Co., Ltd.	100	—	50	—
Rocherry Tea Co., Ltd	100	—	85	—
Ruanwella Tea Co., Ltd	100	...	30	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	...	...	—
Do 7 per cent Prefs.	100	—	—	—
Tonacombe Estate Co., Ltd,	500	—	350	—
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	500	550	—
Uvakellie Tea Co., of Ceylon, Ltd	100	...	.	—
Vogan Tea Co., Ltd.,	100	47½	55	—
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	285	—	290

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	...	30	...
Bristol Hotel Co., Ltd.	100	..	110	...
Do 7 per cent Debts	100	—	...	..
Ceylon Gen. Steam Navigation Co., Ltd	100	—	250	—
Ceylon Ice & Cold Storage Co. Ltd.	100	110	115	..
Ceylon Superæration Ltd.	100	—	40	—
Colombo Apothecaries' Co. Ltd.	100	132½	135	135
Colombo Assembly Rooms Co., Ltd.	20	15	..	..
Do prefs.	20	...	..	...
Colombo Fort Land and Building Co., Ltd.	100	—	—	...
Colombo Hotels Company	100	...	..	280
Galle Face Hotel Co., Ltd.	100	190	200	—
Kandy Hotels Co., Ltd.	100	..	130	130
Kaluganga Nav. Co. Ltd.	60	...	60	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	—	75	...
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	—
Do 7 per cent prefs.	100	—	105	—
Public Hall Co., Ltd.	20	...	—	—

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	..	—	..
Anglo-Ceylon General Estates Co	100	...	55—60	—
Associated Estates Co., of Ceylon	10	..	1½—2½	—
Do. 6 per cent prefs	10	..	3—5	—
Ceylon Proprietary Co.	1	.	¼—½	..
Ceylon Tea Plantation Co., Ltd.	10	..	23½ - 24	...
Dimbula Valley Co. Ltd	5	..	5—5½	—
Do prefs	5	—	5—6	...
Eastern Produce & Estate Co. Ltd.	5	...	3¼—3¾	.
Ederapolla Tea Co., Ltd	10	...	6—8	...
Imperial Tea Estates Co., Ltd.	10	...	4 4½	—
Kelani Valley Tea Assen., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	6—8	—
Lanka Plantations Co., Ltd	10	...	4	—
Nahalma Estates Co.,Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	9¾	—
Ouvah Coffee Co., Ltd.	10	..	6—7	—
Ragalla Tea Estates Co., Ltd.	10	.	11 -13	—
Scottish Ceylon Tea Co.,Ltd.	10	.	10—15	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	10—12	..
The Shell Transport and Trading Company, Ltd.	1	...	2⅝—3¼	—
Ukuwella Estates Co., Ltd.	2?	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¼	..
Do. pref. 6 o/o	10	...	9—10	...

BY ORDER OF THE COMMITTEE.

Colombo, Oct. 3rd, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(Supplied by the Surveyor-General.)

	1897.	1898.	1899	1900	1901	Av. of 32yrs.	1902
	Inch	Inch	Inch.	Inch.	Inch.	Inch.	Inch
January ..	3·81	2·32	·98	3·72	11·91	3·51	1·95
February ..	1·68	1·98	2·78	0·63	3·55	1·94	4·67
March ..	3·66	4·21	0·88	3·71	5·12	4·76	6·85
April ..	10·97	22·81	6·66	15·12	8·71	11·34	10·01
May ..	8·30	5·80	17·73	10·63	6·28	11 86	11·89
June ..	10·14	10·94	9·23	7·83	5·93	8·28	9·84
July ..	5·24	6·15	1·11	6·77	4·52	4·46	4·63
August ..	9·09	0·97	0·62	7·35	0·46	3·68	2·78
September ..	4·58	6·90	1·48	4·00	3·93	4·94	8·14*
October ...	4·71	20·60	12·99	9·47	3·91	14·03	
November ..	11·66	17·38	8·58	9·25	19·84	12·77	
December ..	8·89	3·05	4·44	5·20	1·70	6·26	
Total..	82·73	103·11	73·48	83·68	75·86	87·83	60·70

* From 1st to 30th Sept. 8·14 inches, that is up to 9·30 a.m. on the 1st Oct.—ED. *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for Sept. 1902—7 to 7½ mil. lb.
Total Shipments Do 1902—6,750,000 mil. lb.
Do Do Do 1901—6,093,129 lb.
Do Do Do 1900—4,978,006 lb.
[ESTIMATE for Oct. 1902—8 to 8½ million lb.]

KARAMARUDU *Terminalia Tomentosa*), a timber largely grown in the South Canara forests in the Madras Presidency, has, we hear, been pronounced unsuitable for use as railway sleepers. —*Indian and Eastern Engineer* for Sept,

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Sept. 29th, 1902.

CARDAMOMS :—
- All round parcel, well bleached per lb. R1·10
- Do. dull medium do. R0·90
- Special assortment, 0 and 1 only do. R1·30
- Seeds do. R1·05

CINCHONA BARK :—
- Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
- Ordinary assortment per lb. 52c.
- Nos. 1 and 2 only per lb. 60c. } scarce.
- Nos. 3 and 4 only per lb. 48c.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R67·50

COCOA :—
- Finest estate red unpicked per cwt R45·00
- Medium do do do R38·00
- Bright native unpicked and undried R37·00
- Ordinary do do do R28·00

COCONUTS—(husked)
- Selected per thousand R49·00
- Ordinary ,, R46·00
- Smalls ,, R34·00

COCONUT CAKE—
- Poonac in robins f. o. b. per ton R80·00
- Do in bags none.

COCONUT (Desiccated).
- Assorted all grades per lb 18¾c. According to quality Cents 16¾ quoted for forwared delivery.

COCONUT OIL—
- Dealers' Oil per cwt R17·25.
- Coconut Oil in ordinary packages f. o. b. per ton R382·50.

COFFEE.—
- Plantation Estate Parchment on the spot per bus. None
- Plantation Estate Coffee f. o. b. (ready) per cwt.—R62·00.
- Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
- Ready do per lb.—46c Nominal.

COPRA—
- Boat Copra per candy of 560 lb. R56·00
- Calpentyn Copra do do R57·00
- Cart do do do R52·50
- Estate do do do R56·50

CROTON SEED per cwt—R11·00

EBONY—
- Sound per ton at Govt. depot—R175·00.—Sales of the 4th August.
- Inferior R95·00.—Next Sales on 13th October.

FIBRES—
- Coconut Bristle No 1 per cwt None
- Do ,, 2 None
- Do mattress ,, 1 None
- Do ,, 2 None
- Coir Yarn, Kogalla ,, 1 to 8 R15·00
- Do Colombo ,, 1 to 8 R11·00.—Market easier.
- Kitool all sizes None
- Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
- Large lumps per ton R600
- Ordinary lumps do R600
- Chips do R350
- Dust do R250 Prices nominal

Fine qualities very scarce.
- Do (Flying) do R125

SAPANWOOD— per ton R45.—Nominal.

SATINWOOD (ordinary) per cubic ft. None
- Do (Flowered) per cubic ft. None

TEA—	High Grown Average cts	Medium Average. cts	Low Grown Average. cts	
Broken Pekoe and Broken Orange Pekoe per lb	..	..	..	
Orange Pekoe do	..	..	..	No sale
Pekoe do	...	..	..	No sale
Pekoe Souchong do	...	..	..	No sale
Pekoe Fannings do	..	..	...	No sale
Broken mixed—dust, &c	...	..	...	

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1901 AND 1902.

COUNTRIES	Black Tea 190[2] lbs.	Black Tea 1901 lbs.	Green Tea 1902 lbs.	Green Tea 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales lbs.	Cinnamon Chips lbs.	Coconut Oil 1902 cwt	Coconut Oil 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.	Coconuts No.	Plumbago 1902 cwts	Plumbago 1901 cwts.
To U K.	79139794	77675383	408527	156549	6187	..	6187	26230	287197	251795	129840	184076	169294	12308	6539183	21	7947208	95812	149836
,, Austria	3[illegible]619	41671	..	..	1	..	1	...	...	5600	36400	10825	5030	6563	120550	...	5510	...	..
,, Belgium	52473	14516	...	..	95	..	95	475	...	84500	133560	1793	3752	18894	157620	74422	140150	9395	14723
,, France	16[illegible]682	202205	..	..	4	...	4	675	448	45600	22480	238	102	72735	28000	...	66020	1246	286
,, Germany	461063	371164	...	..	26	..	26	3625	90378	551481	421423	8524	8532	114471	1457090	76658	943535	47354	38125
,, Holland	4514	18494	...	..	...	..	..	..	—	33000	180600	..	3716	476	263670	..	..	407	...
,, Italy	13464	11108		..	...	..	..	32	435	171558	127512	1519	4264	..	...	10	11285	7	100
,, Russia	9974146	6959327	106435	..	8	...	8	100	448	130	..	181	134	33136	..	..	...	1678	3713
,, Spain	3281	...	..	..	...	..	..	31	..	195498	64832	..	..	...	10250	..	...	..	...
,, Sweden	56905	37136	...	..	..	..	..	400	...	..	..	823	199	...	36750	..	10080	433	204
,, Turkey	24362	27869	..	.	...	...	..	—	..	112	...	...	...	..	...	...	..	..	...
,, India	679057	953716	22931	16124	68	...	68	5	73490	..	2296	53950	88218	5	...	...	66400	1717	4 5
,, Australia	13740798	15342156	..	1714	1894	14	1908	474	...	3624	21256	.	94	...	530711	21	..	216	13[illegible]
,, America	3663013	2013234	993970	457984	820	...	820	7	7039	243500	6275	77966	14030	...	1551505	...	99100	19192[illegible]	131291
,, Africa	435537	250754	1200	..	15	..	15	..	2226	..	..	60	76	..	17660	1	9445[illegible]1	..	...
,, China	3012157	2243626	...	4853	26	..	26	100	7246	16200	112	545	914	..	1918	..	—	797	..
,, Singapore	142969	99103	...	...	1	...	1	5 60	2140	...	..	474	3006	...	..	...	...	...	...
,, Mauritius	50919	29376	..	...	280	..	230	..	..	..	..	...	..	...	..	..	..	..	..
,, Malta	240486	242308	..	...	...	...	..	...	..	...	..	..	..	..	...	..	..	...	..
Total export from 1st Jan to 29th Sept 1902.	111894244	106538166	1593063	637224	9375	14	9389	37214	471046	16025	1146586	340979	301561	258588	10714907	151133	223869	355044	338815

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, September 10th, 1902.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a [illegible]0s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay White ,,	Dingy to Fair	£5 a £6 12s 6d
Zanzibar & Bombay Yellow ,,	Fair ,,	£6 a £6 [illegible]s
Madagascar ,,	Dark to good palish	£6 5s a £6 12s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	16[illegible]s a 17[illegible]s
Japan ,,	Fair average quality ..	[illegible]6[illegible]s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon.-Mysore ,,	Fair to fine plump ..	1s a 3s 7d
	Seeds .	1s 3d a 1s 8d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish .	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s 9d
,, Mangalore ,,	Med brown to good bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2⅝d a 2⅞d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	32s 6d a 40s
CINCHONA BARK.—lb.	Ledgeriana Orig. Stem	[illegible]d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	3½d a 7d
	Red Org. Stem	3⅜d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	8½d a 1s 6d
per lb. 2nds	,, ,,	[illegible]d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	4½d a 6d
Zanzibar and Pemba	Good and fine bright	3 15-16d a 4¼d
	Common dull to fair	3½d a 3⅝d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 120s
	Middling to fine mid ..	80s a 100s
	Smalls	47s a 70s
Native	Good ordinary	50s a 60s
Liberian ,,	Small to bold	[illegible]0s a 40s
COCOA, Ceylon ,,	Bold to fine bold	6[illegible]s a 83s 6d
	Medium and fair	58s a 64s
	Native	[illegible]0s a 60s
COLOMBO ROOT ,,	Middling to good	[illegible]s a 13s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	23s a 35s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	[illegible]0s a 90s
B & C ,,	Small and medium	48s a 70s
Cochin Rough ,,	Common to fine bold	41s a 43s
	Small and D's	37s 6d a 40s
Japan ,,	Unsplit	33s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £18
	Part yellow and mixed	£7 a £9
	Bean and Pea size ditto	70s a £9 2s 6d
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar ,,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 37s 6d
Turkey sorts ,,		30s a 37s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 2[illegible]s
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ...	18s a 25s
SSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 30s
KINO ,,	Fine bright	4½d a 7d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	50s a 70s
OLIBANUM, drop ,,	Good to fine white	42s a 50s
	Middling to fair	28s a 42s 6d
pickings ,,	Low to good pale	20s a 26s 6d
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 0½d a 3s 10d
Assam	Good to fine	2s a 2s 3d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 4d
Borneo	Common to fine	6d a 2s 2d

	QUALITY.	QUOTATIONS
INDIARUBBER (Contd.)		
Java, Sing. & Penand lb.	Foul to good clean ...	8d a 2s 1d
Mozambique ,,	Good to fine Ball ...	2s 6d a 2s 9d
	Ordinary to fair Ball ...	1s 10d a 2s 2d
	Low sandy Ball ...	9d a 1s 6d
	Sansage, fair to good ..	1s 10d a 2s 7¾d
	Liver and Livery Ball ..	1s 9d a 2s 2d
Nyassaland	Fair to fine ball ..	2s 3d a 2s 7½d
Madagascar	Fr to fine pinky & white	2s a 2s [illegible]d
	Fair to good black ..	1s 1d a 1s 6½d
	Niggers, low to fine ..	7d a 1s 9d
INDIGO, E.I	Bengal—	
	Shipping mid to gd violet	3s 5d a 3s 9d
	Consuming mid. to gd.	2s 11d a 3s 3d
	Ordinary to mid.	2s 5d a 2s 10d
	Mid. to good Kurpah	1s 6d a 2s
	Low to ordinary	9d a 1s 3d
	Mid. to good Madra	1s 4d a 1s 10d
MACE, Bombay & Penang	Pale reddish to fine	2s a 3s
per lb.	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, cwt	Dark to fine pale UG	5s a 6s
Madras	Fair Coast	4s 6d a 5s
Bombay ,,	Jubblepore	4s 6d a 5s 6d
	Bhimlies	4s a 6s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 5[illegible]d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay	Ordinary to middling	5s 6d a 6s
per cwt. Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 4d
CASSIA ,,	According to analysis	2s 3d a 2s 6d
LEMONGRASS ,,	Good flavour & colour	5d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 3d
CITRONELLE ,,	Bright & good flavour	9¼d a 10d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb.		
Alleppee & Tellicherry	Fair to bold beavy ...	6d a 6¼d
Singapore ..	Fair	[illegible]d
Acheen & W. C. Penang	Dull to fine	4¼d a 5¾d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	3s 6d a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	11[illegible]s a 117s 6d
SENNA, Tinnevelly lb.	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's; D's and B's; Small ...	48s a 120s
Mergui ,,	Small to bold ..	£7 15s a £9 15s
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part beavy	17s a 22s
TURMERIC, Bengal cwt.	Fair ...	14s a 1[illegible]s
Madras ,,	Finger fair to fine bold bright	10s a 14s
Do. ,,	Bulbs ..	10s a 12s
Cochin ,,	Finger ..	10s a 12s
	Bulbs ...	9s a 9s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 9 in	6s 6d a 22s 6d
Bourbon ... 2nds	Foxy & reddish 3½ a 8 ,,	5s a 15s
Seychelles 3rds	Lean and inferior ...	3s a 7s 9d
VERMILION lb.	Fine, pure, bright ...	3s
WAX, Japan, squares cwt	Good white hard ...	50s a 55s

THE
AGRICULTURAL MAGAZINE,
COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for October :—

Vol. XIV.] OCTOBER, 1902. [No. 4.

THE TAMARISK.

THE Tamarisk (*Tamarix gallica*), known to the Tamils as *kiri*, is described by Trimen as a large shrub or tree with slender branches occurring on the sea coast chiefly on the North-West, between Chilaw and Jaffna. It is one of the few forms of vegetation which are suitable for planting in exposed situations along the sea borde, with the special object of arresting drifting sands.

In an article appearing in the August number of the *Agricultural Gazette of New South Wales*, some interesting facts relating to this Ceylon plant are given by the writer, Mr. W. S. Campbell. We read here of the Tamarisk being planted in the most exposed situations on the coast, at the mercy of severe gales and strong winds with constant encroachment of sand, and yet growing from the start. Under favourable conditions the plant is said to grow into an ornamental and shapely tree attaining sometimes a height of 20 to 25 feet. Another name for it is the "flowering cypress."

In Dr. Hedin's book "Through Asia" the Tamarisk is referred to as the plant which encroached furthest into the awful desert regions traversed by the traveller.

The specific name *gallica* indicates the fact that the plant produces galls which are sometimes used in medicine and as deying agents where astrigency is wanted. In medicine it is employed as a tonic, while it is a substitute for hops in making beer in Denmark. The ashes of the plant, when found growing near the sea, are found to contain a large proportion of sulphate of soda, to obtain which it may be profitably burnt. The abundance of this salt is said to explain the use of the plant as a diuretic agent.

Mr. Campbell mentions the curious fact that the Tamarisk produces a kind of manna when punctured by an insect known as *Coccus manniparus*, but distinguishes this from the manna of the Old Testament which is traced to a lichen.

The Tamarisk is mentioned by Homer and other ancient poets, and has been long held to be a celebrated medical plant by the Arabians.

It is interesting to note the plants used in New South Wales for planting along the sea coast with the double object of serving as wind belts and arresting shifting sand. There are marram and spinifex grass (planted on the sandy bank along the beach) and (higher up) *Pinus maritima, Ficus macrophylla, Metrosideros tomentosa, Lagunaria Pattersonia, Arundo donax, Pampas grass, &c.*

Seeds of marram grass were not long ago distributed by the Botanical Department for trial. *Arundo donax* is familiar enough as an introduced plant, while *spinifex squarrosus* sometimes called "water-pink" is that quaint form of vegetation which rejoices in the quaint native name of "Maha-rawanarewula" meaning "the great beard of Ravena or Rama."

CURE FOR TAPE WORM.

(*To the Editor, "Agricultural Magazine."*)

Ratnapura, 30th Sept., 1902.

SIR,—For the benefit of your readers I give you a better cure for tape worm in dogs than arecanut, which often harms the dog. I got the recipé from Dr. Carberry. It is powdered pumpkin seed. Give a teaspoonful or more with every meal, and have patience. It is tasteless and harmless. Watch for the head of the worm.—Yours faithfully,

G. S. SAXTON.

[We are glad to learn of this very simple and safe remedy —ED. *A.M.*]

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF SEPTEMBER, 1902.

1	Monday ...	·14	16	Tuesday ...	·02
2	Tuesday ...	·02	17	Wednesday	·11
3	Wednesday ...	1·60	18	Thursday ...	Nil
4	Thursday ...	2·37	19	Friday ..	Nil
5	Friday ...	·05	20	Saturday ...	·10
6	Saturday ...	·11	21	Sunday ...	·06
7	Sunday ...	1·52	22	Monday ...	Nil
8	Monday ...	·22	23	Tuesday ...	Nil
9	Tuesday ...	·27	24	Wednesday	Nil
10	Wednesday ...	1·40	25	Thursday ...	Nil
11	Thursday ...	1·21	26	Friday ...	Nil
12	Friday ...	·35	27	Saturday ...	Nil
13	Saturday ...	·85	28	Sunday ...	Nil
14	Sunday ...	·22	29	Monday ..	Nil
15	Monday ...	.05	30	Tuesday ...	·13
			1	Wednesday	·03
				Total ...	10·69
				Mean ...	·36

Greatest amount of rainfall registered in 24 hours on the 4th September, 1902, 2·37 inches.

Recorded by Alex. Perera.

OCCASIONAL NOTES.

In the *Farmer's Bulletin*, No. 78, issued by the United States Department of Agriculture, is described the process of manufacture of a new fungicide, named *Sar*, said to be very effective. It is made as follows:—"Place 15 lbs. of flower of sulphur in a barrel, mix thoroughly with ½ lb. of finely-powdered resin, stir well with 3 quarts of water, which should make a thick paste. The paste must not be thin and watery, nor so dry as to crumble to powder when stirred. Then add 10 lbs. of caustic soda and stir well. After from three to fifteen minutes the mass turns a reddish brown and boils violently, and must be stirred well, preferably with a broad paddle to prevent it from running over. After it has ceased boiling, add slowly about two gallons of water hot if possible, but cold will do, and then carefully pour off into another vessel marked to hold 6 gallons, and add hot water till the six-gallon-mark is reached. This gives a stock solution, which must be kept in tightly corked jars or in closed barrels or kegs, since it spoils if it comes into contact with the air. It is also decomposed if it touches metals." Of this stock solution 1½ pints to 50 gallons of water is recommended for treating seed oats for loose smut, the seed to be soaked for 24 hours. A stronger solution, one gallon in 50 of water, can also be employed, in which case two hours will be sufficient for soaking.

Since referring to *Spinifex squarrosus* in our General Items column, we have discovered a curious error in the note on this grass which occurs in Trimen's Flora, Vol. V., on page 174. All who live by the sea are no doubt familiar with the plant, called "water pink," probably owing to the resemblance of the ashy green foliage to the common pink of our gardens. The peculiar crackling noise produced when the dry plant is thrown into the fire, has, we feel sure, often served as a substitute for the bursting of the Christmas cracker to the fisherman's child, while the flying ball of the flower head is supposed to illustrate "the rolling things before the wind" and "the wheel before the wind" mentioned in the Bible. The curious error we have referred to above is the translation of the Sinhalese name Maha-Rawana-Rewula into the great *bund* of Ravana" instead of (as Ferguson correctly puts it) "the great beard of Ravana.' One can understand the simple mind of the native seeing a resemblance in the coarse hard grass to the grisly beard of the hairy Rakshia hero, but where does the word *bund* come in at all?

Regarding the well-known Mauritius or water grass (*Panicum muticum, P. Barbinode*, but not referred to as *P. Molle*, though this is the name given in Trimen's "Catalogue"), we read in the "Ceylon Flora" that "It is singular that neither Thwaites, Trimen or Ferguson give a Sinhalese or Tamil name for it." But on turning to Trimen's Catalogue it will be found that he gives the common enough Sinhalese name *Diyatanakola*. Its omission from Watts' Dictionary (so stated in the 'Flora') is due to the fact that the grass was practically unknown in India, where our other cultivated fodder grass *Panicum maximum*, Guinea grass (whose native name is, by the way, given in the "Flora" as *Ratajana* instead of *Ratatana*) is common enough. About ten years ago the then Superintendent of the Government Diary (Mr. C. Drieberg) supplied the Poona Farm with the grass for planting at Poona where it was not heard of before.

Imperata arundinacea, or "Illuk" grass, is figured in the July number of the Journal of the Department of Agriculture of Victoria, where it is also known as the Lalang or Blady grass. The following notes are supplied: "The Lalang grass is a native of all the Australian Colonies . . . . and is very conspicuous in a paddock on account of its large white flower spike. It is by no means a good fodder on account of its hardness, though stock will eat in a young state, and especially after a bush fire. It is often used with advantage for thatching. It is also useful for binding sand in moist localities." So that there is a good word for even such a pest as "Illuk," which some one facetiously remarked was a corruption of "Ill-luk" which it certainly brings to the unfortunate planter upon whose land it euroaches!

CASTOR OIL.

Some time ago we referred to the recommendation of an Agricultural expert that all backward parts of estates should be put under the Castor Oil plant, as the oil is a marketable product, while the refuse cake (poonac) is a

valuable manure. We have been collecting a small quantity of seed of the large fruited variety of the Castor from plants grown in the Colombo stock, and will be glad to give these away to any one desiring to have seeds. The variety is a fairly high shrub and rather a good shade tree.

In the *Queensland Agricultural Journal* for July we are told that 2*s.* 9*d.* per gallon is the price the oil may be expected to bring in Australia, though buyers would probably be willing to pay 3*s.* to local manufacturers, as the loss by leakage in tins from Europe is very considerable. The quotation is for lubricating not medicinal oil.

The following note about the extracting of the oil (from the *Queensland Agricultural Gazette* for June last) will be of interest:—Briefly the operations of oil extraction are by expression, by boiling with water, or by the agency of alcohol. A comparatively simple process can be tried by any one interested, and a good oil should result if the seed is of the right variety.

Fisrt, cleanse the seeds from fragments of the husk and from dust, and submit them to a gentle heat, but not greater than can be borne by the hand, which process makes the oil more fluid and more easily expressed. A whitish oily fluid is thus obtained, which is boiled with a large quantity of water, and all impurities are skimmed off as they rise to the surface; the water dissolves the mucilage and starch, and the albumen is coagulated by the heat, thus forming a layer between the oil and the water; the clear oil is then removed and boiled with a small quantity of water until aqueous vapour ceases to rise and a small quantity taken out in a phial remains perfectly transparent. The effect of this is to clarify the oil and rid it of volatile acid matter. Care is necessary not to carry the heat too far, as the oil would acquire a brownish colour and an acid taste.

In India the seed is first shelled and then crushed between rollers, placed in hempen cloths and pressed. The oil is afterwards heated with water in a tin boiler until the water boils. This serves to separate the mucilage and albumen, the product being then strained through flannel and put into canisters. Any oil-press would suffice for extracting oil for ordinary purposes, and by decantation and some process of filtration it could be purified. Cheap wooden rollers would serve the purpose, and these could be driven by a horse-gear, after the fashion of driving the old horse-mills for crushing sugar-cane.

We should very much like to see Castor oil cultivation given a fair trial on a few acres of land that are found unsuitable for the regular crops of the country, so as to prove the value of the produce, both oil and poonac, per acre.

THE BULRUSH MILLET.

Pennisetum Typhoideum, as the plant is scientifically named, is also known as the Bulrush Millet, Cumboo or spiked millet, and in many parts of India as Bajri or Bajra. In the Bombay Presidency the area occupied by it is considerably over 4 million acres, and in many parts forms the staple food of the people. In the Madras Presidency the area under Kambu (as it is there called) is nearly $2\frac{1}{2}$ million acres. In the North-Western Provinces and other parts of the Indian Peninsula it is also grown to a large extent.

The following are the uses of the plant as enumerated by Dr. Watt, Reporter on Economic Products to the Government of India:—

Food.—The grain is chiefly used by the lower classes, and in many parts of India it is their principal food. It is supposed to be heating, and is, therefore, in Northern India consumed mostly in the cold weather. The flour, made into bread or cakes with butter milk is the staple food of many, and is more nutritious than rice. In Khandesh it is often eaten with butter and various condiments by the well-to-do. The following is the composition of a sample of the unhusked grain according to an analysis made by Professor Church:—

Water	11·3	%
Albuminoids ...	10·4	,,
Starch	71·5	,,
Oil	3·3	,,
Fibre	1·5	,,
Ash	2·0	,,

The nutrient ratio being 1: 7·6, and the nutrient value $89\frac{1}{2}$. The grain contains ·42 per cent of potash and ·68 per cent of phosphoric acid.

Fodder.—It is occasionally grown for green fodder, but the stalks, after the grain has ripened, are more or less utilized as fodder in various parts of India. Sometimes the straw is carefully stacked and preserved to be chopped up and given to cattle with green fodder.

In an interesting report on South Indian Fodders, with analyses by Dr. Van Geyzel, M.B., C.M., F.C.S., F.I.C., Chemical Examiner, Madras, the following is given as the composition of Cumboo straw: Moisture, 7·07; Ash, 8·04; Fibre, 37·63; Fat, 1·31; Carbohydrates, 43·65; Albuminoids 1·94; Nitrogen in non-Albuminoid compounds, ·33; Albuminoid ratio, 1·44. If the nitrogen found in the non-albuminoid compounds be calculated in the usual way as albuminoids and the nutritive relation worked out, the result shows that Cumboo contains 4·02 albuminoids and its albuminoid ratio will be 1·21. In Trimen's Flora we read that Cumboo is cultivated in the hot region. He describes it as a widely cultivated millet in the old world from Italy to China, especially in Africa, and records the interesting fact that the grain, like Canary seed, was used for feeding the carrier pigeons which were employed before the introduction of the telegraph in carrying news from Galle to Colombo.

POULTRY NOTES.

We have received a copy (September) of the *Indian Fowl Fancier and Farmers' Journal* edited by H. E. Abbott. It is a useful publication which supplies a decided want, and is neatly got up.

The September number of the above is largely taken up with Ceylon news and notes, dealing chiefly with the Shows that took place last August. The idea of the Ceylon Poultry Club adopting the Indian Fowl Fancier (with pages devoted to Ceylon) as its official organ is an excellent idea. It is no easy matter to run a monthly magazine with anything like success.

The *Adelaide Observer* has the following amusing note about the poultry tick and bug:—

As there is some diversity of opinion with reference to the poultry tick and bug, some holding that they are different, while others agree that they are the same thing, it was thought an opportune time to discuss the matter from a scientific point of view at a meeting of practical poultry men recently held in Adelaide, and a well-known scientific man was asked to give his opinion upon the matter. He stated by explaining that the big mother tick was the bug, but he got no further as he was unable—owing to the sounds of laughter—to proceed even to tell what was his opinion of the father tick.

Fowls like newly-cut grass; give them all they want of it. The clippings from a lawn-mower are just the thing for them. Dry chillies broken up may be fed to poultry in moderate quantities with good results, but do not make their food too strong with it. Thorough fumigation of poultry houses can be carried out by wetting sulphur with kerosene and setting fire. The poultry should of course be out of the way and the house well secured and so left for about two hours.—*Sunday Times* (Perth).

For egg production crushed bones, plenty of lime and clean gravel must be always at hand. Cooked coarse meat chopped up might be given twice a week, and an occasional allowance of green food especially if birds are kept in confinement. A box or barrel of oyster shells, broken up small enough for the hens to swallow should be on hand. A pound weight sprinkled every day will be found none too little for 20 or 25 hens.—*Ibid.*

Here is a recipé for chicken cholera:—2 oz. pulverised capsicum; 2 oz. pulverised asafetida; 1 oz. pulverised rhubarb; 6 oz. spanish brown; 2 oz. flowers of sulphur. Mix thoroughly and keep in an air-tight can. For use take a teaspoonful and mix with the mashed food, and feed twice a day till all symptoms of the disease disappear.

A remedy for scurvy legs is to apply, at the earliest possible stage, a mixture of sulphur and lard, allow it to remain 24 hours and wash thoroughly with strong suds made with carbolic soap.

It is interesting to read an account of the laying competition organised by the *Daily Telegraph* and conducted at Haukesbury Agricultural College, under the supervision of Mr. D. S. Thompson, the Poultry Expert. We can only summarize the results by saying that the Silver Wyandottes led all through, except for a day or two when they were passed by the white Wyandottes at the beginning and by the Buff Orpingtons towards the end.

Mr. T. J. McCue, the Poultry Editor of *Station, Farm and Dairy*, in answer to a correspondent who enquires what is the best breed for a small run for eggs and table purposes, replies: I would recommend Wyandottes or Orpingtons. Both are good layers of a fairly-sized egg, and the chicks grow fast if cared for properly.

TANNING MATERIALS.

(*Continued.*)

In our last issue we considered the tan-producing trees belonging to the order Combretaceæ.

Another order which is characterised by tan-producing trees is Rhizophoraceæ or the Mangrove family. Of these we have a number occurring in Ceylon, and these we shall proceed to consider:—

Rhizophora mucronata (Sin. Kadol.)—This tree occurs in most of the salt-water estuaries and backwaters round the whole coast. Analyses of the bark give rather a variable composition, showing how important it is to secure standard qualities. Thus, Prof. Dunstan found as little as 4·13 per cent. of tannin in the dry bark, and Mr. Hooper as much as 29·50 under similar circumstances. Dr. Busse found in the dried inner bark of East Africa 47·99 per cent of extract, consisting of tannin and brown colouring matter. Extracts of bark gave on examination from 33·5 to 75·94 per cent tannin in the dry substance. The extract from the bark of this tree is considered better than of other mangroves for the purposes of the cotton dyer, but Prof. Hummel considers it far from being equal to the best cutch sold for that purpose. Bark is exported to some extent from Ceylon to India.

Rhizophera mangle (Candelaia).—This tree, also known as *Kadol* in Ceylon, occurs though less commonly with *R. mucronata.* A sample of Trinidad bark examined by Messrs. Hunt and Mackay of Leeds gave tannin (by hide powder) 25·10; while the extract or concentrated juice was found to contain 58·30 tannin (by hide powder). The bark of this is also exported from Ceylon to India.

Bruguiera gymnorhiza.—This is one of the species common in the mangrove forests all round the coast. In French Cochin China an extract is made from the bark, and this is sent into the market as a substitute for catechu under the name of *Cay Day.* Dr. Busse obtained 44·71 to 53·12 per cent of tanning extract from samples of this bark from East Africa. Analyses of bark by Prof. Dunstan gave 12·77 of tannin in dry bark; by Mr. Hooper 15·90 tannin and (in dry bark) 15·50; by Dr. Leather 14·81 tannin. While analyses of

extracts by Mr. Hooper gave 57 tannin or 71·7 (in dry bark); and by Dr. Leatter 53·42 to 56·33 tannin and (in dry bark) 64·2 to 60·7.

The wood yields a poorer extract, for while bark prepared at Dehra Dun extracts yielded 33, 46, and 51 per cent by Lowenthal's process, two samples of wood extract gave only 13 and 16 per cent tannin. Bark exported to some extent from Ceylon to India.

Ceriops Candolleana. (Tamil Chirukandel)—This tree is also common in the coastal mangrove forests, as at Negombo and Chilaw. There is said to be a steady demand for the bark in the Calcutta market, where 10,000 to 12,000 maunds are sold annually. The bark gives a considerable large amount of tannin, and gives a deep red colour—with water. From samples of bark examined the percentages of tannin in certain samples from Bengal reached 27·24, equivalent to 31·56 tannin in dry bark. Mr. Hooper also found as much as 26·20 of tannin or 30·20 in the dry bark. The extracts from the bark of this tree have been for some time in the London market. The percentage of tannin in the exact (taken from analyses by Prof. Dunstan, Mr. Hooper and Dr. Leather) is found to rise up to 69·83 and (in dry bark) to 86·95, while extract prepared at Dehra Dun shewed a percentage of 90 of tannin.

Extracts are, as a rule, made by evaporation in the ordinary still, but we are told that "in Singapore, Borneo and Ceylon, factories have been erected for the purpose of preparing cutch substitutes." In Ceylon a special concession was made by Government to a company working in the Eastern Province, but as far as we know the operations there have now been suspended.

Ceriops Roxburghiana.—This tree differs little from the last in habit and foliage. The bark is usually found in the market in the form of reddish-brown quills, and its decoction gives a deep reddish colour and astringent reaction. The ordinary bark examined by Mr. Hooper showed 19·20 per cent tannin. The tannin in the dry bark was found by Mr. Hooper to be 21·10 and by Prof. Dunstan 23·54. A sample of extract from the first mentioned showed 53 5 tannin and (from dry bark) 62·1 per cent. Mr. Gamble of Dehra Dun writes that in practice the barks of *C. Candolleana* and *C. Roxburghiana* could probably be used indiscriminately.

Kandelia Rheedii.—The bark of this tree was found to contain by Prof. Dunstan 11·99 tannin in dry bark, by Mr. Hooper 12·20 tannin and (in dry bark) 13 40, by Dr. Leather 14·54 tannin, but instances have been known of a percentage of 20 and even 27 per cent of tannin occurring. The extracts on the whole are said to be less satisfactory than those from Ceriops bark, and yield about half their weight of tannin calculated in the dry substance.

Carallia integerrima. (Sin. Dawata).—This is a common tree about the sandy lands in the northern part of Colombo. The tree shows its relationship to the mangroves by the large tufts of aerial roots it sends forth from the trunk and branches.

A specimen of the bark received in 1897 from Pegu afforded only 1·5 per cent of tannin. The bark was about half an inch thick and the ash content amounted to 15·2 per cent. It would thus appear that Dawata bark is of poor quality for tanning.

(*To be continued.*)

NATURE STUDY.

At a recent meeting in London the Duke of Devonshire said:—It is frequently said, and I am afraid with a certain amount of truth, that education as at present conducted is not so fully appreciated in rural districts as I am happy to say it is in towns. If this be so, we have in nature study the means of bringing rural education into the same relation to rural life as to the industries of urban localities. If at present the village labourer takes interest in his children's education, I am afraid it is only too often with the object of enabling them to escape from the drudgery of his own existence, and to exchange it for the more exciting atmosphere of the towns. And if that feeling has its effect on the agricultural labourer, we cannot wonder very much if some country gentlemen and many of the farming class have not hitherto viewed education with any great enthusiasm. At the Board of Education we have long been conscious of this difficulty, and have been most anxious to find some means by which elementary instruction should be brought into closer relation with rural life, and that all classes connected with the cultivation of land should come to feel that education was not antagonistic, but, on the contrary, conducive to the interests of agriculture. To attain this end we could not do much without external assistance. That external assistance has come in this new departure. An influential committee has been formed, including a large number of members of Parliament and county councillors, with the object of drawing up proposals to improve the character of the instruction given in rural districts. The resolutions drawn up were presented to the board, and were accepted with great pleasure and satisfaction by Sir John Gorst and myself. (Cheers.) We have also endeavoured to take some practical steps in the direction of this change. But one difficulty was to find teachers sufficiently conversant with natural science and the objects of country life to impart this new form of instruction. The department now requires that nature study, in its practical and experimental form, shall be taken as one of the subjects of the teacher's certificate examination. In that we have been most cordially assisted by the great majority of training colleges and by many of the county councils. We hope that this new departure may do something to increase the interest felt in schools in rural districts. It must not, however, be supposed that nature study is to be exclusively confined to country schools. I conceive the idea which underlies this movement is that, while there is much to be learned from books, and it would be foolish to neglect those stores of knowledge acquired by those who have gone before us, there is also much to be learnt, not from books, but from the facts of nature; and while the study of books is often only an exercise of the faculty of memory, and may leave almost untouched other faculties of the mind, on the other hand, the intelli-

gent study of nature necessitates observation, and provides a mental discipline that cannot fail to develop those powers of the intellect which it is the object of true education to discover, to cultivate, and to strengthen. (Loud cheers.)

NATURE STUDY LESSONS.

SECOND COURSE IN THE STUDY OF PLANT LIFE.

THE STEM.

From the position of the stem it would strike you that it is a means of communication between the roots and the leaves of plants (the branches large and small being divisions and subdivisions of the stem). But—you might well ask—what is the nature of this communication, and how is it carried on? Before answering this question, however, I must tell you something about the structure of the stem. Now I do not mean to explain to you its ultimate or minute structure, for if I tried to do that I would probably perplex you, and that is just what I want to avoid doing. The study of minute structure in plants (or animals) is a special study known as Histology, a knowledge of which is not necessary for you to understand the functions of the stem. Indeed, I do not want you to acquire a special knowledge of Botany, but to know enough of the plant and the functions of its various parts or organs to enable you to understand its wants so as to be in a position to supply those wants.

The stem—and in fact every part of a plant—is made up of minute *cells* which differ in size, shape and other characters, and these cells combine in various ways to form what are called *tissues* or cell masses, which of course differ according to the character of the cells that go to form them. There are also associated with tissues, *vessels* which you might think of as minute tubes each formed out of two or more cells.

The structure of the stem is characterised by a more or less definite arrangement. Let us take the stem of the mango as representing a very large class of plants. If you examine the stem of the mango, cut right across, you will be able to distinguish the *bark* on the outside, next to it the *wood* occupying much the larger space, and, generally, in the centre, the pith. But between the bark and the wood is a very thin but very important layer of cells forming what is known as the *cambium* or growing layer, which has the power of forming wood on the one side and bark on the other, and so enabling the tree to grow in thickness. Similar active growing tissue occurs at the ends or growing points of stems and branches enabling them to develope in length or height.

See if you could distinguish in a cross section of a mango or rose stem a number of radiating lines running from the pith to the cambium. These are the *medullary rays* which serve as a means of communication between the various parts.

The stem of the cocoanut as representing another large class of plants is rather different in structure. Here the tissues do not go to form successive layers of bark, cambium, wood and pith, but, when examined on the cross cut, shows a ground work of soft tissue through which the harder potions are irregularly scattered. The so-called bark is really of the same character, but contains a very much larger proportion of the hard tissue.

It is the hard or woody parts of a stem that perform the function of conveying fluids (and all plant food must be in the fluid condition as I will explain later on) from the roots to the leaves. You have all, no doubt, heard the expression "sap-wood," and can probably distinguish the sap-wood from the "heart-wood." Well, it is the sap-wood or fresh outer wood that carries on the work of conveying fluid matter upwards. The inner harder dried wood is what affords us timber.

You must know that there is a good deal of water passing out in the form of vapour through the leaves. (I will tell you more about this when we come to speak of leaves.) Now the constant evaporation from the leaves tends to bring about an upward current of fluid through the stem. This general explanation is, I think, sufficient for you to understand one of the important functions performed by the stem, viz., the conveying upwards of liquid plant food from the roots to the leaves.

Now, I have no doubt, you are ready to put me another question, and that is—what happens to the food materials that are conveyed to the leaves? To fully explain this I shall have to tell you a great deal about the functions of leaves, concerning which I have yet to speak to you. But this much I will tell yow now—the plant food taken up by the roots and passed up by the stem is prepared, or made fit for the use of the plaut in the leaves.

So far as we know, therefore, the course which the ascending sap, as it is called, takes is through the cells forming the younger layers of wood, the vessels assisting when the current is rapid; while the prepared sap is generally believed to descend and circulate through the inner layers of the bark. [The bark I should tell you consists really of three layers which can be well seen in the "shoe-flower" stem as (1) an outer "skinny' layer, (2) a middle greenish layer, and (3) an inner fibrous layer.] If the above facts be true, then if you remove a ring of bark from the stem of, say a mango or orange tree, or bind the stem very tightly with a strong hoop, no increase of wood should take place below the ring or hoop, while a thickening should occur immediately above it,—for the reason that while the unprepared fluid sap travels upward through the wood cells, the prepared sap cannot descend below a certain point where active growth results from excessive nutriment. This is an experiment worth trying, and you should try it.

I have already told you that certain underground stems become swollen and store up

nutriment for the future use of the plant. This reserve food chiefly consists of starch, and as you know such tubers are used as food by man. As examples of such fairnaceous tubers, I may mention the potato (arthapal), yams (kondol and various kinds of "ala"), arrowroot (hulankiriya), and edible canna (butsarana). But the stems of certain large trees also store up fairnaceous matter, as, for instance, the sago palm (sow) and the kitul, sometimes called the "Bastard Sago" palm, the flour (piti) of which you are no doubt familiar with.

We may now consider for a little the uses of the parts of the stem. I have already referred to the value of the wood of certain plants as timber. We have, as you know, many excellent timbers in Ceylon, some particularly valuable and used for ornamental furniture, such as ebony (karuwala) and calamander (kalumederiya); others useful for building purposes such as jak (kos) and teak (Tékka). I need not here refer to the different uses of wood for fuel, paper-making, &c.

The bark of trees which yield tan are used for tanning or the preparation of leather; the "Patana oak" (kahata) and the common country mangrove (kadol) are instances of such trees.

Some woods yield dyes, *e.g.*, jak (kos) yields a yellow dye, and sapan (patangi) a red dye.

Many important drugs are got from the stems of plants. It is sufficient to mention one, viz., quinine, which is obtained from the bark of the Cinchona.

Some trees such as the Hal yield a valuable resin, others like the Dorana yield oil, others again (*e.g.*, Caju) yield gum. Another class of trees, to which the Indian rubber tree belongs, yield rubber.

Many trees, such as Sunhemp (Hana) are valued for the fibre they yield.

Exceptionally we find very soft and spongy stems as in the pith plant (mahadiya siyambala).

The soft succulent stems of certain herbaceous plants such as amaranthus (tampala), and Lassia (kohila) serve as vegetables.

Another very useful substance obtained from the stem is cork, but almost the whole of the cork of commerce is got from one species of oak which is found in Spain, South Italy and North Africa.

I have told you a good deal about the uses of the stem in order to interest you, but what I want you to remember is the important functions performed by the stem, as well as something of its structure; and to take advantage of every available opportunity to examine and compare the stems of plants and to study their structure and peculiarities.

C. D.

RINDERPEST.

Mr. D. Hutcheon, the Colonial Veterinary Surgeon at the Cape, where he has had better opportunities of studying this fell disease among cattle, is about to publish a pamphlet on the subject. The *Agricultural Journal of Cape Colony*, which we are indebted for the following extracts from an advance proof, says with reference to the diagnosis of the disease—often rendered difficult owing to the absence of what are generally considered characteristic symptoms, especially in the earlier stages. The temperature is usually an excellent guide, but this cannot always be relied upon, as we often get a high temperature in other diseases involving the digestive organs. For example, there are many cases of Rinderpest in which the flow of tears is not very marked, and the discharge from the nose barely discernible. There is invariably more or less of a dribbling of saliva from the mouth, but we get that associated with Redwater, also congestion of the liver, and other derangements of the digestive organs; while a violent diarrhœa, the fœces being mixed with blood and mucus, is often the accompaniment of the bowels, caused by cattle eating certain irritant bulbous plants, such as tulp. Numerous cases of acute catarrh are met with also, which simulate the symptoms of Rinderpest very closely, but the discharges from the eyes and nostrils are more viscid than in Rinderpest, while there is no flow of saliva from the mouth, and the fœces are usually normal. In all outbreaks, therefore, in which only one or two animals are affected, it is necessary to make a postmortem examination, and even then, unless the case is sufficiently advanced, the typical appearances—the yellowish-grey exudate of the mucus membranes, and the ulcerous erosions of the fourth stomach and bowels—may not be sufficiently developed to lead to a decided opinion on the case, and unless there is evidence of contagion, further developements must be awaited.

The following are the extracts we are permitted to give from the Journal referred to:—

"On viewing the carcase of an animal that has died of Rinderpest, the body is generally much emaciated, and the natural orifices are soiled with a dirty discharge, and the carcase exhales a peculiar fœtid odour. The principal and pathoguomonic lesions of Rinderpest have their seat in the mucous membranes of the digestive tract, the respiratory passages, and the urinary apparatus. The mucous lining of the mouth is congested, and covered over with a slimy mucus. It presents a bright salmon colour, but if the beast has been killed and bled before examination, this bright pinkish colour disappears. The epithelium is frequently found detached in places, leaving small ulcerated-looking spots. These are met with most frequently on the under surface of the tongue, inner surface of the lips, and on the dental pad. The mucous membrane of the fauces and pharynx is the seat of catarrhal inflammation, and covered with thickened mucus—sometimes purulent. The nasal mucous membrane is likewise the seat of catarrhal inflammation, its surface being covered with purulent mucus, and towards the openings of the nostrils, small ulcers or abrasions are frequently met with. After passing the pharynx and larynx, there is very little change to be observed in either

the trachea or œsophagus. Slight catarrhal inflammation is sometimes met with in the bronchial tubes, with collapse of some of the smaller lobules. Pulmonary emphysema may also be present, but, as Williams remarks, this is due to the formation of gases in the areolæ of the connecting tissue. But the changes in the lungs are neither constant nor pathognomonic, and are secondary as a rule. There is sometimes echymotic patches on the endocardium of the heart, and similar spots are met with, occasionally, on the epicardium, with a little fluid in the pericardial sac. On opening the abdomen, the peritoneum is congested and very frequently spotted, and there is a variable quantity of a yellow serous fluid in the peritoneal cavity. It is comparatively rare to find any pathological changes in the first and second stomachs, although a little serous infiltration is sometimes met with under the epithelial lining.

"The third stomach is generally hard, and the food between the leaves dry and caked. But very frequently, more especially if the sick animal has been allowed to drink large quantities of water, the contents of the third stomach are found quite fluid.

"It is in the abomasum or fourth stomach, and the intestines, where the most marked and characteristic changes are met with. The mucous membrane of this stomach is the seat of acute catarrhal inflammation, the sub-mucous tissue is swollen, and infiltrated with a serous effusion, especially on the rugæ or folds. The mucous membrane is also swollen, and its epithelium detached—desquamated—in patches of various sizes, leaving ulcerated sores, more particularly near the pyloris or bowel, and, where these ulcers present the appearance of dark eroded sores, with the yellow degenerated tissue resting in their centres, small petechial spots are often found studded all over the congested area.

"In the small intestines we find congestion and inflammation of varying degrees of intensity, with a muco-purulent greyish yellow exudation, in some cases covering innumerable small spots scattered all over the mucous membrane of the bowels; in other cases this exudation is found covering almost the whole surface of the mucous membrane. In more severe cases this presents the appearance of a thick croupous-looking exudate, which—in parts—forms a complete cast of the bowels.

"In such cases the epithelium is thickened, softened, and is found detached over large patches throughout the small intestines, leaving the membrane red and granular looking. Peyers, glands or patches are generally inflamed, swollen, and denuded of epithelium. The changes in the large intestines are not usually so well marked or so uniform. In many cases the inflammation is more in patches, and in the rectum the mucous membrane is often intensely inflamed, and presents a blood-streaked appearance. The epithelium is swollen, and covered over with a muco-purulent exudate, while there is more or less infiltration of the sub-mucous tissue. In many severe cases, however, the large intestines are just as seriously affected as the small, with numerous small patches of desquamated epithelium. It is a very curious fact also that many of the cases which manifest the most severe external symptoms do not show the most characteristic *post-mortem* lesions.

"The liver very often appears congested, and presents a yellowish colour of varying tints. In many of the cases, however, the liver is perfectly normal in character and appearance, and the gall perfectly healthy. The mucous lining of the gall-bladder is sometimes inflamed, especially about the base of the sac, and studded all over with blood spots. The gall presents varying shades of colour, from a deep green to almost blood red, and is often thick and curdy looking. The mucous lining of the urinary bladder is sometimes affected also in patches with a little sub-mucous infiltration, and similar appearances present themselves in the vagina of the female. It is not my intention to go minutely into all the *post-mortem* changes which may be observed in individual cases. The most marked and pathognomonic *post-mortem* appearances are those seen in the mouth and upper air passages, and in the fourth stomach and intestines.

"The medicinal treatment of Rinderpest is seldom followed by any satisfactory results. A large number of medicinal remedies were tried, such as germicides, anodynes, astringents and laxatives, alone and in various combinations. Some of these appeared to exercise a beneficial effect, but I am strongly of opinion that the varying success which attended the administration of these several remedies depended more upon the mild or severe nature of the particular outbreaks, than upon any specific action exercised by the medicine. In its usual virulent form, ten per cent. of recoveries was considered a very fair average, but in some outbreaks fifteen, twenty and up to thirty per cent. of recoveries were recorded, more particularly during the hot dry summer weather.

"In India they have had the same experience. Pease says :—'The disease in some parts of India, and notably those parts which are naturally hot and arid, where the temperature of the air rises very high, is frequently noticed to be of a far milder type than is the case more particularly in the hills, and it has appeared probable that desiccation of the virus by the great heat and dryness influences its virulence to a considerable extent—60 to 65 per cent. of recoveries may sometimes be observed in the hot districts of the plain.'

"I think there can be little doubt that dry heat does exercise a modifying influence on the virulence of the disease, but it does not altogether account for the exceptionally mild form that the disease assumes on individual farms here and there in a district where the climatic and other conditions are similar to those on other farms adjoining, where the disease presents its usual virulent character."

Be that as it may, I am of opinion that if careful statistics could be collected, it would be shown that, where the affected cattle could be properly

attended to, comfortably sheltered from the hot sun in summer, and from the cold in winter, kept away from an unlimited supply of water, and given nourishing gruel to drink, that a higher average of recoveries would follow than where a large number of different medicines are used. I do not mean to infer that medicine is useless in Rinderpest; some may modify the symptoms and alleviate the suffering, but none of the medicinal remedies that I have tried, or heard of being used, appeared to exercise any very marked influence on the course or character of the disease. The Indian Cattle Plague Commission agreed that mild laxatives in the early stages of the disease did good, and Veterinary Surgeon Thacker, who is reported to have treated 2,541 cases of the disease with great success, always gave three ounces of finely divided sulphur in two quarts of gruel morning and evening, until some slight laxative effect was produced.

"The principal methods of inoculation against Rinderpest practised in South Africa are bile and serum. The former is used both fresh and glycerinated, and the latter in the form of preserved serum, and as blood freshly drawn from a recovered animal.

"Inoculation with pure bile, either obtained from an animal affected with Rinderpest immediately after death, unless the duration of the disease has been unduly prolonged, or from an affected animal killed while in the last stage of collapse, which is usually about the sixth or seventh day of the fever, or the tenth or twelfth day after artificial infection. *This is Koch's method.* The dose recommended is 10 c.c., injected into the cellular tissue under the loose skin of the dewlap, and well rubbed in.

"Koch's instructions were to use biles of a dark green colour with a white froth, and it is generally acknowledged that these are the best, but experience has shown that biles of all shades of colour, except those which are red from the presence of blood, and those which are very thin and of a light yellow colour, may be used so long as they are clear and free from any putrid smell. 'Animals which were injected with brownish green gall containing the Simpson bacillus in pure culture, and gall of a brown colour, containing both bacteria and streptococci, became immune without the occurrence of any accidents such as abscesses.' (Kohlstock.)

"As the bile obtained from different animals may vary considerably in strength and immunising properties, all the galls extracted at one time, after being kept separate for twelve hours to see whether they remain all right, should be mixed together, so as to render them as uniform in strength and character as possible. If practicable bile should be used within from eighteen to thirty-six hours after it is drawn, unless it can be kept in ice, when it will keep sweet and effective for a much longer period; but even under such conditions, it should not be kept over four days, as its immunising properties are liable to become modified when kept beyond that period.

"Further experience indicates that the bile obtained from cattle which contracted the disease spontaneously, and is extracted immediately after death, is generally more reliable than bile obtained from cattle which are given the disease artificially, by the subcutaneous injection of virulent blood. Hence smearing the muzzle and nostrils with infective material was considered a more satisfactory method of infecting animals for bile production.

"In connection with this subject Dr. Eddington says in his Annual Report for 1897, page 67:—'That according to the recent researches of Fraser, the bile of all animals has peculiar antitoxic virtues, and he suggests that the ingress of poison by the alimentary tract is attempted to be met with, and antagonised by the bile secretion, so that the giving of Rinderpest to animals by the natural channel may—and I think probably does—stimulate bile production. Further, where infection is made through the gastro-intestinal tract, the poison must, in the first instance, act through the portal vein; while in subcutaneous infection the virus must be carried to the liver, for the most part along the branches of the hepatic artery, a most important difference, seeing that in the one case the action proceeds with regard to the hepatic lobules centripetally, while in the other case it proceeds centrifugally."

GENERAL ITEMS.

In the account of a new edible tuber in the *Agricultural Gazette of New South Wales* occurs the following passage:—"Its taste, when cooked, is very agreeable, resembling that of Japanese Crosue] or salsify, while it is richer in alimentary equivalents than either of these legumes." Whether the word Japanese qualifies the term salsify, and if so, whether the plant is a legume, we cannot tell, but the vegetable ordinarily known as salsify (*Tragopogon porrifolius*) belongs to the order Compositacæ.

As soon as tomato plants show signs of disease, they should be at once sprayed with Bordeaux mixture made up as follows:—Dissolve 4 lbs. bluestone (sulphate of copper) in water (hot water if possible) after "powdering" the bluestone, and mix thoroughly 4 to 6 lbs. of fresh quicklime with water: then mix the two and add 40 gallons of water to bring to the proper strength.

The most commonly used colouring matter for dairy produce (cheese and butter) is the vegetable extract from *Bixa orellana*, known as "annatto," which was so successfully manufactured in Ceylon by the late Messrs. Borron and VanStarrex of Crystal Hill Estate, Matale. Referring to annatto the *Journal of the Board of Agriculture* says:—"This and other yellow colouring matters of vegetable origin, turmeric, saffron, &c., have generally been considered harmless in the quantities employed, but they are being gradually superseded by coal tar yellows, the action of which on the human system is not fully known. Butter from Holland, Australia and the United States is very frequently coloured with coal tar yellows. A large number of margarines are also so coloured. The coal tar yellow most frequently employed for dairy produce and margarines is

known commercially as "butter yellow" (*Dimethylamido-azo-benzene*) and is generally supplied ready dissolved in oil, either cotton seed, rape, linseed or sesame (gingelly) oil. Tropœolines, derived from coal tar, are also coming into use.

400 lbs. weight of fowl manure is equal in value to 2,400 lbs. farmyard manure. In one ton of the former analysis showed 48·60 lbs. phosphoric acid, 48 lbs. potash and 67 lbs. nitrogen; while farmyard manure contained only 6 lbs. phosphoric acid, 10 lbs. potash and 11 lbs. nitrogen in a ton.

Rice-paper, says the *Weekly Scotsman*, is not made from rice, but from the membranes of the bread-fruit tree. This is certainly news. The rice-paper tree is well known to be *Fatsia papyrifera*, the paper being manufactured out of the pith. The famous papyrus used as paper by the ancient Egpytians, was, however, prepared from the pith-like tissue of the tall stems of a sedge (Cyperus).

In sowing cow peas, 10 lbs. will suffice for an acre if sown in drills, and 40 lbs. if sown broadcast (which is not to be recommended). The fattening value of the cow pea will, it is expected, bring it into the near future into general cultivation.

Other names for the common gram used as a horse food with paddy (know in the vernacular as "kadala") are Bengal gram, chick pea, rams' horn, and coffee pea. The plant is said to be a native of Armenia, and has been cultivated as a human food for over 3000 years. Next to cereals it forms the largest part of food in Spain, India, and Africa. The presence of oxalic acid in the clammy oxudation on the leaves makes them unsuitable for fodder. The crop ripens in about 4 months, and the yield of seed is sometimes as high as 100 bushels per acre.

Tagassrte (*Cytisus proliferus albus*), so much written about as a fodder plant, is a shrubby perennial legume. The seeds are slow in germinating and need soaking for about 24 hours. At the end of about the third year cattle or sheep may be turned into the field, and the crop will require no further attention except occasional cutting back to prevent too high growth. The leaves and twigs are said to be very nutritious, and the plant worth a trial in dry hot districts, for when once established it is practically unaffecced by draught.

The vines of the sweet potato are in some places used to make an excellent hay; while in India *Crotolaria juncea* (Sin. Hana) is grown to feed milch cows.

"What does my land require?" is a question we have been told many a struggling farmer would like to have answered, but it is not easy to give an answer. It may be obtained most readily, it has been thought, by analysis of the soil. That it is obvious must be unsatisfactory unless there is a considerable area of the soil evidently all alike in its component parts. Where the land is so mixed as it is on most parts of our coast country, any analysis can only be useful for a limited area. It has been urged that cheap analyses would be a boon to farmers; but to be useful they would have to be numerous, and would thus run away with money. Soil analysis, like mill testing, is good as far as it goes; but as the dairyman looks to his churn for proof of excellence, so the arable farmer must look to his crops for proof of the quality of the soil.

A correspondent to the *Queensland Agricultural Journal* says that warts on a cows' teat could be cured by the application of molasses twice a day.

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FOLIAR PERIODICITY IN CEYLON.

BY HERBERT WRIGHT, A.R.C.S., F.L.S,

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THE subject of foliar periodicity in the tropics is of especial interest (*a*) in virtue of the assistance it gives to the study of the histological differentiation of the secondary xylem, (*b*) in consequence of the plants having less resistance than in temperate zones, and (*c*) because erroneous conceptions of the scarcity of deciduous tropical trees exist in the minds of many botanists.

The high temperature and humidity of the air in most parts of Ceylon is such as to allow nearly continuous growth of the arborescent vegetation. In consequence of this, there is no period analogous to the winter of a temperate zone when almost every species becomes leafless and remains so until the spring time arrives. The majority of the trees in Ceylon are of an evergreen nature, and even in the deciduous forms there is considerable irregularity in the periodicity of leaf fall and production.

Deciduous Trees.—In Ceylon, there is no relationship between deciduous and allied species. The same genus may or may not contain deciduous species, or as in the genera Terminalia, Ficus, Sterculia, Stereospermum, and many others, there may be a very large percentage of the species deciduous. Some natural orders, as for instance the Sapotaceæ and Ebenaceæ, are peculiar in that only one or two species are other than evergreen, and not a single natural order can be quoted which has a high percentage of deciduous species. Neveretheless, though this investigation is quite young, I have obtained nearly *200 species* of Ceylon trees which pass through a deciduous phase at recurring periods of time. It is worthy of note that though different specimens of the same species show every variability in the period of time at which they drop their leaves and produce new foliage, yet the same tree passes through this phase at exactly corresponding times from year to year.

In studying the behaviour of our deciduous trees the most usual conclusion is that no law and order prevails, and any tree drops its leaves how and when it chooses. There are, however, certain features which point to a climatic response, and others which indicate that the personal or interval forces are the chief agencies at work. It can be definitely stated that the majority of our deciduous species show a response to climate, in so far that they do, in climates similar to that prevailing at Peradeniya, drop all their leaves and remain leafless during our hottest and driest season. This hot dry period extends from January to April or May, and the leafless trees of Bombax malabarium, D.C., Eriodendron anfractuosum, D.C., Spondias mangifera, Willd., Stereospermum chelenoides, D.C., Ficus Arnottiana, Miq., Derris robusta, Benth., Careya arborea, Gaertn. Ficus religiosa, L., Cratævæ Roxburghii, Br., and very many other species, give a characteristic barren appearance to the arborescent vegetation. Very many species undergo defoliation, and this does not occur during the dry part of each monsoon but only during the time stated. The deciduous trees seem, therefore, only to recognise one hot dry period of three to four months as against the alternating dry and wet months of the remainder of the year. Further, every tree of Terminalia Catappa undergoes a complete change, of leaf during the dry part of each monsoon, and other species, I suspect, undergo foliar repletion twice every year. In addition to these we have some species, not native, which though they drop all their leaves and regain complete foliage at one time of the year, also suffer partial falls and productions at other times of the year. Pithecolobium Saman, Benth.; Stereospermum chelenoides.

Instances of acclimatisation are well known, but there are also some species which do not appear capable of readily accommodating themselves and

drop and produce leaf during any month of the year. This is characteristic of Cedrela Toona, Roxb., planted in the upcountry and a native of Australia.

There are some species which though in the Peradeniya districts are quite deciduous, yet in the more equable climate of Java are quite evergreen.

That the climate of Ceylon has a decided influence on the periodicity of the deciduous species is obvious if one leaves the Peradeniya district in May and proceeds to the Northern parts of the Island where there is very little rain in the S. W. monsoon, and where the weather from January to October is relatively dry and hot. The defoliation and foliar repletion has been considerably delayed in the Vavoniya and Mannar disiricts compared with Peradeniya, the species common to all districts dropping their leaves at times which differ by many weeks and months. In the northern districts so long as the plant drops its leaves during any of the eight or nine months, the same climatic advantages, if any, will accrue.

It may therefore be concluded that the variation which occurs in the temperature and humidity of the air in Ceylon is so great that it exerts a decided influence on the phenomenon of defoliation of many of our species. The climatic conditions in Ceylon are not equable enough to allow the plants to continue their development along a chance line, and botanists desirous of studying the personal equation of plants should select a more equable area.

PERSONAL EQUATION.—Though the climatic effects are obvious on many of our species, there are several trees which behave in a manner indicative of personal or interval factors being at work.

Many species drop their leaves and regain full foliage at a time which appears decidedly disadvantageous. Many retain full possession of their foliage or put forth the whole of the young tender leaves at a time when the physical conditions favour maximum transpiration. These species may be less plastic to the climatic forces, or it may be that they can achieve their ends in opposition to still more severe external forces.

If one selects trees of Lagerstrœmia flosregina, Retz; Bridelia retusa, Spreng; or species of Canarium or Palaquium, he will find that though they exist alongside each other under conditions which are physically identical, yet the time of fall of old leaf, production of new leaf and of flowers differs considerably in specimens of the same species. In the first mentioned species, the variation is a question of months, and to see members on the same plot, dropping their leaves when others are quite bare, others in full old leaf, and others in full new leaf and flower impresses one with the significance of the internal forces.

Again there are species which undergo defoliation at approximately the same time of the year though they are under very dissimilar climates, and one is led to infer that foliar periodicity is inherent and asserts itself no matter what external forces are at work. Many species drop their leaves and remain bare during a period of wet cool weather when the transpiration is probably at a minimum. This occurs at Peradeniya with trees of Albizzia procera, Benth., and Pterocarpus echinatus, Pers; during the dull moist months of June and July. The periodicity would here appear to be inherent, though there is the possibility that these plants have, in the migration of species, found themselves at a place where the climate is not in harmony with their original periodicity.

The feature which impresses a resident in Peradeniya is undoubtedly the great irregularity in the foliar periodicity of the different trees. It would be very difficult to draw general conclusions as every tree has its own peculiaritie. There is not a month in the year when all the trees are in ful foliage, and this can only be explained when we possess a better knowledge of the internal forces at work in every species.

The most important point, however, rests in th fact that many of our markedly deciduous tree at Peradeniya and still more so in the northern districts of Ceylon, remain bare only for a part of the hot dry, season, and perhaps when the temperature and dryness of the air is at the maximum they burst out into full tender foliage. The output of leaves at any time necessarily occasions increased transpiration, but when this occurs at our hottest and driest time the transpiration is probably at the maximum. It is therefore very difficult to correlate the deciduous phase with the theory of checking transpiration in every instance, and in these cases we must look for other forces which are probably internal. *e g.*, Stereospermum suavolens D.C., Spondias mangifera, Willd., and Aziadirachta indica, A. Juss. We will now proceed to discuss the significance of foliar periodicity and the assistance it gives towards a true interpretation of the histological differentiation of the secondary xylem.

Complete defoliation and foliar repletion usually results in the differentiation of rings of growth in the wood of the stem. In temperate zones the phenomenon is annual, and when such is the case, each ring of growth represents one year of time.

In Ceylon and the tropics generally the fall of leaf and production of new foliage is often more than once per year, and is further subject to variatious according to the internal requirements of the particular plants. It is therefore obvious that at least a knowledge of the exact periodicity of every species must be at hand before we can interpret the time value of the rings of growth.

For convenience we may first describe the periodicities of trees belonging to the *deciduous* class.

The sapling stage, often including the first few years of the plant's life, is reported to be of continuous growth, but in many species, notably Eriodendron aufractuosum, defoliation occurs during the first year and a ring of growth is presented in the stem. In species where there is no such differentiation the central wood must represent an unknown number of years. In most of our mature trees the foliar repletion occurs once per year, but in others such as Terminalia Catappa, Stereospermum chelenoides, Pithecolobium Saman, it occurs oftener, and each period of foliar activity must needs be represented in the stem. Many trees undergo foliar depletion at irregular intervals of time, probably as a result of successive years of drought or purely personal reasons, and in each case a complete knowledge of the life history of the plant is necessary before the differentiations in the xylem can be explained.

Then again I have seen Portlandia grandiflora completely defoliated by an insect as soon as it came into new leaf, and several weeks were required for a complete renewal to be effected. If my information is correct that tbis tree undergoes this cycle every year, the rings of growth should be double those of an undisturbed tree of the same species.

Similary thero are certain trees of Bombax malabarium at Peradeniya which are completely defoliated by the ravages of the flying foxes which annually visit the district. These animals appear after the trees have completed their annual output of leaves and remain until all the foliage has been devoured ; by this time the other trees of this species are just beginning to drop their leaves and a curious sight is then presented. Those trees which have been defoliated by the flying foxes now burst out into new leaf for a second time that year, and as thi goes on from year to year, a comparison of th rings of growth in the stems of such trees wi those which are never thus defoliated should pro highly interesting. Probably many other trees suff defoliation from like causes and it is obvious th a knowledge of the life history of each plant necessary before the time-value of each ring of gro can be determined.

Now consider the *evergreen* trees. For our purposes an evergreen tree may be defined as one which never becomes even partially bare so long as it is free from disease. There can be no sharp line between trees belonging to tho evergreen or deciduous classes.

The evergreen trees are continually putting on new leaf, and though the older leaves gradually fall off, the nett result is usually an increase of foliage from year to year.

The young trees usually put on new leaves at a successively increasing rate from year, to year, but when mature a regularity in output often asserts itself. In a large number of our species the foliage is added at one or more times every year, and in such *e.g.* Mangifera indica, L., definite rings of growth are produced every year. The output of new foliage leads to an increased transpiration, and this may or may not lead to the differentiation of a ring of growth. The trees which show an annual output of leaves at a particular time are invariably mature and flowers follow in the axils of the new leaves. In young, non-flowering evergreens, however, the foliage is often added in two parts, one in the N.E. and the other in the S.W. monsoon. Evergreens characterised by such a bi-annual foliar periodicity are comparable to the deciduous Terminalia Catappa trees, and the rings of growth in them probably number more than one per year. There are, however, a very large number of evergreen trees which have no fixed foliage periodicity but put on new leaf every week or month of the year. Among these we have several species of Eugenia, Artocarpus and Cinnamomnm, and numerous others, the rings of growth of which, when present, require a deal of consideration before a correct elucidation can be given.

Finally, there are evergreen trees which though they produce a large number of leaves at a particular time each year, are continually putting forth new leaf buds during the remaining months of the year. It is further conceivable under equable physical conditions, for the same tree to change its mode of leaf production from time to time, in which case a knowledge of the personal equation of the plant would be of the utmost importance.

The point which we have to notice is, that, providing there is a special period at which the evergreen or deciduous trees put forward their leaf for the year, this will result in an especial amount of transpiration for that period. This is usually followed by the differentiation of large lumined thin walled tracheal elements, and each ring of growth thus established is a record of past foliar activity.

The tendency is to produce a very distinct ring of growth in those deciduous trees which are bare for very long periods, though this by no means prevents very slow growing evergreens from producing rings of varying significance. There are, however, many deciduous trees which show very poor rings of growth, and on the other hand evorgreen trees with very pronounced rings in the secondary xylem.

This brings us to the other factors which determine the significance, and in some cases, perhaps, the actual formation of rings of growth in our tropical woods.

These factors are

(1) Rate of cambial activity.
(2) Independent effect of a hot dry climate.

RATE OF CAMBIAL ACTIVITY.

An erroneous popular notion exists that in Ceylon the deciduous trees are usually of more rapid growth than the evergeens. This probably has its origin in the fact that the deciduons trees which are most conspicuous are the plentifully distributed members of the Malvaceæ and Euphorbiaceæ which attain enormous dimensions.

No such relationship exists, however, and the rate of cambial activity is of great variation in trees of both classes.

On the one hand the quickest growing tree in Ceylon is Albizzia Mollucana, an evergreen, while quick growing trees such as Melia dubia and Bombax malabarium are markedly deciduous. On the other hand the Sapotaceæ and Ebenaceæ include some of our slowest growing trees and though the majority are evergreen, there are a few which are deciduous; similary slow growing trees in the form of Bridelia retusa, and Crataevæ Roxburghii are decidedly deciduous. Hence no definite relationship exists in this connection.

Nevertheless the rate of cambial activity is an important factor in determining the significance of the rings of growth, and an active meristematic layer is probably the cause of the rings being more prominent in a quick growing evergreen than in a slow growing deciduous tree.

Consider first the rate of cambial activity in tho deciduous plants. Here we will consider trees which are decidous at approximately the same time of the year for about the same length of time. Our best examples of quick growing trees are Bombax Malabarium and Eriodendron aufractuosum. In these species the rings of growth are very conspicuous and may measure several inches in diameter.

Crataevæ Roxburghii is a species characterised by a slow rate of cambial activity, and the stem does not attain a diameter of six inches in twenty years. The rings of growth are here very inconspicuous though the tree is bare for four to five months every year; in this species the leaf fall takes place at a remarkably slow rate, the discoloured leafless first beginning to drop on 26th August, though the tree does not become absolutely leafless until the middle of October each year. Similarly the output of new leaf proceeds at a very slow rate, and consequently the rings of growth are inconspicuous.

A complete list of plants can be quoted to show that the significance of the rings of growth in stems of deciduous trees is in proportion to the rate activity of tho vascular cambium, providing other conditions are the same.

Similary with the evergreen trees which put on new leaf during the same months of the year, moderately quick growing trees such as Mangifera indica, show definite rings of growth; whereas our slow growing species Palaquium and Diospyros (trees which sometimes do not exceed a diameter of six inches in 60 years) the rings are very poorly defined.

The importance of the rate of cambial activity is best realised, however, if we compare the rings of a moderately quick growing evergreen and a slow growing deciduous tree, say Mangifera indica and Crataevæ Roxburghii; for though the latter is bare for so very many weeks every year, its insignificent rings cannot be compared with the broad bands in the wood of the former.

The independent effect of climate is very difficult to determine since the significance of the rings of growth is in part a consequence of additional factors, viz., rate of cambial activity and foliar periodicty, which it is impossible to eliminate. The ideal conditions would be, where a hot drought of three or four months is followed by continuous rain for the remaining eight or nine months, and evergreen trees having no seasonal periodicity or a deciduous tree undergoing complete defoliation and repletion in the middle of either period of drought and rain. Trees approximating to the former slass are to be found in certain Cinnamomum species, and of the latter class in Terminalia Catappa, though neither of these nor the climate in Ceylon are in exact accord with the theoretical condition desired.

Nevertheless, an evergreen tree having no fixed periodicity but continually putting forth a regular supply of leaf when subject to such a climate would provide good material for determining the part which a strongly marked climate plays in the

significance of the rings of growth. In the deciduous trees which undergo foliar repletion in the middle of the drought and rainy seasons the rings of growth would probably be more enhanced when produced in the midst of the hot dry season when transpiration was at the maximum.

Allowing that the above results may be logically expected, a number of interesting points crop up for consideration.

In the first place we have to realise that perhaps a definite histological differentiation can be effected in the secondary xylem purely in consequence of the excessive transpiration occasioned by a period of excessive drought, which may be eccentric or recur constantly from year to year.

In the second place, if the time of foliar repletion for any tree coincides with the only hot dry period of the year, as it very often does, the excessive transpiration which will most probably occur will be met by the differentiation of trachcal elements of greater width than those produced during the rest of the year when transpiration is reduced. The reduced transpiration is a consequence of the air being cooler and more moist and the leaves becoming cuticularised. Hence the enhancement of the rings of growth in consequence of the above coincidence.

This has an important bearing on the relative significance of the histological differentiations according to the time when the plants undergo foliar depletion and renewal. If, for instance, Pterocarpus echinatus, instead of putting out its new leaves during the cool damp month of July, it had to do this in the middle of the hot dry month of March, the ring of growth would probably be considerably enhanced. Similary the significance of the rings of growth would be reduced if those trees which now undergoes foliar repletion in March were to do so in July. Hence we are bound to conclude that the significance of the rings of growth of trees which put on their new leaf when the air at its maximum temperature and dryness is duo in part to the increased transpiration then occurring.

There are other interesting branches of this subject such as (*a*) the relation of leaf to flower production, and (*b*) the order of defoliation to direct light when trees are under open or close canopy or under partial shade, but as we are here confined to the relation of foliar periodicity to the xylem differentiation they need not be here discussed.

The most valuable facts will be obtained by studying the behaviour of selected trees from year to year and examining the tissues which have been produced during the periods of observation. The study was commenced while I was engaged as Scientific Assistant to the Director, R. B. G., Peradeniya, and I take this opportunity of expressing my gratitude to the numerous friends who have, and are still assisting me in this work.

ANNUAL REVIEW OF RUBBER MARKET FOR 1901.

KRAMRISCH & Co's. (LIVERPOOL AND LONDON) ANNUAL REVIEW OF THE RUBBER MARKET FOR THE YEAR 1901.

During 1901 the Rubber Market has not been characterized by heavy or exceptional fluctuations; it was again not a particularly satisfactory one for holders and importers of the leading grades, and although trade remained exceedingly active throughout the year, the values of all grades of Rubber at the close are less than a year ago, and Fine Para shows a further recession of 3d. per lb. and other grades in proportion. The bulk of the stocks of Mediums has gradually been exhausted, although it must be admitted that the prices realised were exceptionally low and showed an enormous loss to the importers or holders, and even the more recent imports were disposed of at prices which not alone showed no profit, but in most instances the prices realised show a considerable loss. The imports of important Medium grades have fallen off considerably, and as the enquiry has increased for same we do not anticipate a further appreciable decline in values, and one ought certainly to advocate the encouragement of a substantial increase in the imports.

As regards the quality of Para Rubber, considerable grievance was again cause by the want of care in the proper selection of these grades, especially from the Island districts, and this has led to numerous disputes amongst contracting parties. Trade in Great Britain and with leading Continental Rubber works was was fairly good and the stocks of raw material at the factories are not large, and in spite of the fact that deliveries have been exceptionally heavy, the reported consumption of Fine Para exceeds that of previous years. The American market showed the position there not to be so strong except for the first few months, but generally speaking the Rubber trade has been busy and the only important speculative stocks are held by one leading American house, whose position at the close of the year was considered very precarious visible supply now of Para and Peruvian is 4,618 tons against 4,100 tons last year. This includes America with a stock of 2,005 tons against 1,200 tons last year.

Should the demand for Para Rubber continue good, the statistical position at the end of 1901 is certainly a very healthy one. The total for the year's crop (from July 1st to December 31st) amounts to 13,680 tons, this means an increase of 2,400 tons, while against this the total increase of the visible supply gives us only about 480 tons, thus about 1.920 more tons have gone into consumption, this despite the fact that it is well known that the "invisible" supply is exceptionally small. Although grave financial difficulties were experienced by many holders of Rubber, the position of the Rubber market is fairly sound, and with constantly increasing consumption, Rubber must be considered very reasonable at present quotations.

PARA KINDS.—At the beginning of the year we had to record a brisk enquiry for Para grades, and business on a large scale resulted. but, owing to continued "bear" operations, prices quickly exhibited an important recession, and while Hard Fine Para was quoted at the beginning of January at 3s. 10½d., Soft at 3s. 9d., Negroheads, Scrappy at 2s. 9½d., Island at 2s. 1¾d., Cametas at 2s. 4d., Peruvian Ball at 2s. 7½d., and Slab at 2s. 2d., prices declined rapidly during the latter portion of the first month, and sales for forward delivery at a marked decline were done on a large scale, with the result that prices for Para grades receded about 3d. per lb. by the end of the first three months. In America Fine Para was then sold as low as 3s. 6d., Scrappies 2s. 6½d., Island 1s. 11d., Ball 2s 4d., and Slab 1s. 11d. per lb. We then began to receive the first advices from Para of probable short receipts, and some important buyers partly relying upon these reports bought large quantities, thereby causing considerable briskness; this improvement was actively maintained for a few weeks, and as high as 3s. 10d. to 3s. 11d. was paid for Fine during the middle of April. Other sorts were 2d. to 3d. per lb. dearer. Soon afterwards, however, the market again showed signs of weakness, the demand being somewhat dragging, and in July Hard Fine was quoted at 3s. 8d., Soft 3s. 6d., but a temporary reaction in August resulted in quotations again reaching 3s. 10d. to 3s. 9d. We have then had irregular declines of 2d. per lb., and in November Hard Fine was as low as 3s. 5¾d., Soft 3s. 3½d., the lowest of the year. Additional cable advices from Para of probable short receipts during the end of the year and the early months of 1902 brought about some recovery on less prossure to sell, and with very large deliveries and moderate receipts we

close the year firmly with quotations of Hard Fine at 3s. 6¾d. and Soft at 3s. 5¾d. Negroheads continue to remain very scarce, Scrappy being quoted at 2s. 9d., Island (of which the greater portion is being to America) 2s. 1½d., Cametas 2s. 2d., Ball, 2s. 6d., and Slab 2s. 0½d. The total amount of Rubber imported from Brazil shows a further increase of 3,200 tons, and the total quantity exported from the State of Amazonas, including Peruvian via Iquitos and Manaos, is 4,000 tons against 3,100 tons. The Peruvian Fine imported has we think been better as a whole, but owing to the Rubber having arrived in most cases uncut and unselected before shipment, new rules had to be adopted in order to provide for this altered mode of shipping this rubber. The Peruvian Ball imported has not been up to the expected quality, and at the end of the year the standard of fair average quality was considered lower, although some nice clean Hard Balls when received did realise fairly good, and in some cases exceptional prices. The slab continuous to be of good serviceable quality, and the consumption of it is certainly spreading. Bolivian kinds have been very fair, but the imports were not as large as last year. Mollendo again showed a marked improvement in quality, and consequently sold exceedingly well. From Venezuela via Orinoco the supply was less than last year and the quality not very attractive.

Imports of Ceara Scrap are smaller, but of these grades only the best qualities could be sold easily, others are dragging. Of Manicoba kinds we received less, but quality was good, and prices realised were satisfactory. Pernambuco and Assaree qualities have somewhat improved, but owing to the general decline of the Rubber market, the values of these classes receded considerably. There were not very important arrivals of good Mangabeira and although the stocks are considerably going down and available supplies very small, the prices realised for ordinary quality show an enormous falling off in price. The imports of Mattogrosso, in sympathy with Para, showed similar fluctuations, although transactions were only spasmodic. Central America has again been conspicuous by a further considerable decline in its export of Rubber, probably owing to the continued political unrest existing in those parts, and the only rubber reaching us comes from the Columbia districts, but the quantities were very insignificant. The Equator and Guayaquil kinds sold readily, and the prices at the end of the year are only about a 1d. lower than they were a year ago. Of course this refers to good qualities only. Inferiors and mixed kinds are much cheaper. The Imports from Honduras, Mexico and Panama were likewise very small.

Africans.—As expected at the close of the previous year, the increase in imports of these descriptions was not only not maintained but showed a considerable and serious falling off, and we estimate the difference of imports from Africa to be about 2,000 tons below that of last year.

With the exception of slight spurts in April and again in August (in sympathy with Fine Para,) the year 1901 has been characterised by an uninterrupted decline in African Rubber, the only exception being First Sierra Leone Niggers which are actually rather dearer than a year ago, while all other descriptions show a decline varying fim 1d. to as much as 6d. per lb.

From Angola we received 250 tons less, made up in shipments from Bengnela of 1,250 ton, as against 1,500 tons in 1900. Loanda 730 tons, against 678 tons (besides 200 thimbles). Quality has been hardly so good. The congo has slightly increased, but the quality has seriously declined; about 5,300 tons, against 5,000 tons in 1900. The average price shows a very considerable fall because so much was of poor quality. The supply from Sierra Leone and French Guinea has again fallen off, partly owing to the prohibition by the French authorities of the exportation of dirty, wet, and inferior Rubber from Conakry. The quality being thus reliable has caused consumers to look on this kind with favor, and their appreciation is reflected in the price which is unusually high compared with other Rubbers, both African and Brazilian.

Quite an extraordinary decline in supply of Gold Coast, Accra, Lagos, &c., and only moderate from Cameroons, Sierra Leone, Gaboon, &c., and small of Senegal. Prices of nice Hard only about 2d. lower, but Soft common and Lagos fully 4d. decline for the year. We no longer quote Strips and Biscuit, the pressing of Lump Rubbers being practically abandoned. Liverpool imports of West African 4,200 tons, against 5,140 tons in 1900, and 5,600 tons in 1899.

The Congo Free State has given increased exports to Antwerp, but other kinds of African have gone there in reduced quantities, so that the total Antwerp imports show little change.

During January, African Rubber met with a disappointing demand at rather easier prices. February and March were very dull and prices declined for most sorts, closing with lower values all round. In April, fairly good trade was done at rather better prices, closing however somewhat quieter. A moderately large business was done in May at irregular prices. Good Sierra Leone sorts were then well in demand, showing however little, if any, change in price, whilst Lump descriptions were ½d. to 1d. per lb. lower. During June and July African Rubbers met with a moderate to poor demand at general lower rates, and only a comparatively small trade was done at barely steady prices. The demand was better in August, especially for parcels of good quality which arrived from Sierra Leone. This position of the market was not maintained, and we see a constant falling off in the demand, which remained disappointng with only small business passing at generally lower rates, until the end of November, when quite a steady trade was done at generally unaltered and in some instances slightly increased prices. The demand continued to improve during December for all the better grades, and rather higher rates were paid all round.

East Coast of Africa (Zanzibar, &c.)—The supplies of these descriptions have continued to gradually fall off, and to this must be ascribed the fact that at the close red hard Rubber is only 1d. per lb. lower, but White and common Ball Rubber declined about 4d. per lb. Lamu Ball (Mombassa): The arrivals were not important although the quality was fair and good clean Rubber sold fairly well prices, however, showing a decline of 2d. for the year. Nyassaland sent us very good Rubber, but the consignment were small, and when they reached, the market were bought up readily at fair to full prices. Madagascar supplies were again on the decrease, and have only been about half of what they were last year, and values were consequently well maintained.

Imports from Ceylon were again insignificant, but whatever small quantity reached this market it proved very attractive, as the quality and condition continued to be excellent, and many buyers were anxious to secure even the small arrivals, owing to the specially clean condition of this Rubber. We confidently expect that if larger imports could be arranged a great circle of consumers would come in and pay full prices for these grades, especially if the quality be kept up. It would be advisable to encourage the planters and others interested in this product in giving particular attention to this most valnable Rubber. High prices were realised, and 3s. 9¾d. was recently paid for Fine and 2s. 4d. for the Negroheads. It is, of course, known that this Rubber, should practically be of the same kind as the one coming from the State of Amazones, being grown from Para seed.

Rangoon and Penang has also been in much reduced supply. Of the latter description we practically received no further shipments this year, but in spite of

this, all the old stocks held were most difficult of sale, and what was disposed of showed an enormous decline and thus Rubber that was quoted at 3s 2d, a little more than a year ago sold at about 2s. 2d. to 2s. 5d. per lb. according to quality. If good quality of these descriptions could be imported to sell at present rates, it is certainly worth encouraging as with scarceness of Good red, Mozanbique Ball, the demand for these Red Penang kind; would again grow gradually.

Small quantities of ASSAM were shipped, but the quality was very poor and sandy, and consequently did not meet with any requirement or interest.

BORNEO.—Of this Rubber the supplies have not been excessive, but in sympathy with the general tendency of the market prices declined. These grades are still held for higher prices, and with a continuance of the lower quotations all round we must also look for much reduced values in these grades before one will be able to effect larger sales. PONTIANAK: Supplies were about the same as those of last year and sold readily prices showing very little change at the close of the year.

Rubber from FRENCH COCHIN-CHINA and from LOWER CHINA have continued to sell well, the quality and condition of nearly all arrivals were satisfactory and the small trade done must have been profitable to the importers.

JAVA Rubber and NEW GUINEA have been very very scarce, but generally speaking these qualities were not in great demand, and quotations were only nominal.

BALATA.—We had reduced arrivals of these descriptions, and all the imports of these grades have met with a good demand, although at one time Block BALATA was as low 1s. 7d. The year closes with buyers at 2s and sellers at 2s. 1d. Nearly the whole of the stock in first and second hand has been cleared off and gone into consumption, and all new arrivals are selling very readily at full prices. SHEET BALATA.—Owing to the increased consumption the prices have also gradually gone up, and the market closes with buyers at 2s. 7d., showing 4d. per lb. advance for the year.

GUTTA-PERCHA.—The year opened with a very poor demand, and the market continued weak throughout almost the whole of the year. It was only during November that, owing to larger contracts for cables being placed, extensive buying orders appeared on the market, thus increasing values of GUTTA-PERCHA, and since then a fairly large business has been done. There seems to be every prospect of a continued good market, with fair prices being paid for good and desirable qualities of Gutta-Percha.

AGRICULTURAL CHEMISTRY.

The second edition of the comprehensive work of Professor DEHERAIN on the subject of agricultural chemistry* has lately been published, and brings up-to date most of the more important investigations connected with the study of plants, and the cultivation of the soil. In his introduction, the author states that the plant is an "instrument of reduction," because within its cells are separated the element oxygen from carbonic acid (dioxide), which is a compound of carbon and the element oxygen; and from nitric acid, which is a chemical compound of nitrogen and oxygen The plant further takes these separated gases and unites them with the elements of water, whereby in a series of rapid stages they become converted into such substances as sugar, starch, cellulose, oil, and albuminoids. Plants are the only organic things that make use of the forces of the sun to build up from these elementary substances products alike suitable for human and animal food. The chief object of the author in his voluminous work is to show how the double work of reduction and of reconstruction, or building up, is carried on; also how we may obtain by the help of plants, a suitable climate, and a properly cultivated soil, such a quantity of vegetable products that its sale shall be remunerative.

One of the greatest of the practical problems presented for solution by agricultural chemistry is the conservation of plant food. With an abundance of plant food, and a favouring climate, it is difficult to place a limit to the power of the earth for supporting life. Should the cultivator succeed in raising the amount of food supply beyond that which his land would naturally yield, he is serving at once his own interests and those of the public generally, because both agricultural and horticultural prosperity are better secured by the increase of produce than by rise of prices.

The author commences his work with a description of the development of plants, including the germination of seeds, and the production and assimilation of plant food. The portion on growth and maturation has been considerably enlarged in the present volume. Next follows a full description of the importance of water; its circulation in the plant; the enormous evaporation excited by the sun's rays, which the plant can only maintain by constantly drawing upon the resources of the soil; should these fall, the plant languishes and dies.

The second part of the treatise treats of the study of arable land, which is described as a reservoir from which the roots of plants have to obtain their supply of water. It is only a properly cultivated soil that can fulfil its chief function of being a store-house of moisture. Water flows away over soil hardened by drought; it does not easily penetrate into a sun-baked surface; and because, under such conditions, it remains in the top layers of soil, it soon evaporates and is lost. On the other hand, water penetrates into a well-worked soil, is held in suspension, and remains there until wanted. It descends into the lower layers where the more deeply penetrating plant-roots feed. The plant-food of the soil only has access to the absorbent organs of the plant when presented in a proper soluble or semi-soluble form in connection with water.

The study of soil ferments has been largely extended in this edition; the author shows how the organic matter of soils becomes oxidised, how ammonia is formed, and how nitrates are reduced.

The third and fourth portions of the work deal with the subject of manuring. Considerable stress is laid upon the importance of a suitable supply within the soil of soluble available mineral plant-food, such as potash, lime, and phosphoric acid. The question of green manuring, that is ploughing-in growing plants, and the cultivation of autumn catch-crops, is recommended, because they retain the nitrates formed in the soil during the summer months. Green manuring further promotes the production of vegetable organic matter (humus) within the soil, and prevents the nitrates from being washed away by winter rains. Nitrogen in the form of nitrates is generally regarded as the best kind of nitrogenous food for plants. Plants obtain their nitric acid by absorbing the nitrates that are already present in the soil, those that are carried down to the soil from the air in rain and snow, those that are applied artificially in fertilisers, and those that are formed in the soil from the nitrogen of other substances. As is explained, all the nitrogen that is applied to the soil for fertilising purposes, especially in farmyard manure and in green-manuring, is not in the form of nitrates. It must first undergo certain chemical changes before it becomes available to plants. These changes take place through the agency of micro-organisms or ferments; and that particular process in which the nitrogen of the ammonia-gas is changed into nitric acid, which is called nitrification. One of the most active periods of the production of nitrates in the soil is during the early spring months, when the rootlets of growing plants greedily lay hold of it as it is formed.

It is not only by hindering the loss of nitrogen that catch crops are useful, but they also increase the

* *Traite de Chimie Agricole*, 2nd edition, 1902, P. P. Deherian.

amount of humus in the soil. The function performed by humus was long misunderstood, but it is now known to be the soil's storehouse of nitrogen, and although not directly available to crops, it is rendered so by nitrificiation. Farmyard manure introduces into the soil these nitrifying organisms in large quantities, a quality not possessed by chemical fertilisers; a point of great importance, but which is sometimes overlooked.

The author goes on to show that the largest crops are to be obtained by a proper combination of farmyard manure and artificial fertilisers.

The end of the 19th century was marked by several great discoveries in agricultural chemistry. In 1876 Messrs. Schloesing and Muntz showed that the formation of nitrates in the soil is the work of special ferments. In 1885 M. Berthelot proved that the fixing of nitrogen in the soil takes place by means of micro-organisms; and in 1886 Messrs. Hellriegel and Wilfarth proved that Leguminous plants only make use of the free nitrogen of the atmosphere when they form on their roots nodules containing bacteria or microbes.

In order to promote nitrification, warmth, moisture and air must be present in suitable quantities and proportions. One of the objects of ploughing and digging should be to bring about the best conditions for nitrification, for if they are faulty this action may be feeble, or entirely arrested.

Nitrification is promoted either by long or short fallows (bare soil) conducted during the warmer months of the year, but if a super-abundance of rainfalls upon the land before growing crops have made use of the nitrogen rendered available by tillage, serious loss may accrue by drainage. This fact leads to the conclusion that fallow lands, and those which have received frequent tillage while producing a summer inter-tilled crop, should be fully occupied by plants before the autumn or winter rains occur.

Moderate rains may serve to carry the available nitrogen downward, but it tends to rise to or near the surface as soon as capillary action is restored. But if water drains through or passes over the surface of the land rich in soluble nitrogenous compounds, great loss of plant-food may take place. Nitrification is checked by the drying effect of growing crops; this can be obviated by the application of a dressing of nitrate of soda.

The author concludes his work by stating that much of the land of France is irrigated for market garden purposes. This practice is specially suited to lands broken up into small holdings. By presevering toil the gardeners of these districts are enabled to produce their early vegetables, cut flowers, and fruits, which are distributed all over Europe.

In these irrigated soils, enriched by copious manurings, micro-organisms and ferments multiply exceedingly, and push production to its maximum, because water is the first condition of fertility.

We can confidently recommend this valuable treatise to our readers, who will be fully repaid by a careful study of its contents.—*Gardeners' Chronicle*, Oct. 4.

FUTURE OF RHEA IN INDIA.

By J. Karpeles.

(Specially translated for *Planting Opinion* from the *Journal d' Agriculture Tropicale.*)

I wish to attact your attention to a new industry of British India, which I think is bound to play in a few years a very important part in the French textile markets especially against flax and hemp.

This is "rhea," whose cultivation has been so far in the experimental states in British India: the other countries in which rhea has been tried as a commercial enterprise are, however, not better off than British India. All the experiments made so far in Algeria and the Far East have, after the first period of cultivation, come to an abrupt end through the impossibility of properly decorticating the fibre, no machine having been known to give any industrial results. The employment of chemicals to remove the skin from the fibre after decortication, *i.e.*, after the wood is removed cannot be considered as solving the problem of the industrial production of a fibre ready to be put on the spindles. The acids which we are bound to use affect the fibre, taking away part of its strength and consequently of its value. The decortication of the stems when dry, which I will not discuss on the point of the value of the fibre, cannot be carried out in countries where the rainfall and consequently the production of the plant, is enormous, like India, Indo-China, and Java: where the air is so saturated with humidity during 6 months of the year that it is impossible to dry the stems. These would surely ferment and become valueless, and it is precisely during the six months in question that the production is the greatest.

The decortication of the dry stems being put aside as impracticable and the chemical process as dangerous there only remains the decortication of the green stems. I have succeeded in getting hold of a machine of French production, which gives perfect results, *i.e.*, a beautiful fibre, entirely decorticated and without the least trace of skin or wood. Established in British India, at Calcutta and Madras, for thirty years I had occupied myself so far nearly exclusively with indigo. The rivalry of the synthetic produce has had the results of lowering the prices of the natural indigo to such an extent, that it does not any longer pay many planters to continue their industry. The Government have been touched by the situation of the planters and have encouraged them, both privately and openly, to go in for new products. The cultivation of fire-bearing plants and of sugarcane were put forward at once. Since 1898 I have been persuaded that indigo planters, who, only in Bengal, represent 1st-class lands to the extent of 150,000 hectares, were ready to go in for rhea, provided it was possible to put before them some good and unquestionable results. Since 1899 I have had some small experiments made at three indigo plantations: at Dalsing Serai, (Durbungah), at Bungaon (Monghve), and at Pakabaree (Moorshedabad). The plant grew splendidly and after one year, one root becoming 15 or 20 roots, we could extend the cultivation sufficiently to order several machines and find out the production per acre and per machine, *i.e.*, the nett cost of the fibre. In the meantime the 3 plantations above mentioned were regularly giving 4 to 5 crops (cuttings) per annum and produce per acre, which had been at the start 35,000 stems per acre is today between 80 and 100,000 stems per acre. This is the number of stems which grow generally in China, and I remember reading in the "Journal of the Jamaica Agricultural Society" that the crop gave even up to 200,000 stems per acre.

In 1901, the experiments with the decortication could be commenced, the rhea being 2 years old and giving regularly stems 2 m. to 2·50 m. of length. I had imported from one maker 4 different types of machines, of which I sent one each to Bungaon and Patkabaree and two to Dalsing Serai. The former two plantations were unable to show any industrial result, but their produce was identical and absolutely pure, barring the gum, which was found in proportions varying between 25 @ 28 % as in the China grass of commerce.

The fibre obtained was found to to be about 3½ % of the nett weight of the stems, *i. e*, with their leaves stripped off. At Dalsing Serai, the machiney being perfect we could treat 4 crops, which gave us the following results:—

Number of stems per acre	.. 80,000
Weight of stems per acre	.. 5,500 kilos.
Produce of absolutely dry fibre	190 ,,
Produce of 2 machines per hour	9 ,, of dry fibre,

The above figures taken as a basis and calc lating the keeping in order and the amortization of the machines, the expenses of cultivation, the wages and the incidental expenses at the same rate as with indigo, we can produce rhea at abocut 350 francs per ton in India or about 450 frans c. i. f. French ports. This price is evidently only approximate, the eventuality of losing one or more crops not being impossible, but is low enough to have caused a great stir in Governmental circles and among the planters. The Lieutenant Governor of Bengal, Sir John Woodburn, asked me *proprio motu* to visit him and give him explanations about rhea, also the Minister of Finnance and commerce, Sir Edward Law, who has been encouraging me for the last two years. Both these gentlemen took the trouble to go to Dalsing Serai, 12 hours journey from Calcutta, to see for themselves the results obtained, and to them may be added H. H. the Maharajah of Durbungah, a member of the Viceroy's Council and the biggest landholder of Bengal. This chieftain has ordered to be made, through the administration of his possessions, an agreement with me for the immediate putting under rhea of 500 acres. Many planters are going in for rhea and in 3 years there will be about 5,000 hectares under rhea, which will have abs rbed several hundred machines. This will be a great success for the French mechnical industry. The use of rhea by the French spinners can be considered so far theoretical. The few Spinning Mills employing China grass at Entraigues, Malannay Billegarde, Amilly, and Lille are not important enough to constitute an industry, but it is evident that the day it will be possible to put on the maket important quantities of rhea fibre at moderate figures, these mills will become larger and the 1500 tons maximun they consume now will speedily become 1500 tons. I have sent to Lille some samples of the produce of our plantations and I was told that the fibre as it is, without any degumming, can be used by hemp and flax spinners for their big and middling counts. There is an assured and big outlet for the middling and big counts; therefore direct competition with hemp. The spinners of China grass (rhea) use the fibre undegummed and don't want the produce to be delivered degummed, preferring to regulate the degumming themselves. The flax spinners will only be able to use rhea from India for their fine counts after degumming. As the spinners are not at present organised for such a process and to justify expenses for instalations of this kind the net cost of the undegummed fibre should be very low or we should deliver a degummed article. The latter presents, however, such difficulties, as regards the risk of turning out an article insufficiently or too degummed, that the danger of competition with flax, to produce fine counts, rivalry that is bound to come some day, cannot be said to be so imminent as with hemp.

CULTIVATION OF PINEAPPLES.

By W. Cradwick, Travelling Instructor.

Soil.—The best soil for pineapples is a rich well-drained loam, they cannot be grown profitably on any other. The colour of the soil does not matter, but there must be at least fifteen inches of good sweet top soil on the land in which the pines are to be grown.

Drainage.—The top soil must be thoroughly plowed and broken up. If below this, the soil is the least bit heavy, trenches to the depth of two feet must be dug to thoroughly drain it. If the lower layers of soil are clay, trenches three feet deep must be dug. If the level is so low that water lies at or near the surface, raised beds three feet high should be made on which to plant the suckers. This plan has been very successful near Hope Bay. Pineapples must have the best drainage possible or or they will get all sorts of "disease."

Preparation of Soil.—Next to drainage in importance is the thorough forking and breaking up of the soil. There is an old Creole proverb that a pineapple sucker "planted with one chop bears in one year, with two chops in two years, and so on." The origin of it in my opinion is that when planting in new rich soft land, when a hole big enough to receive the sucker was easily made with one chop of hoe or digger, the pine sucker invariably produced a fruit within the year. When planting in old hard land where it was necessary to make two or three chops in order to make a hole big enough to receive the sucker, the sucker for want of cultivation or soil naturally soft, took two years to fruit. This explains how necessary it is to cultivate the land thoroughly.

Selection of Suckers.—Plant nothing but good strong, fresh, stout *young* suckers; the proper size is from twelve to fifteen inches. Anything bigger or smaller is a mistake. Thin weedy shade-grown suckers are dear at a gift. Overgrown plants are not suckers, and should only be used to grow suckers from. In purchasing suckers, see that they are pointed just as they are torn away from the parent plant; for old long suckers can readily be trimmed down to look as short as young suckers.

Planting Suckers.—As soon as the sucker is taken off the old plant, it should be planted. If it is a fresh healthy one, it wants nothing at all done to it. If it is not a good healthy one, burn it. If you plant a poor sucker it will be a trouble all the days of its life. Never let suckers lie about in heaps; never let them get wet.

Have your land properly prepared and when the suckers are taken off, plant them as quickly as possible. The land should be so soft that the suckers can be pushed down to the proper depth without having to use anything to make a hole with. Plant the suckers in beds not wider than can be weeded from the sides without having to step on them. Pineapples must have soft soil, and if the beds are walked, on every time they are weeded, they soon get hard and stop the roots growing.

Cultivation.—Never allow the weeds to grow Stir the soil often, using a dutch or push hoe, this is much better than the draw hoe which is very liable to bruise and shake the suckers when trying to dig out weeds which grow close to them.

Distance.—Different varieties can be planted at different distances: the Ripleys and Bullheads eighteen inches; Smooth Cayennes two feet to two feet six inches.

Replanting.—Replant every year, never trust to ratoons. It is only by replanting every year that the quality of the fruit can be kept up, and the fruit made to come in at the right time. Ratoons will nearly all come in at the time of year when pines are not wanted. Pineapples are worth very little after the May rains begin, and everbody should make experiments in planting so as to find out the right time to plant to make their fruit come in at the right time, that is from Christmas up to May. The time will be different in different places.—Jamaica Bull. *Plante's Monthly.*

The Sandalwood Tree.—Mr. Barber, Government Botanist, Madras, has made the interesting discovery that the roots of this tree are parasitic in character, and puts forward a plea for a closer study of the natural history of the tree. "It appears to me," he writes, "sufficient attention has not been given in past attempts at artificial reproduction, and a careful study of the liking of the Sandalwood for its different hosts is sure to be productive of useful results."—*Gardeners' Chronicle.*

THE INDIARUBBER TREE:

ITS LATEX-BEARING DUCTS.

BY HENRI LECOMTE.*

The *latex* of the caoutchouc plants is contained in lacticiferous channels, whose distribution varies with the nature of the plant and perhaps also with its biological conditions. It is evident that an exact knowledge of the distribution of the *laticifers* (the *latex* bearing ducts) is indispensable for fixing the regulations of methodical work. Unfortunately, this study has been neglected, so that the processes of extracting the *latex* are altogether empirical. My present intention is not to consider all the cases that may arise but simply to call attention to certain facts and considerations, which may enlighten experimenters in their researches.

For example in the Landolphia Heudelotii, which furnishes the larger part of the caoutchouc exported from the Senegal, the Soudan, and Guinea) in west Africa,) it is easy to recognize from a cross section of the *liane* (climbing plant), that the laticifers are especially distributed in the middle portion of the bark but are almost altogether lacking in the outer portion, as well as in the zone nearest the wood.

To reach the laticifers, there is therefore need of penetrating through the bark. The laticifers of the *Landolphia Heudelotii* are long tubes, ramified and anastomozed, whose diameter varies from 30 to 45 thousandths of a millimeter. These laticifers extend principally along the stem, but, as I have said, they are ramified, and these ramifications take a direction more or less oblique.

A transverse section *a b* of determined length and depth, may, for example, encounter a number of laticifers and produce a proportionate number of orifices from which the latex will flow. A longitudinal incision *c. d.* of the same length and depth, will meet a much smaller number.

The inspection of the figure (1) will render further explantation superfluous; but it is not difficult to demonstrate the fact at least in the case of the *Landolphia Heudelotii*. It is known—and this is the point of departure of the processes of the extraction of the caoutchouc from dry bark—that the *latex* coagulates spontaneously in the laticifers of the bark when it dries, so that each laticifer of dry bark contains a very thin filament of rubber. If a piece of dry bark is broken and the two fragments separated carefully, they are seen to be united by a multitude of rubber filaments, the number being equal to that of the laticifers encountered by the section (Fig. 2.)

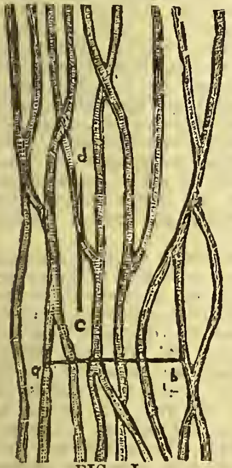

FIG. I.
Theoretic representation of the arrangement of the laticifers.
a b—Cross section meeting six laticifers.
c d—Longitudinal section meeting only one laticifer,

Let this section be made perpendicularly to the length of the stem, or parallel to this length: the filaments are still found in large number if the section is crosswise, but in small number only if it is longitudinal. Fig. 3 drawn from nature, exhibits this clearly. A piece of bark of rectangular form was separated in to parts by a perpendicular section along the length of the stem; the two portions were still connected with numerous filaments of rubber. If one of these fragments was afterwards broken in two parts, by a section parallel with the axis of the stem, and the two parts *a* and *b* separated, as shown in Fig. 3, they were seen to be connected by a small number only of thin threads of rubber, cause such a section meets a much less number of laticifers than a cross section of the same extent.

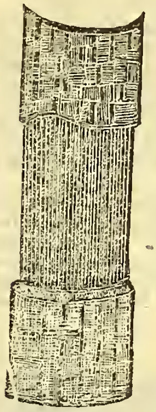

FIG. 2.
Two pieces of bark broken apart crosswise, but still connected by a large number of caoutchouc filaments.

We may, therefore, consider it demonstrated that two equal incisions made in the bark will encounter very different numbers of the laticiferous ducts, according as the section is longitudinal few laticifers or transverse many laticifers; it is not difficult to conclude that the cross section will cause a much greater quantity of the *latex* to flow than the longitudinal section. This is very easily shown on living climbing plants belonging to the genus *Landolphia*.

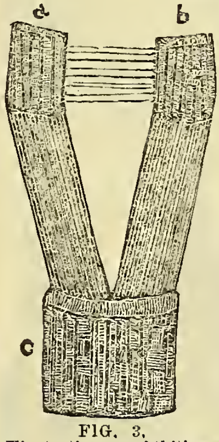

FIG. 3.
Illustration exhibiting the caoutchouc filaments connecting two strips of bark.
Between *a* and *b*, the filaments proceeding from the transversal inosculations.
Between *a b* on one side and *c* on the other, the filaments correspond to the laticifers encountered by a cross section.

I have also verified the fact on a young *Castilloa elastica*, which was placed at my disposal by Messrs. de Vilmorin. Dr. Morris, in his Cantor lectures, published in the *Journal of the Society of Arts* London has stated that in the trees of the genus *Hevea*, cultivated in the Henaratgoda garden in Ceylon other things being equal the oblique incisions. (45°) produced about twice as much as the vertical incisions.

The transverse incisions have another advantage with reference to the gathering of the *latex*. In consequence of the constant growth of the ligneous cylinder surrounded by the bark the latter, not following this growth, is stretched more and more, like a too narrow garment, around too voluminous a body. It is this tension of the bark which causes the longitudinal cracks, so characteristic, for example of the surface of the bark of an oak tree. If an annular cross band of bark is removed from the trunk of a tree, and the attempt afterwards made to replace it at the spot from which it was taken, the two extremities will not meet.

It is precisely this tension which causes the flow of the latex, which the capillarity would keep, in the absence of this intervention, in the interior of the laticiferous ducts. In making a cross section, the tension of the tissues above and below this section is not modified. The result is that the latex will flow as freely as possible. A longitudinal section, somewhat extended, would, on the contrary, produce different

*Translated from the *Journal d' Agriculture Tropicale* (Paris, April 30, 1902), for THE INDIA RUBBER WORLD. The suggestions contained in this article were presented in a popular lecture on "Caoutchouc and the Plants which Furnish It" delivered by this botanist at Paris, on March 4, under the auspices of the French Association for the Advancement of the Sciences.

results, for the two lips of the wound would tend to separate, and the tension would become feebler.*

As is seen, several causes contribute to render more efficacious the transverse incisions of the bark, with reference to the flow of the *latex*. But are these sections to be exclusively recommended? That is not my opinion: for the cultivator ought not merely to have the present harvest in view, but the possibility of future harvests. From this viewpoint, the transverse incisions may be disastrous, and the more so as they are the more extended.

Every wound made in a bark produces a scar more or less rapidly by the formation of new tissues, and from this fact the laticifers, at first continuous, are separated into portions, the shorter as the incisions are the nearer. It necessarily results that the future incisions meet only fragments of laticifers yielding only a small quantity of *latex*.

In my opinion, and for the reasons mentioned above it would be suitable, if transverse or oblique incisions are to to be made in a shrub or tree, to first make a number of incisions at the same height—say 3 meters from the ground—then to commence afterward a little lower, and so on until the last incisions occur near the ground. Then on leaving the tree at repose for a sufficiently long period—at least a year—new tissues will be formed in the interior of the bark and in these new tissues prolongations of the original laticifers will penetrate. After this period employed by the tree in producing new tissues, containing laticiferous ducts, incisions can be made again, identical and in the same order.

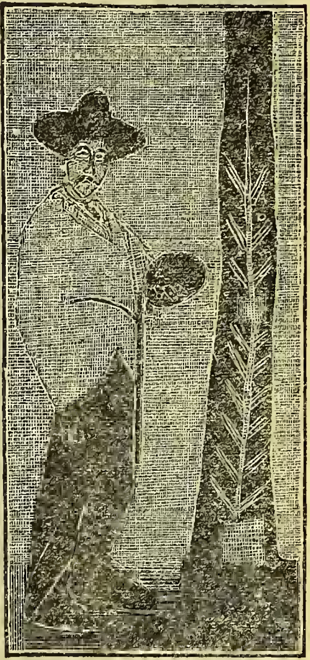

FIG. 4.
This view not presented with M Lecomte's paper illustrates a prevalent method of cutting the rubber tree (castilloa elastica) in Mexico.

In no case should completely annular incisions be made. This will prevent the circulation of the sap and compromise the life of the plant. Too wide incisions distance between the edges of the incisions should also be avoided; for the healing of the wound is the longer and more difficult in proportion as the edges are further separated from each other.

It will not be difficult to fix upon the plan of a certain number of methodical experiments and observations which persons living in the tropical regions, and having at disposal rubber trees or plants, might undertake. The results of such an inquiry would be important with reference to the future of the plantations of caoutchouc which of late are coming into existence so generally in all the tropical regions of the globe —*India Rubber World.*

*It is not correct to say as Bouyssou, has in the *Revue Generale des Sciences* that the *latex* is a kind of ascending sap. I do not think that any proof whatever has been yet presented of the circulation of the *latex* in the ducts. The fact that the *latex* flows unequally at the lips of an incision is a direct consequence of the difference of tension of the tissues on the different sides of the incision and the flowing may naturally be greater at the upper lip of the section than at the lower. This I have verified with the *Landolphia florida* in the hothouses of the Museum. The fact that the incisions made near the ground (*Hevea* produce more *latex* than the same at a height of 2 or 3 meters scarcely be explained except by a difference of tension of the tissues at different heights

PLAIN TALK TO SMALL OWNERS IN WEST INDIAN ISLANDS.*

(*By His Honour F. H. Watkins, Commissioner of Montserrat.*)

(*Concluded from page 226.*)

TROPICAL PLANTS AND INDUSTRIES.

There are many small industries suitable for the tropics, but I will touch briefly on three—cacao, ginger, and bee-keeping.

CACAO.—It is true that in Montserrat there are no large areas suitable for cacao, but in every district suitable, small patches are found on which even a few trees could be grown with profit. Mr. Whitfield Smith, in an interesting report on cacao growing in Grenada, has shown what can be done on a small estate under seemingly disadvantageous conditions. From this small estate an average return of 7 bags of cacao to the acre was obtained. With cacao selling at only £3 per cwt., this would mean a return of over £30 per acre. For cacao select a sheltered spot, and plant even if it be but a dozen or more trees. Bananas and ground provisions can be grown between the trees until they come to perfection. Look after your trees well as if they were pet children, and you are, in a few years, almost certain to make a profit. Choose your pods and seeds carefully. There are many varieties: the short smooth-skinned pods or Calabacillo cacao; the Forastero or Trinidad cacao with big heavy, straight pods; and the Criollo with long, curved pods, constricted at the upper end, tapering at the lower, with a deeply wrinkled skin. The last named should be chosed, for the Spanish or Calabacillo variety does not contain as many seeds in the pod, and they are smaller and flatter and slightly bitter. The consequence is that the crop is smaller and inferior.

GINGER.—The Consular reports of Central America have of late years been calling attention to the opportunities afforded, for making fair profits out of the cultivation of ginger. An excellent article on the subject appeared in a recent number of *Chambers' Journal*. According to this article the soil for this crop should be of a rich vegetable composition, loose and moist, yet well drained. Sandy or heavy soils should be avoided. It is advisable to select what are known as the more temperate, that is, hill regions of the tropics where the rainfall is more or less abundant. The soil should be loosened by the hoe when the ground has been furrowed. The soil is banked up in ridges small holes are made 3 inches deep and one foot apart. Then healthy roots, or rhizomes, are selected and carefully divided into short lengths, each fragment having at least one shoot attached. One of these pieces is placed in each hole and covered up with fine earth containing as much vegetable matter or manure as possible. Planting generally takes place about April or May, and the land is regularly weeded.

Four months after planting the plants will commence to bloom. Towards the end of the year both the flower-bearing and the leaf-bearing stems begin to

* *Imperial Department of Agriculture for the We Indies.*

fade and then wither. The rhizomes, or roots, should then be harvested like potatoes, but care should be taken not to injure the 'races' or 'hands.' When the 'races' have been freed from the small fibrous roots, they are sent to the market either as green or cured ginger. The cured article may be either 'coated' or 'uncoated' ginger. The former, also known as 'black' ginger, consists of pieces of rhizomes, or roots, about four inches long which have been plunged into boiling water to kill them, and afterwards thoroughly dried. The drying is usually effected by spreading out and exposing the roots to the sun. During the process the ginger must be occasionally turned, while it is advisable to take it in every evening just as the sun goes down on account of its tendency to mildew. The 'uncoated' or 'white' ginger roots are well washed and *scraped* or *peeled*, and then put up to dry from 5 to 10 days in the sun, being sometimes bleached in a weak solution of chloride of lime. Provided they are kept from the sun, the roots may, if necessary, be kept for two or three days after digging before being scraped or peeled; but it is preferable to scrape or peel without delay. In some places the ginger, after drying is put into baskets and undergoes a 'bumping' operation for 2 or 3 hours daily for several days, which is believed to facilitate its 'keeping' properties but this process is not usual. The entire operation of curing could be done by women and children. Ginger, depending on the quality, fetches from £2 to £4 per cwt . .

Experiments at the Grove have recently shown that a patch of ginger yielded at the rate of 14,000 lb. of green ginger which shrunk, when dry, to 5,000 lb. per acre. The value of this when *well cured* would probably be about £40.

Bee-Keeping.—Many of you may have heard the interesting lectures given by the Bee-Expert, recently employed by the Imperial Department of Agriculture who visited the island early last year. By that visit bee-keeping received a stimulus, and several persons have engaged in what may be made a most fascinating and profitable study and occupation. A few remarks based on the experience of those at present engaged may be of value and interest. First, as to the cost of starting in bee-keeping. It is as well to commence with only two hives so that your attention may be concentrated upon them. The initial cost for the two hives would probably be:

		s.	d
(1)	Two hives, with one super (locally made)	14	0
(2)	Six additional supers —	6	0
(3)	Two Italian Queens —	12	6
(4)	Two swarms — —	9	0
(5)	250 Sections — —	5	0
		£2 6	6

From these two hives the following annual results could reasonably be expected:

Honey in sections........256

or Extracted honey...——160 bottles.

The present price (and I must give the warning that, as most of the neighbouring islands are gradually engaging in the industry, the prices will fall there) is from 6d. to 9d. a section, and from 6d. to 1s. for a bottle of extracted honey. This is a very fair return within twelve months with an original outlay of £2. 6. 6. After the first year there are fewer expenses, with consequently greater profits.

Montserrat honey has received high praise in the other islands. For fuller information about this subject, see the valuable, well illustrated pamphlet issued by the Imperial Department of Agriculture, called *Bee-keeping in the West Indies.* It can be obtained from the Local Agents of the Department price 4d.

Regulation of the Quality of Exported Fruit. At the West Indian Agricultural Conference held last January, the Hon. S. Olivier, Colonial Secretary of Jamaica, read a paper on 'Regulating the quality of Exported Fruit.' According to the official report of the proceedings, he pointed out how owing to the regrettable action of persons shipping immature or badly packed fruit there was a very real danger threatening the fruit trade of these Colonies. If such a course were pursued without check West Indian fruit would earn a bad name, and fail to command the confidence of the market. He stated that it was impossible to forbid absolutely the importation of any kind of fruit, however bad, or to give a Government guarantee after inspection to all fruit shipped.

He proposed a general scheme, the main features of which were:—

(1.) The establishment of a complete register of all growers and packers, with a nominal licence for packing house.

(2.) The marking of all packages with the name and address of the packer and his packing houses.

(3.) The establishment of standard grades for size and quality of fruit throughout the West Indies.

(4.) The inspection of the packing houses and packages, at any point before shipment, by proper inspectors.

(5.) The presence of a responsible agent in the selling market.

(6.) It was suggested that, to maintain a high standard of fruit exports, inspectors should have power to brand packages found to be improperly described.

You will thus understand the importance of placing a good, and at the same time a well graded quality of fruit or vegetables on the market. Two or three points are to be observed. Taking onion growing, for example, you have to ensure;—

(1.) That a good quality is grown.

(2.) That only the good onions are exported, and in boxes containing equal sizes.

(3.) That onions of different varieties are kept separate.

(4.) That each year the same kind of onions are sent under the same name.

(5.) That you send to your market the onion that people want, not what you think they want, or should want. This persistent disregard of what the buyers require and attempts to force upon them articles which we suppose they ought to use, have done more than anything else to injure British commerce. People will often pay fancy prices for what they like, but absolutely refuse to look at what they do not want.

(6.) That you always keep a good name in business transactions. A good name is a considerable asset in business, and you must resolutely set your face against any one attempting to injure the good name of any West Indian industry.

Experiment Stations.—Before concluding I beg to advise you to pay frequent visits to the Experiment Stations and Plots which have been established in this island by the Imperial Department of Agriculture. Here you will not fail to learn valuable lessons and gain information of the highest interest. I often walk through them myself and never leave without having gained both pleasure and profit.

Concluding Remarks.—Such is a brief sketch of of what has occurred to me with regard to what small owners might do to help themselves. Even if the sugar market were most favourable and the stern hand of compulsion were not pushing us onwards to seek other means of livelihood, profit and pleasure might be derived from the pursuit of these minor industries. In the times before us, that must in any case be fraught with anxiety, we need to induce every one to act vigorously, and to lead them to work industriously and intelligently. No work is worth doing badly; and he who puts his best effort into every task that comes to him will surely outstrip him who lazily awaits his opportunities.

ON SOME NEW SPECIES OF EUCALYPTUS.

By R. T. Baker, F L. S., Curator, Technological Museum, Sydney.

[*From the Proceedings of the Linnean Society of New South Wales, Part 4.*]

(*Concluded from page 229.*)

Eucalyptus Woollsiana, sp. nov.

"Mallee Box."

(Plate xliii.)

A large tree up to 80 feet high, and more than 3 feet in diameter. Bark Persistent half-way or more than half-way up the trunk; smooth, chiefly of a rich brown, colour.

Sucker-leaves lanceolate, alternate, 2-3 inches long, ½ to ¾ inch broad. Mature leaves under 6 inches long, on a petiole less than ½ inch; narrow-lanceolate, tapering to a fine recurved point, mostly of a thin texture, of a light yellowish-green, sometimes slightly shining; venation obscured, impressed on the upper surface; lateral veins few, intramarginal vein removed from the edge.

Peduncles axillary, from 2-12 lines long. Flowers few. Calyx about 1 line in diameter, tapering into a short stalk. Operculum hemispherical, acuminate, and often shorter and *more obtuse than shown in the plate.* Ovary flat-topped. Stamens all fertile; anthers parallel; connective large and long, attached at base to the filaments.

Fruits small, 1 line in diameter, hemispherical to slightly pear-shaped; rim thin, slightly contracted, valves not exserted.

Hab.—Girilambone, Cobar and Trangie (W. Bauerlen); Nyngan and Murga (R. H. Cambage).

This tree is a half-barked "Box," and allied in bark and timber to *E. populifolia*, *E. albens* and other cognate box-trees.

Of all the box trees described this species has probably the narrowest leaves. The fruits are small, and some what approach in shape those of the Green Mallee, *E. viridis*, Baker; but the bark, timber, and chemical constituents of the kino and oil differentiate t from that species.

The leaves have a shining surface occasionally, as pertains to *E. populifolia*, F.v.M., or *E. Behriana*, F.v.M. It differs from *E. microtheca* in the valves of the fruit not being exserted, in the colour of the wood, and in the bark and chemical constituents.

From *E. hemiphloia* it differs in the nature of its timber, oil, buds, and leaves; from *E. pendula*, A. Cunn., in the venation and shape of the leaves, the shape of the fruits and constituents of the oil, and particularly in its timber, and it has a more erect habit than this species. *E. populifolia* has much wider leaves, but the bark of the species is very similar, but is not associated in any other respect with this species.

Mr. W. Bauerlen states "that it is usually associated with *E. populifolia*, the Green Mallee (*E. Eviridis*, Baker), and the Grey Mallee (*E. Morrisii*, Baker), on which account it is called "Mallee Box.' I have never seen it in mallee form, and as a result of my inquiries it appears that it does not grow in that form"

Of described species it is most closely allied to *E. hemiphloia* and other "Boxes" in oil, kino, and botanical characters.

It differs from *E. conica*, Deane & Maiden, in height, bark, timber, oil and fruits.

Athough the two species are not easily separated on herbarium material, they are never confounded in the field.

Timber.—Hard, close-grained, interlocked, heavy, durable timber, of a brownish colour. Useful for bridge-decking, posts, railway sleepers, and general building purposes. It is in great request at the Cobar mines for shoring the roofs.

Kino.—Turbid in cold aqueous solution, but the turbidity is removed on boiling. The constituent present besides tannin is "endesmin" (H. G. Smith). The kino is plentiful even on trees not in any way injured (W. Bauerlen).

Oil.—The yield of oil from a large number of distillations was ·495 per cent. The oil contains but a small quantity of eucalyptol, less than 5 per cent., and consequently is not a commercial oil. It contains the aromatic aldehyde previously known as cuminaldehyde, and which constituent appears to be characteristic of true "Boxes." It has now been described and named (aromadendral.)

The specific gravity of the crude oil at 15° C. is ·889. The specific rotation of the crude oil is [a] D—13 7°.

The lævo-rotation of this oil is due to the presence of the aromatic aldehyde (aromadendra).

Phellandrene is not present in this oil (H. G. Smith)

E. Umbra, sp. nov.

"Stringybark" "Bastard White Mahogany."

(Plate xliv.)

A tall tree, attaining sometimes a height of 100 feet, with a dark-coloured stringybark.

Sucker-leaves opposite, sessile, cordate, ovate, acuminate, thin, pale-coloured on underside; venation more pronounced on the underside; upper surface shining; over 3 inches broad and un der 6 inches long. Mature leaves lanceolate, falcate, large, up to 9 inches long aud 1½ inches broad, *pale- cured on both sides, coriaceous*; venation very distinct; lateral veins distant, spreading, oblique; marginal vein removed from the edge.

Flowers in short axillary peduncles, 6-9 in the umbel. Calyx 1 line long, on a pedicel about 2 lines long. Operculum hemispherical, shortly acuminate. Ovary flat-topped. Anthers kidney-shaped.

Fruits in the early stage pilular and under 3 lines in diameter, and the rim thin and valves sunken, but in the mature stage inclined to be pear-shaped with a diameter of 5 lines, and a very thick red rim.

Hab.—Wardell, Dundoon, and Tumbulgum (W. Bauerlen); Peat's Ferry, Military Road (R. T. Baker); Tinonee (J. H. Maiden); Gosford (J. Martin); Cowan Creek and Milton (R. H. Cambage); Eastwood (R. T. Baker).

The early fruits of this species have a remarkable resemblance to those of *E acmenoides*, Schau; in fact, so much so, that in herbarium material the two have very probably on this character been confounded in the past. The two species differ however, considerably in the shape, texture, colour and venation of the leaves, as well as in the mature fruits, which have a broad rim.

E acmenoides, Schau; has thin leaves with a pale undersurface, the leaves undoubtedly resembling those of an *Acmena* (*Eugenia*, as now understood). But those of *E. umbra* are of a uniform colour on both sides, longer and broader, and with a very marked venation much like that of *E patentinervis*, Baker.

The sucker leaves are quite distinct from those of *E. acmenoides*, which also has a lighter-coloured bark, but a superior timber.

E. acmenoides is well figured by Mueller in his "Eucalyptographia," and this species can be from the above description easily distinguished from it, so that it is not considered necessary to give a drawing here.

In botanical sequence it should be placed it next to *E. acmenoides*, from which species, however it also differs in the chemical constituents of its oil, as well as in the nature of its timber and bark.

The broad sucker-leaves differentiate it from any described species of Stringybark, to which division of the Eucalypts it undoubtedly belongs; and, as stated above, this is one of the characters which separate it from *E. acmenoides*, Schau.

Mr. W. Bauerlen gives the following description of this tree as observed by him in the northern scrubs: —

"Height 40-80 feet; diam. 2-4 feet. Bark stringy, used for bark. Timber usually pale coloured, much like that of *E. acmenoides*, which tree it resembles also in the bark and general apperance, but is easily distinguished from it by its broader and thicker leaves, with a more bluish colour; especially by the very broad young leaves, somewhat yellowish in colour and conspicuously veined, while those of *E. acmenoides*, are much smaller, narrower, thinner, and of a deeper green colour; in fact, much resembling those of *E. microcorys*, with which species both are associated, yet only *E. acmenoides*, penetrates with *E. microcorys*, into the rich scrub, while this species is only found in the poorer forest country. The two species being otherwise much alike in general appearance, they are readily distinguished by the timber-getters, who invariably prefer and select *E. acmenoides* for splitting into posts and rails, etc., for which purpose *E. acmenoides* bears an excellent name, whilst this species is somewhat inferior, and does not split quite so well."

TIMBER.—A dirty pale coloured timber, darker than White Mahogany, *E. acmenoides*, Schau. It is subject to the attacks of a borer, which, of course, deteriorates its quality as a marketable timber. It is hard and close-grained, but does not season well, and is altogether a much inferior timber to White Mahogany, *E. acmenoides*—a fact well known to the timber-getters.

OIL.—The yield of oil from this species is ·155 per cent. No phellandrene was found, but much dextropinene was present. It contains but a minute quantity of encalyptol.

The characteristic constituent of the oil from this species is an acetic acid ester. The specific gravity of the crude oil at 15° C. was ·8963.

The specific rotation of the crude oil was [a] D +41·5.

The saponification figure for the ester was 35·8.

Another consignment of the leaves of this species were received a month later, and gave practically identical results, showing again the constancy of the constituents in the oils of the same species.

The yield of oil was ·169 per cent.; specific gravity crude oil=·8901.

Specific rotation crude oil was [a] D+43·8, and the saponication figure for the ester was 35·3 (H. G. Smith, F.C.S.).

E. NIGRA, sp. nov.

"BLACK STRINGYBARK."

(Plate xlvi., fig. 3.)

A tall tree with a black stringybark.

Leaves lanceolate, scarcely falcate, occasionally oblique, mostly under 4 inches long and under 1 inch wide, of a dull green colour; venation only faintly marked on the upper surface, but very distinct on the lower; lateral veins oblique, distant; intramarginal vein removed from the edge.

Peduncles axillary, short, under 4 lines, bearing a cluster of from 8-12 small flowers. Calyx hemispherical under 2 lines in diameter, on a short pedicel. Operculum hemispherical, acuminate about 1½ lines long when mature. Ovary flat-topped. Anthers very small parallel, filaments very slender.

Fruits about 4 lines in diameter, hemispherical, to pilular, rim variable, thin, or truncate and even domed occasionally, valves slightly exserted.

Hab.—Richmond River District (W. Bauerlen); Cook's River Sydney (H. G. Smith).

From *E. Wilkinsoniana*, Baker, and *E. macrorhyncha*, F.v.M., it differs in fruits, timber and chemical constituents of the oil. From the stringybark, *E. umbra*, Baker, of this paper it differs in the shape of the sucker leaves and chemical constituents of the oil, although the imature fruits of these species are somewhat similar.

E. eugenioides, Sieb., and *E. capitellata*, Sm., approach each other very closely in morphological characters, and there often seems to be a gradation between the two, but, nevertheless, the two species are quite distinct; and so in this, although there also appears some similarity in the fruits of this species and *E. eugenioides*, yet the two differ in too many characters to be the same species.

The sucker-leaves are not unlike those of *E. capitellata*, whilst the buds are similar to those of *E. eugenioides*. The fruits approach somewhat in shape those of the latter species, with which it has probably been confounded in the past when determined on dried specimens.

If it were not for the distinctive character of the timber and oil I should certainly have made it a variety of *E. eugenioides*, but the former product is of too poor a character to be associated with so excellent a timber as that yielded by White Stringybark, *E. eugenioides*. The oil also differentiates it entirely from that species.

On the sum of the above differences it was decided to give the tree specific rank, and botanically it is placed next to *E. dextropinea*. Baker, from which it differs in the shape of the fruits, barks, leaves and chemical constituents. From *E. lævapinea*, Baker, it differs in the shape of the fruits, quality of timber and constituents of the oil.

TIMBER.—of a *dark brown colour* (hence the specific name), much effected with borers and not valued for durability by timber-getters and others interested in the trade.

OIL.—Yield very small, only 3½ oz. from 534 lb. of leaves in fact too small to make a fractional distillation, It has thus the smallest yield of the stringybark, next to *E. capitellata* (H. G. Smith).

EUCALYPTUS LACTEA, sp. nov.

"SPOTTED GUM."

(Plate xlvi., fig. 5.)

A fair-sized tree with a dirty, flaky bark, which occasionally is smooth.

Sucker leaves ovate; leaves of mature trees lanceolate, up to 6 inches long and varying in breadth up to 9 lines, straight or falcate, not shining, of the same shade of green on both sides; petiole under 1 inch. Venation fairly well marked, veins oblique, spreading, the distinct intramarginal vein removed from the edge. Oil dots numerous.

Peduncles axillary, with few flowers (5 to 7) in the head, occasionally only 3 Calyx hemispherical. Operculum hemispherical, shortly acuminate. Ovary flat-topped Stamens all fertile; anthers parallel, opening by longitudinal slits.

Fruits hemispherical to oblong; rim with valves domed and almost touching, thus leaving only a slight aperture to the ovary; or the rim thin and the valves exserted and widely distended.

Hab.—Mount Vincent, Ilford (R. T. Baker); Oberon Road, O'Connel (R. T. Baker, R. H. Cambage); Southern Road, Wingello (R T. Baker, H. G. Smith); along the main Western Road, Blackheath, and Mt. Victoria (R. T. Baker).

In the field this tree might be confounded with *E. viminalis* or *E. hæmastoma* as both these Eucalyptus have a similar although variable bark.

The bark of this species, however, never has the horizontal "scribble" insect markings almost invariably occurring on *E. viminalis*, Labill., and *E. hæmastoma*. It has similary shaped leaves in all its stages of growth, whilst the sucker-leaves of *E. viminalis*, are narrow, cordate-lanceolate, sessile.

The fruits differ from those of *E. viminalis* in shape, rim, and direction of valves. The trees too are not found near water, as pertains almost invariably with *E. viminalis*, but on dry, stony ridges. It differs also from that species in the constituents of its oil.

It resembles *E. maculosa*, Baker, in the shape of the fruits, but differs from it in the timber, bark and oil constituents. It differs from *E. hæmastoma*, Sm., in timber, fruits, leaves and chemical consti-

tnents of the oil; and from *E. aggregata*, Deane & Maiden, in bark, fruit oil and habitat.

Its specific characters differentiate it from any of the other smooth-barked species. Of the rough-barked Eucalypts its fruits are often not unlike those of *E. fastigata*, Deane & Maiden, and *E. Smithii*, Baker.

The speoific name refers to the copions exndation of a milky substance from the stem when the tree is cut at certain seasons of the year.

TIMBER.—A very pale-coloured, whitish timber, fissile, only used for fuel, much softer than that of *E hæmastoma*.

OIL.—The yield of oil was ·541 It is not a commercial oil at present, as it contains bnt a very small quantity of eucalyptol. No phellandrene is present.

The specific gravity of the crude oil was ·8826 at 15° C.; of the rectified oil ·8788.

The crude oil has no rotation, while the rectified oil had a rotation of 1° in a 100 mm. tube.

A sample of oil from this species, obtained from Charley's Forest Braidwood, was almost identical with that from Ilford in constituents and physical characters (H. G· Smith).

EUCALYPTUS POLYBRACTEA, sp. nov.

"BLUE MALLEE."

(Plate xlvi., figs. 7-8)

A glancons Mallee, with quadrangular branchlets.

Leaves lanceolate (those on the early shoots lanceolate to oblanceolate) ,erect, rarely falcate, not obliqne; narrow, under 6 lines broad, mostly 3 inches long, acuminate, often with a recurved point; midrib raised on the nnderside, giving a leaf strong resemblance to that of an *Olea* not shining; intramarginal vein removed from the edge, lateral veins oblique, spreading, finely marked, only occasionally distinctly pronounced; petiole about 3 lines long. Oil glands very numerous.

Peduncles axillary, short 2-3 lines long, angled, with from 8-12 flowers. Buds in the early stage of development angnlar, snrrounded *by numerous acuminate*, glabrons, ribbed, whitish *bracts*, short, 1 to 1½ lines long, glaucous. Calyx conical, tapering into an exceedingly short pedicel. Operculum obtuse, or only very slightly accuminate, hemispherical. Ovary flat-topped. Stamens all fertile; anthers parallel, opening by longitudinal slits.

Fruits hemispherical to pear shaped, 2 lines in diameter, glaucous; rim thin, slightly contracted, valves deeply sot, not exserted.

Hab.—West Wyalong (R. H. Cambage, L. S.),

This Eucalypt is ono of the Mallees occurring between the Lachlan and Murrumbidgee Rivers, where it is known as "Blue Mallee," to distinguish it from its congeners.

The dried herbarium material is not easily separated from that of *E. viridis*. Baker, *E. Woollsiana*, Baker, and *E coniea*, Deane & Maiden, as the fruits of all these species are almost, if not identical; but this Eucalypts differs principally from them in never attaining tree-form, and in respect of its floral bracts.

Other points of difference are the angular buds its glaucons character, shape of the leaves and quadrangnlar branchlets, whilst the most marked distinctive character of all is its oil, the yield and chemistry of which place it amongst the most valnable of onr treos famons for the medicinal qualities of their oils.

Amongst other Mallees, it differs (1) from *E. gracilis*, F. v. M., and *E. dumosa*, A. Cunn., in the shape of the fruits and leaves, and the constituents of the oil; (2) from *E. oleosa* in the absence of the long, well-exserted valves, leaves and chemical constituents.

In botanical sequence it is placed next to *E. viridis*, as the fruits and leaves mostly resemble that speroies,

E. Woollsiana and *E. conica* have much broader leaves, and are classified amongst the "Box" group of Eucalypts.

Oil.—The oil obtained from this species is one of the best for Eucalyptus oil distillation growing in this colony. The yield of oil, obtained from material sent from Wyalong in the beginning of December, was 1·35 per cent. The crude oil was only slightly coloured, being of a lemon tint. The odour reminded one of eucalyptol, and volatile aldehydes are but present in minnte quantities, Free acid and ester are also comparatively small. 91 per cent. of the crude oil was obtained boiling below 183° C., and this contained 57 per cent. eucalyptol; no phellandrene was present, but pinene was detected. The crude oil was slightly lævo-rotatory, due to the presence of aroamadendral (the previously supposed, cuminaldehyde). The specific gravity of the crude oil at 15° C. was ·9143, and of the rectified oil ·9109, this comparatively low specific gravity being due to the presence of such a small amonnt of constitnents having a high boiling point. The specific rotation of the crude oil was [a] D—2·13° (H. G. Smith).

HORTICULTURE AT NUWARA ELIYA.

A VISIT TO MR. JOHN COTTON'S ORCHARD.

Probably barely one in five hundred visitors to Nuwara Eliya are aware that at the back of Lake View, the residence of Mr. John Cotton, may be seen the finest orchard in the island for wealth of imported fruit trees. It was in splendid condition the other afternoon, when the writer inspected it with ths proprietor.

"Never," said Mr. Cotton, "has my orchard so come up to the expectations I have all along had of it, as it has done this year."

Mr. Cotton's first attempt at growing English and Australian fruit trees was merely an experiment, but it has developed far beyond that stage now. Mr. Cotton began his cultivation with plums, and the parent tree of this species brought to Mr. Cotton from Australia by Mr. A. J. Kellow, of Albion estate, Nuwara Eliya, may now be seen in full growth and loaded with largo and delicious-looking fruit, in clusters. the size of the well-matnred fruit bsing abont equal to that of the native lime. These plums are of a dark red colour when ripe.

THE MAJORITY OF THE TREES IN THE ORCHARD ARE PLUMS,

some of them being from three to four years old, whilst a few are seven years old, and they are almost all of them in bearing and well grown. The Red Heart plum plants from Mr. Cotton's orchard were in great demand last year, and this year provision has been made to meet requirements by a large supply not only of the Red Heart plum plants but also of other varieties. The Burbank Plum, of which Mr. Cotton had a large crop last year, does not seem to have quite come up to its past reputation this year The plants nevertheless are looking quite healthy, and Mr. Cotton thinks that in all probability the crop will come on later, as the plants were pruned and handled later than were the Red Heart. Mr. Cotton places his great hope in a yellow Japanese plnm, which is now thriving very well, and a variety called the Kelsey Plum is also now in full bearing. Another blood red plnm, (of a very large size, the largest plnm in the orchard, as Mr. Cotton says) is just about to flower. Of other varieties of plum now being experimented with are the well-known Golden Drop, the Golden Heart, General Hand, General Sago, the Diamond and the Orleans. A few of these varieties are now being tried in the Nuwara Eliya Park. Mr. Cotton has in his nursery many one year old plants of the Red Heart and blood-red variety, both of which are specially recommended for easy cultivation and quick bearing.

APPLES, PEARS, CHERRIES AND PEACHES.

Mr. Cotton may well he proud of the brave show he has made this year with his apples. As with his other fruit experiments, Mr. Cotton's experiment in apple-growing was only a small one at the start. The first plant he put down was of the variety known as the Kentish Fillbasket, which was also hrought to him from Australia by Mr. Kellow. The tree is now about 5 years old, with a growth of 6 feet, and it carries one single apple, ten inches in circumference, when measnred in the presence of the writer. The fruit will in all prohability he ripe in a fortnight more, and in all probability will he bigger then. Mr. Cotton says that this apple-tree took a long time to adapt itself to the soil, but now that it has done so it is rapidly growing up. Experiments are heing made with other varieties of apples, viz., the Russet, the Emperor Alexander, the Beauty of Stoke and the Boston, and Mr. Cotton hopes soon to have plants of seven varieties for disposal to his *lientele.*

The fruiting season of the pear trees is uot yet upon us, hut the trees in the orchard are already covered with a profusion of white hlossom. The pear, found everywhere almost in Nuwara Eliya, is what is known as the "cooking pear'; but Mr. Cotton has succeeded in growing and eating pear (Le Comte pear) which has at last horne a fruit, after a seven-years period of coaxing and attention.

THE AUSTRALIAN PEACH.

Mr. Cotton state that his experience with the Australian peach is that it grows very luxuriantly in Nuwara Eliya but hears unsatisfactorily. He seems to think that the peach hears better outside a radius of seven miles from Nuwara Eliya. His trees are getting on as well as he could make them. Of cherries Mr. Cotton has many varieties, chief among which are the Verdus (a hlack cherry), the Waterloo, the Florence, and the Purple Jean. Several of these plants were imported lately and are already looking very vigorous. There are many varieties of young orange plants in the orchard, which are doing very well. Of the most successful varieties are the Washington, the St. Michael's the Rio, the Siletta, the Emperor Mandarin, are now being tried in the Nuwara Eliya Park, and Mr. Cotton expects to have some plants ready for sale by the beginning of next year. There are also ahout three sorts of lemons doing well in the orchard. One seven-year-old tree was practically loaded with as many as forty large size fruits. This plant like several others was also imported by Mr. Kellow.

THE CAPE GOOSEBERRY.

Another experiment the grower is very proud of is his Cape Gooseberry, which is in full hearing now. He has several other varieties of gooseherries (viz., the purple, the green, the red, the yellow and the white), but Mr. Cotton thinks that the cultivation of the Cape variety was a happy experiment, This does not signify that the other varieties (which are essentially English) are not doing well in Mr. Cotton's orchard. They were put down lately only, and not enough time has elapsed to prove the success or failure of the experiment, which is, according to Mr. Cotton, unique in Ceylon.

Mr. Cotton also has thres beds (60 feet x 30, 40 feet x 30 and 90 feet x 30) of straw berries in his orchard. The plants are in bearing at present, and as many as 20 pounds of fruit have been collected from these beds of a morning.

STRAWBERRY AND GOOSEBERRY JAM.

The writer was favoured with thre samples of jam made by Mr. Cotton from his strawberries, gooseberries, and tree tomatoes respectively. The jams were well prepared and tasted every bit as good as the tinned variety ordinarily met with. Mr. Cotton states that there is a demand for these jams, which he provides for by always having the jam ready in glass jars, sealed for delivery.

In a separate enclosure, Mr. Cotton has experimented on currants. He has four bushes here, all doing well and one bearing a small hunch of clusters. In this same enclosure are two grape vines (Muscat of Alexandria) trailing along frames attached to brick walls. These vines are from grafts imported from Australia. Another small vine has just begun to trail; this was produced from seed from the ordinary market grape. An apple tree in this enclosure (which was raised from seed from imported fruit) is 6 years old, but has not yet come to any good although it looks vigorous and stands ahout 3 feet high.

APICULTURE.

Mr. Cotton is of opinion that much of the success of his orchard depends on the beehives he has in it, the little insects helping materially in fructifying tho flowers. There are two hives (in ordinary earthen pots and well-protected) in the orchard one of which is quite full of comb now.

FISH BREEDING.

A description of Lake View orchard would not be complete, if the writer omitted to mention that in addition to the ahove, Mr. Cotton has three ponds (connected by a small running stream) in one of which he rears a few trout, two of which are about 4 lb. in weight each; in the second pond he has twenty-four trout fry, averaging 1½ inches, and all doing well; in the third he had carp, but he has taken the last of these out.

Mr. Cotton's achievements unmistakably what well directed exertion can do, and his future experiments in fruit culture will he watched with the keenest interest by a growing section of the public.—*Local Times.*

ORNAMENTAL SEEDS.

Under the term of minor industries it has been proposed by Dr. Morris, in *The Agricultural News* of Barbados, to introduce new commercial plants, natives of other countries, but adapted for cultivation in the West Indies. In a recent number, in a paragraph on ornamental seeds, the writer says that "the present age is one in which there is a great demand for curios, and the increasing number of winter visitors to these colonies, should enable aged people and those who are only able to follow light sedentary occupations, to establish quite a small industry in mounting and preparing the ornamental seeds of the West Indies." It is pointed out that there are in the islands numerous seeds of an ornamental character, and that they deserve to be more widely known. It is, indeed, somewhat surprising that many of these seeds have not come more generally into European use than they have done, for they have always figured prominently among the exhibits at the several International Exhibitions of London and Paris, but mostly as ornamental beads, simply strung on strings for use as necklaces or bracelets, or perhaps for ornamenting table mats. Many of them are specially adapted for such purposes, but there are others that might well he used in a superior class of jewellery, in connection with which the following may be noticed:—Horse-eye beans. These are the seeds of species of *Mucuna*, chiefly those of *M. urens*, and they get their common name from the fact of their appearance being similar to that of the eye of a horse, though somewhat smaller. They are the produce of climbing plants of the tropics, belonging to the order Leguminosæ, and are well known to travellers, in consequence of the pods in which the seeds are contained heing thickly clothed with sharp, stinging hairs, which are readily detached hy the slightest shake. A familiar illustration of the annoyance caused hy these hairs penetrating the skin is to he found in the allied species, *Mucuna pruriens*, which furnish the cowhage, or cowitch, of pharmacy, at one time much used as a vermifuge. The horse-eye bean,

when fully ripe, dries well and becomes quite hard. It has a brown, pitted, or rough surface, surrounded with a smooth, darker band. Divided in half, hollowed out; hinged and mounted with a gold or silver rim, these seeds make excellent appendages for watch-chains, or variously treated with similar mountings, they would form quite attractive bracelets. Similar results might be obtained with nicker beans (*Cæsalpinia bonducella*) There are also the produce of a leguminous plant, two or three seeds being contained in each pod, which is of a chocolate-brown colour, and studied with stiff woody spines. The seeds are about the size of a large Barcelona nut, irregularly globular, very hard, with a shiny surface, mostly of a greyish-slate colour, but sometimes yellow, orange nearly black, or even white. They are commonly used by the natives for making necklaces, bracelets, and rosaries. In India, where the plant is common, the kernel of the seeds is said to possess medicinal properties. The smaller seeds of the nicker, properly mounted and provided with a shank, might well be made into waistcoat buttons or ornamental buttons for ladies' dresses, as was at one time done in England with the soap berry seed. These are the produce of *Sapindus saponaria*, a small tree, the fruits of which are fleshy and about the size of a cherry, containing one hard, intensely black seed. The pulpy portion of the fruit shrivels in drying and becomes horny; it contains a large proportion of saponin, which is readily extracted by soaking in water, and is thus much used by the people for washing fabrics, as a lather is very quickly produced. The hard, round seeds are used for making necklaces, bracelets, buttons, and rosaries, and it is said that many years ago buttons were made of them, and used in England, chiefly for waistcoats. The absence of any figure or colour in the seeds, being a dull uniform black, does not recommend them for general purposes, but with silver mounts they would be particularly suited for mourning use. The intensely hard seeds of the Gru Gru palms, for the name is applied to at least two distinct West Indian palms, namely *Acrocomia sclerocarpa* and *Astrocaryum vulgare* are like the soap berries, black. They grow, however to the size of a walnut, and the centre being occupied with soft oily seeds, they can readily be hollowed in the form of boxes, or cut into buttons of different shapes and sizes, and as they take a fine polish should find some general application.

Amongst the brighter coloured seeds which should find a use amongst jewellers may be mentioned crabs eyes, furnished by a common tropical climbing leguminous plant (*Abrus precatorius*). The seeds are abundantly produced in small pods, and are themselves quite small, of a bright scarlet colour, with a black spot. They are very uniform in size and weight, the average weight being 1·75 grains. Wherever the plant is grown these very ornamental seeds are used for necklaces, ear ornaments, and personal adornment of all kinds, as well as for rosaries, and for decorating boxes, baskets, &c. Dr. Watt says the plant with its open withered fruits exposing the scarlet seeds is twisted round leafy boughs to simulate the holly at Christmas time at English stations in India.

It may be worth while saying that the seeds in the fresh state contains a poisonous property which is dissipated by boiling. Experimenting with the seeds of *Abrus* Dr. Warden is reported to have found that half a seed rubbed down with a small quantity of water and injected into the thigh of a full grown cat produced fatal effects in twenty-four hours. A seed almost identical in appearance, namely a bright scarlet with a black blotch but much larger in size, is that known as the Jumbi and produced by an allied leguminous plant, *Ormosia dasycarpa*. These seeds might well be used as a substitute for coral especially for necklaces and for mounting in brooches, as might also those of the coral tree (*Erythrina*) which are of coral red without the black spot. A still brighter seed also without the black mark is that furnished in India by *Adenanthera pavonina*, a large leguminous tree of Bengal, South India, and Burma. It is generally known as the Andaman redwood tree but sometimes as red sandal wood, in consequence of its use as a dye in substitution for the true red sandal wood or red sanders wood. The seeds are nearly half an inch in diameter somewhat lens shaped, that is convex on both sides and of the brightest shining red. In India they are often strung and made into necklaces, bracelets, and other articles of personal adornment. They are also used as weights in consequence of their uniformly weighing four grains. Their bright colour, hardens and uniform size caused them to attract the attention, a year or two ago, of a London West-end jeweller, who contemplated using them for brooches, pins, rings, &c.

That many of the seeds here enumerated, as well as others, are capable of extended utilisation cannot be doubted. Job's tears, the seeds of *Coix lachryma-jobi*, are by no means uncommon in the windows of fancy jewellers, made up into chains or bracelets, and there is no reason why there should not be a much greater variety of vegetable curios to choose from. Even with the job's tears, there are several varieties used in India that are still unknown in English commerce, and are only seen on native dresses, being used by certain tribes on account of their ornamental character. So long ago as the Colonial and Indian Exhibition in 1886, these seeds attracted much attention; and Dr. Watt, referring to them in his "Dictionary of the Economic Products of India," says, "They seem to stand a good chance of coming into use in Europe in the construction of artificial flowers, laces, bugle trimmings, and other such purposes for which glass beads are now used, and possibly also in Catholic countries, for the manufacture of rosary beads. If found capable of being dyed a deep black [or even brighter colours] there might be an extensive demand for them, since they would be much more durable than glass" so far as we are aware this anticipation has not been fulfilled, so that there is still an opportunity to establish a trade with these and other seeds, as for instance the so-called velvet seeds of British Guiana, referred to in the West Indian *Agricultural News**, which would make a good and novel trimming for ladies' dresses. —*Journal of the Society of Arts.*

COFFEE.—"Fertilizers and Coffee Cultivation, Addresses delivered before the United Planters' Association of Southern India, by Dr. Adolf Lehmann, Agricultural Chemist to the Government of Mysore, 1899-1902"—is the title of a useful pamphlet to hand today, published by Messrs Higgenbotham & Co, Madras. Coffee is, of course, a thing of the past in Ceylon; but from India over 200,000 cwt are still exported.

FLAX IN IRELAND.—The Flax Supply Association report respecting 1901, that there was a substantial increase of one-sixth. The increased acreage under Flax in Ireland, as compared with 1900, is coupled with a very large yield of fibre per acre, the largest yield registered for forty-seven years, viz., very nearly 37 stone per acre. It appears that the Ulster returns were very satisfactory all round; whilst of Connaught it is stated that the 300 acres there grown gave the splendid crop of 49 9-10 stone per acre, larger than that of any foreign country. It is therefore to be hoped that the average may steadily increase from year to year. The total yield of the 55,000 acres under culture was close upon 13,000 tons, a larger produce than any of the previous five years, and about equal to that of 1895.—*Gardeners' Chronicle.*

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* The London agents for the publications of the Imperial Department of Agriculture for the West Indies are Messrs. Dulan and Co., 37, Soho-square.

SCHOOL GARDENS IN CEYLON.

The proposal to establish School Gardens in this Colony, and to make them a feature of future educational life, is worthy of encouragement. Being somewhat out of the beaten track of everyday instruction —which in most minds is associated with books, black-boards and slates—the idea of each school being possessed of a special province of its own where nature herself is to be the instructress, and where tender minds are to be gently led to exercise their powers and learn her secrets direct, may be considered by some to be a "fad"; but it has, at least, about it a graciousness which is winsome. The School Garden, although a new importation to Ceylon, has already a history and literature of its own. It is an established fact in many lands; a prized institution on the Continent and in America; and those who know most of it, and have carefully noted its working and effects, are among the advanced number who highly prize it as an educator, and would recommend its adoption everywhere. The idea, therefore, comes to us not untried, but as one which has been tested by many peoples: has established its footing not by ousting the well-known and venerated methods, or hustling itself into their place; but by a steady quiet growth which has won for it, approval and acceptance. It has been found to be radiant with much promise.

In the educational number of last month's New York *Outlook* there is an article on "School Gardens, their Development and Functions," which deals with the subject in an interesting way. Eighty years ago, the School Garden was first established in Austria and Sweden; got official encouragement, and in both these countries it still flourishes. The Austrian Imperial School Law has this for its ideal in the matter:—"Where practicable a garden and place for agricultural experiments shall be established at every rural school." In 1898 there were over 18,000 School Gardens doing their work; while in some of the provinces in Austria there was not a school without a garden. In Belgium each school must have a garden of 39½ square rods. The Federal Government of Switzerland has begun to subsidise School Gardens, and to offer prizes for plans and essays on the subject. France has 28,000 primary Schools with Gardens attached. Germany has taken no official action; but in the different States the system is recognised and adopted. Russia numbers 8,000 School Gardens, and hatcheries of bees and silk-worms have been added. Neither Great Britain, America, nor the Netherlands have as yet done much; but America is moving, and, as the idea has "caught on," rapid advancement may be looked for and by the end of the present decade the United States School without a Garden will be the exception. In Scotland 45 years ago there was, at least, one famed educational establishment —The Dollar Institution—where School Gardens played their part and the Institution had then the unique place in Scotland of being recognised by the Government as a training centre for Indian Civil Service Candidates. Only in London and Dublin at that time could this needed instruction be elsewhere secured. Today the gardens are no more, and the prestige of the Dollar Institution is not now what it was.

Now, what is it that is claimed for the School Garden? It is held that it keeps the children more in the open air; that it substitutes, where possible, nature study for book-learning; that, while it does not pretend to teach the business of farming or horticulture, it tries to inspire a love for country life by a study of its phenomena. It trains to habits of accurate observation and elevates the mind in many ways. The radius of its influence is wider than the school. A wise principle is laid down not to attempt too much at once, and, while some of the American Schools have a plot for each scholar, others begin with but a single bank of wild flowers and ferns, the join property of the scholars. If School Gardens in Ceylon will but create a love of country life, what a gain that would be. Our educated youths are inclined to look down on rural work as beneath the dignity of their enligheneted souls—law medicine, and Government service being the openings they crave for—with the result that, while at the top of the profession there is always plenty of room, the rank and file are so jostled and hustled that life becomes in many cases a joyless grind, and sordidness at length quenches all its natural brightness. The prosperity of our Colony is based on successful Agriculture; and to have the educated rising generation taking an intelligent interest in it, and adopting it as a career for life's most strenuous efforts would be a very great gain for the island. When the Government takes to the distribution of new economic plants—as from time to time it has done in the past—the success of the experiment would be assured, if the new importations were reared and tended by people who knew something of plant life and whom early training had bent their minds in that direction, rather than if they fell into the hands of the ignorant and untrained. The Russian addition of Bee-keeping might well be adopted, when feasible, as an adjunct to the School Garden: becoming a source of revenue as well as an object lesson. Doubtless there would at first be some difficulties, and experience might have to be bought at a stinging cost; for our Ceylon bees have not yet, we believe, been domesticated—unless by Mr. Frank Benton, Apiarian, America, from the specimens he collected and took away over 20 years ago,—nor does it "improve the shining hour" for man's benefit. Still there is much first-hand information on apiaries easily accessible, and Bee-cultivation has been reduced to an almost exact science, so that an intelligent teacher, who elected to supplement his School Garden with a bee-hive, would soon find his way about, and have in his School compound a theme intensely interesting to young people, redolent of life as well as teeming with valuable instruction.

A COMPRESSED (WHOLE LEAF) TEA SYNDICATE, LTD.

The above new Company has been registered in England, and we take the following from the *Investors' Guardian*, August 9 :—

Compressed (Whole Leaf) Tea Syndicate Ltd, (74,493),—Registered July 29, with capital £1,000, in £1 shares, to adopt an agreement with W Gow and J H H Rolfe, to buy, sell and deal in tea and other products and substances, capable of being dealt with by the invention for an improvement in the manufacture of compressed tea, mentioned in such agreement, and to carry on any business incidental or auxiliary thereto. No initial public issue. Begg, Dunlop and Co., of London. are the managing agents. Registered Office, 138, Leadenhall St, E.C.

INDIAN PATENTS.

Applications for the under-specified inventions have been made :—

No. 267 of 1902—Rakhal Dass Khan, rice miller Ramkristopur, Howrah. A mill for husking rice finally so as to make it suitable for use as a food-grain.

No. 268—Rakhal Dass Khan, rice miller, Ramkristopur, Howrah. A paddy-boiling apparatus.

No. 269—Rakhal Dass Khan, rice miller, Ramkristopur, Howrah. A mill for drying paddy and other food-grains.

No. 271—Basrur Brothers & Company, merchants and agents, Hanawar, North Kanara district, Bombay presidency, British India. Manufacture of a new product from the Talipot palm.

No. 288—David James Young, plumber, of Patea in the provincial district of Taranaki, in the Colony of New Zealand. An improved portable shower bath.

No. 290—Henry Mathew Alleyn, tea planter of Meria Cotta, Maskeliya, Ceylon. An improved manurial mixture for tea cultivation.

No. 308—Edward Daw Mashiter Cooper, conservator of Forests, Madras. Improvements in the fastening of doors, windows and the like.—*Indian Engineer*, August.

A USEFUL TREE FOR THE HIGHER PLANTING DISTRICTS.

Mr Nock writes that he has had a specimen sent him of the tree growing on an Agras estate, Dimbula, supposed to be *Ailantus glandulosum* ; but which he (Mr N) thinks is rather *Acrocarpus fraxinifolius*, a tree from India. Mr Nock has sent the specimen to Peradeniya to be verified, so the result will soon be known. Meantime here is Dr. Watt's account of the tree known as the red or pink cedar of tea planters, which we believe with Mr Nock must be the tree growing on Glasgow :—

Acrocarpus Fraxinifolius, *Wright ; Fl Br Ind, II*, 292 ; *Wight, Ic, t.* 254.

Red or Pink Cedar of (tea-planters).

Vern.—*Mandama*, Nepal; *Mad ing*, Lepcha ; *Malai-kone*, Tinnevelley, *Kalinji*, Nilghiris, *Kilingi*, Burghers, *Hantinge. belanjihavulinge*, Kan.

Habitat.—A lofty deciduous tree, found in the Eastern Himalaya and lower hills down to Chittagong, ascending to 4,000 feet, also in South India and Burma.

Structure of the Wood.—Sapwood white, heartwood light red, moderately hard. Weight 39 lb per cubic foot.

Used by Planters in Darjiling for tea-boxes and planking, in the Wynaad for building and furniture, and in Coorg for shingles.

In the *Tropical Agriculturist* for May 1883, some interesting information is given regarding wood for tea-boxes. Mr Bruce writes : "I have used this timber more perhaps than any other for tea-boxes and tea-house furniture in general, and if it had been well seasoned it is as good a wood as could be procured for the purpose."

Dr. Watts' extract from the *T. A.* probably explains how Mr A L Cross came to introduce this tree. In the very early years of "tea" here, we had a very carefully written essay on tea culture, prepared for us and published in our daily and monthly by Mr Bruce, an experienced Nilgiri tea planter, and it was no doubt on seeing his recommendation as given above that Mr Cross first got seed of the tree in question. The wonder is that *Acrocarpus fraxinifolius* is not grown more freely upcountry.

LIQUID FUEL FOR STEAM ENGINES.

We are informed that the Steam Engines of Messrs. Clayton and Shuttleworth—for which Messrs. Walker and Greig are Agents —work equally well with all petroleum having flash points from 82° to 240°. The conditions of working with the heavier oils require that the engine be altered slightly to secure economy with the liquid fuel, but these alterations are not an expensive item. Messrs. Walker and Greig have at present a 7 horse-power engine at work with liquid fuel at their Glencairn Works, Dikoya. But before the firm can give any advice on the subject of driving under these circumstances, they intend running the engine for one month on the new fuel, in order to be able to judge of its merits or demerits on all points.

Railway Traffic in Plantains.—A morning business visit to the Railway Goods Department at the main station—the approach road to which by the way is in an atrocious state—will generally reveal half a-dozen bullock carts being loaded up with green plantains; and from the intelligent Goods Clerk we learn that on an average 10 loaded waggons, chiefly from Rambukkana, Polgahawela, Ambepussa and Mirigama, arrive daily. Each waggon has probably 500 bunches, and each bunch averages, perhaps, 30 large plantains—so that 150,000 plantains (or one for each inhabitant!) come into the city by this route alone. Probably if the supplies received from the Cotta, Negombo and other sides were added, the total would be very much increased. A traffic in fruit from native gardens between Colomb and Avissawella ought to form part of the Kelani Valley Railway traffic, and the cultivation should be extended to meet the demands of a ready market as the result of railway communication.—We have been told since by native authorities that there are more like 100 to 150 plaintains on each normal bunch ?

CINCHONA BARK AND QUININE:

JAVA SWAMPING THE MARKET.

(C M & C Woodhouse's Circular, 21st August.)

On the 16th instant the exports of Bark from Java for first half of August were cabled as 1,227,000 Amst. lb.! As this quantity would have been considered heavy for the whole month, the question asked everywhere is, "What does it mean"? In the hopes of getting Planters in Java to keep the market supplied with moderation and to avoid excessive harvesting of Bark which must end disastrously to all concerned, we think the following statistics may be found useful as showing roughly the position at the end of last year:—

	1901. Eng. lb.	1900. Eng. lb.	1899. Eng. lb.
Imports of Bark into U.K. & Holland	18,208,000	15,770,000	16,321,000
Exports of Bark from U.K. & Holland	15,271,000	16,243,000	15,828,000
	+2,937,000	—473,000	+493,000
Estimated Bark consumed by English and Dutch Manufacturers	2,000,000	2,000,000	2,000,000
Estimated difference in Stocks of Bark in London and Holland	+937,000	—2,473,000	—1,507,000
	Ozs.	Ozs.	Ozs.
Quinine equivalent at 4½ per cent.	+675,000	—1,781,000	—1,085,000
Increase in Stocks of Quinine in London during the year	201,000	563,000	997,000
Estimated difference in Stocks of Bark and Quinine	+876,000	—1,218,000	—88,000

From the above it appears that, owing to the increased supplies of Bark from Java, the Production was last year in excess of the Distribution, but this would not have mattered much in view of the large reduction in Stocks during two preceding years, if consumption had been maintained, but the feature for some months past has been the large falling-off in Imports of Bark and Quinine into United States. Estimating the Bark as containing 4½ per cent. Quinine on average, the Imports of Bark and Quinine into United States compare as follows, viz.:—

	1901/2. Ozs.	1900/1. Ozs.	1899/1900. Ozs.
1st July to 31st May	5,227,000	6,688,000	6,193,000

Now it is not likely that actual consumption has fallen off to anything like the above extent, but it is unfortunate that, when the market is suffering from a diminished trade, the exports from Java should show a tendency to increase. We trust that the Planters there will be warned in time, as the future is almost entirely in their hands.

QUININE.—During the earlier part of the month the market was steady at 10½d to 10¾d per oz., with a moderate business doing to the Trade. This week, however, after the heavy Bark shipments were known, prices gave way 1d to 1½d per oz., and considerable sales were made at 9¼d to 9½d per oz. on the spot. The further decline again brought in buyers and there has since been a firmer tone, the latest quotation being 9¾d to 10d per oz.

MANURE COFFEE.

I have before me a pamphlet by Gustav Helmrich on experiments in manuring coffee in Guatemala. It shows the perseverance, determined effort and scientific attention of a coffee planter amidst difficulties such as hail and rain that measured 180 m. in 2 hours and resultant landslips that carried away fair-sized fields.

Besides various conclusions come to concerning green manuring, weeding, etc., he lays stress upon the necessity for a well-balanced, complete manure. He prefers for good soil, or for land where natural manures are employed, a fertiliser containing

Phosphoric acid	8
Potash	13
Nitrogen	4

which should be used, not for each tree but for the whole field. With green manuring a fair supply of cheap nitrogen is obtained, but phosphoric acid and potash are wanting and should be supplied. Phosphoric acid increases the yield, but when it is in an easily soluble form the greatest care must be taken, for, if given in quantities too great, it forces from the tree one or two large harvests only to rush it to certain death unless a heavy nitrogenous manure is employed as an antidote. Potash acts on the wood and leaves. The coffee plant stands greatly in need of potash. When this fertiliser is not used the want is immediately noticed in the tree. Nitrogen shows its effect in strong fleshy branches of fruit wood, dark leaves and slow ripening. Lime unites for a short time the action of potash and phosphorous, the stout, long woody appearance resembling the effect produced by potash while the disintegrating effect upon the soil and the early ripening produced resemble the action of phosphoric acid. The usual course in fertilising is to wait till the impoverishment of the soil is patent to the naked eye, generally after some years, when the coffee roots have penetrated to a soil that starves them. As to the manner of manuring I think the advice is sound, and the only rational one is to fertilise the field as a whole and not the single tree. If a part of the plantation is lost, and dying trees unfortunately show in different places, the point for decision is whether the whole must be given up or the whole maintained, and the only way to keep the vacant spaces from increasing year by year is to grow green manure on them and to keep the whole field equally well manured.

As far as I have seen, great faith is held in superphosphates and the quickly acting and as quickly lost saltpetre, but few planters resort to a steadily acting, well-balanced complete manure such as a mixture of bone meal and potash with stable manure or poonac.

Ranipet, 21st Aug. JOHN KENNY.

—*Madras Mail*, Aug. 27.

COLOURED AND UNCOLOURED GREEN TEAS.

To the Editor "Home and Colonial Mail."

SIR,—Mr. Robert Hart's able letter in your issue of the 19th July should set at rest the many misconceptions that have grown up on this subject. It cannot be too widely known among British planters and Directors of Companies that green teas, on whatever system they are made, come out coloured, or uncoloured, according to the style of the final firing. If this is carried out on the ordinary hot-air drying machines, the tea will assume the olive colour that has misled some tea experts into calling the Ceylon green teas made in this manner "Oolongs" or "Namunas," which they cannot be, for these descriptions are semi-fermented, whereas the Ceylon green teas produced on Mr. Drummond Deane's well-known system are entirely unfermented. The

colour of these answers to the colour of the Japan basket-fired green teas, which are also dried by a current of hot air, and passed on to the consumer without any colouring or finishing process being attempted. On the other hand, if the firing or drying operation is finished on hot pans, they will assume the desired green grey colour in the dry leaf. The Far East tea finishers, generally handling the tea when it is old, are obliged to add colouring matter to obtain the desired colour. On Indian gardens where the tea is finished *in situ* it may be coloured pure, for it will take colour without colouring matter when it is fresh, but only when it is fresh.

The advantage which Mr Deane's system of green tea making has over all others lies in the facility with which large quantities of leaf may be rapidly handled. It is not too much to say that the company, to which Mr Hart alludes as making coloured teas by the aid of Mr Drummond Deane's machine and system, could never have taken up the contract to produce 200,000 lb. of coloured green tea for the Indian Tea Association, and now 160,000 lb. more at half bonus after experience of the cheapness of green tea production on this process, if they had not had Mr Deane's machine and process to rely upon to produce the green tea, from which, by a final firing, they make the coloured or finished article. Mr Drummond Deane by his invention has indeed introduced as great a revolution into green tea making as was effected by the first machine rollers and dryers in black tea. If we are now in a position to compete with China and Japan in the matter of green tea, as the experience of Mr Hart's company shows that we are, it is entirely due to Mr Drummond Deane; who has made it possible to produce the uncoloured green tea, from which the coloured tea is made by the finishing process, cheaply enough to give us a chance on the market. In later days the tea industry and its promoters will come to recognise the immense debt it owes to Mr Drummond Deane, who has rendered green tea, coloured or uncoloured, on a large scale possible in India and Ceylon.

At the same time there is something to be said in reply to Mr. Hart on the subject of uncoloured green teas. These, it is now admitted on all hands, are as truly "green" in character as the coloured variety. Indeed it would be absurd to contend to the contrary, for it is from these uncoloured greens that the others are made. Mr. Hart, however, contends that the colouring process adds quality, developes the liquors and matures them, and that the process is necessary to enable British growers to compete against the Far East teas. If the colouring process is so necessary, how is it that some of the best Japan teas are not coloured or finished in the manner described? I allude to the "basket-fired" teas of Japan, which are in great favour in America. These "basket-fired" teas are dried in an apparatus by a current of hot air, corresponding to the drying machine with which the uncoloured green teas of India and Ceylon are fired. Their colour in the dry leaf is an olive brown or green very similar to the colour of our uncoloured teas. I have not heard that the trade considers that these Japanese "basket-fired" green teas are not "true" greens or that they show any deficiency in liquor or that they require further "development" or "maturing." I understand that they are well thought of by dealers and consumers.

I do not hold a brief for uncoloured green teas, but I think it useful to suggest that there should be no dictation to tea makers which kind of tea, coloured, or uncolored they are to make. It is a well-established fact that uncoloured green teas are going ahead well in Canada and that the demand for them is increasing both there and in the States. It is immaterial it the States' buyers, as suggested, buy them for the purpose of colouring, so long as they *do* buy them. For that matter, they do the same with Japan teas at seaport towns of Japan, for the Japanese do not make coloured teas on their gardens; it all has to be coloured by the buyers after purchase. The point to be considered is that, the demand being in this manner assured, it is a matter of personal convenience with tea producers which style they shall go in for. The price obtainable for the coloured tea is certainly higher, but the process again is more costly and in many instances the margin between cost and price will not show to advantage compared with the margin between cost and price of uncoloured teas. Possibly in some cases it will be equal and in a few, where the manufacture is taken up on a large scale, the advantage may be on the side of the coloured greens. But most concerns will not care to pledge themselves to a very large output at first or incur the expense of installing more plant than absolutely necessary. It would therefore be a hindrance to the movement to rule out uncoloured green teas from the advantage of the Association's aid, especially as the demand for it is well sustained. Even if it is bought for the purpose of colouring, it is so much off the black tea market and so much more British-grown tea gone into consumption and so a clear gain.

This I write without prejudice to the movement to produce coloured greens, answering to Japan and China teas, which deserves all encouragement and support. Speaking from personal knowledge I may say that a good many of those who are now producing uncoloured teas on the Drummond Deane system are experimenting with a view to colouring their teas before they leave the factory and, it they find that they can economically carry out the process, will adopt it; but if any hasty action against the manufacture of the coloured teas is taken, they will probably drop green tea for good.

PERMANGANATE OF POTASH AND MOSQUITOES, &C.

Here is the exposure to which our Correspondent "E. E. G." recently referred:—

"Other substances have been experimented with. Two years ago many newspapers contained an item concerning the use of permanganate of potash. As this item was credited to the Public Health Journal it gained a great deal of credence, and was afterwards mentioned in an interesting article by Mr A C Weeks, in the Scientific American. The published note read as follows:—

Two and one-half hours are required for a mosquito to develop from its first stage, a speck resembling cholera bacteria, to its active and venomous maturity The insect in all its phases may be instantly killed by contact with minute quantities of permanganate of potash. It is claimed that part of this substance in 1,500 of solution distributed in mosquito marshes will render the development of larvæ impossible; that a handful of permanganate will oxidize a 10-acre swamp, kill its embryo insects, and keep it free from organic matter for thirty days, at a cost of 25 cents; that with care a whole State may be kept free of insect pests at

a small cost. An efficacious method is to scatter a few crystals widely apart. A single pinch of permanganate has killed all the germs in a 1,000-gallon tank.

"The item is so obviously ridiculous upon its face that it would hardly seem worth while to make any attempt to refute its statements. Nevertheless, it has been so widely read that definite experimentation seems necessary to set the matter at rest. The unknown author's ignorance of the life history of mosquitoes in the opening sentence need not necessarily imply that he would not know a good remedy if he found one. Careful experiments were undertaken by the writer in July, 1898, with various strengths of permanganate of potash in water containing mosquito larvæ from one to six days old. It was found that small amounts of the chemical had no effect whatever upon the larvæ, which were, however, killed by using amounts so large that, instead of using a "handful to a 10-acre swamp," at least a wagon load would have to be used to accomplish any result. Moreover, after the use of this large amount and after the larvæ were killed, the same water, twenty-four hours later, sustained freshly-hatched mosquito larvæ perfectly, so that even were a person to go to the prohibitive expense of killing mosquito larvæ in the swamp with permangnate of potash, the same task would have to be done over again two days later. The same conclusion was subsequently reached, after careful experiment, by Dr Lederle, of the New York health office, and by the Italians Celli and Casagrandi."

HOME-MADE JAMS IN INDIA.

(*By a Mem-Sahib.*)

Reading an article in a late Home paper on the subject of "Preservatives in Food," I saw in it these words: "Mr Blackwell, though he does not put preservatives in jam, allowed that it would be useful to do so, and the chemist to Messrs. Keiller said that the makers who use preservatives have a great pull over the rest."

Preservatives or not, it seems to me only too true that of late years *all* tinned jams have deteriorated so far as keeping qualities go, for nowadays a tin often ferments and has to be thrown away after being open for less than a week, and I have even opened a tin in which fermentation had already started. This, from my own experience, I attribute largely to the use of beet sugar, with which all markets are now flooded, thanks to the bounties of foreign Governments, and to our own policy of letting the products of our Colonies slide without any help, when their trades are killed by such unfair foreign competition.

I have been out here many years now, more than I care to think about, and have always been keen on my own jam-making, having been brought up in an old-fashioned way, and having been taught to be proud of making my own preserves when one can rely on the materials being what they profess to be, the sugar being cane, and no preservatives used, except the good old-fashioned ones of care and good boiling. I allow it takes time and trouble to see to things oneself, but out here most of us Mem-Sahibs have time and enough to spare, and we surely may still take pride in such things. For years one has known that the staple of most tinned jams is anything but the fruit of which the name on the label leads one to imagine one is eating; carrots, turnips, pumpkins, etc, are all requisitioned, and quite lately I was told by a man in the trade that common figs are largely used in strawberry jam, to give the necessary seediness. In every trade recipe glucose, which is I believe a product of coal, etc., figures largely to give stickiness and sweetness, with the use of less sugar, and less wastage from long boiling. These things are all doubtless good in their way, and one would not complain were they sold under their true colours, but I, myself, very much prefer to know what I am eating, and as my products seem appreciated by my guests, to judge by the consumption of them, perhaps some of my treasured recipes may be useful to others.

Of fruit in this country we have ample store, and ridiculously cheap, as compared to Home prices cane sugar can easily be got by buying direct from one of the big cane mills, and servants are willing; so on the score of economy, too, home-made jams are to be recommended; but to ensure success, strict personal supervision is necessary, unless one is lucky enough to have a servant one can implicitly trust. I find there are two items specially in which they want looking after: they *will* put too much water to the fruit, because "Missis only liking plenty jam coming," quite ignoring the fact that the water has to be boiled away or the jam will go mouldy or ferment; the other is that they have not the ghost of an idea what "simmer" means. If left to them the jam will boil furiously whilst the maty is energetic enough to blow up the fire, but energy and fire soon die down, and then the jam goes almost cold. Either a good oil stove or "Primus" is far the best for this work, as then you can regulate the heat to the exact amount required. Bearing these two facts in mind, and also that the fruit must be sound, ripe and dry, and the sugar *cane*, I pass on to some recipes.

First comes Cape Gooseberry Jam, which I consider the king of Jams, bar none. Take the fruit out of the hulls; wipe carefully to free from dust, rejecting all green ones. Weigh; prick each two or three times with a silver fork, and put all into a preserving pan of which the bottom is *just* covered with water; this prevents the fruit from catching, which it is very apt to do. Set aside ¾lb of sugar for every lb of fruit. Let the fruit come slowly to a boil alone, stirring it carefully and gently with a wooden spoon. When it boils slack it off: add half the sugar and let it come gently to a boil again; slack it off again; add the rest of the sugar, and the juice of two or three limes for each lb of fruit. This depends on individual taste. Simmer slowly, stirring all the time till the juice sets on a plate. If you care to boil it longer it will jelly, and you can turn out the jar as a pretty golden shape, when cold.

The juice, strained from skins and seeds, weighed and onequal quantity of sugar allowed boiled to a jelly makes a delightful preserve for children, with whom seeds in jam do not as a rule agree.

Guava Jelly. Pare and core any number of ripe guavas. Those with pink flesh make a prettier coloured jelly than the white, but the flavour is identical. Put in a preserving pan with enough cold filtered water just to cover the fruit completely. I advice you to see it put over yourself or the servants will put in far too much. Stew gently with the cover on the pan, for about 6 hours, or until the fruit is almost dissolved. Here again, if left to himself, Rama

swamy will gallop the pan with the cover off, and in consequence the fruit will not boil to a mash, and you lose a lot of the juice. When quite pulpy strain it through clean flannel, wrung out in boiling water, or a thick *jharun* ; it must be left to drip and not be helped by stirring with a spoon . I usually leave mine in a safe place to drip all night. Weigh the juice ; to every lb. allow 1lb of best white cane sugar, and the juice of three limes. Let it simmer till it jellies, skimming carefully. One time when I failed I found my sugar was beet-root, as I did not then know its evil propensities.

Guava cheese, for dessert, is very good, made with the pulp, put through a sieve to free it from seeds, an equal weight of sugar allowed, and a tea cup of juice to every lb of pulp. It should set and turn out in a rich deep red cake.

On the Hills splendid sour oranges are to be had and there are quantities of recipes for marmalade. I have my two favourites, one of which is a clear jelly with the transparent chips set in it very good to look at and still more so to eat. Cut the fruit up raw very thin, white and all together, only taking out the pips. To each pint of fruit add 3 pints of cold water; let it stand for 24 hours. Then boil gently for some time till quite tender, so that a straw will pierce the chips quite easily. Leave it till next day. To every lb of boiled fruit liquor and all add 1½ lb white cane sugar ; bring it slowly to a boil and until the syrup jellies and the chips are transparent. Boil the pips with about two big cups of water till reduced to about half, and add with the sugar ; they help jelly.

Another kind, not jellied. To each lb. of sour oranges put 2 quarts of water, and boil the whole fruit for two hours, or till quite tender. Then cut all up into thin slices, taking out the pips. To each lb. of cut up orange add 2 lb. of best white sugar, and 1 pint of the water in which the fruit was boiled. While you are cutting up the fruit pour the water on the sugar, and let it stand to dissolve in the preserving pan, off the fire. Add the fruit and boil all together briskly for half-an-hour, or till the juice gets syrupy.

Here we have a little fruit in our gardens, called "Mock Orange." The bush is small, with tiny dark green leaves like a miniature orange tree, and the blossom is white and has an orange blossom scent. The fruit is about as big as a small marble, a dull deep red when ripe, and is a funny flavoured pulp round a big stone. It makes rather a fascinating jam which has quite a distinct flavour to any other. Wash the fruit in hot water, take out the seeds, boil till tender, in enough water to cover it, and then pass through a sieve ; to each lb. of sieved fruit allow ¾ lb. of sugar, and simmer together till it gets thick. It has an acid flavour, and some prefer an equal weight of fruit and sugar. A very little grated spice can be added if liked, but I dislike spice in jam myself. This a beautiful rich red-coloured jam and well worth trying.

Now we come to mangoes, the fruit, *par excellence*, of India. Jam and jelly made of ripe and green fruit are all excellent.

Green mango jelly. Common ones will do, *faute de mieux*, but good graft ones are best. Peel, cut and stone the fruit. Put each piece as cut into water slightly acidulated with lime juice, or it will discolour. When all is cut up fairly small, drain dry and put into a preserving pan, with just enough water to cover it. Put on the lid, and let it simmer, as for guava jelly, but the fruit being green takes much longer to get soft and squashy. When quite pulpy let it drip through flannel, but do not squeeze it at all. Weigh the juice, allow 1½ lb of sugar to every lb of juice and boil together till it jellies.

If made from ripe mangoes, only use ¾ lb of sugar to each 1 lb of juice, and the first boiling will not take very long. When cutting the ripe fruit, too, do so over the preserving pan, to save all the juice, and do not put the pieces into water until you are going to boil them.

Jam from green or ripe mangoes. These are made alike, only the green wants more sugar. Grate or cut up the fruit after peeling and stoning it. Boil gently till quite soft or pulpy, and all in a mash ; if preferred it can be put through a sieve. Weigh, and to every 1 lb green mango pulp allow 1¼ lb sugar. If ripe fruit is used only ¾ of a lb. Simmer gently till thick.

We have another fruit, called "Bilimbi" in our part, something like a long, sweet water grape to look at, but very sour, and yet it makes a nice flavoured jam. I wash it carefully, as it gets very dusty ; grate it on a grater, and allow 1½ lb sugar to every lb of fruit ; boil all together till stiff. It turns a dark brown and is very nice for a change.

What can be nicer than pineapple jam ? This wants special looking after, or, in his zeal to please Missis with quantity, Ramaswamy will sacrifice quality by cutting up the hard cores and putting in all the eyes, to the great detriment of the jam. See that the fruit is ripe and quite sound. Peel, cut out all the eyes carefully, and discard the cores. Either cut up all very fine, or grate each slice on a big bread grater to the core. Weigh, allowing ¾ lb of sugar to every lb of fruit. Put a large breakfast cup of water in the pan, add the fruit and the juice of two or three limes to each lb. and simmer nicely till reduced ; as it is very watery. Then add sugar and boil together till nice and thick. For children I make jelly by boiling the fruit till in a mash, then straining, and then boiling the juice with an equal weight of sugar till it jellied.

People who live on the Hills can make jam and jelly of any fruit they can get, on these lines, as a very little experience tells one what quantity of sugar to use.

Jam made from the edible passion fruit is excellent too, and a great institution at the Cape. Pick the fruit from when quite ripe and purple. Peel off the outside skin with a sharp knife ; cut the fruit in halves, scoop out the insides and place them in a bowl. Stew the outsides with water just to cover them, over a slow fire, for about 12 hours or till tender ; being woodeny they take a long time. Add the juice of two limes to every 12 fruits. Strain the insides from seeds and add to the stewed shells, allowing 12 insides to every 12 shells, and ½ lb. sugar for this quantity. Boil together till very thick and syrupy. It is something like apricot jam and very much the same colour.

Plantain jam is much liked by children and is easy to make. The fruit soon softens with boiling I always sieve it. Add ½ lb. sugar to every lb. of pulp and the juice of two limes. Boil together till firm ; it often turns quite a pretty pink.

Plantain jelly, too, is nice. Take some large coarse very ripe plantains, about 30, wash them well ; add 4 pints of water and boil for two hours, uncover, Strain, but do not squeeze. To eight

cups of the juice allow five cups of sugar and the juice of three limes: boil till it jellies. It is not clear, but a nice red colour. If a few guavas, about six big ones, are added to the plantains and all boiled and strained together, it makes a nice variety.

A savoury tomato jelly to eat with meat is not much known. To each lb. of tomatoes allow 2 oz. sugar. Melt the sugar, stirring all the time, taking care it does not burn. Into this put two or three Bombay onions cut up very fine, for each lb. of fruit, and boil up nicely. Add the tomatoes cut up fine, a little pepper and salt, and if liked, some spice. Boil all to a pulp, strain, and then boil up the juice till it jellies. Put into *small* pots, as it does not keep well when once opened.

Sweet loose jacket oranges make delicious marmalade too. Scrape the skin slightly and boil till very tender; cut up all, only taking out the pips and allow ½ to ¾ lb. sugar to each lb. of fruit. Simmer till nice and thick. This is more like a jam, being sweet, as maramalade is always slightly acid.

Roselle jelly is too well-known to require any describing. This is a fascinating subject, but I have run on longer than I intended and yet have not added any recipes for preserves for dessert, of which I have several. They may do for another article.—*M. Mail*, Sept. 6.

PRODUCE AND PLANTING.

We remark on Mr George [Seton's interesting table of tho working of forty-five

INDIAN TEA COMPANIES

for the past season. It will be seen that about half of these companies show increased profits, as compared with the previous year, while the other half have had their profits reduced. Taken all round, the profits wero larger than in the previous year, but the amount distributed in debenture interest and dividends was much smaller. The total nett revenue works out at £319,000, as against £297,600 in the previous year, and the average rate of dividend, including debenture and preference interest, is 2.72, as against 3.90 per cent. This lower return, in spite of bigger takings, is not due altogether to increased capital on which distribution has to be made, but may be attributed to the more cautious policy of the directors in keeping larger sums in hand, so that whilst the aggregate capital has only grown 4 per cent, and is accounted for by the fresh issues of four concerns, the total sum placed to reserved and carried forward has expanded more than 15 per cent. The production per acre fell from 487 lb to 421 lb, but the profit per lb increased from 0.85d to 1.03d, and the sale price was nearly a third of a penny per lb better. The ratio of operating expenses to receipts was 86, as compared with 88 per cent, and the profit on the total capital employed is equal to 3·50, as against 3·20 per cent. The situation revealed by this carfully-compiled table is that each garden or group of gardens should be considered by itself, and that it is difficult to generalise on the whole industry from the results of any particular working.

The Government Laboratory report, states that COFFEE substitutes are admitted free provided they contain no coffee or chicory. Needless to say, there is no lack of such substitutes. Roasted figs, turnips, acorn and dandelion are the favourites. This must be particularly gratifying to coffee planters. It appears that molasses form an ingredient of soy, cattle foods, and blacking, and these are now charged a shilling per cwt in respect of the sweetening matter in them.—*H. & C. Mail*, Augst, 29.

FRENCH-GUINEA RUBBER.

Captain Cromie, His Majesty's Consul at Dakar, in his Report on the Trade of French-Guinea for 1899 and 1900, which was not received at the Foreign Office until July 21 last, deals with a subject of much interest to tropical Colonies—the collection of rubber. The fall in the price of rubber in 1900 was especially felt in French-Guinea, eight-tenths of whose exports consist of that article. And there were special reasons which caused the Colony to suffer. "Having been a rubber-producing country for many years," says the Consul, "the vines, owing to wasteful methods of tapping them, had become comparatively scarce, and in order to increase the quantity of rubber for sale, the natives adulterated it in various ways. The merchants, anxious to profit by the high market, accepted the bales without examination, with the result that the rubber bought from the natives during the season 1899-1900 contained as much as 25 per cent. of impurities. The home markets, who could obtain rubber of a much higher quality from other sources, refused to buy the Guinea rubber, which thus remained on the hands of the merchants, who, in many cases, were compelled to sell at a loss. In the meantime European goods were accumulating in the merchants' stores at Conakry, as they had given their orders before the fall in prices. But the natives, alarmed at the low prices they were offered for their rubber (50 per cent less than the year before), only sold enough to pay their taxes and to such European articles as bad become indispensable to them. As they had long ceased to cultivate anything but rubber, the fall in that article found them with nothing to replace it. The Government has adopted several measures which, it hopes, will remedy this state of affairs, so as to improve the quality of Guinea rubber. A Decree was issued in May, 1900, forbidding the sale of rubber in unopened bales. This has already had a good effect, as the natives, finding they were certain of detection, ceased adding foreign matter; but as the method of coagulating the rubber in calabashes ordinarily employed by the natives made it difficult to detect adulteration with resins, a further Decree was issued to the effect that, dating from the wet season of 1901, the only rubber allowed to be exported would be that prepared by the Foulah method, in red filaments, which was found to be the only one which permitted the detection of resinous adulteration."—London *Times*.

CEYLON TEA IN AUSTRALIA.

(From an ex-Ceylon Resident.)

Melbourne, Sept. 3.

I advised you by last mail of the Regulations which must now guide Colombo Exports of Tea to the Commonwealth. I feel I must, however, send you a line by this, to show you how acute the situation has become between the Importers whose tea has been seized, their sympathisers and the Minister of Customs. Sir Malcolm Mc Eacharn, who has been very dissatisfied with the new regime at the Customs ever since the fuss over the breaking of ship's seals, has told his constituents, he can no longer be looked upon as a supporter of the Government. Though his interests are *shipping*, it was over some remarks of his that the House discussed the Tea difficulty the other night. In one of the recent issues of the *Observer apropos* to tea stealing, you make the very pertinent observation, that "if there were no receivers there would be no thieves." Now, I hope you will persevere on your text that, if there were no

EXPORTERS OF FAKED RUBBISH

from Colombo, there would be no importers in the Commonwealth of any article or grade bear-

ing the name of Ceylon. It is to be hoped, too, that erelong there will be some proper accredited supervision at your Customs. It is the only sure safeguard. Possibly the Regulations here may be over-stringent, but not without cause.

When the tariff was being debated the strongest argument used for the retention of some duty on tea was not so much the need of it for revenue, but that

FREE SYDNEY

had become a by-word as the dumping ground for all that was most abominable and dirty in the tea trade, the refuse being used for blending. It was argued that the 3d duty made such imports financially prohibitve here ; but predicted that the moment Melbourne became a free port it, too, would be flooded with the filth for blending. Today the Protectionist prophets are simply saying "I told you so." Fortunately for the consumer, the Board of Health has stepped in strongly.

Some of the Firms, which have just happened to be dropped on, are well-known Houses considered beyond reproach, who must make the best stand they can against the Government. As one, in special, comes in direct contact with the public, I shall be able to let you know details and how matters go in a week or two.

I was told yesterday that there are a lot of "Ceylons" among the condemned tea ! "*Ceylon dusts*, I suppose, you mean" I replied, which, no doubt, it is; but—quoted by the man interested in "Chinas or Indians" depend upon it—it is simply "Ceylons." In the meantime it is hard on the patient planter doubling his Cess, and striving with tooth and nail to get his product back to something of its good old footing, to have the reputation of his teas' purity sullied by unscrupulous exporters. In fact, I think, it is shocking that he is not protected against such happenings. It is this sort of thing which disheartens and disgusts those who are doing their best to push Ceylon Tea and watching with anxiety for a return of prosperity to the planters of

LANKA.

TEA IN MELBOURNE.

SAMPLES OF CUSTOMS ANALYSES.

A Colombo merchant has favoured us with the following :—

(*Copy.*)

Custom House, Melbourne, 18-12-01.

To the Government Analyst, Melbourne.

Sir,—I beg to hand you the accompanying sample of Tea marked as per margin, with the request that you will analyse the same and furnish a reply to the following questions, viz :—

1. Is the sample really Tea ? Yes.
2. Is it exhausted Tea within the meaning of Act No. 6 of 191 or mixed with other substances or with exhausted Tea ? Yes, the total ash exceeds 8 per cent,
3. Is it fit for human food ? According to Customs Act 1901 Reg. Sec. 54 it is unfit for human use.—I have the honor to be, Sir, your obedient servant,

(Signed) R. H. Dawson, *pro* Collector of Customs.

(*Copy*)

Commonwealth of Australia, Customs and Excise Office, Melbourne, 31—5—1902.

To the Government Analyst, Melbourne.—I beg to hand you the accompanying sample of tea marked as per margin, with the request that you well analyse the same and furnish replies to the following questions, viz :—

1. Is the sample wholly Tea ? It is tea dust.
2. Is it exhausted Tea ? No.
3. Is it adulterated with spurious leaf or with exhausted leaves ? No.
4. Is it unfit for human use ? According to Regulations 15, Section 54, it is.
5. Is it unwholesome ? No.
6. Does the sample comply with Regulation 15 relating to Sub-section (*e*) of Section 54 of the Act ? No.
7. Give result of analysis.—Total Aqueous Tea extract, 42·1 per cent. ; Total Ash, 8·79 ; Soluble Ash, 3·79.
8. Is the tea in your opinion a "prohibited import" within the meaning of the Customs Act and Regulations ? It does not comply with the regulations under the Customs Act, *i.e.*, it contains more than 8 per cent. of Ash.

(Signed), C. R. Blackett, Government Analyst.

AFRICAN OIL PALMS.

We are surprised to learn that nothing is being done with the fruits of the West African Palms planted at Udagama a good many years back. One report on the palms is:—"They are still growing, they have attained to considerable size, but I do not think the nuts are of any value. The nut is smaller than a walnut, covered with a very tenacious fibrous husk like an areca. It seems to me to be of no value."

This surprises us very much ; has any attempt been made to crush the nuts and extract the oil ? Let a native chekku-mill be used, and the result reported.

PLANTING NOTES.

Cohune Palm Nuts.—In British Honduras the Cohune Palm grows over a large extent of territory without any care or attention, and it having been ascertained that the kernel yields a supply of first-class oil, it has been determined to place the nut on the market, provided a machine can be invented by means of which to crack the nut and so to secure the kernel uninjured and ready for the oil extractor. The Agricultural Society of Belize has the matter in hand, and a barrel of Cohune nuts is now on the way to Mr Currie of the Imperial Institute, and he, we believe, will see to the placing of the sample before the trade. Mr Currie, we are informed, has reported that the value of the nuts is about £17 per ton.—*Gardeners' Chronicle*, Aug. 23.

"Castilloa Elastica Rubber Dried in the Sun.—Senor Joaquin Jimenez, an extensive sugar and coffee planter of Tuxtepec (Oaxaca), Mexico, is interested also in the cultivation of his India-Rubber, having planted up to date some 10,000 trees, though, perhaps, this number is not now standing. Recently he permitted some of six and eight year old trees to be tapped by men sent to his place by a Vera Cruz trader, who extracted and cured about 700 pounds of rubber for which they paid 80 cents, Mexican. The trees tapped yielded an average of about one pound per tree. There are on the plantation half a dozen trees, planted fifteen or sixteen years ago, one of which is supposed to have yielded 11 pounds of rubber this season. The rubber here referred to was prepared without the addition of any coagulating agent, the *latex* having been poured over a coffee *patio* (drying floor) and dried in the sun.—*India Rubber World*, August 1.

COFFEE AND RUBBER.

A writer of Planting notes in the *Madras Mail* Sept. 15th says;—Advices from London as regards the state of the coffee market are meagre in the extreme. While stocks of course still remain high, deliveries in London are very much less than at the same time during the last few years. Meanwhile, the price for rubber is rising steadily and there is little doubt that there will be a great and increasing market for it for many years to come. The uses for rubber have increased so greatly in the last few years,—and the industries for which rubber is so indispensable are all those with great futures before them—that there is every probability that the demand will ere long exceed the supply. Rubber of one kind or another—and the name of rubber-yielding plants is legion—will thrive almost anywhere in the tropics. But, it may be alleged, the areas of indigenous rubber forests now in full bearing are so vast as to make one doubt if the supply from them could ever fail. There is certainly no denying that there are prodigious forests of these trees; but at the same time one must bear in mind that the methods of extraction in many of these places are most crude and destructive, and the methods employed leave the jungle a useless and barren waste. This reckless destruction is bound to tell before long, with the world's consumption increasing as rapidly as at present. On the other hand, there is a talk of artificial rubbers, not of one but of many, and with the example of the indigo planters before them coffee planters may well hesitate before running their heads into a similar noose. I have been led to make these remarks on rubber in connection with coffee owing to something I read in the Report for 1901 of the United Planters' Association of the Federated Malay States. This says that a good deal of coffee was planted in 1901 mostly *in conjunction with* Para rubber, and that the cultivation of it (the coffee) has been well maintained and the quality improved. This will be news indeed to planters in Southern India, both on the score that rubber growing among coffee does it no harm,—Para rubber, that is to say, for Gutta Rembong (*Ficus elastica*) is acknowledged to be prejudicial to coffee,—and secondly, that it even improves the quality of the coffee produced. Nor does this seem unreasonable when one considers how very much planters depend for their shade on the *ficus* species—the *atti* or *ficus glomerata* being the most favoured of all,—and that trees of the *ficus* tribe all produce milk from which rubber of a sort may be made. The *Hevea Braziliensis* or Para rubber is expected to yield in four to five years about 6oz. of dry rubber per tree, and some six year old trees have yielded over 1lb. at their first tapping. This is in the Federated Malay States of Perak, Selangor and Negri Sembilan. And Para rubber is selling at Home now at 3s 4d per lb. From two 10 year old trees of *Ficus elastica* in Perak I learn that 25lb of rubber was extracted per tree in one year.

THE MADRAS GOVERNMENT CINCHONA PLANTATIONS.

The Report of the Administration of the Government Cinchona Department, together with the Government Order thereon, have just been published. Mr George Romilly, the officiating Director, in issuing the Report, recalls to mind that he only took over charge of the Department five days before the end of the official year 1901-02, and that he was consequently in charge for that time only of the year under review. However, the Report has been prepared on the lines hitherto adopted and, in the words of the Government Order, is clear and concise. The year seems to have a successful and fortunate one in every way. Not only was the season favourable on all the estates—the rainfall being ample and well-distributed—but the quantity of quinine distributed was the largest on record, *viz.*, 11,978¼ lb. The installation of new machinery was the feature of the year. By means of it the bark is dealt with by the shale oil process instead of with the fusel oil in use before. But it was soon found that the machinery was in some respects defective and the results unsatisfactory. It was not till steam coils had been inserted in the extractors for the purpose of heating the shale oil that the full return of alkaloids was obtained. The machinery itself was not in full working order until November, but from then till the end of the year work progressed steadily and satisfactorily. The bark worked up was, however, of an inferior quality, so that, as the Government Order says:—"In the circumstances, the year's work cannot either in point of quantity or of cost be taken as a criterion of the efficiency of the factory." The total area under cultivation is 1,071½ acres, of which 831½ acres are old, the remainder being composed of three extensions. The expenditure on the upkeep of the total acreage, including the charges of the head office, works out at R47-10 per acre. The total expenditure was R1,30,051. Of plantations was R58,938-13-1, and the expenditure in the purchase of bark and on manufacturing and distributing charges was R71,102-9. Excepting on one estate—Hooker—where the trees died out in considerable numbers, the plantations thrived in the year under review. The year's crop amounted to 154,044 lb, of crown and hybrid bark, but the annual yield required from the existing plantations has been fixed for the present at 3,000 lb. of manufactured quinine, and this amount is represented by 85,750 lb. of bark of 3½ per cent. quality. This has led Government to state in its Order that it would be glad to have the Director's assurance that the plantations have not been overworked, and it draws attention to the importance of maintaining the plantations as a reserve against the contingency of the market price rising. Some important scientific experiments were made on the Doddabetta estate during the past year. Samples of bark were taken from 38 trees selected at random, but large and well-grown ones, and their bark was analysed. The results in some cases were extraordinary, some samples giving as much as 13·90 per cent. of sulphate of quinine—a percentage which is probably unequalled by *Cinchona officinalis* anywhere. At present rates the value of an acre of trees giving bark containing 10 per cent sulphate of quinine, would be approximately R18,750. Further experiments are to be continued in the coming year, and seed from these good-caste trees will be carefully selected, sown and their produce tested. If the descendants of the parent trees prove equally rich in quinine, and fields can be grown giving an average of this 10 per cent bark, the poorer barks can be gradually eliminated and neglected. The extreme richness of certain of these samples augurs well for the success on the Nilgiris of the system of propaga-

tion by seed from trees selected on the analysis on their bark. The quantity of quinine distributed was the largest on record, a considerable increase having taken place in the sale of pice packets through the Post Office, which system was extended to Mysore Province. Over 9,500 of these packets (each packet contains 102 five grain powders) were sold this year as compared with 8,792 sold in the previous year. The balance sheet shows a loss of R7,293-10 3, a fact which is due to the prices charged and realised during the year not being sufficient to cover working expenses. In the future, either the price must be raised or the cost of production must be materially reduced. In conclusion, the Government in its Order tenders its thanks to the staff, one and all, but to Mr Standen in particular, "for the attentive care and ready resource that finally assured the success of new machinery."—*M. Mail*, Sept. 16.

CEYLON SPICES IN THE LONDON MARKET.

The following extract from the "London Commercial Record" is worth reading, in connection with the remarks of a merchant which we append to it:—

"Dealers in Spices may congratulate themselves as being about the only people who could boast this week of something like activity and good business. Not only have Pepper and Ginger maintained their rising attitude, but Cinnamon owing to the holding of the Quarterly Sales, has craved their attention as well. These Cinnamon sales have long ceased to be of any great importance, the days when they caused a stir in the market are over, yet they form an interesting function and not altogether devoid of importance to a fairly large proportion of Spice dealers and brokers. Cinnamon, like many other articles, has ceased to look upon London as the distributing centre of the world. It finds its way from Ceylon direct to any place of consumption, be it ever so small and be the quantity ever so insignificant. Germany, which used to procure its requirements from London, is now importing direct, and may be looked upon as the principal buyer of the spice; U. K. comes next, while Spain and America are steadily increasing their imports. To look at the steadily decreasing stocks in London, and the ever diminishing quantities exposed for sale, one is tempted to believe that a substitute for the product had been found, and that it is gradually dying out of consumption. This is, however, far from being the case. As a matter of fact the consumption, at any rate of quills, has steadily increased, as is clearly demonstrated by the following figures:—

1899	...	2,515,091 lb. quills.
1900	...	2,678,111 ,,
1901	...	2,756,270 ,,
	and	
1899	...	1,829,127 lb. chips.
1900	...	1,863,406 ,,
1901	...	1,516,083 ,,

America seems to cultivate an increasing taste for this delicious spice, for no less than 358,300 lb. were exported to that country during 1901, as against 259,425 lb. in the previous year. The greater part goes on to San Francisco, whence it is distributed over Central America. In spite of the apparent increasing demand prices have steadily declined, and we doubt very much whether anybody has appreciably benefited by his operations in Cinnamon. We heard usual assortment had been sold recently at 8½d c.i.f., a price, to judge from the values ruling in Ceylon, clearly proving the anticipation of still lower figures. The same opinion as to the future seems to be ruling in our market as well, for we doubt if an offer even at 8d c i.f. would find a buyer. The auctions passed off with a fair demand; of the 825 bales exposed for sale, 517 changed hands, but prices could not be maintained and holders had to agree to a decline of from ½d to 3d per lb. according to quality. Since the auctions extreme quietness has ruled supreme, and even Colombo has not thought it advisable to try our market with an offer of any sort. Now the sales are over. Dealers in spices can bestow their entire attention upon the more remunerative branch of the trade once more."

On this a local correspondent remarks:—

"In place of the value of Cinnamon having gone down in Ceylon since the last quarterly sales in London, prices of usual assortment have improved quite ¼d to ½d per lb. So much for the influence of the London sales on the Colombo Cinnamon Market. How have the mighty fallen!

"Some day it will be the same with Tea if the enormous dock charges in London are not reduced."

DUTY ON TEA IN RUSSIA.

The following letter from Mr Renton to the Chairman of the P. A. has been placed at our disposal:—

Berlin, August 28th, 1902.

Dear Mr. Kingsford,—The Moscow papers of August 8th old time and 19th new time quote from the "Official Messenger" an Imperial decree raising the Customs duty on black *flowery* (?) green and *yellow* (?) teas imported into Russia *via* the Sonirechensk, Steppe, Irkutsk and Amour general governorships from roubles 22·50 to 25·50 per pound. The Customs Authorities are to be informed by telegraph of the immediate enforcement of the above. The decree states the above increase is temporary pending consideration of this question by the State Council. It is due, continues the decree, to the considerable decrease of expenses incurred in the delivery into Russia of Chinese tea, thanks to the Manchurian and Siberian Railways, thus necessitating more conformity between cost of sea and overland freight. The section of the Tariff affected is section 20, para 2. This increase ought to help Ceylon teas all the more, I think.—Yours sincerely, (Signed) J. H. RENTON

A. C. Kingsford, Esq., Rookwood.

A New Variety of Pepper.—Pepper, being a comparatively high-priced commodity owing to the fact that it grows only in a few countries, is subject to much adulteration. For this reason a report recently made by Professor Moissan, of Paris, is of importance. This report states that a new variety of pepper has lately been imported from Kissi, in French West Africa, on the borders of Liberia, which has been called *Piper Femichoni*, Heckel, after two investigators, one an army surgeon, the other a botanist. Dr. Barillé, principal chemist to one of the Paris hospitals, has examined the seeds and found that they yield a highly aromatic reddish-brown powder, rich in essential oil, and with peculiar characteristics He considers this variety of pepper an acquisition among the useful plants.—*Chemist and Druggist*, August 30.

COFFEE—CACAO—RUBBER, &c.

In an article from the pen of M. Paul Dreyfus in "L'Economiste Francais", the future of the African Republic of Liberia is dealt with in an interesting manner. Of late years more and more attention has been directed to West Africa and to the commercial and industrial possibilities of Liberia. This Republic is governed by natives repatriated for the most part from the United States, and its legislation as well as the character of its inhabitants is somewhat antagonistic to Europeans and European trade; but it will in the near future be impossible for Liberia to avoid close contact with foreign capital and foreign manufactures, in view of the many European establishments already scattered throughout the neighbouring regions.

Information as to the economic condition of Liberia is by no means easy to obtain, inasmuch as no official statistics exist. A sort of quarterly return of trade with interior is drawn up by the Liberian Customs and transmitted to the Treasury, but the latter department does not communicate these documents to the representatives of foreign Powers. The ports open to foreigners are Cape Mount (Robertsport), Monrovia, Junk River (Marshall), Grand Bassa Buchanand), Edina Rive, (Grand Sestos), Sinoe (Greuville), Setta Kroor Harper, and Cavally. No foreigner is allowed to become resident in the interior of the country, but there is a "reform party" in the Liberian Congress, and it is believed that considerable modifications in the present legislation as to foreigners will shortly be proposed. There is no staple industry in Liberia, and agriculture is in a very primitive stage. There are, however, great possibilities for agriculture, if the legislation admitted the employment of foreign capital in the country. Water is everywhere found in abundance in the Republic, and nearly all tropical products can be cultivated most advantageously. Liberian coffee is excellent, having a much appreciated flavour which cannot be found elsewhere. The present price of coffee in bulk is 9d to 10d per English lb. The coffee plant grows in a wild state in the forest lands between the Mamal River and Cape Palmas, and in the interior as far as the Mandique plateau. The coffee plant commences to produce in the fourth year of its growth, but it would be necessary to improve the present method of decoration or barking, which does not present the berry in a very advantageons manner. Ginger, too, grows well, and palm trees are extremely abundant, especially in the Cape Palmas district (hence the name). Cotton also grows easily, but its culture is neglected. Arrowroot is also a product which can be grown with profit in Liberia. Cocoa is grown, but only to a small extent. Maize, pepper, rice, millet, yams, tapioca, orange trees, lemons, bananas, and guava, grow abundantly. The forests contain plenty of mahogany, yellow wood, gum trees and camwood. There are numerous India-rubber trees, but the Liberian Rubber Syndicate has obtained a monopoly of the rubber concessions in Liberia.

It is believed that there are rich gold veins in the Republic and also extensive coalfields, but so far none of these have been prospected. England exports to the country tissues, salts, soap, beer, salt beef, rice, whisky, condensed milk, potted meats, galvanised iron, tin, made up articles, vinegar, biscuits, &c. Germany does a good trade in wearing apparel, ironmongery, tools, petroleum, hats, both straw and felt, food stuffs and galvanised iron. France does very little, her commerce with Liberia being limited to a few liquids and tinned foodstuffs via Liverpool. Monrovia, the Capital, is also the business centre. It contains about 5,000 inhabitants, and is in frequent communication with Liverpool, Antwerp, Hamburg, Rotterdam and Marseilles. The population of Liberia has been estimated at various figures between 2,000,000 and 767,000. In 1894, the last year for which figures are available the expenditure was $151,975 and the revenue $158,861. The public debt in 1897 was £100,000 contracted on a 7 per cent loan in 1871. There were in that year £164,000 arrears or interest. In 1898 an arrangement was made for the settlement of the debt as follows: The interest to be reduced to 3 per cent for three years, rising ½ per cent every three years to an maximum of 5 per cent. A sinking fund of 1 per cent will commence to operate in October 1904. The interest has been regularly paid since the arrangement. There is no army, but two brigades of militia, which may be called up in time of war. There is no longer any navy.

Such is the somewhat vague information Europeans possess about Liberia, but it is to be hoped that the measures now submitted to the Senate and the Chamber will open up this apparently naturally rich country to foreign enterprise.—*Financial Times.*

HOW TO MAKE BARREN TREES FRUIT.

AN OPINION FROM AMERICA.

We receive many enquiries as to how to make barren fruit trees bear fruit. We have invariably recommended root-pruning and occasionally "ringing." The late Professor Goff of the University of Wisconsin, U S A, one of the highest authorities on fruit culture, and who made a special study of the root system of fruit trees, propounded the theory of renewal pruning or invigoration of fruit trees through the medium of what are called "water sprouts." These "water sprout" shoots are produced in the old age of the trees for the purpose of replacing the old and reproductive wood and thus extending the age and usefulness of the trees. They are due to extended root action and when they appear in young trees, should be removed at once, as they produce wood without fruit. Root-pruning will prevent this, and induce the trees to fruit.—*Madras Mail*, Oct. 9.

THE OIL WELLS OF TRINIDAD.

The current issue of the *Board of Trade Journal* calls attention to the exploitation of the oil-wells of the Island of Trinidad. No great quantity has yet been brought to the surface, although expert opinion indicates a very large supply. Analytical reports, however, are highly favourable regarding the quality of the oil. The discovery is said to have great commercial importance in view of the approaching cutting of an Isthmian Canal, and the proximity of Trinidad to what will in consequence be a great trade route.—*Daily Chronicle*, Aug. 15.

RUBBER PREPARATION.—Says the Editor of the *India-Rubber and Gutta Percha Trades' Journal*, Sept. 1st:—a method of preparation on a par with scientific cultivation is eagerly desired. We take this occasion again of pointing out how emphatically useful will be the reseraches of Dr Weber who is at present investigating this very subject, not in the laboratory but on the spot in Para,

A NEW VARIETY OF PEPPER.

Pepper, being a comparatively high priced commodity owing to the fact that it grows only in a few countries, is subject to much adulteration. For this reason a report recently made by Professor Moissan, of Paris, is of importance. This report states that a new variety of pepper has lately been imported from Kissi, in French West Africa, on the borders of Liberia, which has been called *Piper Famechoni*, heckel, after two investigators, one an Army Surgeon, the other a botanist. Dr. Barille, principal chemist to one of the Paris hospitals, has examined the seeds and found that they yield a highly aromatic reddish-brown powder, rich in essential oil, and with very peculiar characteristics. He considers this variety of pepper an acquisition among the usual plants.—*M. Mail*, Sept. 17.

JAVA QUININE.

The report on the Government cinchona plantations in Java during the first quarter of 1902, has been just issued. In the nurseries there was a large stock of well-developed plants, of which several thousands were sold to private planters. Contrary to what had been the ca e in previous years, very little bark had been shipped at the end of the quarter, owing to lack of labour. This scarcity of labour is a very grave question, and if the conditions do not improve within a short time it may have a serious effect on the harvesting and the preparation of the soil, which again will injuriously react upon the crops of the next few years. Analyses made with hybrid-grafts during the quarter under review confirm previous observations, that the increase of the alkaloids content is greater in the second year's growth. The analyses showed a content of sulphate of quinine in the first year of 2·74 and 2·60 per cent; second year, 6 and 5·60 per cent; and third year, 7·73 and 8 04 per cent. A large number of grafts were taken during the quarter from *Cinchona robusta*. These could be removed from the nursery and planted in less than three months' time. Ledgeriana and hybrid grafts, on the other hand, require from four to five months. The total number of plants at the Government plantations at end of the quarter was as follows: in the nurseries, 1,245 Ledgeriana, 300,700 Succirubra, and 30,000 hybrid in the open ground, 1,943,500 Ledgeriana, 402,900 hybrid, 343,800 Succirubra, and 45,000 officinalis.—*Planting Opinion*, Sept. 13.

RUBBER ACCORDING TO THE CONSULS.

SENEGAL.—Exports of rubber during the years 1900-1 were as follows:—

Countries exported to	1900. Quantity tons.	1900. Value. £	1901. Quantity tons.	1901. Value. £
France	380	74,621	318	38,748
U. Kingdom	32	6,476	..	8
Germany	21	..	38	5,509
Belgium	..	4,365	...	...
Other countries	...	...	..	50

LIBERIA.—As regards rubber, the Liberian Rubber Syndicate have the whole of its export from the Republic. They pay at present (1902) 1s 1½d cash per lb. in the country. The export duty is 3d per lb.

FRENCH-GUINEA.—Having been a rubber-country for many years, the vines, owing to wasteful producing methods of tapping them, had become comparatively scarce, and in order to increase the quantity of rubber for sale, the natives adulterated it in various ways. The merchants anxious to profit by the high market accepted the bales without examination, with the result that the rubber bought from the natives during the season 1899-1900 contained as much as 25 per cent of impurities. The home markets, who could obtain rubber of a much higher quality from other sources, refused to buy the Guinea rubber which thus remained on the hands of the merchants, who, in many cases, were compelled to sell at a loss. The Government has adopted several measures which, it hopes, will remedy this state of affairs.—So as to improve the quality of Guinea rubber, a Decree was issued in May 1900, forbidding the sale of rubber in unopened bales. This has already had a good effect as the natives finding they were certain of detection ceased adding foreign matter, but as the method of coagulating the rubber in calabashes ordinarily employed by the natives made it difficult to detect adulteration with resins, a further Decree was issued to the effect that, dating from the wet season of 1901, the only rubber allowed to be exported would be that prepared by the Foulah method, in red filaments which was found to be the only one which permitted the detection of resinous adulteration.

Exports and destination of rubber in 1899 was as follows:—To France and Colonies £15 943, United Kingdom and Sierra Leone £213,746, Germany £43,622, other countries £6,432, total £279,743. In 1900 it was to France and Colonies £31,521, United Kingdom and Sierra Leone £137,641, Germany £67,384, other countries £16,319, total £252,865.

GUATEMALA.—In 1900 there was india-rubber to the value of £53,012 exported while last year the value only reached £49,510. The coast-lying districts are particularly well suited to this industry, and with a little perseverance and patience planters would reap year by year, more and better crops, and would become independent of the varying prices of the coffee market. The Consul adds:—The cultivation of the rubber tree and the export of the product is a growth entirely of the last few years, and it is undoubtedly an industry which is admirably suited to the coast districts of the Republic, and should more than make up for the apparently permanent falling-off in the coffee-growing industry. Coffee, it has now been found may be grown with ease in all countries where a certain temperature prevails, and the consumption does not increase in proportion to the supply; while on the other hand good rubber is as yet only obtainable in few parts of the world, and the demand increased every day, and this demand seems likely to go on increasing with every new invention and improvement in almost every branch of the manufacturing industries. It is, therefore, worth the while of those who are considering the advisability of a planter's life in tropical countries to enquire into the details of rubber planting, at any rate so far Central America is concerned, where concessions of land are easily obtainable at very cheap rates, and where the huge markets of the United States lie so close at hand. It must be remembered, of course, that the returns are considerably longer in coming in than in many crops for rubber takes 10 years to yield a full crop. A person thoroughly acquainted with these subjects recently explained to me that the method he would follow would be to plant a grove of, say 100,000 plants, which at the end of five years would yield certain crop, say one-third of what fully matured trees should yield. At the end of the fifth year, the plants should be thinned down to half their number, or 50,000, on these 50,000 trees of five year's old a handsome sum would be realised which would entirely repay the original outlay, the running expenses being paid by the cultivation of some such fruit as the banana thus leaving the planter at the end of five years with all his outlay paid, and a grove in his possession yielding a larger product every year, and the expenses of his plantation paid by the secondary crop of bananas.—*India Rubber Trades' Journal*, Aug. 18.

WASTE PRODUCTS:

ARE COIR DUST AND COCONUT 'WATER' USELESS?

The extent to which waste products regarded as useless a few years ago, are now utilised in a variety of ways, in each succeeding branch of industry, is nothing short of marvellous; and we are hopeful that every year will add to our knowledge of the latent possibilities of much that is even still being thrown away. Now that the Messrs. Böhringer are in the market for tea refuse, no part of the outturn of upcountry Factories need be thrown away—or, what is even worse, sold to a class of people who will bring it into competition with what is avowedly sold for human consumption, and of which, alas! the markets seem to have too much. But, it is in respect of the products of the Coconut Palm, notwithstanding their proverbial thousand uses, that there seems to be special room for the work of the inventive genius; and, with a staff of skilled scientific workers connected with the Botanic Gardens—the Agricultural Department of the Government—it should not be left to outsiders to show what can be done with our "waste products." Analysis, for instance, has shown that the husk of the coconut is rich in potash; and yet coir dust, the residue after the removal of the fibre of commerce from the husk, is regarded as useless, save as an absorbent or deodorizer, and is allowed to rise mountains high in the vicinity of Coir Mills where the dust occupies valuable space and must be a menace to public health. Is it of no manurial value? And can it not be made of value as a manure by the action of fire, or of chemicals? Our German cousins are, perhaps, ahead of any other nation in turning to practical use, their knowledge of chemistry; and, if all we read be true, they have sounded the death-knell of the indigo industry on the adjoining continent. As manure manufacturers they may be able to point the way in the direction we have indicated; but meanwhile we hear of an interesting experiment for the conversion of coir dust into fuel in the form of bricks by pressure. A two-fold possibility unfolds itself to our vision. Not only may the resulting ashes prove highly efficacious as a manure; but there is also the chance that high pressure may disclose more profitable uses than fuel for the brick, and lead to the adoption of the hardened block or building and manufacturing purposes?

Another waste product is the water of ripe coconuts which are split every year in Ceylon to the total of hundreds of millions for domestic use, for copra drying, and for desiccating purposes. The water of the young coconut is a delicious and refreshing drink. When the nut is ripe, the water is sharper in taste and smacks of toddy. Is it absolutely useless for the distillation of spirits, for the manufacture of sugar and jaggery, and even as a manure? Analysis shows that it contains 1·64 per cent of sugar ·26 gum, ·06 phosphate of lime, ·10 chloruret of sodium, ·33 acetate of lime and of potash ·08 pectic acid, ·16 albumine. Are the constituents too small to be of any practical value, considering that the water might well be collected in hundreds of gallons every day? Not very long ago the ashes from Woolwich arsenal were used simply to fill up hollows; an observant neighbour was regarded as a public benefactor when he offered to take all the stuff at 3s 4d per ton. A policeman or a watcher, more alert than most Government servants, observed copper filings being removed from the heaps. He confided the secret to his superior officers who thought they might try the experiment of selling the refuse by auction or by tender. The result was £6 a ton! A big leap from 3s 4d and yielding £10,000 a year. It is estimated that official shortsightedness is responsible for the loss of quite a quarter million sterling at Woolwich through ashes alone. Returning to our own island, we are ready to forget and forgive past losses if only we are let into the secret of making a profitable use of Coir Dust and Coconut Water!

ORANGE CULTIVATION IN EGYPT.

There is no donbt but that the cultivation of oranges is a far too neglected branch of horticulture in Egypt, which has been especially recommended by experts as one of the best suited spots for the establishment of a garden for oranges and other fruits of its class. Although much progress has recently been made in its cultivation in this country, there is still room for much greater extension. At present the export of oranges only amounts to about one eleventh of the import, and, fortunately for those in the orange trade, the fruit comes in at the same time of the year as the annual influx of visitors, much to their mutual satisfaction. The "Yussuf Effendi" is the variety most extensively grown here. These are mostly sold locally or at neighbouring large towns at a fair price. Although a nicely flavoured and satisfactory fruit, it has been cultivated too exclusively. The small variety, sold in England as Tangeriness, fetch about the same price as the best Jaffas. They should prove very remunerative to growers here for export. Belonging to the same loose-skinned group are the "Nagpore" of Bombay and "Sylhet" of Calcutta. Both of these are grown very largely in India and are very much alike. The "Nagpore" tree is a spreading variety while the "Sylhet" is an upright tree, grows higher, and is only grown from seed. Both are excellent varieties for exportation. Two other varieties which should do well here are the "Santolah" and the "Keonla." The former orange is very small but extremely sweet. It grows almost wild in the hot, humid part of India between the Himalayas and the Ganges. It should be suitable for those parts of Egypt or the Sudan which have a similar climate; but should, of course, be tried in any part which can be kept well supplied with water throughout the year. Naturally, it requires very little attention. As novelties are always acceptable in English markets, and as it is sweet almost before it is quite yellow, it promises well. The "Keonla," another Indian orange, is to be greatly recommended on account of its lateness. On comparing one of these trees with the "Yussuf Effendi" one would imagine that as both oranges were of the same hue and size they would both be ripe. This, however, is not so. Long after the other oranges have been gathered the "Keonla" stays on the tree until at last its colour is a beautiful dark red, and not till then is it sweet. Of course, in Egypt, this should be ready for gathering just as the "Yussuf Effendi" is over and when the "Portugal" is dearest, at about the end of April. Many other varieties of the Santara

group, grown in India, Ceylon, South China, the East Indies, and Australasia, might be tried. The Australians have for two or three years been sending oranges to England. They are mostly of the Portugal variety and have reddish skins. This is, of course, rather an attraction, and so they sell at about two or three times the prices of the ordinary ones. Considering that it takes three times as long for ships to reach England from Australia than from Egypt, this should greatly encourage growers here.

Belonging to the Portugal group there are many kinds which ought to be grown here with great success. Already Egypt has successfully reproduced the blood orange from seed—a feat apparently as yet unaccomplished in any other country. Other varieties have been grown well in private gardens. There should, therefore, be a great extension in the growth of the seedless, egg-shaped orange of Malta, the Jaffa seedless varieties, and the "Bisry," which is grown from seed, and is one of the best of Jaffa oranges. All of these are too well-known to need description. The great advantage of this class of orange is its keeping qualities. With careful packing it will keep for two or even three months. The British Chamber of Commerce in Egypt reports that the egg orange has been introduced into Florida, and has been so successfully cultivated that it is probably now more extensively planted there than any other kind. In Malta there is said to be also a unique orange of the same group which is never sour from beginning to end but sweet and juicy. It is there called "Loomi Larenj." Such an orange should be well worth cultivating and should always command a good price. Another orange sold in Bombay, the "Mussembi," is brought from Poona, and it is said that it can be kept on the trees for a whole year without deteriorating. The Chamber of Commerce rightly complain that the "Leimoun Hindi," often exhibited at our horticultural shows, is not properly cultivated. To obtain a really delicious fruit the trees must have, as nearly as possible, conditions of soil, heat, and humidity similar to what they have in the island of Labuan and at Amoy where they grow to perfection.

As regards the treatment of the orange tree, practical experience combined with logical reasoning is of far more value than theoretical book information. Nevertheless, it is both interesting and very useful to read of results of others' experiments and work, and to profit by their successes and failures. The number of trees per feddan should be, to obtain the best results, one hundred. At Jaffa, however, as many as six hundred per feddan are generally to be found. Abundance of irrigation water is the *sine qua non* of a plantation and the watering should be done continually. The fruit consisting of over 90 per cent water, it will be understood that without a sufficient supply the tree cannot possibly do well. The average of several analyses of the orange shews that there are four parts each of nitrogen, phosphoric acid and potash per thousand. Calculating from this, 1,000 kilos of oranges will contain 4 kilos of each of these three constituents. Growers generally fail to supply this amount again to the soil, and, consequently, it gets weaker and the produce of oranges less. To obtain theoretically this amount of each, the trees supplying the thousand kilos of fruit should receive 2½, 2½ and ⅞ kilos respectively of nitrate soda, superphosphate of lime, and sulphate of potash in return, besides an additional quantity for their growth of wood and leaves. Manure is one of the absolute necessities of the orange tree if it is to produce well. Every piastre properly expended in well manuring the trees brings much over a piastre's worth of extra fruit, either numerically or in size, besides giving a better flavour to it. The soil of Egypt is admirably suited to the physical requirements of the orange tree. A perfect soil is a mixture of sand and a little clay and lime. The lightness of this soil allows the water to sink in easily and the roots to spread out well. Now, if there be added to this good food for the tree, it can, of course, do well. The nile mud, like the "loess" of China, is a typical fertiliser. But growers must remember that where the deposit is thin or absent cultivation cannot be carried on profitably without, abundance of artificial manures. Speaking in a simple way, nitrogen produces wood and leaves phosphates produce fecundity, and potash produces sweetness and flavour. Lime is absolutely necessary for the orange tree, which absorbs great quantities of it. If not present in the soil it should be supplied in the form of Gypsum. If too abundant the sap will not run freely but ½ kilo of sulphate of iron for each thousand kilos of fruit produced will correct it. The Gypsum and iron sulphate also help to fix the fruit on the tree. Seeds should not be treated with mineral fertilisers but should be given plenty of organic food. Stable refuse is excellent for the seed beds, but it should be passed through a very course sieve and the big straws taken away. Most people in Egypt make the mistake of digging holes round their trees and filling these with water. Instead of a hole, in the middle of which stands the tree, a ring should be made so that neither fertiliser nor water will touch the trunk. One very successful orchard owner bores holes in the ground in a circle round the tree varying in the size, depth and distance from the stem according to the size of trees. These he frequently fills with liquid fertiliser so that the roots thus receive a greater benefit and the tree can better keep its upright position. The best time to apply the manures is about a month after the gathering of the crop and again when the fruit is about half-grown. Thus the first part will strengthen the tree for producing the fruit and the other part will supply the nourishment for the fruit when growing.

Lemons, limes, citrons, and other trees of the Citrus group require almost the same treatment. The lemon and citron need more nitrogenous manures than the orange to the extent of about 12 per cent. and the other sour fruits of about 10 per cent Lemons in this country are smaller but more juicy than others, and limes are very inferior. Both would repay generously more liberal feeding. A few only of the best and most suitable kinds of oranges have been named. There are many others which might be grown to advantage. Young trees and picked seeds can generally be obtained from the nurserymen and horticulturists in the different countries. Those who are anxious to obtain them would, no doubt, be able to get information and help from their respective Consuls. It is to be hoped that orange-growers will take "Excelsior" as their motto, and that we shall soon see a great development in the orange trade. With a little experimenting and care, many new varieties should be well-established and both quality and quantity improved. Those who prefer to keep to their present variety should at any rate spend a little on improving it. One thing is certain, any expenditure the growers may make in doing either or both will prove a good investment.—*Egyptian Gazette*, September 2.

THE DIFFICULTIES OF SELANGOR COCONUT PLANTERS.

Mr. Tanner, of the Kempsey Estate, Kuala Selangor, has again been visited by elephants. They damaged over six acres of young coconut trees. Two Malays followed the herd and state that they wounded some of them. This is the third time that Mr. Tanner's Estate has been similarly patronised.

It is reported that the Inspectorship of Coconut Trees is to be a Federal appointment. Mr Grieve, of Kapar, is making a collection of the various kinds of coconut beetles, which he will ultimately hand over to the officials.

There is a report that there is a particularly bad bit of coconut-beetle infested ground immediately adjoining a Malay school in the neighbourhood of Kuala Selangor.—*Straits Times*, Sept. 12.

PLANTING NOTES.

OLD TREE STUMPS.—To remove old stumps, a correspondent to the *Country Gentleman* gives the following:—'Get a 2 inch iron pipe, 8 ft. long; have a steel point welded into one end of it. With a sledge hammer drive this under the stump as far as may be necessary. Drop half a stick of dynamite into the hole thus made, and tramp earth upon it until the hole is filled, then light the fuse. The stump will be lifted entirely out of the ground with no earth adhering to it, so that it may be burned the next day.'—*Agricultural News.*

INCREASED EXPORT OF RAMIE FIBRE FROM KIUKIANG.—In his recent report on the trade of Kiukiang for the year 1901, the Acting British Consul at that port states that there was a marked rise in the export of ramie fibre, from 95,689 cwts., valued at 87,596*l.* in 1900 to 116,294 cwts., valued at 114,164*l.* in 1901. This is explained by the success of the experimental shipments to Germany having led to a continuance of such shipments by German firms in Shanghai. The average price was also higher than in 1900, and the Consul is informed that the advance has continued, so that this fibre, which is produced in the neighbouring part of Hupei, now commands 13 or 14 taels a bale instead of 10 or 11 taels.—*Board of Trade Journal,* Aug. 28.

COTTON AND COTTON SEED INDUSTRIES.—According to the annual report for 1901 of the British Chamber of Commerce of Egypt, the cotton crop of Egypt this season will prove to be a large one about 6½ million cantar, [Cantar=99 pounds], but the quality of it has been considerably damaged by fogs and rain. The question of quality is being much more studied by intelligent cultivators, and efforts are being made towards a more careful selection of sowing seed. This attention is certainly necessary, as there has been a noticeable falling-off during the last two or three years in the quality of the Mit. Affifi cotton, which is the main cotton of the country. Yannovich and Abassi qualities have again been cultivated with success, and some fine samples of each have been produced. Yannovich has especially found favour, the fineness, length and strength of its staple has made it a suitable for American Sea Island cotton, the crop of which has been short in the last year.—*Board of Trade Journal,* September 4.

SOIL ANALYSES.—Many people hold erroneous ideas as to the value of soil analyses, some speaking as though they only required to have the soil analysed to know what manures to apply to certain crops to obtain the best returns. This, however, is far from being so. In the first case, it would be nearly impossible to obtain a sample that would fairly represent even a ten-acre field. Besides this, an analysis will only show what the soil contains; it will not tell whether the plant food is in such a condition that the plants can make use of it, neither will it tell him what treatment the soil requires to make that plant food available. So many other things, such as the physical condition of the soil and subsoil, its ability to retain moisture or perhaps the reverse, have to be taken into consideration that (except to the scientist) a soil analysis is just as likely as not to prove misleading in dealing with the manures such a soil requires. The only guide is experience. Find out what others have done under similar conditions, and prove by experiment whether the treatment beneficial in their case is equally so in yours.—*The Planters' Monthly.*

GAMBIA.—The quantity of rubber exported in 1900 was 125,446 lb, in 1901 146,573 lb. being a decrease of £1,254 in value.—*India Rubber and Gutta Percha Trades' Journal,* Aug. 4.

INDIAN TEA COMPANIES FOR 1901-2.—Mr. George Seton shows that about half of these companies show increased profits, as compared with the previous year, while the other half have had their profits reduced. Taken all round the profits were larger than in the previous year, but the amount distributed in debenture interest and dividends was much smaller. The total net revenue works out at £319,000, as against £279,000 in the previous year, and the average rate of dividend, including debenture and preference interest, is 2·72, as against 3·90 per cent. This lower return, in spite of bigger takings, is not due altogether to increased capital on which distribution has to be made; but may be attributed to the more cautious policy of the directors in keeping larger sums in hand, so that whilst the aggregate capital has only grown 4 per cent, and is accounted for by the fresh issues of four concerns, the total sum placed to reserve and carried forward has expanded more than 15 per cent. The production per acre fell from 487 lb. to 421 lb., but the profit per lb. increased from 0·85d to 1·03d, and the sale price was nearly a third of a penny per lb. better. The ratio of operating expenses to receipts was 86 as compared with 88 per cent, and the profit on the total capital employed is equal to 3·50, as against 3·20 per cent. The situation revealed by this carefully compiled table is that each garden or group of gardens should be considered by itself, and that it is difficult to generalise on the whole industry from the results of any particular working.

WEST INDIAN ESSENTIAL OILS AND ALOES.—At the Agricultural Conference held recently at Bridgetown, Barbados, under the presidency of Dr. D Morris, C M G, Imperial Commissioner of Agriculture for the West Indies, Mr J H Hart (Trinidad) read a paper on "The Preparation of Essential Oils in the West Indies," an industry which in the past has mainly been connected with Dominica. Mr Hart exhibited specimens of fifteen kinds of essential oils, which he had prepared from plants grown on the lands of the Botanic Department, Trinidad. He discussed the various oils, described their mode of manufacture, and suggested steps which might be taken to encourage the industry. Dr. H A Nicholls (Dominica) and Mr W Fawcett (Jamaica) discussed the paper. the latter exhibiting a specimen of the oil of *Cananga odorata*, which he had prepared. Mr W G Freeman, technical assistant, Imperial Department of Agriculture, also read a paper on the "Aloe Industry of Barbados," which had now almost dwindled away. Mr Freeman pointed out the former magnitude of the industry, the ex ports being sometimes of more than 7000*l.* per annum, described the soil, cultivation and manufacture, indicated the detective methods which led to the decay of the industry, and made some suggestions for the future. Living specimens of Curaçao and aloe plants were exhibited. The paper was Barbados followed by a discussion, to which Prof. Harrison (British Guiana), Mr Francis Watts Leeward Islands), Mr W D Shepherd (Barbados), and the President contributed.—*Chemist and Druggist,* August 30.

IRRIGATION IN INDIA.—The scale on which irrigation works are provided in India is not, we fear, appreciated by those who denounce official neglect whenever a famine occurs. We learn from an Indian paper that the irrigation statistics for 1901-02 break the record. The previous maximum area under canal irrigation in one year was 18½ million acres. The area now under irrigation exceeds 19½ million acres.

CASSAVA.—An important Experiment.—Swift and Company and other Chicago packers, have begun experiments on a project for shipping stock to Florida and fattening it on cassava root. This project was broached about year ago by southern men and representatives of the Louisville & Nashville and an investigation was made. It was found that cassava would grow well in waste land in northern Florida and southern Alabama and was a splendid cattle feed. Investigation so far made it appears that it would be much cheaper to send stock to Florida to fatten than to the western ranges. It is said that 1,000,000 acres in the South are available, much of it government land, ready for homesteaders. The value of cassava as pig food and for making starch is being looked into. The project will be undertaken gradually, and ultimately may result in large and profitable changes to the packing industry.—"News Bureau," Boston.—*Jamaica Agricultural Society*, August.

PLANTING MANICOBA RUBBER IN SERGIPE.—In a report on the little state of Sergipe (Brazil), the coast line of which lies between the ports of Pernambuco and Bahia, the United States consul, Mr Henry W Furniss, mentions that in 1898 the state appointed a commission to report upon the introduction of the Ceará variety of rubber for cultivation, should improve advisable. The commission visited Ceará, where the Manicoba rubber trees were originally found wild and are now under extensive cultivation, and as a result of their investigation Manicoba has been planted in various parts of Sergipe. The consul has seen two plantations, one with about 17,000 trees and the other with more than 20,000 both three years of age and apparently in a flourishing condition. Manicoba is grown from seed, planted at the commencement of the rainy season, 12 to 15 feet apart, usually three seeds to a hill, the most vigorous resulting plant being left to stand. Some planters file one end of the hard seed—which much resembles the seed of the castor bean—to assist germination; others soak the seeds before planting, but generally the seed is planted without previous preparation. It is said that the plant will grow on rundown sugar lands. It is cultivated on the sandy soils of Ceará, but it doubtless will succeed best on good farming land. The tree requires little attention, in many places the soil receiving no cultivation, and reaches a height of from 12 to 36 feet in four to six years. It yields rubber at a very early age, the average stated at about 2½ years from planting, when from 7 to 35 ounces of rubber may be obtained in a season. Rubber is obtained by removing from the trunk a V shaped piece of bark, to the lower angle of which a small vessel is placed to collect the *latex*. Coagulation is assisted by smoking, as in the case of Para rubber, though the *latex* will coagulate spontaneously in the air. The cost of planting and gathering the initial crop is stated to be less than in the case of coffee, sugar, or cotton, while the profit is greater, and the consul believes that the new industry will become important.—*India Rubber World*, Aug. 1.

GRAPHITE (PLUMBAGO).—In the State of Travancore there are four mines from which graphite was extracted in 1901-02 to the amount of 2,490 tons. No information has been given of the quality of the graphite. It is doubtless exported, but no particulars of the trade have been furnished, nor are the capabilities of the mines known.—*Indian Agricultvrist*, Oct. 1.

PLANTING IN MYSORE.—At an extraordinary General Meeting of the South Mysore Planters Association held recently the subject of the Coffee Cess was discussed, and the proposal that the Agents should be asked to raise their rates by Rs 5 per ton to provide for the Coffee Cess met with very little support. As regards limitation of advances to coolies, it was unanimously agreed that advances should be limited to Rs 20 per head.—*Pioneer*, Oct. 9.

THE PEPPER TRADE OF SIAM appears to be improving, though not extending in area. Last year the exports amounted to 1,156 tons, and the prices varied from 8¼d to 9¼d in the London market. Prices have a tendency to rise each year. The latest account says that this year pepper is coming in rapidly, but the export will probably only amount to 70 per cent. of that of 1901. Prices have been steady for the new season's pepper, which began to come in at the end of March. Most of it comes to London.—*Globe*, Sept. 12.

CEYLON TEA FOR THE PHILIPPINES.—We direct the attention of the "Thirty Committee" to a letter of an American gentleman, Mr. Dunleary, written from Mindinao in the Philippines, which has been prompted by his reading in the *Tropical Agriculturist* of the efforts made by Ceylon planters to push their teas. He points out that there is an excellent field to be exploited in the Philippines—where inferior China tea is now chiefly used—and that the Americans who once got used to the flavour of Ceylon tea would carry the taste back with them to America and there demand the same tea. What surprises us in this connection is that an enterprising Ceylon man like Mr. Tom Stephens, the well-known Dentist, established for some time in Manila, has not put a tea merchant there up to importing from Colombo, or gone in for a trial shipment himself. He will in due course read Mr. Dunleary's letter and may have something to say about its contents. Meantime the "Thirty Committee" should pass a hearty vote of thanks, in the name of the whole body of our tea planters, to Mr. Frank J. Dunleary for the testimony he bears as to the repulsive nature of much that he himself has seen in connection with the preparation of China and Japan teas. This testimony ought to be reprinted in large type above Mr. Dunleary's name, for circulation all the world over, but especially in North America. Owing to some blundering at this end which we cannot understand, Mr. Dunleary's letter, which is dated May last, only reaches us now. He encloses a second letter for the "Planters' Association" in which he mentions a Manila Tea House as suitable for an Agency for Ceylon Tea. But Mr. Dunleary has to learn that the planters or their Association do not establish Agencies. That must be done by the merchants of Colombo in the regular course of business.

CINNAMON IN LONDON.

It is of interest, after our reference on the 19th Sept. to the *London Commercial Record*, to turn to the specific expert report on the last quarterly sales of cinnamon—the source from which we have chiefly quoted for many years past. From the report, which bears date the day after the auctions, we learn that the quantity offered was a fair average one of 825 bales—the offerings at the corresponding sale last year having been 858, and in May this year 433. Had London been our only market for the famous Ceylon spice, as it was practically until the opening of the Suez Canal, the smallness of the previous quarterly catalogue would have led to keen competition, and to an advance in prices; but, as the *Commercial Record* observed, the Continent is supplied direct through its own Ports, to which generally foreign merchants now ship produce direct from the producing country. As a matter of fact we sent to the United Kingdom less than one-third of our quilled cinnamon—812,280 lb. out of exports totalling over 2¾ million lb.—and 239,000 lb. chips out of over a million and-a-half! Germany took almost thrice the quantity of chips and about 57,000 lb. quilled bark more than the United Kingdom; while Belgium, Italy, Spain and America, all ran into pretty high six figures. Though London no longer holds the proud position she did in the spice market, she doubtless has among her constituents in the spice trade some of the best of her old customers. While it must not be forgotten that the volume of trade has about trebled, so that London attracts perhaps as much as she ever did in ante-Suez Canal days; while it is also a fact that the highest priced cinnamon continues to go to London. In the report before us, for instance, First quality of worked cinnamon fetched up to 1s 8d; seconds up to 1s 7d; thirds up to 1s 5d and fourths up to 11½d. We doubt if even one bale of cinnamon has changed hands locally at anything approaching these prices. The prices paid in the Fort for Firsts, we understand, are about the equivalent of what fourths from good gardens like Goluapokuna fetched at the London Quarterly Auctions. If the Continent of Europe and America draw almost all their supplies from Colombo direct, London still continues to monopolise our best marks, chiefly it is believed for old Spanish and Italian houses which ask for the finest quills the island can turn out; and if its prices no longer regulate local rates, yet London pays for what it likes, double the prices which are quoted in local Price Currents!

As we said, the prices which ruled at the last auctions did not advance as expected because of the smallness of the offerings at the previous sales; but such as they were, they leave no cause for dissatisfaction. Previous rates were generally maintained, and where there was a fall it was easily explained. Altogether, as has been remarked, the spice market was about the only one in which produce showed some animation last month; but heavy shipments have gone forward since then; and we are not sure that the next sales will show as good an average. Any way, the stocks are not heavy; and there is hope in that. Elsewhere (see page 7) we give the usual London Report on last sales.

SALT IN THE SOIL IN INDIA AND CROPS.

The soil in some parts of the country is very salt and so is the water of many of the wells. As it is important to know how far this affects their value for agricultural purposes, Dr. Leather, Agricultural Chemist to the Government of India, has investigated the effect of the salt on crops. He has found cereals growing well in soil which contained 0·099 per cent of sodium carbonate, and 0·018 of sodium chloride in the Cawnpore District. In the Aligarh District, wheat grew well in one case in the presence of 0·044 per cent of carbonate *plus* 0·021 of chloride, and in another in the presence of 0·137 per cent of carbonate *plus* 0·062 of chloride. The crop failed, however, in the presence of 0·193 per cent of carbonate *plus* 0·01 of chloride in one plot, and of 0·251 per cent of carbonate *plus* 0·008 of chloride in another. It is remarkable that such a small difference should be found in the amount of salts present in the soil when the crop grew well in the one case and failed in the other, but this is confirmed by similar results obtained in California. Dr. Leather finds the explanation to lie in the respective amounts of rainwater which the several soils would allow to enter at the surface. The word 'drain,' he says, cannot here be properly used, because the presence of these salt is a proof that the drainage conditions are extremely imperfect. But one soil will allow more water to descend into the surface soil than another. This would produce more dilute solutions of the salts in the one case than in the other, and it would explain why considerable differences in the growth of crops may occur in soils which contain much about the same proportion of salts. It is, indeed, a question of concentration of solutions that must be considered rather than weight of these salts per hundred parts of soil.

The water of many saline wells is used for irrigation. For instance, in the Muttra District of the United Provinces the water of such wells is considered by the people in some cases to be fit for application to the land before sowing, while in others it is applied to growing crops. Dr. Leather finds that in the latter case there is often a considerable proportion of nitrates in the water. In Gujerat he has observed that when the amount of total salts is high, the water is mixed with that from less saline wells. When the water does not contain a good proportion of nitrates, it cannot be used for irrigation in the absence of a good rainfall. Used alone in dry weather, such water is practically fatal to crops. A distinct line cannot be drawn between waters which are fatal and those which are not, but Dr. Leather finds that the most that crops such as cereals will bear is a solution containing 0·5 per cent of salts.

More generally, Dr. Leather finds that crops may suffer in solutions of 0·3 per cent of total salts, those which are most easily affected being the *Leguminosæ*. In order to compare this result with that showing the proportion of salts in soil, he says that it may be assumed that the proportion of water in soils varies, shortly after irrigation, from 30 per cent to 10 per cent according to the nature of the soil and the climatic conditions. A soil containing 0·1 per cent of salts and 30 per cent of water may thus be considered as holding a solution of 0·33 per cent of salts. Dr. Leather infers from the agricultural effects of well waters that such a proportion is as much as cereal crops can bear. He therefore considers that a soil containing so high a proportion as 0·1 per

cent of total salts could only be expected to bear good crops if the water supply were regular throughout the season.—*Madras College Magazine.*

THE SAPPHIRE MINES OF ANAKIE, QUEENSLAND.

During my recent visit in Central Queensland I was asked to visit the sapphire mines of Anakie, 200 miles west of Rockhampton by rail. From Anakie railway station to the nearest mines, on Retreat Creek, is nearly eight miles. The oldest and most extensive rock masses in the Anakie district are granite and its varieties, assumed to be of metamorphic origin. Gneisses, schists, and slates rest against the granites, and are everywhere found in contact with them. Intrusive rocks, acidic and basic, occur throughout. The former, consisting of pegmatite, felspar, porphyry, and felsites, are in great abundance, and traverse the granites and gneisses in all directions. The basic rocks are hornblendic, and are either massive hornblende, or else diorite. There are also outcrops of massive epidote rock and garnet rock in places. There is a younger formation, making a break between the other rocks. This consists principally of shales, sandstones, and conglomerates. The remnants of the pre-existing formation consist of boulders of hard flinty quartzite, of general occurrence in Central Queensland, and designated "billy." It occurs exclusively as boulders in the alluvial sapphire deposits. The sapphires are distributed over a large area, but nearly all are confined to the granite country. The deposits occur on the banks of the creek, but very rarely are they found in the beds of the present streams. Sapphires are found in the basalt at an altitude of 500 feet above the highest alluvial deposit.

In addition to gems there are found black tourmaline in abundance, titanic iron, pleonaste, and magnetite. At Sheep Station Creek there is a small outcrop of schist, sections of which show it to be hornblende, quartz, and red garnet. Policeman Knob, close to Policeman Creek, is remarkable for the number of white and coloured zircons found in the alluvial deposit below the basalt, but so far no sapphires have been got from the deposit.

The thickness of the gem deposits varies from a few inches to several feet. The bottom is usually a reddish clay, and below this clay another and sometimes richer deposit has been found. The sapphire wash is frequently clayey, and requires "pudding" before the gems can be extracted, but much of the wash is loose and friable, the sapphires being obtained by "dry sieving." In several parts of the field the wash is of enormous thickness, but very little prospecting has yet been carried on.

THE SAPPHIRE FIELDS.

The field is divided into four camps; I found the wash varying greatly in thickness. The wash includes, in addition to several varieties of "billy," red and brown jasper quartz, fibrous hornblende, magnesite, tourmaline, topaz, pleonaste, rock crystal, and several varieties of chalcedony. Several rubies have been found, which, compared to the blue, green, and yellow sapphires, are exceedingly rare. Some very fine stones have been found on this field, amongst them two very fine yellow, weighing nearly 50 carats each. The blue stones found are, as a rule, dark, but the green stones, when free from flaws, are very fine gems. Some fine hyacinths, a variety of the zircon, are also found at times. On Hunt's claim, one of the best on the field the stones found were large blue and others of a beautiful light yellowish green. Zircon, garnets, and amethysts have also been found. I saw a fine yellow sapphire weighing close on 80 carats, and some fine green stones. Crystallised corundum has been found on this claim. One of the most brilliant yellow stones ever obtained, and which after cutting weighed 33 carats, was got in this mine. The Policeman Creek camp is celebrated for a diamond weighing 1¼ carat, found in M'Chrystal's claim. The miners thought it was a white sapphire, but during Mr. Dunstan's visit he set them to rights on that point. It is quite probable that others were found previously and sent away with parcels of stones, as two other diamonds have since been found on Retreat Creek. Large sapphires are found on Iguana Flat, but from there to the lower end of Policeman Creek there is a gradual diminution in the size of the stones, although the blues of Iguana Flat are not as good in colour as those on the creek. The green sapphires found on the Central Creek are often of a brilliant shade. The sapphire deposits are, however, most extensive on Tomahawk Creek. Mr. Dunstan says that in places they are a mile in width and several miles in length. Occasionally there is a break, but otherwise they wind about on both sides of Kosky's Creek. The total distance along which the deposits are found in this camp is about 15 miles.—*Sydney Mail*, Sept. 6.

CEYLON TEA ON THE CONTINENT OF EUROPE.

Mr. J. H. Renton sends us three pamphlets bearing on Ceylon Teas. One is in Russ very prettily got up with 20 fine illustrations showing all the operations of tea planting and manufacture and even of despatch by steamer, with appropriate letterpress. Another in French "Rapport sur le The de Ceylon" by Dr. Doorkovitz and a third in German, a translation of the latter. The Russian chemist who writes these is well-known in the scientific world and in 1890 he gave some lectures at St. Petersburg upon Tea, especially showing its alimentary value. Not only is tea valuable as a stimulant, but it serves to create the heat necessary for the functions of the body. A table follows shewing the amount of caloric required every twenty-four hours and the quantities of hydrates of carbon, of albumen and fat required for the production of so much heat or energy, by means of which the functions of the body are carried on. To understand the influence of tea as a factor in the alimentation, one must study the two tables given, drawn up by Messrs Franklaud and Pavey, shewing the relative value of each food for muscular work, also the weight of nourishment necessary and the quantity to maintain a working man. In the table we note that the energy created by the consumption of so much carrots and potatoes—or of a much smaller quantity of beef-fat is the same. It followed then that with the man who lives on carrots &c., a considerable amount of energy with have to go to digest the food and he will never have the activity he might have had, if he had taken a more substantial food, of less volume.

In order to understand the place of tea in alimentary economy, we must study its analysis which is fully given and it is explained how tannin oxydises the blood and by combining with the albuminous matter of the tissue of the body hinders their destruction. The theine is doubtless nerve tonic, say they, and acts in the same way as would alcohol.

All this will appeal to Continental readers in their own languages.

GARDENING ON TEA ESTATES.

(*For "Indian Gardening and Planting"*)

In Indian Gardening and Planting of 17th July 1902, you ask, under the heading of "Gardening on Tea Estates," "Why should not every tea planter in India turn his attention to the cultivation of the beautiful in nature? . . . The tea planter has every facility for successful gardening ready to his hand."

The answer to this question is not far to seek; and it is this: Few men or women *have it in them* to take the trouble that successful gardening requires. A man who has it in him to do this, will teach himself gardening almost under any circumstances. There is no recognised institution in India to which a youth, who is intended for a planter, can be sent to acquire a love of plants, and the rudiments of the way that they should be dealt with, in order to make them respond to one's wishes. Most children are fond of flowers—some are passionately so—and would intelligently learn a good deal about them, if they are taken early in hand by some one who knows how to deal with children's brains, and to put in them the best and lasting notions. But this natural love of plants is allowed to be frittered away by all sorts of distracting notions; so that after a time the child begins to look upon the time and trouble of attending to plants as a bore and is always wanting to do something else; as the child grows into a boy, with all manner of distracting thoughts, it is hopeless in most cases to try and win him back to gardening.

As men get old they begin to lose interest in this, that and the other pursuit, but if in their childhood and youth they have had their love of plants fostered, and have acquired the rudiments of gardening, that pursuit they will *never* tire of. In their spare moments they will be always in some garden, or wild place prying into the ways of plants and flowers. It is doubtful whether a child or a boy will take to plants unless he has it naturally *in him*, and feel a pleasure in discovering their secrets, or at all events in learning something about their ways. Parents are a great deal responsible for not having children taught more about gardening than they do. For instance, what is the first thing a mother in London thinks of doing when her children return home for the Christmas holidays? The first thing she thinks of is to take her boys and girls to the Pantomime, to see what?—a regiment of pseudo-nude girls dancing in a ballet and a lot of imbecilities in the bargain. The boy probably has awakened in his brain convolutions something very different from gardening, when he beholds those troops of girls rigged up in imitation nudity—something to dream of for months while he is trying to read his books on returning to school. I once asked a little girl, who was with her mother for Christmas holidays, this question: How long does it take you to gather up your thoughts again for renewed school work, when the Christmas carnivals are over? She replied *about two months*. The boy probably takes longer. Mothers are mostly ignorant, and do not understand the automatic action of the human brain; and that when she puts the exciting glamour of a pantomime into a child's head it is difficult to put it out again; and most of these boys and girls are supposed to be in training for making their own way in the world later on. I do not suppose that more than one per cent of mothers look upon the future lives of her children as a life of struggle for existence. Pantomimes don't appear to help one much in that direction. It is only today in one of the papers I read that in a certain technical school they find a difficulty in getting students to come to be taught! The youth's brains are stuffed with a craving for amusement. I know of an official in India who had a son in London training for the Indian Civil Service. He failed. Then he was coached for the Army. He failed again, and finally he was turned into a tea-planter. Not improbably in his new function, whatever that may have been, after the day's work he wound up in some verandah with his legs on the long arms of those curious chairs, smoking and drinking whisky and soda. How could such a creature take to gardening, in spite of "every facility for successful gardening ready to his hand." Probably he never knew even, or had the sense of observing that plants had sexes like himself! It is true that great efforts are now being made to bring boys and girls face to face with the realities of nature in what are called "nature studies." But with the dreams of a pantomime in his head what can a boy care about beetles and nettles? If the boy has it in him, and his father intends him to become a planter, there are facilities for training him in a knowledge of plants and their ways both in the Royal Gardens at Kew, and in the Horticultural Gardens of India. But do they, or will they take advantage of these institutions? I was, on one occasion, in the principal hotel in Kandy for a month. Periodically bachelor planters used to come down to the hotel, have a "blow out," and get tipsy, and make a row. The ennui of life with such creatures must have been great, and they had no outlet for their energy beyond that of driving coolies. To such persons a love of gardening would have been a Godsend.

London, Aug. 22nd, 1902. E. Bonavia, M.D.

—*Indian Gardening and Planting*, Sept. 18.

CEYLON GAME PROTECTION SOCIETY.

Copy of minutes of a general Committee Meeting of the Ceylon Game Protection Society, held at the Hill Club, Nuwara Eliya, on Saturday, September 20th.

Present:—Hon. Mr. H Wace, Chairman, Messrs. C H Bagot, P R Shand, C C Wilson, J Wickwar, M J Kennaway and T Farr, Honorary Secretary.

The minutes of last meeting were read and confirmed.

Messrs. C C Wilson and M J Kennaway were proposed as members of Committee and duly elected.

The Honorary Secretary submitted a letter from the Colonial Secretary (No. 09,092) of June 13th, 1902, explaining circumstances and correspondence antecedent thereto with amended form of licence proposed by him.

The amended form was approved by the Committee and the Honorary Secretary was authorised to submit the same to Government.

The Honorary Secretary submitted a question of retention of watchers on the Meda and Kadawata Korales, Sabaragamuwa. Resolved:—"That the G. A., Sabaragamuwa be requested to be good enough to inform the Secretary, how these watchers are employed, and under whose immediate supervision, and to give a return of all cases instituted under the Game Protection Ordinances with result of same."

The Honorary Secretary brought to notice of the Committee, the question of the altering of the close season of the Eastern Province appearing in the Government *Gazette* No. 5,838—of March 22nd, 1902. Resolved:—"That previous to the altering of close seasons in any Province, the

Government Agent be requested to kindly submit the proposal for the opinion of the Game Protection Society's Committee."

The Honorary Secretary read out the Proclamation by Government of June 30th, 1902, relative to the export of horns of sambur and spotted deer and proposed that the Game Protection Society desires to record its thanks and full appreciation of the act of Government in issuing the said Proclamation.

The Honorary Secretary submitted particulars of a case of hunting by coolies in Maturatta in Crown forest and his letter to the Hon. the Colonial Secretary on that subject. It was resolved:— "That no further action was adviseable in the particular case reported."

A vote of thanks to the Chair terminated the meeting.

Before the business of the meeting had commenced Mr. P B Shand inquired whether the admission of the Press reporters was in order, as they were in Committee and it was unusual to discuss matters of a private nature before the said representatives. The Honorary Secretary expressed his desire that the meeting should be reported, as there would be several matters coming forward, which it would be desireable to make public through the medium of the press.

Mr. C H BAGOT expressed his regret that Haputale was not represented at the meeting and the Honorary Secretary stated that he had called the attention of Messrs. J R Barkley and W Ormiston to the meeting by post cards in addition to the usua notice in the newspapers. With regard to the first subject under discussion by the rule prohibiting shooting in the Hill Reserves above 4,000 feet the Honorary Secretary gave a sketch of the history of the subject from the date of its origin terminating it with the letter from the Hon. the Colonial Secretary of June 13th, 1902. That letter being the immediate cause of the present meeting. The facts of the case are briefly these. Some two years ago the shooting of sambur in the Hills round about Nuwara Eliya by Tamil coolies and other pouching rascals had become so prevalent that the C G P S appealed to Government to put a stop to it, in the interests of sports-men generally. Hence the rule was made. It was, however, too comprehensive in its scope, and some objections to it were raised by certain members of the Society resident in Uva. On October 17th, 1901 at a general meeting of the Society attended by representatives from Haputale, the matter was thoroughly discussed, and a resolution in the form of an amendment was carried unanimously as follows:—

"That where registered packs of hounds are kept the killing of sambur be confined to stalking with the rifle at any elevation and to killing with the knife and hound."

The Hony. Secretary on October 30th laid the matter before Government forwarding copy of the resolutions passed at the meeting and on November 20th received a reply which entirely failed to help matters on at all. On April 2nd, 1902 at a General Meeting of Society the subject was again brought up and again a resolution was passed emphasising the amendment passed at the preceding meeting.

The Hony. Secretary drew the attention of Government to the proceedings of the two meetings and received a reply dated June 13th 1902,

"Requesting him to forward a draft of the license, which would meet the wishes of the G P Society as some difficulty was experienced in comprehending its precise wishes.

The above retrospect brings the question up to the proceedings of the meeting now under review, and the following draft of a license with amended conditions was submitted by the Hony. Secretary as meeting the wishes of the Hony. Secretary of the Haputale branch in accordance with the proceedings of the two general meetings of October 17th and April 2nd.

Conditions of License referred to:—

I. Shooting at night and netting are prohibited.

II. This license is not transferable and can only be used by the person named in it.

III. Hunting by men in gangs carrying sticks or guns with or without dogs is prohibited.

IV. "Shooting elk and spotted deer within the Hill Reserves above 4,000 feet is prohibited except with the permission of Government in writing. The only modes of killing elk and spotted deer allowed within such reserves is hunting with dogs to the knife or stalking with the rifle."

This form of license being unanimously adopted by the meeting. The Hon. Secretary was requested to forward a copy to Government for approval.

The Hon. Secretary then brought up the question of the retention of the two game watchers employed in the Meda and Kadawala Korales of the Sabaragamuwa District, stating that he was dissatisfied with the lack of information from the Katemahatmaya of those Korales with regard to what had been done by them. He (the Hon. Secretary) submitted that the country, wherein these watchers were employed, was not in any sense a sporting country and he was doubtful whether the G. P. Society benefited in any way by their employment and remarked that they would be far more useful in the Province of Uva as it was very desireable that the game as it overflowed the boundaries of the Yala Sanctuary should receive immediate protection. The Hon. Secretary also mentioned that when passing through the very centre of the country supposed to be patrolled by these watchers he received numerous offers from the villagers to get up deer drives and this was in the close season. The Ratemahatmaya, however, of the Koralcs referred to, has reported to the Hon. Secretary that much good has heen and is being done by the watchers, Hence the resolution which was carried at the meeting.

In introducing the subject of hunting by coolies in Maturata District during the close season of this year the Hon. Secretary explained that he had received a complaint from Mr Thorpe, of Ellamulla estate, requesting the services of one of the game watchers of the Society to assist him in detecting a gang in the act of hunting. There appears to have been some mismanagement for instead of waiting until the gang was actually engaged in pursuing or attempting to capture sambur, they were seized in the Crown forest and their guns and dogs taken from them. The Hon. Secretary, pointed out that the charges of the guns which were drawn and examined, consisted of bullets, slugs and heavy charges of powder and that the men had undoubtedly entered the forest with the object of killing sambur.

Proceedings, however, were not instituted owing to their not being detected in the act of shooting at, or killing sambur,

The Hon. Secretary then drew attention to the amending Ordinances No. 11 of 1902, and quoted the following therefrom :—

Sec. 3 sub-Section (5) " a License to shoot at, kill, capture, pursue, or attempt to capture game, shall be subject to an anual stamp duty of R3'50.

Sec. 6 sub-Section (c). Any person who in contravention of this Ordinance or contrary to the tenor of any License issued to him shall shoot at, kill, capture, pursue, or attempt to capture game, shall on conviction be liable for such offence to a fine of R100 or to simple or rigorous imprisonment for a period not exceeding three months or to both.

In view of the lapse of time that had occurred since the alleged poaching it was thought inadvisable to re-open the question.

A TEA COMBINE IN JAPAN.

The question of a tea-combine seems likely to be revived in Japan. This time the idea emanates from the tea growers of Fukuoka, Kumamoto and Nagasaki. So far the proposal is only in the initial stage, although a number of people are anxious to push the matter through. With this end in view representatives of various bodies interested in the tea business have been holding a conference at Nagasaki.—*Hongkong Weekly Press*, Sept. 8.

PRODUCE AND PLANTING.

" The value of TEA, COFFEE, and COCOA imported into the

UNITED STATES

in 1902 was $87,426,000 as against $146,275,000 in 1892, which is a great falling off," says "Tea, Coffee, and Sugar" of New York; "but the figures for the present year are the largest since 1897, when they were $1,000,000 000. In view of the tremendous imports of coffee the figure is surprising for the year, but it demonstrates the lessening values of the staples from year to year. The coffee we now drink does not cost so much, nor the tea either. Their quality, too, is not so high as formerly. The value of the tea imported this year was little in excess of $9,000,000, whereas in 1875 it was $22,675,000. Since then the population of the country has grown from forty to eighty millions, but the quantative value in dollars of tea has decreased almost two-thirds. An inference is that the tea trade since then cannot have grown, and this, too, despite the enormous expansion of trade in the country. Coffee has done better, but the imports in 1875 amounted to $50,000,000, whereas the value of them for the fiscal year just closed was only $70,000,000. In 1875 the amount of coffee imported was 317,879 000 lb, but during the year just closed it was 1,091,792,000 lb, for the first time the billion mark was crossed. Our consumption of coffee has increased threefold, whereas the population has only doubled itself. Of tea in 1875 we consumed 65,000,000 lb, and this year it was only 75,000,000 lb, which is a retrogression relative to the increase of population.

The scene of the

AUCTION SALES OF TEA

in MINCING LANE does not exactly represent an earthly paradise, and it is oftentimes suggested that there is room for improvement in the method of conducing the auctions. There are frequent complaints on this score, and quite recently a growl has been uttered because the buying brokers include in their lists of "bought-over" teas which they distribute among the trade those parcels for which selling brokers have accepted their bids. The *Grocer*, we notice, says this complacence is ridiculed by the majority of the trade. It points out that " as it is quite at the option of the selling brokers whether they accept or refuse these bids, it seems unnecessary to raise an outcry against the practice. No buyer is prevented from offering more money for any teas for which bids have been made, though the original bidder has the first claim, provided, of course, he is prepared to pay the increased price. In the main the owner gets the fair market price for his tea, and no doubt will continue to do so unless there are philanthropists in the trade who are willing to bid above their fellow-operators in order to benefit the importer. With regard to crying off bids that have been made this has been an unpleasant and growing practice within recent years. The question, however, is one that rests entirely with the selling brokers, for if auctioneers would only show a little more backbone by firmly insisting on their decisions being carried out there would be better order than at present prevails in the conduct of the tea sales. Where auctioneers have hesitated and wavered in deciding who was the first bidder nothing but confusion and disorder have resulted. It would also be a good thing if the brokers were to bring pressure on the importers to allow the buyers a profit on the odd chests that are sometimes withheld from a break, being kept back either for the merchant's own use or else for a 'friend in the country.' Frequent protests have been made against this proceeding, and frequent promises made of the subject being brought before the importer, but the outcome so far has been nil. Again there are occasions when breaks of a hundred chests or so have been sold, although offers have been made of a farthing more and 'drop' on condition that the parcel was divided into two lines. This means more money for the importer, but the offer has not always been entertained, and it is a pity that some definite rule is not made upon the subject. Many invoices also contain duplicate breaks of the same description of tea that might be bulked together, thereby saving time and the trouble of tasting an excessive number of samples. The trade are continually complaining about all these matters, and if they were duly recognised and provided for the procedure at the auctions would be characterised by a greater smoothness and less uproar than at present characterises the tea sales."—*H and C Mail*, Sept. 12.

TEA STATISTICS AND PROSPECTS.

The introductory portion of Messrs. Wm. Jas. and Hy. Thompson's Tea Circular by a late mail deserves to be carefully noted :—

Although good business is now being done the market lacks animation, and the news of light shipments from India has not received the notice it deserves at a time when deliveries for home use and export are steadily growing larger. Some of the buyers seem to be more intent upon discussing what is passing at the moment than upon making provision for the future, with the result that bidding at Auction is brisk at one time and languid at another, while prices are subject to much irregularity.

The movement, however, towards a high level of value for fine teas, accompanied by easier rates for inferior kinds, continues : it is helped by the action of buyers abroad who show much discernment and bid freely for Indian and Ceylon tea of the best flavour and quality. Judging from our own information, they are probably right who buy fine tea when they see it and also recognize that when it is scarce the good teas next in order of merit become more valuable.

There are signs that business with America this season will be larger than hitherto and may reach considerable dimensions if suitable teas be made in sufficient quantity to convince American traders that we cau produce "Green tea" with the flavour of Moyune and "Uncoloured tea"—or "Unfinished tea" as some in Canada name it—equal in delicacy to the best from Japan. Both descriptions should be made. Our friends Messrs J & J R Montgomery & Co., of New York, inform us that they estimate the importation in North America this season will be as follows :—

	1902-3.	1901-2.	1900-1.
From China and Formosa	51 mils. lb. agt.	40 mils. lbs	54 mils lb.
" Japan	38 "	36 " "	38 "
Total ..	89	76	92

This is so far encouraging, and we notice that the London stock of Ceylon tea on 1st September was considerably less than at thesame date last year ; but unfortunately Indian tea was 3½ million lb. in excess and China tea 4⅗ million lb. above the stock of September, 1901. Finally from a Statistical sheet issued by Messrs. Ewart, Maccanghey & Co., Ltd., we quote the following, *quantum valeat* :—

CROPS OF THE WORLD.

	1901-2. Millions.		1900-1. Millions
Indian ...	175¼	..	187½
Ceylon ...	143	...	149
China and Japan (Exports from)	154½	(Exports from)	184½
Java ...	18¾	...	17¼
	491½		538½

MESSRS. BROWN AND DAVIDSON'S TALAWAKELE WORKS.

EXPERIMENT WITH LIQUID FUEL.

So much has been recently written about the attempts made to utilise liquid fuel in oil engines as a motive power that haviug heard of an experiment at the well-known works of Messrs. Brown and Davidson, Talawakele we sent our Upcountry representative there to witness and report on the success of that firm's latest venture. Our representative was cordially received and shown the engine experimented with, which was a Priestman Hull oil engine, selected because it was not of date and had not been worked for several years. After Messrs. Brown and Davidson's chief engineer had removed all the complicated gear, he substituted a simple valve gear. The engine was put through successful tests. The engine is of small construction, but nevertheless it started readily and easily, and developed a little over 4 horse-power pressure on a continued brake test. Our representative was informed by Messrs. Brown and Davidson that far from being prohibitive the alteration necessary, on this old and obselete type of engine—was effected at a low cost. But the firm while they are prepared to alter any engine at use at present to work by liquid fuel—they, at the same time, do not advocate it, as the result of what its motive power would be after two or three years of continued work has to be tried and tested for some little time before they would express their opinion as to its proving the success which is now anticipated in very many quarters. Our representative was also taken to Middleton estate, owned by Mr. A V Renton, where within a few hours yesterday (Monday) Messrs. Brown and Davidson changed an oil engine of the latest pattern which had hitherto been

WORKED BY PETROLEUM TO WORK WITH LIQUID FUEL.

The engine was one of their own "Cundall's" and of 25 brake power, and had been working quite smoothly with liquid fuel for some hours. There our representative met Mr. T MacLachlan who has something to do with the management of that estate, and was told by that gentleman that it was his opinion that liquid fuel would supply a long-felt want upcountry where firewood was scarce, and had to be brought from distances by wire shoots which had to be erected for the purpose at much cost. Mr McLachlan's view was that it would in time be largely used as it meant working factories at much less cost than before, as whatever may be the drawbacks of liquid fuel it really supplied a distinct advantage in cost of working and labour. Our representative, from another source learnt that engines worked with liquid fuel would want a deal of looking after and cleaning as the oil itself was dirty. The oil, it is said, is a refuse oil, and is distilled from the ground in a crude state. It is in fact an oil from which petrol, kerosine and more volatile oils had been extracted, but what it is going to do for estates remains yet to be seen, and the venture of Messrs. Delmege Forsyth & Co. to

ERECT A STORE AT TALAWAKELE TO STORE IT,

in view of their opinion, that it will be extensively used before long, and Mr A Hamilton Harding, the Honorary Secretary of the Dimbula Planters' Association, expressing it as it been generally understood that its demand would in the near future increase rather than decrease, speaks for itself. In Colombo we would add that the cost of petroleum now so largely used in factory engines upcountry is approximately 48 cents. per gallon, while the liquid fuel is obtainable at 12 cents. per gallon. Whether the prices will in time fluctuate remains to be seen, as the lesser demand for petroleum may bring its price down ; while the increased demand for liquid fuel should have a tendency to raise its price rather lower its present rate even though facilities for importing liquid fuel in bulk be arranged for, as has been suggested.

THE FAUNA OF BRITISH INDIA.

We have to acknowledge receipt from the publishers of a copy of the latest volume of the above work, which includes the Fauna of Ceylon and Burma ; and is published under the authority of the Secretary of State for India in Council. Edited by W T Blanford. The present volume is on Rhynchota.—Vol. I. (Heteroptera) by W L Distant. The publishers are in London : Taylor and Francis, Red Lion Court, Fleet Street. Calcutta: Thacker, Spink and Co. Bombay: Thacker and Co.,Limited. Berlin: B Friedländer and Sohn, 11, Carlstrasse, 1902. The whole series is a most valuable one and in the preface to the present volume Mr Blanford states :—

Other volumes on Indian Invertebrata are in preparation, and two are so far advanced that their

early publication may be expected. These two are a volume on Ants by Colonel C T Bingham, and another on Longicorn Coleoptera by Mr C J Gahan. A volume of Land-Mollusca is also in hand, and arrangements are being made for further additions to the general series.

CINCHONA IN BENGAL.

According to the annual report by Major Prain, Superintendent of Cinchona Cultivation in Bengal, 13,434 lb. of cinchona febrifuge were manufactured last year at the Government Cinchona plantation in Sikkim, an increase, as compared with the previous year, of 3,599 lb. This increased quantity included 2,663 Cinch sulphate, of quinine, and 936 lb. of cinchona febrifuge. The receipts for the year amounted to R1,91,922 as compared with R2,27,087 for the preceding year.—*Madras Mail*, Sept. 27.

"ON THE ORIGIN OF PEARLS."

Dr. H. Lyster Jameson, M.A., is good enough to send us a copy of his paper on this subject reproduced from the proceedings of the Zoological Society of London. It is accompanied by four full pages of illustrations and a list of literature on the subject. Dr. Jameson controverts the theory that the pearl is due to the intrusion of an irritating body (a grain of sand, &c.,) which the oyster proceeds to coat with carbonate of lime, so elaborating the pearl. His investigations go to show that the intrusion is rather by a living parasite, a "trematode." Trematode larvæ cause sacs to develope and these lead to pearl formation; but one must read the paper very carefully, to appreciate the full importance of the investigation carried on by the author and scientist. The paper should be of great use to Professor Herdman and Mr. James Hornell.

RICE IN INDIA AND AMERICA.

We remember reading a short time ago a learned discussion, as to whether India is the poorer for the growing volume of her exports; and the issue specially turned on whether the rice which was exported from the country was surplus stock, in excess of its needs, or whether it represented the food of the people which they were too poor to purchase, and for the lack of which they died in thousands and, in bad years, in millions. In recent years at least—whatever may have been the case a century back, India is believed to have always had rice enough for the needs of all her population; and the reason why famines that is scarcity in particular tracts, proved disastrous was mainly, if not solely, through the difficulty of transporting food whither it was most needed. We are by no means sure that India would be any the richer for the non-exportation of rice; but if the successful growth of rice in particular States in America has not been exaggerated, as has been the cultivation of tea, India will cease to be regarded in the markets of the world, at any rate in those at a distance, as a necessary source of supply. When that happens, may we expect Indian famines to cease to decimate the population, or will the growth of more remunerative crops take the place of rice? We quote as follows from an Indian paper, as a new proof of the almightiness of Yankeedom:—

"Writing of the growth of rice cultivation in Louisiana, the *Louisiana Planter* says: Hundreds of thousands of acres of land are being prepared for rice culture, and unless some adverse conditions intervene, our rice crop should be doubled, or tripled, within the next ten years. The prairies of Southwestern Louisiana have produced rice in small quantities for a century; but it has only been of late years that active efforts have been made there in the direction of the artificial irrigation of rice. In Louisiana and Eastern Texas there were produced last year some 3½ million bags of rice, equal to about 175,000 short tons of clean rice. This large production has been nearly all marketed, and the advent of the new rice crop on September 1st will find but little of the old crop remaining on hand, the distribution of the last crop, the largest ever produced, having been successfully made and at good prices. All this is leading to new efforts in every direction for the enlargement of the industry, and one of the most notable of these schemes is that of the Bradford Canal, which will be about 75 miles long and 250 feet wide, and will afford ample irrigation for from 500,000 to 700,000 acres of land through the district which it will traverse."

CEYLON PYTHONS GALORE.

With reference to the statement of a Galle correspondent that a python 10½ feet long was killed near that town while attacking a goat, a Kadugannawa planter writes:—

"It may interest you to hear that three pythons were killed in the tea on this estate during 1901: the largest measured 11ft. 6 in. by 18 inches in girth and the other two about 10ft. 6in. and 10 feet respectively."

Tennent's reference in his "Natural History" is as follows:—

The great python (the "boa," as it is commonly designated by Europeans, the "anaconda" of Eastern story), which is supposed to crush the bones of an elephant, and to swallow the tiger, is found, though not of such portentous dimensions, in the cinnamon gardens within a mile of the fort of Colombo,* where it feeds on hog deer, and other smaller animals. The natives occasionally take it alive, and securing it to a pole expose it for sale as a curiosity. One that was brought to me tied in this way measured seventeen feet with a proportionate thickness: but one more fully grown which crossed my path on a coffee estate on the Peacock Mountain at Pusilawa, considerably exceeded these dimensions. Another which I watched in the garden at Elie House, near Colombo, surprised me by the ease with which it erected itself almost perpendicularly in order to scale a wall upwards of ten feet high. The Singhalese assert that when it has swallowed a deer, or any animal of similarly inconvenient bulk, the python draws itself through the narrow aperture between two trees, in order to crush the bones and assist in the process of deglutition.

* [That was 40 to 50 years ago when jackals prowled nightly along Turret Road!—Ed. *T.A.*]

COOLY TIN TICKETS.

[The following correspondence has been sent us for publication.—Ed. *T.A.*]

My dear T.—The enclosed remarks, with reference to tin tickets, writen by the G.A., Western Province, may be of interest to you:—

"The objections that are raised in some quarters to tin tickets being required at all times in order to secure cooly rates appear to me somewhat unreasonable. I do not think it can be disputed that the certificate system at present in force is greatly abused, and that a number of persons travel under the certificate at cooly rates who are not *bona fide* coolies. I do not mean to suggest that planters wilfully grant certificates to persons who are not entitled to them; but I think that it is not an uncommon practice to give a certificate to a kangany without knowing who will travel by it. The restriction of cooly rates to gangs of six and upwards has probably greatly contributed to this abuse of the system. If tin tickets are, as is proposed, accepted as proof of the status of an estate labourer, such restriction will no longer be necessary. A single cooly may travel at cooly rates on production of his tin ticket and certificate. As regards the legal point, *the ordinance specifies no form of certificate*, nor is the Railway authority required to accept such certificate if he has any doubt as to the status of any alleged cooly labourer. It may be said that tin tickets may be in the same way misused by kanganies, but the new form of certificate renders this unlikely, and it is hoped that no planter will issue a tin ticket to a person who is not a *bona fide* cooly The new form of certificate entails a a little additional trouble, but on the other hand, combined with the tin ticket system, it renders desertion and crimping far more difficult and easier of detection. Undoubtedly employers of labour who are ready to take any coolies they can get without asking questions will oppose the system in its entirety, but I hope that in a short time the number of unregistered estates will be very small and that the transfer of coolies between estates will be greatly simplified by the adoption of the tin ticket system."

The tickets are R2·50 a hundred.—Yours sincerely, A. C. Kingsford.

Rookwood, Hewaheta, 26th Sept. 1902.

Sir,—With reference to your letter of the 22nd July, 1902, I am directed to inform you that the restriction imposed by the Government Agent, Western Province, was imposed by him not as Government Agent, but as the originator of the tin ticket scheme and to state that the question of the restriction is under consideration and awaits the receipt of a further communication from the Planters' Association of Ceylon.—I am, &c.,

(Signed) A. G Clayton,
for Colonial Secretary.

Colonial Secretary's Office, Colombe, 29th Sept. 1902.

TEA IN JAVA.

Mr. L. A. Wright, of Maskeliya, who has just returned from Java—where he and other members of his family own property in tea, cinchona and coffee—has a favourable account to give of tea, notwithstanding the low prices. The rich Java soil gives a better yield per acre by, perhaps, 25 per cent than Ceylon; the labour is cheap and reliable, and planters are taking to all the modern improved machinery. He also mentioned to a representative of our contemporary that the telephone is in universal use, nearly all estates and bungalows being connected.

PLANTING NOTES.

The Deane-Judge Strainer—so successfully tried in Calcutta the other day, is to be still further improved by the principal parts being made in steel in England. Meantime there is another "Richmond in the field" in Calcutta—a Ceylon-made Machine of which four have been already ordered, and a trial of which may be reported any day now.

The Cholera Microbe in Well Water.—The Madras Government has approved of the suggestion of the Sanitary Commissioner (Madras) that District Medical and Sanitary Officers be requested to send to him specimens of well or other water believed to be contaminated with the cholera microbe before they add permanganate of potash, and another specimen twelve hours after having done so. The purpose of the investigation is to ascertain what is the actual result of using permanganate of potash under the methods at present pursued.—*Pioneer*, Oct. 10.

Bamboo for Pulp.—The Collector of Customs at Trinidad reports that enquiries have been made of the Government of Trinidad respecting the possibility of obtaining bamboo in quantities large enough to warrant the establishment of a factory in the Colony for the production of pulp. At present immense areas in Trinidad are occupied by the bamboo, and these could be almost indefinitely increased if the plant were in demand. There is no doubt whatever that if a factory were established in our near Port of Spain a practically unlimited supply could be obtained within a radius of five or six miles—*Board of Trade Journal* for September.

A Dry Cycle.—All over the world there has been scarcity of rainfall and the Nile is expected to be lower than within living memory: but fortunately the Assiout Barrage was closed early, is expected to save the agriculturists of Upper Egypt. According to one of the London correspondents in Cairo Egypt will be repaid the cost of the Assiout Barrage in the first year of its existence—a marvellous testimony to the value of Government enterprise and of wise expenditure on reproductive works. From the London *Speaker* we quote:—"It is perhaps not too much to say thatthroughout the world the rainfall during the last five years has been below the average. In many of the southern districts of England, for example, old springs have dried up, and it has been necessary to sink wells deeper. In India, as everyone knows, the famines have been abnormal, and Australia has suffered terribly from drought. It is to be feared that the rains reported during the last few weeks in Australia are partial, and in many districts insufficient to restore prosperity; but happily the danger of any renewal of the famine in the Bombay Presidency of India has been altogether dispelled,

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Road-sides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address:

William, Henaratgoda, Ceylon.

Liber's, A.I. and A.B.C. Cd es used.

J. P. WILLIAM & BROTHERS,

Tropical Seed Merchants,

Henaratgoda, Ceylon.

ARTIFICIAL MANURING FOR TEA.

[Paper read, September 29th by Chairman Dimbula P.A. at General Meeting.]

It may be within the recollection of some of you that 15 or 16 years ago, I published the result of a series of manuring experiments on coffee as carried out on Yoxford estate. With the advent of green bug, coffee was wiped out and those experiments came to an end. Eight years ago I was able to commence a series of experiments on tea which have been in progress since, and which have given me some insight into the principles which should guide us in dealing with tea. This is my justification for addressing you to-day on the subject of manuring tea, which is I judge of interest to most of you, though probably some already know as much as I do myself and perhaps more. I must commence by making the admission that I cannot give accurate scientific proofs of all my deductions. With coffee it was a comparatively simple matter as the object was solely to find out how to produce the largest crop with the least injury to the tree, whereas with tea it is, at least, as important to find out how far the quality is affected by the manure. On this latter point I have only been able to draw my conclusions from my general experience. Mr Alleyn says, I understand, that he has been able to get to the bottom of the subject and has patented his information, which you will be able to buy from him shortly. He has been more fortunate than myself in being able to expend money on a large scale which is necessary for discovering how quality is best maintained or increased, along with the increase of leaf. We see frequent references to manuring in the papers. Many seem to think that all manures should be suppressed by legislation as tending to over-production which is not only impracticable, but shows how little the true principles of manuring have been grasped. It is quite impossible to distinguish between manures which are sustaining and manures which are forcing, the difference is one of degree and not of kind. There are two systems of manuring in vogue: the one is mainly *sustaining* the object being to restore the natural fertility of the soil; the other is *forcing*, in that it tends to raise the production of an estate beyond what would have been its normal yield under the most favourable conditions. I regret to see the latter system has found its way into Dimbula, because this district has undoubtedly a flavor and quality which I would wish to see it maintain and which, I believe, will be lost by the adoption of the forcing system. I believe it is quite possible to manure in such a way as to keep the tea at a normal level of production combined with good quality and that it will pay better in the long run to work on this system. Such at any rate are the conclusions I have arrived at after ten years' of experience of manuring tea and eight years of careful experiment. My first experiments were conducted with the object of finding out the most important element required in a manure for tea and were so arranged as to compare the results of adjoining plots of the size of one-sixth of an acre, by leaving out one element in each plot on the plan of M Ville. The important elements removed from the soil by the tea crop are nitrogen, phosphoric acid and potash, 1,000 lb. of tea removing 45 lb. of nitrogen, 8 lb. of phosphoric acid, and 22 lb. of potash. My plots were laid out, therefore, as follows:—

No. 1 in manure; No. 2 nitrogen alone; No. 3 phosphate and potash; No. 4 nitrogen, phosphate and potash; No. 5 nitrogen and phosphate; No. 6 nitrogen in excess, phosphate and potash.

I was very soon convinced that the dominating element was nitrogen. That is to say that without nitrogen phospheric acid and potash were almost inert. That for the best effect all 3 elements were required and more especially potash. That additional nitrogen meant an increased yield, but did not invariably pay owing to the great cost of nitrogen. My further experiments have been directed more to finding out the most profitable mixture to supply and have not been carried very far as yet. The great cost involved has prevented my experimenting in the direction of finding out the effect of different manures upon quality and I have to fall back upon general conclusions from the observations of manuring on estates under my own direction and that of others. My conclusions may not be considered at all convincing, but I give you them for what they are worth. The sources of *nitrogen* best known to us are sulphate of ammonia, nitrate of potash, castor cake, blood meal and fish manure of *phospheric acid*, bones ground or steamed, basic slag and fish manure (super-phosphates are seldom used) of *potash*. Nitrate and sulphate of potash and kainit which contains about 25 per cent of sulphate of potash. I have used my combinations of these manures, but for figures as to results I would commend to your notice Mr Joseph Fraser's published experiments which are by far the most complete of any I have heard of. As regards their effect upon quality I give the preference to castor cake or a mixture of castor cake and blood meal as the source of nitrogen, for the reason as it seems to me that the effect is lasting and not too forcing; blood meal alone is too forcing and quickly used up. Sulphate of ammonia has invariably appeared to me to be accompanied by a loss of quality, whether used by itself or in combination, though it may be only a coincidence. Fish manure I have only used once, and I confess that I have a dislike to it as being too stimulating in its effect and its use has seemed to me usually accompanied by a loss of quality. I imagine that its nitrogen comes into action more speedily than its phosphoric acid, though it is very rich in both elements. Nitrate of potash is, I think, useful as a source of nitrogen and potash, the nitrogen coming into action very quickly but being speedily washed out in wet weather. Basic slag I look upon as a very valuable source of phosphoric acid and I am inclined to endorse Messrs Freudenberg and Co's. statement that it tends to maintain quality in the tea owing to the two oxides of iron which it contains. Bones either steamed or ground should, I think, form part of every manure mixture as the phosphoric acid contained in them comes into action gradually and is not too speedily used up. I give the preference to sulphate of potash as the source of potash as being retained in the soil better than the nitrate. Potash, I consider, is a most important constituent in a manure if quality is to be maintained. Potash is known to have great effect upon the carbo-hydrates of plants, that is to say upon their main structure and ever since the time when I commenced my coffee experiments I have noticed that potash improved the health of the trees to which it was applied. I

believe it is of great value in helping them to resist diseases of a fungoid nature. The manure, which is most commonly used by those who are not well up in manuring, is castor cake and bones, which is an incomplete manure as containing a negligable quantity of potash. A well-balanced manure such as your Agricultural Chemist supplies you with, has its constituents so arranged that each element comes into action gradually and simultaneously and the more this point has been considered the greater the value of the manure in tea cultivation. And ill-balanced manure will stimulate the bush at first and then leave it in-sufficiently supplied with nourishment and a ready prey for diesase. You want to manure your tea, say, every three years, therefore, the manure must last for three years in its effect. The difference between a forcing and a sustaining manure lies in the amount of nitrogen contained in it, and the form in which it is supplied. Take the typical forcing manure now so generally used :—

Castor Cake	400 lbs.	per acre
Fish	400 ,,	
Nitrate of Potash	100 ,,	
Sulphate of Ammonia	100 ,,	

and compare it with the manure generally supplied by the Agricultural Chemists. The mixture I have quoted contains 82 lbs of Nitrogen as against about 25—30 lbs in most of the manures supplied by Messrs Freudenberg and Co., Baur and Hughes. As to the effect of forcing manures which, of course, form part of a regular system of working for large yield, such as low pruning, &c. You are all capable of estimating the effect just as well as I am. The great increase in crop is undoubted and the great falling-off in prices equally evident. I have for instance in my eye an estate in my own neighbourhood where the normal yield would be about 550 lbs per acre and which has been worked up to about 850 lbs per acre, the prices for the teas at the same time having dropped about 3d per lb.

That it is quite possible to manure and yet maintain quality I am well assured. Over the only field which I have manured twice on Holmwood for instance, I have been able to detect a distinct improvement in the cup. The manure applied was low in Nitrogen and rich in Potash and phosphoric acid, Basic slag providing part of the Phosphoric acid. On another estate, which I visit where Mr Bamber's mixture on espcial analysis was applied, the Superintendent reports that the quality is returning as the result of the manuring and higher pruning and the prices bear out his statement. At any rate I would ask you before you commit your estates to the system of working for large quantity to weigh well the evidence for and against. In my strong objection to forcing manures, I am, at any rate in good company; for you have only to read Mr Bamber's report on tea soils to see that he condemns them. From what I hear I am inclined to think that our leading authority on manuring is of much the same opinion also. Before concluding I would like to touch upon the subject of green manuring as I think it promises to economise greatly the future manuring of tea. As you know there are certain plants and trees which have the property of collecting the nitrogen of the air and storing it in their roots to be given up afterwards to the soil such as the Leguminosa the Peas, Beans, Lupins &c., and among our best-known trees the Albizzias, Dadap and so on, Mr Bamber recommends the trial of *Crotolaria striata* which has been used to some extent, I believe, on a Matale estate though with what result I cannot say. It is very evident however that if all the necessary nitrogen can be supplied by the atmosphere by means of green manuring, half the expense would be saved as only the Phosphoric acid and Potash would have to be supplied to the soil. I have tried a small experiment myself with gram on Holmwood which made a profit of R15 per acre ; but when I tried the same on Ancoombra in Matale the growth of the gram was a failure, owing no doubt to the soil having been previously exhausted of its Potash and Phosphoric acid by the heavy crops of coffee which had been taken off that land. To get the full benefit of green manuring Phosphoric acid and Potash should be supplied to the soil before the Leguminous plant is sown. In the low-country I have noticed that Albizzias improved the tea under them in a most marked degree.

I hope I have not wearied you with my address. It is not scientific and is open to any amount of criticism and is only to be taken as presenting some of the conclusions drawn from practical experience by one who has always taken an interest in Manuring problems and who has the interests of this District more especially at heart.

The address was received with rounds of applause and Mr Wilson Smith proposed that a vote of thanks be recorded to the Chairman for hi interesting discourse on Manuring. Mr. G D Jamieson seconded. W. D. BOSANQUET.

TEA MARKETS IN SOUTH INDIA.

A CENTRAL TRAVANCORE SCHEME.

An extraordinary General Meeting of the Central Travancore Planters Association, called for the purpose of discussing the "Tea Exploitation Scheme for S India," was held at Pambanar Bungalow on the 20th September.

Mr H M KNIGHT was after some preliminary business was transacted asked by the Chairman to explain the above scheme. He began by reading the scheme, and explained the paras, not clearly understood by this and other Associations.

The maximum price of 4 annas per lb., he said, did not mean that this was the maximum price at which the teas were to be sold, but the maximum price to be returned to the contributors before any remuneration accrues to the exploiters. The remuneration to exploiters is contingent upon the account sales showing a better nett result than 4 annas per lb., after returning which, the exploiters and contributors divide the balance. For instance, if a lb. of tea, after being suitably packed, is sold for 8 annas per lb. the account would be as follows :—

Dr.	As.
To paid Contributor	4
To expenses (say)	2
Balance to be equally divided between contributor and exploiter ...	2
	—
Total As.	8
Cr.	**As.**
By sale of 1 lb. Packet Tea ..	8

The nett result therefore to the contributor would be 5 annas per lb. if sold at 8 annas. He then went on to say that he thought it absolutely necessary to pack the teas in lead. He produced a

sample of Tea packed in foil paper which had been kept for one month and the tea had deteriorated. He therefore proposed that we would go to the expense of using lead, and thought a Drier, for use in packing, essential to success and suggested that a Drier should at once be purchased for this purpose. Mr Knight read letters from men in South Travancore who approve of the scheme and are willing to subscribe to a Fund which he thought should be raised for the purchase of a Sirocco, and other incidental expenses necessary for the starting of the scheme, also a letter from the Honorary Secretary of the Wynaad Planters' Association asking for information. An attractive wrapper he thought was necessary. He also stated that 100 chests of tea of 90lb. each were now on their way to Madras, Messrs. Parry and Co., having written that they were quite ready to commence operations. This quantity had been readily contributed in the District. After some considerable discussion in Committee, the Chairman put the following Resolutions in open Meeting, which were unanimously adopted :—

1. That members of this Association do agree to contribute at the rate of 3 annas per acre (cultivated) to the " South Indian Tea Exploitation Scheme,' and that growers not being members be invited to subscribe to the Fnnd so raised and participate in the benefits,

2. That this Association do instruct Mr Knight to purchase a No. 1 Sirocco for the proper working of the scheme.

3. That this Association do consider that the design for wrapper should be left to the Committee, and would suggest that a Brahmany Bull should be on one side and instructions for making Tea on the reverse in the Vernacular.

4. That the Honorary Secretary do write to the U.P.A.S.I., urging the necessity for expediting Election of Committee.

Resolved that a vote of thanks' be tendered to Messrs Parry and Co.

With a vote of thanks to the Chair the Meetng endcd.—*M. Mail*, Sept. 29.

CASTILLOA RUBBER SEED AND ITS VITALITY.

The period during which the seeds of various economic plants retain their vitality is being investigated at the Royal Botanic Gardens, Peradeniya; but the following figures, supplied to us by Mr. Carruthers, may be of interest to any who may wish to send the seeds of Castilloa to a distant place.

2,000 seeds were sent off from Paris to Peradeniya, packed in leaf mould in four small tin-boxes, each containing 500 seeds. Upon being opened at Peradeniya on September 26th, six weeks after packing, the seeds were found to be as follows :—

	Box 1.	2.	3.	4.	Total.
Fully germinated...	96	128	67	96	387
Split and beginning to germinate ...	30	55	20	63	168
Good hard seeds unsplit... ...	14	12	68	75	169
Bad seed—destroyed by bacteria, etc...	350	300	338	260	1,248

This gives a percentage of 37 good seeds (20 per cent fully germinated, 8 per cent starting germination and 9 per cent good seeds unsplit), and 63 per cent destroyed by bacteria or otherwise killed. The packing in leaf mould which usually contains numerous bacteria, fungi and insects, is not to be recommended. Probably if sterilised sand had been used, the proportion of good hard seeds would have been very much greater.

This seed is an especially unsuitable one for travelling, as it possesses no protective coat which prevents the inroads of insects or bacteria.

The short time that various economic seeds are credited with retaining their germinating power is, undoubtedly, in many cases, due to the fact that no special precautions are taken to prevent the attack of insects, fungi and bacteria, which find a congenial home in nearly all seeds. Most of the seeds, which do not grow, are found by their appearance and odour to have lost their vitality by the presence of foreign organisms. When the experiments, with regard to the seeds of Para rubber, tea and other Ceylon economic plants, have been concluded, the matter will be dealt with in one of the Circulars of the Royal Botanic Gardens.

TROUT OVA FROM NEW ZEALAND.

5,000 RAINBOW TROUT OVA FOR THE C.F.C.

The Ceylon Fishing Club has previously tried, by way of experiment, the importation of trout ova for the Nuwara Eliya and other upcountry streams from New Zealand Hatcheries and the fact that another large batch of ova has just been imported appears to speak well for the first trial. Mr. H D Elhart, Curator of the Nuwara Eliya Hatchery, of the C.F.C., was down in Colombo last month to receive a consignment of 5,000 ova of the rainbow species which was brought out from New Zealand by the P. O. steamer "Oroya." The ova, so far as can be ascertained, has been well packed and has received good attention from those in charge of the consignment on board the steamers, but it still remains to be seen how they will hatch out at Nuwara Eliya. We heard recently that the stew-ponds at the Sanitarium were cleared out and the fry put out into the streams, so that the arrival of the present batch has been well provided for. With the interesting correspondence from local anglers which we have lately had showing that the "rainbow" is taking kindly to our streams and showing its appreciation of our streams by spawning freely. We are, perhaps, not far from the time when importation will cease—an event which will reflect much credit on the zealous efforts of the Ceylon Fishing Club.

Highland Tea Co., Ltd.—It is satisfactory to learn that this Company has paid an interim dividend of two per cent. the same as they did in 1901, the full dividend for that year being four per cent.

COCONUT CULTIVATION IN THE STRAITS.

To the Editor of the "Straits Times."

DEAR SIR,—Your issue of 12th instant has just reached me, and therein I notice a letter on the above subject from the pen of Mr. W. Greig, of Kuala Langat. As I happen to be Mr. Greig's visiting agent, as well as at the same time, Chairman of the United Planters Association, I trust that I may be allowed to make a few remarks bearing upon the existence of the coconut beetle in the Federated Malay States as adversely affecting investment in this particular cultivation. Perak and Negri Sembilan it is well known suffer but little in comparison with Selangor, and visitors from these States have over and over again, especially of recent years, expressed their astonishment at the terrible havoc wrought by "beetle" upon the coconuts in the immediate neighbourhood of Kuala Lumpur. Many Ceylon men, whose names are as well known to Mr. Greig as they are to me, have visited estates where coconuts have been planted, have gone carefully into the expenditure connected with the destruction of the beetles, and have advised their friends that until the pest has been brought within proper control, the cultivation of coconuts must be attended within considerable risk. The Selangor Government were prepared to give me a very large concession of excellent land, on as easy terms as even I could wish, with the object of opening a large area in coconuts, but the fear of "beetle" blocked the way, and the necessary capital was not forthcoming. Mr. Thomas North Christie, a man whose judgment Ceylon planters have, for many years now, regarded as well nigh infallible, recently recommended that one of the finest clearings of 2-3 years' old coconuts in Selangor should be at once interplanted with rubber. I admit that our alluvial soil has had something to do with these adverse criticisms, and that the presence of more or less stiff clay comparatively close to the surface is not regarded with favour by our Ceylon visitors, but I know that the ravages of the beetle are considered to be of much greater significance. In face of the foregoing is it surprising that the Annual Report of the United Planters Association should state "that owing to the ravages of beetle, and the cost of keeping the trees clean, coconuts are not as much planted as their fine growth would lead one to suppose that they would be. . . . . Your Committee are of opinion that the cultivation will always be a remunerative one as long as it remains possible to keep the beetles under, without incurring a prohibitive expenditure in doing so." Mr Greig prides himself on being unable to record the loss of a single tree from beetle. I may as well explain that it is the duty of managers of estates in beetle-infested districts to see that each coconut tree is examined at least once in every three days and every day if the insects are present in great numbers. According to Mr Ridley, there are two species of beetle which attack coconut trees, *Rhynchophorus Ferruginent*, the Red Beetle, and *Oryctes Rhinoceros* or the Rhinoceros beetle. The former, which is by far the most dangerous is, as far I am aware, very rarely met with in Selangor. According to the same authority the adult insect of this variety with its long ovipositor pushes its eggs "as deeply into the body of the tree as it can." "It is here not to the perfect insect but the grub that does the injuries" borrowing "tunnels through the soft growing portion of the palm." The Rhinoceros beetle, on the other hand, never deposits its eggs in coconut palms, unless the trees are "decaying" or in other words, dying if not dead. But the insect "makes its way to the base of a leaf stalk and burrows into the heart of the cabbage, making a large hole." From these quotations it is clear that whilst the red beetle, despite the most careful attention on the part of the management, may do an infinity of damage "it being by no means easy to find out when a palm is attacked by this insect," regular inspection of trees, if properly carried out, renders it practically impossible for the Rhinoceros beetle to do any very great permanent harm. It seems to me therefore that, given labour and the funds necessary to permit a regular examination of his trees, no planter should lose a single specimen from the attacks of the Rhinoceros beetle. To quote Mr Ridley again "it would be easy enough in a clean-kept estate to keep down the beetles, but where there is an endless supply of them in an adjoining estate, the matter is of great difficulty" which means I take it, that under such conditions, the expenditure of large sums of money has to be incurred. It is not my purpose in writing this letter to attempt to throw cold water upon the cultivation of coconuts, or to suggest that as the rotting timber on new clearings disappears the pest in that particular locality will not grow eggs, for I firmly believe myself that there is a lot of money in the industry, and that on no estates, properly managed by Europeans, has the expenditure upon beetles been found to be prohibitive. But I do say that when thousands of coconut palms have been killed and rendered unproductive through the almost criminal negligence of their native owners in not keeping them clear of beetles, it is high time that the Planters' Association drew attention to the fact and recorded that investors are, as a consequence, shy of giving the cultivation of coconuts the support that their fine growth would seem otherwise to warrant, and I am altogether at issue with Mr. Greig, whose figures are in my hands, and others, who state the cost of keeping beetles under "is merely nominal considering the total acreage under cultivation." It is *essential* that the trees in all infected areas should be regularly examined at very short intervals, whether the beetles are there or not, and when it is considered what climbing and looking over a coconut palm means, it is the sheerest nonsense for any one to try and make out that the expense is "merely nominal." The evil is a very real one indeed, and it is now for the Government without any further loss of time, to see that the remedy, on the lines of Mr. Ridley's excellent memorandum, is vigorously applied.—I am, dear sir, yours faithfully, E. V. CAREY.

—*Straits Times*, Sept. 22. Klang, 15th Sept.

THE UNITED STATES TOBACCO INDUSTRY.

The total quantity of leaf tobacco produced :—

1890	... ...	488,256 646 lb.
1900	... ...	868,163,275 ,,

The total production of the United States in 1900 shows an increase of 379,906,629 lb, or 77·8 per cent over the crop of 1890. All the states and territories were represented except Colorado, District of Columbia, Nevada, Rhode Island, and Utah, but the cultivation of tobacco on a large scale was confined to comparatively few states. The crop of only eighteen states exceeded 1,000,000 lb each and that of thirteen states 5,000,000 lb each. Eight states produced more than 20,000,000 and three states more than 100,000,000 pounds each. Kentucky, North Carolina, Virginia, Ohio and Tennessee, in the order named, were the five greatest producers, whose combined crop was 679,791,000 lb, or 76·3 per cent of the entire producion. Kentucky alone produced 36·2 per cent of the entire crop of the United States.—*Board of Trade Journal*, Sept. 4.

CEYLON PARA RUBBER.—Mr. R W Harrison reports Culloden Para Rubber at last London sales as averaging 3*s* 8¾*d.*; biscuit selling for 3*s* 10¾*d*, and scrap for 2*s* 5*d*.

NEW TEA COMPANIES.

The following have been registered in England:—

BLIND TEA AGENCY, LTD., (74,781).—Registered Sept. 4th with capital £100, in £1 shares, to acquire the business carried on by F A Woollatt as The Blind Tea Agency, and to carry on the business of planters and growers, importers and blenders of and dealers in tea, coffee, cocoa and other Eastern and Colonial products, etc. No initial public issue. The No. of directors is not to be less than 3 nor more than 6; the first are F A Woollatt, E E Jex and R S Wells. Registered office, 5, Fen Court, Fenchurch St, E. C.

EMPRESS TEA STORES, LTD., (74,803).—Registered Sept. 6th with capital £15,000, in £1, shares (50 def.), to carry the business of wholesale and retail merchants, dealers, importers and manufacturers of tea, coffee and all kinds of foods, drinks, provisions, drugs, chemicals, confectionery, perfumery, soap, furniture, household goods, etc. The subscribers are;

	Shares.
G W Winter, 11 Plympton Avenue, Brondesbury, N W, clerk	1
W L Rowe, 55, Warham Road, Hornsey, N, clerk ...	1
T C S St. John, 119, Canfield Gardens, N W gent	1
W H Lewis, 711, Underhill Road, Dulwich, S E, clerk	1
C J Chapman, 57, Bramford Road, East Hill, Wandsworth, S W clerk	1
C Jones, 24, Roupell St, clerk	1
E H Hoare, 1, Seymour St. W, gent ...	1

No initial public issue. The number of directors is not to be less than 3 nor more than 5; the first are to be appointed at the first general meeting; qualification £25. Registered by Neve & Co., 21, Lime St, E. C.—*Investors' Guardian*, Sept. 13.

A MOSQUITO EXPELLER.

Mr. William Stiell, representing Messrs. Leyshon and Carroll, of Durban, has been visiting Delagoa Bay, with an ingenious apparatus for driving mosquitoes and microbes of organic matter out of a room. It is in the form of a tin cylinder, with large wick inside. This wick is saturated with ozone, extracted from pine-wood, together with eucalyptus oil and other ingredients, and the fumes arising therefrom drive the obnoxious insects and microbes from any moderately-sized room.—*O Futuro.*

PINEAPPLE AS AN AID TO DIGESTION.

Under this head the *Agricultural News*, which is a Fortnightly Review of the Imperial Department of Agriculture for the West Indies, has a note which has an important bearing on the trade in tinned Pineapples. The flavour of these fruits and their price, as compared with that of the fresh grown fruit have gained for them a very wide reputation, and tinned Pineapples are not despised even on the tables of the upper classes, so that Pineapples in this form have become a very large article of import, both from the West Indies and from the Straits Settlements. The fact of their containing a digestive ferment, to which the *Agricultural News* draws attention, is another and a strong recommendation to their use as a desert fruit. For a long time the Papaw (Carica papaya) has been known to contain a valuable ferment known as papain, used as an aid to digestion, and the *Agricultural News* now refers to the fact bromelin, the ferment of the Pineapple is almost identical in its action with papain. Quoting from the *Lancet*, it is stated that "the partaking of a slice of Pineapple after a meal is quite in accordance with physiological indications.', Bromelin exerts a powerful action on proteids' digesting 1,000 times its own weight within a few hours. Fibrin disappears entirely, the white of eggs is digested slowly, whilst albumen of meat is transformed first to a pulpy gelatinous mass to be completely dissolved later. Cooking destroys the activity of the ferment, but the *Lancet* is of opinion that unless the Pineapple is preserved by heat, there is no reason why the tinned fruit shonld not retain its digestive power. On this the *Agricultural News* says—"Unfortunately for this hope, Pi eapples are sterilized by steam-heat during the process of canning, the ferment being almost certainly destroyed. Unlike pepsin the digestive principle of the Pineapple will operate in all acid, neutral, or even alkaloid medium, according to the kind of proteid to which it is presented. It may therefore be assumed that the Pineapple enzyme would not only aid the work of digestion in the stomach but would continue that action in the intestinal tract. Pineapple, it may be added, contains mnch indigestible matter of the nature of woody fibre, but it is quite possible that the decidedly digestive properties of the juice compensates for this fact." With such important properties in the fresh fruit, it seems that there is an opening for some one to try his hand in preparing Pineapples for exportation without the aid of heat.—JOHN R. JACKSON, Claremont, Lympstone, Devon.

RUBBER EXPORT FROM PARA.

A report, dated 7th July last, by the United States Consul at Para states that, according to the final returns, the shipments of rubber from the Amazon Valley this season amounted to 29,997 tons, or 2,317 tons more than in 1900 1901. In the season just begun, it is believed that an exceptionally good crop will be harvested. The rubber fields of the lower river, and especially on the islands, are slowly but surely failing, both in quantity and quality; but the decrease is more than made up by the development of new fields and the expansion of the old fields on the Upper Amazon. While all the more important of the Amazon are supplying their full quota of rubber, and even making a promising increase, interest will be centred in the now famous Acre territory and in South-eastern Ecuador. In the regions reached by the Purus (of which the Acre is a tributary), Jurua, Beni, Madre de Dios, Javari, Ucayali, Japura, and other great affluents of the Upper Amazon, which penetrate Peru, Bolivia and Ecuador, there are illimitable rubber forests as yet unexplored, which will now be gradually developed. Many seringueirous, or rubber gatherers, are making their way to these regions, and it is reported that several syndicaies are about to begin operations in new fields in Bolivia and Peru. Bolivia continues to offer inducements for the colonisation and development of her vast area of rich rubber and mining territory.

The Consul adds that he is informed that the Government of the State of Amazonas has granted the exclusive privilege of receiving, cutting and packing all the rubber produced in that State to one wharf company. The creation of this monopoly will injure the rubber trade of that region, but Peru Bolivia and Ecuador will be the gainers, as rubber growers and gatherers in Para are seeking to escape the new restrictions, which entail considerable expense and trouble upon exporters.—*Board of Trade Journal*, September 4.

MR. ALLEYN'S NEW PATENT.

Among the applications for patents for inventions in India appears the following entry:—John Grieve, Engineer of Hatton, Ceylon and Henry Mathew Alleyn, planter, of Meeria Cotta, Maskeliya, Ceylon improvements in apparatus for grading, sifting, polishing, and increasing the keeping qualities of green or oolong teas, and improvements in apparatus for polishing, grading, sifting, and increasing the keeping qualities of black or fermented teas.—*M. Mail.*

OFFICIAL STATISTICS OF IMPORTS AND EXPORTS OF CRUDE INDIA-RUBBER (IN POUNDS.)

AMERICA BY FAR THE LARGEST IMPORTING AND MANUFACTURING COUNTRY.

UNITED STATES.

		Imports.	Exports.
Six months	1902	27,142,990	1,852 299
do	'01	31 788,832	1,677,533
do	'00	23,915,95	2,220,904

GREAT BRITAIN.

		Imports.	Exports.
do	'02	26,287,968	15,150,688
do	'01	26.976.656	15,482,880
do	'00	33,326,832	16,835,840

GERMANY.

		Imports.	Exports.
do	'02	16,475,140	6,280,560
do	'01	14,039,960	3,951,420
do	'00	15,696,340	4,634,960

ITALY.

		Imports.	Exports.
do	'02	767.800	75.240
do	'01	794,640	92,840
do	'00	708,620	..

FRANCE.

		Imports.	Exports.
do	'02	8,955,320	4,361,280
do	'01	9,056,080	3,530,800
do	'00	10,112,520	4,275,480

AUSTRIA-HUNGARY.

		Imports.	Exports.
do	'02	1,408 880	6,820
do	'01	1,132,340	19,360
do	'00	..	..

—*India Rubber World*, Sept. 1.

PLANTING IN NORTH TRAVANCORE.

It is 25 years since Mr. Wm. Hendry, who leaves for "home" by the ss. "Shropshire" on Sunday, first came to Ceylon. But he had a break in that period of 10 years on his farm of Cairnton, near Fordyce, which farm he keeps on, although he has now again been out a good many years as a Manager of tropical estates. Mr. Hendry's latest engagement has been for four years in charge of the Puluvasal division of the Great Kanan Devan Co.'s property in North Travancore, under the chief management of Mr. P. R. Buchanan who is as active as when he was tea planting in Assam many years back. Mr. Hendry has a wonderfully good account to give of the

COFFEE, CARDAMOMS AND CINCHONA.

He himself has had chiefly to do with coffee, and it is quite cheering to learn of the splendid crops—4,000 to 6,000 bushels from less than 200 acres of young coffee. Indeed, the coffee had to be stripped of a great show of berries at two years old and it gave 40 tons the following season while it is due for 60 tons now. There is the inevitable fungus about; but it does not seem to do harm above 4,800 feet. Cardamoms are growing well; but recognising the limited market, energy is now chiefly directed to planting

CINCHONA

of which there will be a magnificent show erelong. As regards tea, hitherto the manufacture has been mainly through one factory; but Mr. Buchanan seems to favour separate factories which will no doubt cause Superintendents to take a greater interest in how their teas turn out. The

WIRE TRAMWAY

continues to work most satisfactorily.

PLANTING IN JAVA AND EXPORTS.

In connection with the emigration of Javanese, referred to in my last letter, the necessity of it is argued from various sides on account of the strong increase of the population. In 1870 the population in Java was 16,000,000 souls, and at present it is 28,000,000, thus showing an increase of 12,000,000 in thirty years. How to find work and food for this great number, which will continue to augment? This is a question earnestly to be considered by all who have the interest of Java at heart. Various means are mentioned, such as improvement of agriculture by irrigation, restraint of the cattle plague, and of disease in the coffee plant, and support of the sugar cultivation, &c., and if more attention had been given to all these means in former years much of the misery from which the population now suffers would probably have been prevented. Fortunately the condition is not gloomy in all districts. In the Preangerlands the condition is improving, and this will also be the case in the east corner; but notwithstanding this, a remedy will have to be found against the overpopulation. For this reason the attention is directed to emigration to the other colonial possessions, and among other places also the Lampong districts in South Sumatra are mentioned, where the soil is excellently fit for the cultivation of coconuts, rice, sago, sugar, cotton and indigo.

Of the comparison of the statement of exports of 1901 with the last twenty years, the result is certainly surprising. The general exports increased from fl.154,000,000 to fl.230,000,000, among which are several articles in which the natives have a direct interest, such as wood, fl.700,000 more; cinchona bark, fl 3,600,000 more; coffee, fl.5,900,0 0 more; petroleum, fl 4,600,000 more; rice, fl2,500,0 0 more; sugar, fl.1,800,000 more; tobacco, fl.15,200,000 more; tea, fl 2,400,000 more. The total is thus fl.36,700,000, of which fl.1,500,000 must be deducted for reduction in value of exported indigo; balance, fl.35,200,000; so that still fl.36,000,000 of the increase of fl.76,000,000 have to be explained. The export of coprah was in 1884, fl.113,831, and at present fl.10.300,000. Sundry kinds of rubber increased by fl.13,300,000, shells by fl.2,600,000, and the balance must be found in various articles.—*L and C Express*, Sept. 12.

VISIT TO A RUBBER, CACAO AND COFFEE PLANTATION IN COLUMBIA, CENTRAL AMERICA.

VARIETY AND YIELD OF CASTILLOA TREES.

Dr. C. O. Weber is contributing to the "India-rubber Trade Journal" an account of his journey, inspection and laboratory work on a large plantation in the isthmus of Columbia which includes some 70,000 rubber trees (Castilloa elastica) some of them 11 to 12 years of age, besides cacao and coffee. Dr. Weber mentions that of the rubber-yielding Castilloa (there are at least four species) the best is the one possessing a whitish bark: it yields plenty of excellent rubber, Another has a black bark with a rough, irregular surface, and this yields a rubber as good as the white bark kind, but the tree is rapidly exhausted. Then again there is a variety with reddish bark very thin and fragile, which yields very little latax, but the rubber produced is of good quality. Still further, there is a variety "Castilloa of Panama" distinguished by the enormous size of its leaves—some of them even on young trees being 20 inches long. Now Dr. Weber found that the trees on the plantation above mentioned have a bark neither yellow nor white, but of a delicate pale pinkish brown, and they are found to produce a good yield of an excellent quality of rubber. Dr. Weber's results from the tapping of the trees on the Columbia plantation are given as follows:—

Age of tree	Yield of latex.	Per cent of rubber in latex.	Yield of rubber.
6	1 lb 13 oz	26	7·5 oz
7	2 lb 5 oz	26	9·6 oz
8	3 lb 1 oz	29	14·2 oz
11	5 lb 3 oz	31	1 lb 9·7 oz

These figures are much better than those obtained by the late Dr. Trimen at Peradeniya, and it is further stated that Dr. Weber considers his figures rather below than above the mark; while as the trees in question can with perfect safety, be tapped twice a year, the annual rubber yield can be taken at double that in the last column as given above. All this may be considered fairly satisfactory to our Castilloa rubber planters—few and far between as we fear they are. To wait 6 and 7 years is a long time; but a crop then of a lb. of rubber per tree, rising year by year until at 11 years over 3 lb. can be harvested, should repay both labour and patience if prices only keep as good as there is every prospect of their doing.

THE CEYLON "HANDBOOK AND DIRECTORY."

(By a Jungle Eremite.)

"Got what agin," growled Bill; "what's the matter now?" "It 's the jumps, Bill," gasped the other, "the 'orrors they 've got me and no mistake!"

This from Anstey's "Vice Versa" almost portrays my state of mind on reading—

"The present is an *ad interim* edition of the 'CEYLON HANDBOOK AND DIRECTORY.'*"

I was seriously disturbed about my mental balance. Here I am in the jungle, my nearest neighbour miles away, At last I bethought me of my Chinese krâne. "What are those two words?" I asked. "*Ad interim*, Sir." I drew a long sigh of satisfaction: my nerves were all right after all! Rashly enquiring, he pursued, "Please, Sir, what is an *ad interim*?"

The strain had been severe. Rising on tip-toe and grasping the Great Red Tome firmly in both hands, I brought it down with a mighty crash on to the cranium of the pig tailed one. "*That*," I exclaimed, "*that*, and thou baleful one, *that* is an *ad interim*!" And the wretched Confucian sank into the bowels of the earth.

"Can't you ever be serious?" says the Familiar. (I could write a chapter on Familiars. Socrates, like the writer, must have spent many lonely years in the jungle. This time the invisible one is evidently a female. A male would have said: "Can you *never* be serious?")—"Can't you ever be serious?" Yes, my dear, as serious as a graven image and as dry as a wooden god; which reminds me—Boy, bring light refreshments.

But what I want to know is, if this is an *ad interim*, what is the *final* to be like?

It is impossible to be serious while that impudent little Familiar is raving at me out of Stephens' best blue black. * * * *

I think the compiler is to be congratulated on his dedication: and the illustrious person thus honoured may well count it as another feather in his cap.

The military information, especially the full details of the local Volunteer force on pp. 305, 604 620, 735 and 1,015, is of interest to many who, perhaps, do not often make use of the Directory!

To add more would be to pile Ossa on Pelion (or should it be Pelion on Ossa?). If Mr. Ferguson is to be congratulated on his Directory, much more is the colony to be felicitated on having such a single-hearted public man, such an excellent and painstaking compiler, and such an able and accomplished statistician.—*From Sumatra.*

COCONUT CULTIVATION IN THE STRAITS.—We are aware that a good deal of Ceylon money put into "Coconuts" in the Straits, is considered to be as good as lost, except where rubber has been planted between the palms and is succeeding, so as to become the main staple. Our late friend Mr. A E Wright was very sanguine at first about his young coconut plantation in the peninsula; but his trustees were glad to get out of the place for a small sum comparatively. The explanation of a good deal is found in the correspondence given in the *Straits Times*. On page 341 Mr E V Carey replies to Mr Greig and throws a good deal of light on coconut planters' troubles.

* Up to June, 1902: Colombo, A. M. & J. Ferguson, 1902.

Correspondence.

To the Editor.

AGRICULTURAL INFORMATION: A CORRECTION.

Imperial Agricultural Department for the West Indies, Barbados, 21st August, 1902.

Dear Sir,—In the *Tropical Agriculturist* for July 1902, p. 11, just to hand, I notice an original article on the "Preparation of Commercial Papain" with wood-cuts is reproduced from the "Agricultural News", the fortnightly review of this Department, without an acknowledgment as to the source whence it was obtained. I am always delighted when information, in respect of tropical products, published by this Department, is reprinted elsewhere; but, in the instance I have referred to, it deals rather hardly upon us as the article is, as far as I am aware, the first which has appeared exactly describing the preparation of papain on a commercial scale based on the experience of many years. I am quite sure it is due to an oversight and that it only requires to be brought under your notice to be put right.*

I am glad to say that the publications of this Department are being largely appreciated in these Colonies. Last year we distributed about 50,000 copies of Bulletins, Pamphlets, and Leaflets amongst all classes of the community.

I heartily congratulate you on the completion of the Twenty-fifth† Volume of the *Tropical Agriculturist*.—Yours truly,

D. MORRIS,

"CEYLON TEA CHESTS AND TEAS FOR THE CANADIAN MARKET."

Foochow, China, Sept. 15.

Dear Sir,—Our attention has been called to a letter dated Montreal, 12th March last, which appeared in the Correspondence columns of your paper dated the 30th July, in which the writer stated that the interests of the Ceylon Planter are seriously endangered by the use of "pine boxes" whether from China or Japan, and goes on to say that such wood can have no other effect, but to injure the teas packed in it. He also implies that in order to land the teas in good condition it is necessary to pack them in packages made in Japan from Momi wood. The reason for this opinion is not hard to discover when we see that the writer is "A Japanese Tea Importer in Montreal."

We wish to refute the statement that ill-effects to the tea will be brought about owing to the use of "China Pine" boxes. To all those who know tea it is a recognised fact that if there is one tea more than another which is susceptible to damage from smell it is China tea, and yet, in spite of that fact, all these teas have in the past and are now being packed in boxes made from the so-called "China Pine"!!! In addition to this, all the boxes used for the packing of the extremely delicate teas of Formosa are made in this Port of Foochow from the very wood which "Merchant" so censures as a packing material.

As tea box makers we are fully alive to the fact that wood smelling of resin is not at all suited to the requirements of the tea exporter, but so-called "China Pine" does not smell of resin or anything else, but is a clean wood of attractive appearance and great toughness and, on account of this latter quality, is superior to the Momi.

We maintain and can prove by actual results that the "China Pine" package will land its contents in Montreal or any other place free from taint (due to the box wood used) in better condition than will the Momi package, and that in addition to this the Planter will be able to reduce his expenditure for packing material.

We do not follow "Merchant"'s argument when he says that the writer, (A Japanese Tea Importer in Montreal) should know best what suits the trade!! We think that the latter is prejudiced in favour of the produce of Japan, for reasons best known to himself, and is doing his best to help forward Japanese interests at the expense of the Ceylon planter. We are convinced that if once "China Pine" packages were used by "A Japanese Tea Importer" he would find that his teas were delivered on the consuming market free from all resinous taint and that the packages carried their contents better than any other package yet placed on the market. Asking you to be good enough to insert this reply.—We are, dear sir, yours faithfully,

FOOCHOW SAW MILLS, Co., DODWELL & Co. Ltd., *per* E J MOSS, General Manager.

THE FIRST SNIPE OF THE SEASON.

Sir,—Mr. A. W. Gray reported the first snipe of the season on 7th September. I recall one shot at Wilson's Bungalow some years ago on September 1st. Can this be beaten? Please reproduce the following lines to cheer up

SOME OF US.

THE FIRST SNIPE.

Oh say to the sportsman what sound more exciting
In the cool grey of morning, or shadows of eve
Than the chirp of the snipe from the rice swamp, inviting
Pursuit, which it scarcely can wish to receive!
Above the rank sedges, to note the gay twitting,
To fill up our cartridges, quaking with fear,
Lest Brown hearing too, be before us in greeting
The first snipe of the year!
We shout to our Boy, and we bid him be ready,
At first glimmer of dawn with a basket of "prog,"
And to hunt coolies up who are knowing and steady
At beating up game in each promising bog;
And we speak with affection, and anxious directing
Bidding mongrel pups, our instructions revere,
And tell them most wonderful legends respecting
The first snipe of the year.
By daybreak we've donned our most ancient of trousers,
Boots and coat only fit for an old clothes man's sack,
We whistle the "Tommies" and "Bullies" and "Towsers"
That form our remarkable nondescript pack,

* We regret extremely the carelessness of a foreman printer in the matter.—Ed. *T.A.*

† Not quite: the 21st is our last—attaining our majority!—Ed. *T.A.*

We mount our gay tat and give millions of orders,
To coolies, and beaters, then merrily steer
Through the mist to the swamp which we hope will afford us
The first snipe of the year.

Then we eagerly pull out our gun from its cover
And round us our cartridge-belt carefully strap.
We scorn the seductions of plaintive-voiced plover.
For the jungle-cock's crowing we care not a rap.
Down we crush past the screw pines, and through the thick sedges
And hope that the mist wreaths will presently clear,
Send Ninga and Carla to beat up round the edges
The first snipe of the year.

"'To heel,' all you puppies, no foolish skylarking,
Too serious this for mere skirmish and play."
Then our eager eyes strain where the coolies are marking—
Ah! ha! something rises, it's coming this way!
Bang, bang, go both barrels, at once almost firing,
The dogs, spite of shouting, rush forth from the rear,
Look sharp ere those juveniles spoil, past admiring,
The first snipe of the year.

We pick it up gently, was ere such a beauty?
Just look at its plumage, and length of its bill!
Then off tramp we once more, for we feel it our duty,
Ere we breakfast, at least one good game bag to fill.
What is that?—Oh good gracious, another gun popping!
Within us arises a terrible fear
Some one else with more luck than ourselves has been dropping
The First Snipe of the Year.

With rage in our heart through the swamp we go plodding
And wishing our rival were in it fast stuck,
Till we come on old Brown who is frantically nodding
And in stentorian tones is abusing his luck.
"Not a bird can I hit, though persistently blazing,
Away in the brown"—Then we give a wild cheer.
And draw from our bag, to his view high upraising
The First Snipe of the Year!

Ah! well, it is sport, and who'd think of ill-feeling
We stump on together, and share all our fun,
Till we feel rather limp, and our noses are peeling,
For above us is shining a powerful sun.
So we think about breakfast, and soon we are eating
Like warriors Homeric: ere long we clear,
Every dish, then praise thy life beauteous but fleeting
First snipe of the year!

We uncork in thine honour a fresh foaming bumper,
(For shooting produces a wonderful thirst)
Ah! our bags may contain others, sleeker, plumper,
Or larger, what matter when thou wer't the *First*.
To the puppies, who watch us with tremulous tails
We endeavour to make this great difference clear.
And with whinnies of joy each expressively hails
The first snipe of the year.

Then as we ride home, we think, how can we hinder,
Our cook, who is safe our best feelings to shock,
By reducing that snipe to a pitiful cinder
And serving him up upon toast like a rock!
Oh! dear little bird, what a brilliant example,
To our frail human nature, thine own doth appear.
In death as in life a most excellent sample—
First snipe of the year!

E.

LIQUID FUEL FOR OIL ENGINES.

Colombo, Sept. 20.

DEAR SIR,—Messrs. Brown & Co., Ltd., Nawalapitiya, write us under date 19th inst., as follows:—

"Our engine is still running perfectly with the Liquid Fuel and we have not cleaned it yet. It is exactly two weeks yesterday since we started running it continuously."—Yours faithfully,

DELMEGE, FORSYTH & Co.

PROPOSED INCREASED IN TEA CESS.

Rookwood, Hewaheta, 24th Sept.

DEAR SIR,—I enclose for publication copy of letter sent to the Secretary, Ceylon Association in London, with reference to the proposed increase in the Tea Cess.—Yours faithfully,

A. C. KINGSFORD.

Rookwood, Hewaheta, 22nd Sept., 1902.

W. Martin Leake, Esq., Secretary, Ceylon Association in London, 61 and 62, Gracechurch Street, London, E C.

Dear Sir,—At a meeting of the "Thirty Committee" held on the 13th inst, next year's votes were fully discussed and the following resolution unanimously adopted. Resolved:—"That with the present Cess Fund at the disposal of the Committee the following estimate for 1903, marked A, be approved, but the Committee strongly recommend that the Tea Cess be increased to half-a-cent per pound, and on that basis submits the appended alternative estimate, marked B, for the support and approval first of the Ceylon Association in London.

ESTIMATE FOR 1903 (A).

Green teas (7,000,000 lb at 4 cents) ..	R280,000
America	105,000
Continent of Europe ..	75,000
Administration, Contingencies, etc. ..	10,000
Total ...	R470,000

ESTIMATE FOR 1903 (B).

Green teas (12,000,000 lb. at 5 cents)	R600,000
America	105,000
Continent of Europe ...	75,000
Administration, Contingencies and unvoted balances ..	20,000
Total ...	R800,000

The meeting that passed the above resolution was thoroughly representative, twenty-eight, including all the Colombo members being present. I invite fuller consideration of the votes as explained under the separate headings below:—

GREEN TEA.—The manufacture of this continues to show a steady increase. The bonus has been paid on the following quantities:—

1898 ...	13,302 lb.	1901 ..	,590,000 lb.
1899 ..	86,327 ,,	1902 ...	2,316,921 ,, (to date)
1900 ..	472,294 ,,		
		Total	4,478,844 lb.

This figure does not quite represent all the green tea made, as the bonus is only paid on a certain proportion of dust and fannings and on tea up to a standard. The supply of Ceylon green tea at present is not equal to the demand, the price has consequently risen lately three to four cents a pound, but many factories are now commencing to manufacture and it is hoped the output for the year will reach 4 millions for which a bonus at 5 cents. per lb. is available. This amount could, no doubt, be continued next year with little or no assistance in the form of a bonus, but to double or treble this total, many other estates must be induced to purchase the necessary

machinery to manufacture this class of tea, and for this purpose, it is essential that the bonus be continued. If a larger quantity is made the price, no doubt, will fall temporarily; therefore the bonus offered should bo sufficiently large to prevent green tea manufacturers turning their attention to black tea, the moment the price of black tea rises slightly, or the green tea market falls. Many are considering the question of manufacturing green tea, and any reduction in the bonus just now, is, therefore, very undesirable. A normal increase during 1903 would show an output of "7 million lb. and on this quantity our funds permit of a bonus of 4 cents. per lb. only," But in view of the large quantity of faced teas now going forward, which appear to be competing favourably in the United States with Japan pan-fired teas, given sufficient funds, a considerably larger quantity than 7 millions might be made next year. The Committee feel they should be in a position to encourage to the fullest possible extent, any demand for green tea that may arise, and it is for this reason alone, that they ask the permission of proprietors to increase the Cess to half-a-cent. per lb. It is generally conceded, that in manufacturing a considerable proportion of our crop into green tea lies our surest chance of improving the present position of tea producers and the prospects of success in this direction are very promising. Wherever our green teas have been introduced, in Afghanistan, Russia, Canada or the United States, the superior cup qualities of our tea have been at once recognised. These markets consume about 100 million lbs. of green tea.

The United States tea duty is to be removed on the 1st January, and dealers are, in anticipation of this, doing a hand-to-mouth trade, carrying only short stocks. This fact combined with the scarcity of Japan greens should afford us a great opportunity, during the early months of next year, for placing Ceylon green tea on a sound and permanent basis.

Continent of Europe.—The progress made on the Continent (apart from Russia) is of necessity slow, as the majority of the people do not drink tea. The small amount consumed is chiefly China, the bulk of which is laid down at Hamburg or Bremen at prices too low for Ceylon to competo with; but it is hoped that by steady persistence in pushing our teas, their better quality will bring them into use, and the same success in displacing China tea be obtained as in the case of the United Kingdom, Australia and Canada. A Reuter telegram, dated London Sept. 10, "The trado returns show that the use of tea is steadily increasing in France, is encouraging; the reduction of the duty on tea in Germany next year should assist also.

The Committee have apportioned Mr Renton £5,000, or R75,000, for his 1903 campaign.

America.—The following remarks and figures taken from one of Messrs Gow, Wilson & Stanton's circulars are instructive:—"Considering the condition of the Tea trade in the United States and the heavy falling-off which took place in imports of other Tea into that country, it is encouraging to note that a larger quantity of British grown Tea has been taken. Prospects should be better when the duty which was put on as a war tax is finally removed.

CEYLON TEA TAKEN IN THE UNITED STATES AND CANADA.

1895	1896	1897	1898	1899
3,744,736	4,364,510	5,698,596	7,636,995	8,289,376
	1900	1901		
	9,176,684	12,239,918"		

During the same period Indian imports increased from four millions to seven millions. The above figures may be considered very satisfactory, shewing as they do a steady increase in the consumption of Ceylon tea, at a time when the total imports of tea into the United States were falling off, as a consequence of the war tax. With tho early removal of this tax, the increasing amount of green tea to be introduced and the representation of Ceylon at the St. Louis Exhibition in 1904, the Committee feel the efforts of our Commissioner cannot at this time be relaxed, and that the Campaign in America should be continued at least to the end of 1904. We have set aside £7,000, or say R105,000 to be spent in America next year. Mr Mackenzie is to be asked to break new ground, farther West, in the vicinity of Chicago and St Louis.

Finances.—Estimating the crop next year roughly at 160 million pounds, at the present rate of Cess this would yield R480,000
add probable balance in hand at end of 1902 R20,000

R500,000

of which R470,000 has been voted, as per estimate (A), leaving a balance unvoted of R30,000.

If the Cess was raised to half-a-cent per lb the Committee would be in a position to make provision for 12 millions of green tea at 5 cts per lb.

It may not be necessary to impose the full amount of the increase; all we desire is that the limit of the present Ordinance be raised from 30 cts to 50 per 100 lb and that the limit need only be enforced, if the money is actually required for assisting the green tea industry. The Cess was introduced in the year 1894, for the purpose of increasing the consumption of Ceylon Tea in foreign lands, and how far this object has been attained, the following figures will shew. I again quote from one of Messrs Gow, Wilson and Stanton's circulars:—

	Ceylon tea taken in foreign markets. lb.	percentage of crop. per cent.
1895 ...	19,923,803	19
1896 ...	23,465,733	22
1897 ..	29,131,021	25
1898 ...	36,066,888	30
1899 ..	38,438,509	30
1900 ...	49,259,693	33
1901 ..	58,797,549	40

During the same period the Indian exports to foreign countries show only an increase from 17 million to 36 million pounds. "This opening of new outlets has practically saved the industry from ruin." Indian planters fully recognise the advantage we have derived from our Tea Cess, and their long agitation to obtain a similar levy, is likely to be shortly accomplished. Steps are being taken to bring about an understanding with the Indian Tea Association, regarding joint action between India and Ceylon wherever possible, and to thus avoid the wasting of funds, by working on contrary lines.

I shall be glad if you will kindly put tho above-mentioned resolution and connected matter before your Association at an early date. I may mention that the Hon. Mr W H Figg will be in London shortly, and if there at the time of your meeting, he will be glad to explain matters still more fully, and give the resolution his support.—I am, Dear Sir, yours faithfully, A. C. KINGSFORD,
Chairman, Planters' Association of Ceylon.

CARDAMOMS IN CEYLON AND IN MYSORE:

SUPERIORITY OF THE LATTER.

Sept. 24.

Sir,—I notice that certain brands from the Native State of Mysore are included in your list of sales of 'Ceylon Cardamoms.' I enclose cutting of the same. These were shipped per 'Clan Macintosh.' Please reprint these to show that Ceylon is a long way behind Mysore still:—

CEYLON CARDAMOMS.

'Clan Macintosh.'—CCC in estate mark, 8 cases sold at 2s 10d, 1 at 2s 11d, 11 at 2s 10d; CT in estate mark, 3 cases sold at 2s 9d, 2 at 2s 10d;

MMM in estate mark, 12 cases sold at 2s 9d; MG in estate mark, 1 case sold at 2s 8d, 2 at 2s 9d, 3 at 2s 10d.

Is the fact forgotten that the nomenclature of cardamoms in Ceylon is all wrong? Cardamoms, that are called 'Mysore' in Ceylon are really 'Malabars' or 'Alleppy.' Cardamoms that are called 'Malabars.' are really 'Mysore.' It is, I am afraid, too late to change this now. 'CCC' brand is Cadamony, 'MMM' brand is Munjanbulla, both being estates in Mysore. I do not think that, in the list of Ceylon sales, from which this cutting is clipped, any of the 'Ceylon's' have fetched over 2s.

LATE MYSORE PLANTER.

[Can our correspondent explain why the Mysore cardamoms should be so superior? Is it the better soil or drier climate—or both? Even then, some parts of Uva and Maturata should offer as favourable conditions?—Ed. *T.A.*]

CARDAMOMS IN CEYLON AND MYSORE:

ALSO ABOUT PEPPER AND TEA

PRACTICAL HINTS.

Sept. 26.

SIR,—In answer to your query *re* Mysore cardamoms I may state that the pubescent cardamom of Mysore (called in Ceylon "Malabar") has a far finer sample than the robust cardamom of Aleppy (called in Ceylon "Mysore") which now has taken the place of the other variety in Ceylon. Not only that; but I consider the treatment adopted in Ceylon is not so conducive to preserve the aroma as that on the estates in Mysore. In Mysore the cardamoms are dried by artificial heat and never see the sun until the bleaching process is begun. I should advise Ceylon growers to dry hard (preserving the green colour) and then have the cardamoms soaked, sulphured and bleached in Colombo. But to insure success you want some one in Colombo who understands the delicate handling of cardamoms. They should be spread on white cloths instead of dirty jute-hessian. This is not only a cleaner method, but the stray seeds from broken capsules are more easily seen and gathered. The two brands, I mentioned in my last letter, have never been sulphured. They are entirely sun-bleached. The sulphur processes, I think, cheaper and quite effective enough; but I never cared for the Ceylon way of sulphuring the cardamoms in the green stage. This leads to premature exposure to the sun which not only causes the cardamom to split, but also robs the delicate spice of much of its precious aroma. More care should be taken in picking the fruit. Where I was, the gangs went round every eight days (like tea) and boys were put on behind the gangs to find any missed ripe fruit. For every missed fruit the boys demanded six fruits from the peccant picker. Thus there were no fruit over-ripe or under-ripe if the gangs were well supervised as on a tea estate. Thus the sample was even and good. (Do your Pepper-growers know the advantage of "boiling" the berries? It's a good tip.) I consider that severe pruning of tea is ruining your bushes and causing planters to fall back on manure. This is not healthy. Prune lightly, dig your land, and pluck lightly.

LATE MYSORE PLANTER.

SUPERIORITY OF PRODUCTS IN INDIA.

DEAR SIR,—You ask why are Mysore Cardamoms superior to those of Ceylon; but why I may also ask was "Cannon's Mysore Coffee" superior to the very finest Ceylon Plantation in its day; while again Cochin Copra and Coconut Oil are always quoted at a considerable advance over Ceylon; and finally nothing in Ceylon can touch Darjeeling Tea! So you islanders ought to

CRY SMA'.

[Very true; but there are a few things in which we are unapproachable, at least by India:—Our Cacao, highest price in market; our Cinnamon, the only perfect spice(!); our Plumbago; and now our Rubber and, last not least, our Green Teas!—There is nothing like having "a gude conceit" of ourselves.—Ed. *T.A.*]

COCONUT WATER.

DEAR SIR,—An English visitor to Colombo, who had been a wine merchant in London, casually mentioned to me that he thought a capital and suitable drink for Ceylon could be prepared out of coconut water. He said it was having his attention, but I have heard nothing more yet. I send you his name for your private information. As he well remarked, our aërated drinks, such as lemonade, &c., were not light enough for the climate.—Truly yours, INTERESTED.

[We fear the gentleman named will never be well enough to continue his experiments. Some one else should take the matter up.—Ed. *T.A.*]

NEW AND MINOR PRODUCTS IN THE LOWCOUNTRY OF CEYLON.

Sept. 24th.

DEAR SIR,—In the "Agricultural Magazine" for August, the first article is on Keppetiya and

BETEL.

Agriculture is sure to advance, if all Mudaliyars and chief headmen in the island were to take as great an interest in it as does Mr. George Weerakoon, Mudaliyar of the Wellaboda Pattu, Matara. His communications on various agricultural subjects very often find a place in the pages of this useful Magazine.* It is to be hoped that this progressive Mudaliyar inculcates his views on the people under his charge, through his subordinate headmen. Why should not every Mudaliyar and his equivalent in the other Provinces, and aye, every Kachcheri as well, have small model gardens as object lessons and for the distribution of seeds and plants? All villagers believe in the virtues of Keppetiya (*croton lacciferum*) as a manurial agent, and use it in betel and garden cultivation. All aromatic smelling leaves are said to be valuable as fertilizers. Besides acting as mulch, Keppetiya leaves decay rapidly and becomes available as manure.

In "Notes," reference is made to the believers and unbelievers in the encouragement of the growth of

* Which, it may be mentioned, is regularly incorporated with the *Tropical Agriculturist.*

MIMOSA ON COCONUT ESTATES,

as a means of utilising this plant to attract to the soil supplies of nitrogen from the atmosphere I have heard it stated that one enthusiastic believer in it, stated that by encouraging its growth, he found that he not only secured better crops, but the kernel of his nuts was thicker than before and yielded a larger proportion of oil. The mimos is spoken of as "modest." I will call it "aggressive" or "assertive." Once let it get into your estate and you will have a constant battle to get rid of it. It is as difficult to be got under subjection as the Boers were. I have noticed parts of coconut estates over-run with it, and the trees were, by no means, looking better than their neighbours. But, says the enthusiast, to derive benefit from the mimosa, you must turn it into the soil. Why attribute any improvement that takes place in the condition of the trees to mimosa alone, and give no credit to the tilling of the soil and the green manuring involved in the operation? The benefits of both are beyond question. In European agriculture, clover was long known to leave the soil richer in nitrogen after the crop than before. Yet it was not dug into the soil, but was removed for fodder. Experiments have established that all legumes have bacteria-infected nodules, which have the property of converting the free nitrogen of the atmosphere into combined nitrogen assimilable by vegetation. The modest "pilla" is a leguminous plant growing on coconut estates, whose leaves, both here and in India, are used as a manure. The growth of the plants might be encouraged round the stems of coconut trees, in preference to the "touch me not," more true as regards its aggressive thorns, than its shrinking sensitiveness.

FLORIDA BEANS are much used now as an article of consumption. The possession of a deleterious principle in the bean, which is said to induce colic, has been overcome by first boiling the beans in water mixed with turmeric and salt. The hairs are all rubbed off, they are then fried with onions and made into a curry. A tree has been discovered, the wood of which, when partly cut, emits a strong odour of iodoform. I have met with a red, clayey soil in the hills of the Morowakkorale emitting a decided odour of iodoform.

The sixth lecture on PLANT LIFE is very attractive, and is very instructive reading. The best soil for cultivation should contain :—

Sand	50	to	70	per cent.
Clay	20	to	30	,,
Humus	5	to	10	,,
Carbonate of lime	5	to	10	,,

Alluvial soils are fertile by reason of the action of running water mixing their constituent parts thoroughly. A soil composed entirely of sand is valueless agriculturally, as it is non-retentive of moisture and has no plant food. Clay alone is as unsatisfactory as sand. Its close texture renders it impermeable to water, it is cold and damp and will bake as hard as a brick in dry weather, and is of no value as plant food. As a soil constituent, sand renders a soil porous and permeable to air, moisture and warmth; while clay absorbs gases from the atmosphere, keeps a soil moist and cool and is retentive of plant food, which would otherwise be washed out of it. The impurities of clay and sand are potash, magnesia, lime, iron, &c., derived from the rocks which are the origin of soils; these are important constituents of the mineral food of plants. Sand and clay form the bulk of soils. Lime is a plant food and decomposes organic matter which supplies the nitrogenous food of plants. Nitrogen is at its highest in a peaty soil and at its lowest in a sandy soil. Clay soils have most phosphoric acid and in sandy soils the least. Clayey soils are also rich in potash, and calcareous soils are rich in lime. Sandy soils are deficient in both.—Yours truly

SCIENCE AND PLANTING.

LIQUID FUEL INSTALLATION.

Colombo, Sept. 30.

DEAR SIR,—Messrs. Brown and Company, Limited, Nawalapitiya, write us under date 29th instant, as follows :—" Oil Engine. We cleaned our Hornsby Akroyd Oil Engine yesterday, not because it showed any signs of wanting to be cleaned, but because we were anxious to see in what condition it was in, to enable us to form an opinion as to how long it would be advisable to continue running it in future without cleaning."

" There was a small quantity of deposit at the back of the Vaporiser, but the front of the Vaporiser and the back part of the cylinder were quite clean. The piston was clean and bright, and the rings were quite loose. The engine had run 23 days without cleaning, so that in future we will not need to clean it more than once in 4 to 6 weeks. It was running as well at the end of the 23 days as it did on the day it was started."—Yours truly,

DELMEGE, FORSYTH & CO.

CEYLON PATENT OFFICE DILATORINESS.

Stagbrook Estate, Peermaad, S, India,

Sept. 30.

Sir,—With reference to your para, in the issue of the 25th September, regarding the "Deane-Judge Patent Strainer" you hint at other "patents being before the public ere long." This may be the case, but all I can say is that it is ten months since we applied for our Ceylon Patent and we can't get a definite reply from the Ceylon Patent Office. Considering that at the present moment there is, as far as I am aware, only one patent in existence as regards green tea manufacturing appliances, and it has taken the Ceylon Patent Office ten months to search the records, what price a speedy issue of other patents? Meanwhile producers spend at least 10 per cent more on production than need be the case, and we are unable to advertise freely the exact nature of our improved machinery which will so greatly economise the manufacture of "Green Tea," and would probably mean that a 4 cent bonus would be more remunerative to Green Tea Producers than a 5 cent bonus is at present.—I am, Sir, yours faithfully,

H. DRUMMOND DEANE.

PARA RUBBER IN MATALE.

Kepitigalla Estate, Matale, Oct. 1.

DEAR SIR,—I think the following sale of three cases containing 336 lb. nett of Para rubber grown on Kepitigalla estate, would interest those concerned in rubber cultivation, and also show that high prices can be obtained for rubber grown in Matale district. The price of fine Para, at the same sale, early this month, was 3s 0½d and three cases Kepitigalla sold for 3s 10½d, a price 10d above best Para. I have just despatched another 13 cases, and shall let you know results of sale. You will notice that the fine price 3s 10½d has been obtained for a large quantity (for Ceylon) and not merely for a few lb. which could be specially cured.

I will also take this opportunity to reply to the "Critic" in the "Times of Ceylon" who wished to make out that this estate was not in the Matale district. Kepitigalla estate proper is in the Matale district, as I know, when I have had to deal with the Village Headmen and Government Agents. Your contemporary's "Critic" might just as well say Yatewatte is not in Matale, as a good portion is in Kurunegala, and even facing Messrs. Finlay, Muir & Co.'s Delwita estate. But why particularise as to our boundaries? The fact remains that Para rubber has been most successfully grown, and proved to be of commercial value, and yield handsome profits. As I have proved by figures in my last letter it has cost 47 cents in Colombo or, say, 50 cents in London, and practically yielded a clear profit of R2·38 per lb. I also notice in the *Tropical Agriculturist* for September an article on Vanilla in Ceylon, where, it is stated that 70 beans was considered good for a vine. I have vanilla growing on this estate, 60 to 80 feet in length, trained on poles, 4 feet above ground, with 300 to 350 well-developed beans 5 to 9 inches in length, mostly about 7 to 8 inches, and have many vines with 150 to 200. I shall be pleased to show any one interested in vanilla cultivation, over the part of estate where the vanilla is grown, —I am, Sir, yours faithfully,

FRANCIS J. HOLLOWAY.

CEYLON TEA FOR AMERICANS IN THE PHILIPPINES.

Mindanao, Philippines.

SIR,—The aggressive operations for disseminating knowledge concerning Ceylon teas and the amount of money and energy the Ceylon Planters are expending on the above, leads me to make a suggestion nearer home. You are making efforts to educate the United States people to drink and judge good tea. So why not try them in the Philippines where there are over 30,000 soldiers and about 5,000 American civilians. The U. S. Army calls for tenders in Manila to supply the soldiers with tea and, if your planters could furnish the tea to them at, say, even cost for a trial or two, it would be money well-invested in my opinion, for the reason that when these thousands learned to drink Ceylon tea they would, on returning to their homes all over the States, be an advertisement in themselves as well as being consumers of the tea. Think of the influence these people would have in pushing your teas in their home districts which would embrace every State in the Union. I know locally the officers and their wives are enthusiastic on Ceylon tea. I always use it and everyone who drinks it in my house say: where did you get it?—procure some for me and I have been doing so though with difficulty I have to send to Borneo and the steamer connections with Sandakan are very poor. I have no hesitation in saying that your tea once introduced to Americans in the Philippines, they would carry the flavour home and want it there. At present the army is using China teas and are paying —* a lb. I was a buying agent for two years for a Manila firm of Government contractors and in that capacity travelled over Australia, China and Japan; the former for meat and produce and the latter for produce and tea, and after seeing the Chinese and Japanese coolies preparing the leaf, I never drunk tea from these countries. The rolling and roasting process of fire dried teas is especially disgusting, where the women, in an almost nude condition are bending over the fire-pans and rolling the tea around, while the filth and perspiration dropping off their warm bodies into the pans is a sight that once seen, needs no further persuasion to abandon drinking these teas. There are a great number of army ladies in the Philippines, and as all ladies like good tea, I am sure they would be staunch supporters of using Ceylon tea on economical grounds alone, as a good tea is a cheap tea.

FRANK J DUNLEARY.

THE OBNOXIOUS PREPARATIONS OF CHINA AND JAPAN TEAS:

MORE AUTHENTIC "COPY" FOR A P. A. PAMPHLET.

Degalessa, Yatiyantota, Oct. 12.

SIR,—I have read Frank J Dunleary's letter in the *Observer* of 10th inst., and I can corroborate every word he says on the rolling and roasting process of Chinese and Japanese teas, having seen the working of teas outside Foochow and near Hiogo or Kobe. The pan system is accurately described. I went through a tea making Factory at Kobe; the pans were copper or brass and set at an angle on "chullu" fires, and the workers at the pans were just as Frank J Dunleary describes; the heat was awful and exudation of perspiration great, the building itself was very dirty, and the tea chucked into a corner of the room when finished. Much the same process was in use at Foochow by the Chinese: the only difference was that the Chinese rolled the tea with their feet by holding on to a bar; the Japs rolled it by hand.—Yours truly,

WM. MITCHELL.

RAINBOW TROUT.

North Cove, Oct. 2.

SIR,—An impression seems to have got abroad amongst fishermen, especially in the neighbourhood of Nuwara Eliya, that rainbow trout as soon as they attain a weight about a pound, disappear—the presumption being that they drop down-stream and seek deeper and larger pools in the lower waters. This may apply to the Nuwara

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* A blank here in letter.—ED. T.A.

Eliya fish with the lake so handy to them, but my experience of them in the Horton Plains and Aldie patana stream hardly bears this out. The first rainbow trout turned down into the Horton Plains stream—some thirty or forty in number so far as I can recollect—were brought up in the stew-pounds there and turned down by me more than two years ago not far from the Rest-house. The year following I caught one or two of these fish of over a pound in weight near the top waterfall above the Ohiya short cut, and this season a fish of 2 lb was taken in the waterfall pool itself. These fish by their weight and size must have been some of the first lot turned down, and they must have travelled up stream some three miles or so. In addition to this evidence, I have seen many good fish of the rainbow species quite recently in the upper waters of the Horton Plains stream. My belief is that if they have a tendency to work down-stream in England (and tradition certainly ascribes it to them) here in Ceylon this tendency is checked by the numerous waterfalls they have to encounter. I don't say that some do not go over the falls, but many are in my opinion induced to head back up-stream as soon as they feel the vibration caused by the fall below them. I will also give the result of my observations of these fish on the Aldie patanas. There were about 200 fry and all were turned down in one small pool about 20 feet in length and 15 feet wide—and about 150 yards above some small falls and broken water rushing through a rocky gorge. Six to nine months afterwards I counted over 20 well-grown fish in the pool and in the slack water above the falls. After this they seemed to scatter and a few months afterwards paired off, one pair remaining in the original pool where they may be seen to this day, splendid fish of nearly 2 lb. in weight. Another pair have established themselves about 60 yards lower down and another pair close to these. Up stream, judging by the number of fry to be seen there, must be many more survivors of the original and *only* lot of rainbow trout ever introduced into this water. It may be well to mention that except to provide a specimen for the managing Committee of the Ceylon Fishing Club, not a single fish has ever been taken out of this stream. In view of the above, I think, it a little premature to conclude that all our rainbow trout are going to disappear and work down into the low-country, and that we should therefore stock with more brown trout. Personally, I look upon these latter as a source of great danger to the young fry now being hatched in our streams. My reason for this opinion is that where brown trout are most numerous on the Horton Plains, country-bred rainbows are few and far between. On the Aldie Patanas, where there are no brown trout, the water teems with country-bred rainbows, and below Baker's Falls on the Horton Plains, where brown trout were only once turned down in any numbers, and where very few now survive, the rainbow trout are very numerous. All this points, I think, to one conclusion that the brown trout are devouring the ova and fry of the rainbows. It may be of interest, to the fishermen to know that these rainbows breed in Ceylon, apparently, from June to December, if not all the year round. A few days ago I observed numbers of fry not more than 1½ to 2 inches long, and shoals of others ranging between 3 and 10 inches. I would ask you to publish these notes for the information of those who may be interested in them, and who have not the same facilities I have had for observing the habits of Rainbow Trout in Ceylon waters.—Yours, &c., THOS. FARR.

No. II.

Abbotsford, Oct. 7.

SIR,—Mr. Farr's letter on the above subject, in in your issue of the 6th. is most interesting reading to all local fishermen ; but he mustn't run away with the idea that because rainbows stick to the Horton Plains and Aldie Patana streams they are non-migratory fish.

He doubtless read the recent Report of the Australian Fishery Board in which it was stated : "Rainbows have done exceedingly well in some rivers and in all lakes and ponds ; but they have most mysteriously disappeared from several of the rivers into which they were put."

That they disappear from the Nuwara Eliya stream when they attain a respectable size is undoubted; and not only do they descend into the lake, but they actually go over the spill as there is a well-authenticated case of a rainbow having been caught in the stream below by Mr. Purdon.

This fish had been feeding on minnows or young carp and yet rainbows are said to be non-cannibalistic fish, but I fear me they will lose their fair fame in this climate. All the Salmon tribe go up stream to spawn, but it doesn't follow that they'll stay there. Why blame the browns for the paucity of local-bred rainbows in the upper stretches of the Horton's stream, seeing only 30 to 40 fish were originally put into miles of it only some two years ago? I killed a couple of them last year myself, weighing each 1½ lb., right away up beyond Ohiya short cut, and this in one day's fishing. So, how many, or rather how few, can have escaped the men who fish there frequently ?

Why also preserve the Aldie stream so carefully, when the Dikoya and Agra rivers are crying out for fish ?

They'll go on crying, I expect, for the next decade, whilst the fish in the Aldie are dying from disease through overstocking, unless our petty parochial Fishing Club can rise beyond the selfish idea, of all the fresh fish and the butter and the buns for our side of the country, if you please !—Yours, &c.,

JOHN FRASER.

WANTED:—CHEAP FREIGHTS TO AUSTRALIA :

1D. A LB. CHARGED ON CEYLON TEA ; ONLY ½D. ON CHINA OR JAPAN TEA ;—A REAL GRIEVANCE.

Colombo, Oct. 10.

SIR,—I have read with interest the correspondence which has recently appeared in the local press on the point of having cheap passages between this and Western Australia, a very desirable thing, and worthy of strong support from all our newspapers.

There is, however, something more important and more pressing than cheaper passages to Australia, and that is cheaper freight. You can ship cargo by P. & O. or other mail steamers to Hongkong, a voyage of 10 days, at R14 per ton, whereas for the voyage to Freemantle, a voyage of only 9 days, the unfortunate producer of tea has to pay R50 per ton.

Again you can ship by these A 1 mail steamers to Japan, a voyage of under 20 days, at R20 per ton, whereas to Adelaide, Melbourne and Sydney (three ports which, I believe, the Colombo tea market is strongly dependent upon) you again pay R50 per ton.

I have seen this subject mentioned from time to time in the proceedings of the Planters' Association or the "Thirty Committee," and I should like to know if there is any prospect of this glaring anomaly being "gone for" again, and more energetically than in the past.

Why should the struggling tea industry have to pay 1d per lb. freight to one of its largest and increasing consumers, when for one-third of this freight you are offered steamers of the same Companies for countries to which our exports are almost nil, and which even in the future are not likely to take our products, no matter how cheaply you could ship them? On the other hand, these very countries I refer to, viz:—China and Japan, can send their teas down at a freight of ⅓d per lb. to the Australian markets. ⅓d (three cents) per lb. on Ceylon teas would be a welcome addition to the income of many who hold

TEA SCRIP.

PLANTING NOTES.

THE GREAT VINE at Hampton Court is often referred to as showing how long a plant will live and bear pruning and cultivation. This vine is supposed to be over one hundred-and-thirty years old. The latest report is from a London paper dated September 24th:—

The great vine at Hampton Court Palace, which is now 134 years old, is this year only bearing 700 bunches of grapes, nearly 3,000 bunches having been thinned out to give the tree a rest.

THE EFFECTS OF FUEL OIL—in reducing freights, in the Western World principally, are fully dealt with by Sir Marcus Samuel in an article reproduced elsewhere from a home paper. The advantages associated with the substitution of fuel oil for coal are so apparent and manifold that it is surprising that in Eastern lines it is not more universally used. Its adoption in the West has literally revolutionised shipping freights: similar advantages would be welcomed in Ceylon and we trust these satisfactory results are but the precursor of what we will shortly experience through the adoption of liquid fuel by Eastern lines.

IN PURSUIT OF PARASITES—Mr Geo. Compere, the entomologist of the Department of Agriculture, departed yesterday on a journey to various portions of the globe in search of the parasites of certain noxious insects. He will proceed to Sydney, thence to China and Japan, where he will endeavour to get the parasite of the red scale. From Asia he will cross to Washington, and after a brief stay in the United States he will continue his journey to Italy, in which country he is hopeful of securing the parasite of the fruit fly, a pest which has caused heavy losses to fruitgrowers in several parts of the world.—*Australian paper,* Oct 4.

MANURING TEA.—Mr. W. D. Bosanquet has undoubtedly conferred a special benefit on his brother planters in tea by his very practical and sensible observations on this subject. He shows how the "forcing manure," most commonly in vogue, is open to condemnation, and he clearly indicates how each planter may do much better for his estate and work more economically as well Mr. Bosanquet's motto must be "Science with practice." We wish he had told us something on the value of burying tea prunings. He speaks highly of the usefulness of albizzia trees among tea; but Mr. Bamber's recommendation is in favour of cultivating a leguminous plant like *Crotolaria striata*, a herb (2 to 3 feet high) common on waste ground in the low country and about Kandy: it flowers in December-February a dull yellow veined purple; pods long and plenty of seeds. We trust Mr. Bosanquet will have more to say about his manuring experiments ere long.

THE TOTAL YIELD OF GOLD FROM THE BRITISH Isles (says Mr. J MacLaren, F.G.S. in the *Mining Journal*) may, with the exception of the quota from the Leadhills, in Scotland, be computed with sufficient approach to accuracy to give considerable value to the estimation:—

	£
England (North Molton, 1852-3) ..	581
Wales (Dolgelly area, since 1844) ...	281,497
Scotland (Leadhills area, 1511-1616) ...	100,000
Sutherland (1868-1869) ..	3,000
Ireland (County Wicklow, 1795-1879)..	21,855
Total gold yield of British Isles ...	413,933

Of this sum it will be seen that nearly all, with the exception of that from the Leadhills, has been obtained during the last century, and slightly more than half of it (£208,855) during the last 14 years.

ARBOR DAY.—It is gratifying to find that active steps have been taken to give practical effect to the suggestion made in the *Agricultural News*, of establishing an Arbor Day in the West Indies. At Trinidad Mr J H Hart reports that a tree was planted on Coronation Day (August 9), in the Queen's Park Savannah by His Excellency the Acting Governor, Sir C C Knollys, K C M G. Mr Hart continues:—'It is a practice which would tend largely to the benefit of the community and in which the poor as well as the rich may share; and August 9 each year (a specially suitable time in Trinidad) might well be commemorated by the planting of fruit, timber, or ornamental trees.' At Grenada His Excellency the Governor planted a Genip-tree immediately after the Coronation service in the presence of a large number of the officials and other residents of the island. Mr Broadway, the Curator reports that in all eighty-five trees were planted some on July 2, the remainder on August 9. At Tobago and other islands also, several trees were planted on June 26 and several further Coronation trees on August 9. —*Gardeners' Chronicle*, Sept 27.

THE DUCKWARI (CEYLON) TEA PLANTATION CO., LIMITED.

REPORT BY THE DIRECTORS TO THE TWELFTH ORDINARY GENERAL MEETING OF THE COMPANY.

17 Philpot Lane, London E C Sept.

The Directors beg to snbmit the accounts for the year ending June 30th, 1902.

Inclnding the balance brought forward from last year, and after writing off ten per cent depreciation in value of Machinery and Buildings, the balance at credit of Profit and Loss Account, subject to Income Tax, is £1,506 5 6

From this has to be deducted an interim Dividend of 3½ per cent on Preference Shares, paid February 14th 1902 420 0 0

Leaving £1,086 5 6

which it is proposed to appropriate as follows:—

(1) To pay 2 per cent arrears in Preference Dividend ... £240 0 0

2) To pay 3½ per cent Dividend on Preference Shares .. 420 0 0

(3) To pay 2½ per cent Dividend on Ordinary Shares .. 200 0 0

4) To carry forward balance to next year 226 5 6

£1,086 5 6

The returns of crop have been 320,070 lb. Tea and 14,283 lb. Cardamoms, against 301,530 lb. Tea and 8,779 lb. Cardamoms in previous season.

The past twelve months have again been very unfavorable for Tea owing to the continued excessive supplies. On the other hand, the Company has much benefited by the large crop of Cardamoms received, the same being 5,283 lb. in excess of expectation.

The estimates for the coming season are 300,000 lb. Tea and 10,000 lb. Cardamoms.

The machinery and buildings are maintained in a good state of repair.

Mr SPENCE retires from the Direction by rotation, and being eligible, offers himself for re-election.

The Auditors, Messrs. BROWN, FLEMING and MURRAY, also retire, and offer themselves for re-appointment.

G. P. SPENCE, Chairman. R. CROSS AITKEN, Secretary.

GAME PROTECTION AND HUNTING IN THE HILLS OF CEYLON.

Mr W Ormiston, Hon. Secy. of the Haputale Branch of the C G P S, writes to our contemporary as follows :—

The only fault I have to find with the form of license agreed on at the meeting, is the inclusion of the old limit "*over 4,000 feet elevation.*"

This is the main point on which our fight took place a year ago, and it was then *unanimously* agreed that the limit should be *the country alloted for hunting to the knife by registered packs.*

The boundaries of this country, in the province of Uva, were agreed on by the Assistant Conservator of Forest, Hill Reserves (Mr Spence), and myself; and I have sent them to the Government Agent, Uva, because a small corner of Uva is occasionally hunted by a knifing pack (I understand the Horton Plains were only hunted once last year), the shooting of game over 4,000 feet elevation has been entirely prohibited and is now to be limited to stalking.

The minority may have their rights, but surely those of the majority require some consideration.

Another question which might, with advantage, have been discussed is that of limiting the number allowed to be killed under each license. When *shooting* in the Southern Province, I am limited to *three* sambhur (two bucks and one doe); if I hunt with knife in the Hills, there is no limit in number or sex.

I have been asked to bring this question forward at the next general meeting.

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RUBBER IN TOBAGO BOTANIC STATION.

In April, 1900 ten plants were put out into the open ground, and in May, 1902 are in flower. In the young state the trees assume a shrubby appearance, but later takes on its true aboreous character. I have seen trees of this rubber [which rubber?—ED. *C.O.*] 80—100 feet in height in the forest behind Lagos. Even in a young state this tree produces latex which readily coagulates.

The following table shows the growth of the various rubbers at the station :—

Castilloa elastica	planted 1900	..	19 feet
Hevea Braziliensis	do	...	17 do
Funtumia elastica	do	..	10 do
Manihot Glaziovii	...	...	15 do

Castilloa and Funtumia have both produced flowers.

RUBBER STATISTICS.

CONGO.—The British Consul at Congo, in his report of the trade during the year 1901, states that by far the most important article of export continued to be rubber, which accounted for £1,758,683 in special and £1,807,327 in general commerce, out of the totals of £2,019,536 and £2,160,302 respectively. According to destination the exports of rubber were divided as follows :—

Destination.	Value. Special Commerce. £	General Commerce. (including transit). £
Belgium	.. 1,713,992	1,747,323
Netherlands	.. 43,167	56,992
Germany	.. 272	433
United Kingdom	.. '188	1,162
Other Countries	.. 185	1,417
Total	£1,758,638	£1,807,327

GERMAN EAST AFRICA.—The prospects of the rubber trade here are not very promising: the value of that exported having fallen from £66,859 in 1899 to £52,933 in 1900. Efforts are being made to arrest the depression that threatens this trade, and the stations in the rubber districts are making extensive experiments with the planting of new trees.

CAMEROONS.—Rubber is one of the most important articles of native trade, though, in consequence of the falling-off of the supply in those parts of the country from which it has hitherto been obtained, it is only by the opening-up of fresh districts that the trade can be kept to its present standard.

VERA CRUZ.—Rubber passed through Vera Cruz during the two years from July 1st 1899, to June 30th, 1901, to the amount of (1899-1900) 85 tons, value £20,406, (1900-01) 60 tons, value £13,512, being a decrease of £6,894.

MOLLENDO.—Mr Vice-Consul Robilliard reports as follows for the year 1901 :—The rubber industry still occupies a good deal of attention, and although the quantity shipped this year only exceeds last year's output by fifteen tons, this is accounted for by the fact that large quantities are being prepared in the interior ready to ship when the dry weather sets in, which will be from the beginning of April. A few remarks on the difficulties that may attend this industry may be of interest. From the time of landing here, about fifteen days will be occupied in travelling by train, steamer, mule and canoe to get to the rubber districts. The first range of

the Andes has to be crossed at seventeen thousand feet above the level of the sea before the descent into the valleys can be effected. Sorata, in Bolivia, is the place at which nearly all the roads into the rubber and mining districts converge. The traveller will often be delayed for several days, all the owners of beasts of burden take advantage of the scarcity of the means of transport, and extort the highest possible freights for their animals. Once work has been started, the cheaper plan is to buy mules and horses. All supplies have to be carried in, as scarcely anything can be purchased there. However, stores are gradually being established on the different claims. The descent is very dangerous in some places, the incline being from thirty to forty-five degrees, and the animals often slip and are thrown over the precipices. This part of the road, twenty-three miles in length, takes twelve hours, when Pararani is reached 4,600 feet above the sea level. From Pararani to Mapiri the road is more practicable, and rubber, Peruvian bark, and coffee plantations are met. Mapiri is the centre of these regions, and from there one strikes off to wherever the claims may be. At least ninety per cent of the travellers fall sick with malarial fevers, more or less intense, although seldom fatal. From Mapiri, Guanay is reached in canoes, or rafts, made of nine sticks fastened with vines; three of these rafts form what is called a callopo, capable of carrying one and half tons of cargo. The distance is sixty-two miles, and can be done in one day, going down stream, but coming back it takes three days, current running six miles an hour. The Indians can only pull at the rate of one and half miles an hour. From Guanay there are roads that lead to the placer mines on the rivers Tipuani, Coyahuira, Challana, etc., in which, regions gold is found in abundance, but machinery is badly required, especially to dredge the rivers. The rubber exported from Mollendo during the year 1901 was as follows:—To the United Kingdom (London) 13,061 kilos, (Liverpool) 206,142 kilos; to Germany (Hamburg) 60,707 kilos; to France (Havre) 3,119 kilos; to the United States (San Francisco) 12,859 kilos, making a total of 295,898 kilos, approximate value £58,180.

GAMBIA.—The quantity of rubber exported in 1900 was 125 446 lb. in 1901 146,573 lb. being a decrease of £1,254 in value.—*India Rubber and Gutta Percha Trade Journal*, Aug. 4.

THE RAILWAY AND COTTON-GROWING IN THE NORTH OF CEYLON.

The Government of Ceylon, writes one interested, should give full attention to Cotton-growing in the North (see Sir Ed. Cotton's speech at Accrington); but there must be population to provide labour, and gins to gin the cotton on the spot. It will grow like a weed: not the slightest fear as to the growth and suitability of climate.

"In this connection, it seems to me that Government, whilst constructing Railway and Irrigation works, should be taking steps now, either to induce the necessary population to come to the country, or to offer facilities to Syndicates or others willing to take up tracts of land for cultivation. The most liberal terms should be offered and it is not a day too soon, to begin; for, it takes a long time to get people outside the island to become interested. It won't do for Government to wait till the line is running before they begin to invite settlers to cultivate."

THE BRITISH ASSOCIATION AND CEYLON.

Mr A K Coomaraswamy, B SC, F L S, F G S, read a "Note on the Scenery of Ceylon," in the Geology section on the 16th September. He stated that it was probable that Ceylon had been exposed to continuous denudation since very early Paleozoic times. The foliation of the crystalline rocks had a marked influence in determining the directions of the river valleys and the general configuration of the country. A characteristic feature of the scenery of Ceylon in many parts was its precipitous character; the seemingly "bedded" granulites formed mural escarpments and dipped slopes, as if they were a series of sedimentary rocks. The above remarks applied only to the mountainous districts which occupied the south-central part of Ceylon. A low coastal plain fringed the island, partly of alluvial and partly of raised beach origin; sea cliffs were absent or very unusual, and even any coast exposures of rock were not common. In the north a greater area was flat and low, and the scenery resembled that of Southern India. Isolated hills of gneiss (Dambulla and Sigiri rose conspicuously from the plain.

PARAGUAYAN TEA.

Yerba Mate in Paraguay.—The British Consul reports that yerba mate, or Paraguayan tea, is largely exported to the various Republics of South America. A few sample packages have been shipped to the United States and to Germany. One sample has been forwarded from Consulate to a firm in London. A German house here prepares a refine form of yerba mate suitable for drinking like tea. It is packed in parcels of 2 lb., at a cost of 1s 6d. There seems, says the Consul, to be little doubt but that yerba mate is a great restorative in hot weather or after physical exhaustion.—*British and Colonial Druggist*, Sept. 5.

A VISITOR FROM JAVA.

Mr. H J H Netscher, a well-known proprietary planter in Java, after visiting the tea estates in Northern India—in Assam, the Dooars, Darjeeling, &c.,—arrived in Ceylon where he remained about three weeks last month. Mr. Netscher's property is in Western Java, and he chiefly cultivates tea and cinchona. Cacao he considers to be about the most troublesome of tropical products to cultivate—the plant, of all others, most liable to enemies—at least that is Mr. Netscher's experience in Java. This is in strange contrast with the Dutch writer's experience of cacao in Dutch Guiana, South America, where, he said, the trees began to crop well at 5 to 6 years, heavily at 9, and continued then for a hundred years to give regular crops and no trouble. [This Surinam news is, however, a little too much like the parrot the sailor bought because he was told it would speak after 100 years and he wanted to hear it!] In Java evidently cacao is not a

favourite with big planters, though it is grown freely by the natives along the wayside and in small gardens. Mr. Netscher speaks of the telephone connecting plantations all over Java with the capital and principal towns as extremely convenient. He can get switched on at the nearest railway station with his agent in Batavia over 100 miles off, and do business more satisfactorily in five minutes' conversation than through pages of a telegram. At the same time he can telegraph from his residence to any part of the world. The labour supply is no trouble nor difficulty in Java.

Mr. Nestcher, who carried a letter of introduction to the Governor Sir West Ridgeway, went first to Kandy and from thence made excursion into the planting districts. He also visited Nuwara Eliya and Bandarawela and returned to Colombo *via* the Kelani Valley and the Avissawella railway. We bespoke courteous attention to this intelligent visitor during his stay in our midst.

EXPERIMENTS WITH AUSTRALIAN FODDER GRASS.

The experiments made at Saharanpur with the Australian fodder grass, *Paspalum dilatatum*, did not indicate that the grass possessed any remarkable superiority over the best varieties of Indian fodder grass, and much the same conclusion is to be drawn from experiments made in the Central Provinces, though there, as at Saharanpur, it is considered necessary that further experiments should be tried before a definite opinion is pronounced. So far as the experiments have gone, they show that the yield of the new fodder grass is smaller than that of the local grasses, but the quality is much better. Though protected from grazing the plants died, unless irrigated after producing one crop. The grass failed to show any special drought resisting properties; in fact it dried up earlier than the local varieties. It did better on heavy black soil than on dry stony land, but did not spread and multiply as *dub* grass does. It failed to justify its reputation as a strong pushing variety able to oust weeds and other grasses; indeed, it was found necessary to weed it, to prevent its being smothered and overgrown.—*Madras Mail*, Sept, 2.

ADULTERATING RUBBER.

According to a Foreign Office report from our Consul at Dakar a crisis was due to the fall in the price of rubber, which, while it affected all the rubber-producing countries, was specially felt in French Guinea, eight-tenths of whose exports consist of that article. In addition, there were special reasons which caused the colony to suffer. Having been a rubber-producing country for many years, the wines owing to wasteful methods of tapping them, had become comparatively scarce, and in order to increase the quantity of rubber for sale, the natives adulterated it in various ways. The merchants, anxious to profit by the high market, accepted the bales without examination, with the result that the rubber bought from the natives during the season 1899-1900 contained as much as 25 per cent of impurities. The home markets, who could obtain rubber of a much higher quality from other sources, refused to buy the Guinea rubber, which thus remained on the hands of the merchants, who in many cases were compelled to sell at a loss. So as to improve the quality of Guinea rubber, a decree was issued in May, 1900, forbidding the sale of rubber in unopened bales. This has already had a good effect, as the natives, finding they were certain of detection, ceased adding foreign matter, but as the method of coagulating the rubber in calabashes ordinarily employed by the natives made it difficult to detect adulteration with resins, a further decree was issued to the effect that, dating from the wet season of 1901, the only rubber allowed to be exported would be that prepared by the Foulah method, in red filaments, which was found to be the only one which permitted the detection of resinous adulteration. Palm kernels were usually mixed with about 30 per cent of shell. By a decree of February 1, 1901, the exportation was prohibited if the kernels contained more than 5 per cent of foreign bodies.

CACAO-PLANTING IN SAMOA AND FIJI

is fully discussed in Australian and Fiji papers to hand, and we shall quote interesting details to embody in our *Tropical Agriculturist*. Meantime we may state that Mr. F. Harman, Manager for an English Company with a capital of £10,000 to open 500 acres in cacao, speaks well of the German Government in Samoa. He has a plantation of 1,000 acres with good soil and in five years his cacao comes into full bearing at an outlay from of £20 to £25 an acre, including buildings, &c., while the crop is then, equal to 9 cwt. an acre of dried (prepared) cocoa, selling at 8d a lb. in Sydney and giving 6d nett to the planter or £25 an acre, equal to 100 per cent! *Credat Judæus!* Leases of land are to be had at 2s to 3s per acre per annum in Samoa, Powell Bros. of Fiji, criticise Mr. Harman's figures; but with still more surprising statements. Samoan land they say is rugged with heavy timber and exceedingly difficult to work; labour will be an increasing difficulty; no crop can be grown between the young cacao; and the £20 to £25 outlay is contrasted with £12 to £15 in Trinidad; while in Fiji *crops worth £30 an acre are grown between and before the cacao bears*! Powell Bros. do not go further to tell us what the Fiji cacao crops and net returns are; but they leave us to infer they are quite as good as those of Samoa. Why, oh why then, did Ceylon planters ever give up Fiji—some after many years of a trial?! Nothing is said about hurricanes or other possible drawbacks.

TREE AND LEAF GROWTH IN CEYLON.

The following is an abstract of the paper read at the British Association, Belfast, on *Foliar Periodicity in Ceylon*, by Mr. Herbert Wright of the Gangaruwa Experimental Garden:—

The high temperature and humidity of the air in most parts of Ceylon allow almost continuous growth of the arborescent vegetation. There are, however, nearly two hundred species which become leafless at different times of the year.

External and internal factors affect the phenomena of defoliation and foliar renewal. The climatic effect is obvious from the fact that the majority of

our deciduous species become leafless during our hottest and driest months. The deciduous trees respond only to one hot dry period of three or four months, and not to the dry part of each monsoon. Some species undergo complete defoliation twice per year; others exhibit incremental foliar activity several times per year, in addition to a complete annual renewal, and many introduced species show great variation during their phase of acclimatisation. In the northern districts, where the rains of the south-west monsoon are very feeble as compared with those at Peradeniya, the defoliation is considerably delayed. The climatic conditions in Ceylon are not equable enough to allow continued development along personal lines, and botanists desiring to study the personal equation in plant life should select a more equable area.

Internal forces are, however, obviously at work, as evidenced by the following:—

(*a*) Species retain full possession of their foliage or put forth new leaves when the temperature and dryness of the air is at the maximum.

(*b*) Some species drop their leaves and remain bare during our wet, cool months, when transpiration is at the minimum.

(*c*) Plants of the same species, on the same plots, are deciduous at periods varying by many weeks and months.

(*d*) The same species may undergo defoliation at approximately the same time of the year, though under the dissimilar climates of Peradeniya, Colombo, and Mannar.

The irregularity of foliar periodicity is very pronounced. There is not a month when all the trees are in full leaf.

The foliar periodicity of the evergreens is as complex as that of the deciduous trees, the foliar renewal taking place annually, bi-annually, or weekly, all being subject to individual variations.

Complete defoliation and foliar renewal in temperate and tropical zones often results in the differentiation of rings of growth in the secondary xylem. The variation in our tropical species is so great that an exact knowledge of foliar activity must be at hand before the time-value of the rings of growth can be determined. Saplings may undergo foliar repletion in the first year, or several years may elapse before this occurs; mature plants may be characterised by annual, bi-annual, or incremental periods of leaf production; further, many trees are repeatedly defoliated by the ravages of insects, bats and fungi.

Foliar periodicity is the most potent factor in determining the number and significance of the rings of growth, but for the complete interpretation of these a further knowledge of the rate of cambial activity and the independent effect of a hot dry season is necessary.

The rate of cambial activity is of especial value in determining the varying significance if the xylem differentiations in slow-growing decduous or quick-growing evergreen trees.

JAVA AND ITS TEA SUPPLY.

Some anxiety is felt as to the future of tea in Java. So far as we can learn, planting is not extending in that island: our Dutch neighbours have learned caution by their experience both in coffee and cinchona. The former industry has been wellnigh ruined by Brazil; while the price of bark and quinine can only with great difficulty be kept up to a remunerative level, The Java Quinine Factory has helped greatly to benefit the local cinchona planters, and its capacity is to be doubled we learn. Meantime as regards tea, with the experience of India and Ceylon before them, Java tea planters are bound to be cautious and *festina lente* is their motto. Those who have tea fields or estates are trying to do the best they can by improved cultivation and manufacture; but any extensions of the area under this product will be few and far between for some years. Our latest news from Java is as follows:—"Java is just now experiencing a very severe drought. This should reduce the output of tea from that island to some extent this season."

A satisfactory feature about the Java tea enterprise is the very considerable and steadily increasing proportion of the produce which is shipped direct to Holland. This means the gradual conversion of a good many of the Dutch people to afternoon and, perhaps, morning tea. If this process continues and Belgium as well as the adjacent portion of Germany—the people of the Groningen and East Friesland provinces have always been great tea-drinkers—were induced to consume increasing quantities of Java tea, no one would regret some expansion in the Dutch planting enterprise. It is any increase in the shipments of Java tea to the London market, that Ceylon and Indian planters deprecate.

FREIGHTS AND PASSAGES TO AUSTRALIA.

CEYLON TEA PAYING 1D. A LB. IN FREIGHT!

"Tea Scrip" raises once again a very important question in his letter elsewhere. It is simply monstrous that the Ceylon tea planter should have to submit to the heavy and entirely inequitable rates of freight at present charged for his produce to Australian ports. Can it be doubted that the trade would still further expand until the Australasian market was nearly, if not, quite won over to "Ceylon's," or at any rate to British-grown teas, if only freights were at all reasonable. Surely, a remedy can be found by inviting competition with the existing steamers? We saw it mentioned the other day that the Japanese Company was to be approached with reference to running a steamer once a month right round the Australian ports. If she started from Colombo and called on her way back at Singapore, we do not think that due encouragement would be wanting. In fact in this might be found the solution of cheap passages as well as cheap freight to and from Australia. Failing a Japanese liner, we trust the Australasian S.N. Company will be enterprising enough to establish a branch line with Ceylon and India. Meantime, pending any such arrangement, the Planters' Association and Chamber of Commerce should enter a remonstrance with the existing Steamer Companies as to their high rate of freights.—The question of a closer connection between Ceylon and Western Australia is discussed in correspondence on our sixth page; but, we suspect only by securing a new and rival steamer can heap tourist passage rates be established.

Monthly Shipments of Ceylon Black Tea to All Ports in 1901-1902.

(Compiled from Chamber of Commerce Circular.)

	United Kingdom. 1901. lb.	United Kingdom. 1902. lb.	Russia. 1901. lb.	Russia. 1902. lb.	Continent of Europe. 1901. lb.	Continent of Europe. 1902. lb.	Australia. 1901. lb.	Australia. 1902. lb.
January ..	12617540	9056013	727093	612958	104240	151934	740574	714247
February	8333266	7455219	...	919709	135811	121158	1778987	1020948
March ...	7932090	8198179	1288010	896513	82055	91081	2012070	1713916
April ...	8474940	8521388	1297873	988698	111082	93198	2245142	2081904
May ..	10570686	9638555	937138	238239	63310	80669	1644160	2000522
June ...	11425044	12563050	835711	1934976	93699	166479	1730886	1828695
July ..	8488409	10724781	700557	1779011	189567	108785	2593243	1747960
August ...	6030406	7396614	949747	1065599	82595	208894	1612929	1574498
September*	6093129	6652202	485429	795315	74896	70262	1779523	1857897
October ..	8989024		762616		181891		1840192	
November	6229472		1018996		190988		1539370	
December	12235867		830226		189520		990563	
Total ..	105,497,339		9,699,734		1,539 986		20,638,208	

	America. 1901. lb.	America. 1902. lb.	All Other Ports. 1901. lb.	All Other Ports. 1902. lb.	Total. 1901. lb.	Total. 1902. lb.
January	138235	125795	275598	389215	14603250	11050212
Febuary	272221	115332	453774	385795	10974059	10018071
March	510734	566263	350874	311191	12175833	11777143
April	10030	807390	226776	290137	12365843	12782715
May	288333	242651	306644	436410	13810271	12637046
June	276827	403005	404687	714471	14766854	17660676
July	442100	464858	669163	846036	13083039	15671431
August	266787	461229	227578	678095	9170042	11384929
September	214779	563981	388213	688730	9035969	10628487
October	115545		273928		12163196	
November	504614		183124		9666564	
December	313534		366244		14875954	
Total ...	3,704,335		4,549.627		145,188.244	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom. 1901. lb.	United Kingdom. 1902. lb.	Russia. 1901. lb.	Russia. 1902. lb.	Australia. 1901. lb.	Australia. 1902. lb.
January	...	64021	...	..	...	...
February	...	24839	..	4420	...	...
March	75583	14800	...	24210	...	..
April	13016	13676	...	8000	...	...
May	33889	70103	...	..	1714	..
June	12814	87340	..	74225	...	...
July	4478	40574	...	..	...	...
August	...	70900	..	..	...	...
September	5945	50771	...	..	...	...
October	12921		..	..	...	..
November	16540		5615	..	...	..
December	15255		38547	..	1262	..
Total ...	237,231		44,162	...	2,976	...

	America. 1901. lb.	America. 1902. lb.	All Other Ports. 1901, lb.	All Other Ports. 1902. lb.	Total. 1901. lb.	Total. 1902. lb.
January ...	...	113332	..	...	...	177353
February ...	...	26480	...	515	..	56254
March ...	227889	62313	12173	100	315660	101423
April ...	79403	53610	7365	9165	99784	84451
May ...	65980	32676	1454	3280	103037	106059
June ...	23046	84184	...	4500	35860	250249
July ...	46896	194016	...	...	51374	234590
August ...	12260	105982	...	1600	12260	178482
September ...	15304	333704	...	6800	21249	391275
October ...	28560	..	...	..	41481	...
November ...	36296	..	...	...	58541	...
December ...	11786	...	7612	...	27011	..
Total ...	797,796	...	28,609	..	1,110,774	...

* It is impossible to get the figures for the last month in time for publication; but see pages 358, 359 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	870	—	—
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	90	—	..
Ceylon Provincial Estates Co. Ltd.	500	—	—	505
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	50	60	..
Clyde Estates Co., Ltd.	100	35	—	—
Doomoo Tea Co., of Ceylon Ltd.	100	65	—	...
Drayton Estate Co., Ltd.	100	—	..	—
Eila Tea Co., of Ceylon, Ltd.	100	30	35	32½
Estates Co of Uva, Ltd.	500	—	...	...
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	950	..	1000
Great Western Tea Co., Ltd.	500	675	—	..
Hapugahalands Tea Estate Co.	200	—	—	—
High Forests Estates Co., Ltd	500	500	—	—
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	..	105	105
Kalutara Co., Ltd.,	500	—	200	..
Kandyan Hills Co., Ltd	100	—	40	—
Kanapediwatte Ltd.	100	—	...	—
Kelani Tea Garden Co., Ltd.	100	..	32-50	—
Kirklees Estate Co., Ltd.	100	100	120	—
Knavesmire Estates Co., Ltd.	100	...	45	—
Maha Uva Estates Co., Ltd.	500	350		—
Mocha Tea Co., of Ceylon, Ltd.	500	700	—	750
Nahavilla Estate Co., Ltd.	500	250	...	—
Neboda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co, Ltd.	100	—	75	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	—	30	..
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd.	500	..	...	—
Rayigam Tea Co., Ltd.	100	..	50	—
Roeberry Tea Co., Ltd.	100	—	90	85
Ruanwella Tea Co., Ltd	100	...	30	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	...	...	—
Do 7 per cent Prefs.	100	—	—	—
Tonacombe Estate Co., Ltd,	500	—	—	..
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	550	—	—
Uvakellie Tea Co., of Ceylon, Ltd	100	70	80	—
Vogan Tea Co., Ltd.,	100	47½	50	—
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	—	—	200

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	...	30	...
Bristol Hotel Co., Ltd.	100	..	110	—
Do 7 per cent Debts	100	107	...	..
Ceylon Gen. Steam Navigation Co., Ltd	100	—	250	—
Ceylon Ice & Cold Storage Co. Ltd.	100	—	110	—
Ceylon Superæration Ltd.	100	—	—	—
Colombo Apothecaries' Co. Ltd.	100	135	—	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	..
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	80	—	85
Colombo Hotels Company	100	...	..	280
Galle Face Hotel Co., Ltd.	100	190	195	192½
Kandy Hotels Co., Ltd.	100	..	130	130
Kaluganga Nav. Co. Ltd.	60	...	60	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	—	75	—
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	—
Do 7 per cent prefs,	100	—	105	—
Public Hall Co., Ltd,	20	...	—	—

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions
Alliance Tea Co., of Ceylon, Ltd.	10	..	—	..
Anglo-Ceylon General Estates Co	100	...	55—60	—
Associated Estates Co., of Ceylon	10	..	1½—2½	—
Do. 6 per cent prefs	10	..	3—5	—
Ceylon Proprietary Co.	1	.	¼—½	..
Ceylon Tea Plantation Co., Ltd.	10	..	23¼—2[illegible]	...
Dimbula Valley Co. Ltd	5	..	5—5½	—
Do prefs	5	—	5—6	...
Eastern Produce & Estate Co. Ltd.	5	...	3¼—3¾	.
Ederapolla Tea Co., Ltd	10	...	6—8	...
Imperial Tea Estates Co., Ltd.	10	...	4 .4½	—
Kelani Valley Tea Assen., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	6—8	—
Lanka Plantations Co., Ltd	10	..	4	—
Nahalma Estates Co., Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	9¾	—
Ouvah Coffee Co., Ltd.	10	..	6—7	—
Bagalla Tea Estates Co., Ltd.	10	.	11—13	—
Scottish Ceylon Tea Co., Ltd.	10	—	10—15	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	10—12	..
The Shell Transport and Trading Company, Ltd.	1	...	1½—1¾	—
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¼	..
Do. pref. 6 o/o	10	...	9—10	...

BY ORDER OF THE COMMITTEE.

Colombo, Nov. 7th, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1897.	1898.	1899	1900	1901	Av. of 32yrs.	1902
	Inch	Inch	Inch.	Inch.	Inch.	Inch.	Inch
January ..	3·81	2·32	·98	3·72	11·91	3·51	1·95
February ..	1·68	1·98	2·78	0·63	3·55	1·94	4·67
March ..	3·66	4·21	0·88	3·71	5·12	4·76	6·85
April ..	10·97	22·81	6·66	15·12	8·71	11·34	10·01
May ..	8·30	5·80	17·73	10·63	6·28	11·86	11·89
June ..	10·14	10·94	9·23	7·83	5·93	8·28	9·84
July ..	5·24	6·15	1·11	6·77	4·52	4·46	4·63
August ..	9·09	0·97	0·62	7·35	0·46	3·68	2·78
September ..	4·58	6·90	1·48	4·00	3·93	4·91	8·18
October ...	4·71	20·60	12·99	9·47	3·91	14·03	31·47
November ..	11·66	17·38	8·58	9·25	19·84	12·77	3·11*
December ..	8·89	3·05	4·44	5·20	1·70	6·26	
Total..	82·73	103·11	73·48	83·68	75·86	87·83	95·28

* From 1st to 5th Nov. 3·11 inches, that is up to 9-30 a.m on the 6th Nov.—ED C.O.

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for	Oct.	1902—8 to 8½ mill. lb.
Total Shipments	Do	1902—7,000,000 lb.
Do Do	Do	1901—8,989,024 lb.
Do Do	Do	1900—7,316,968 lb.

[ESTIMATE for Nov. 1902—7½ to 8 million lb.]

"GROWTH OF CEYLON TIMBERS."—We are promised Mr. Herbert Wright's paper on this subject for an early issue of our Monthly. Mr. Wright reports to us :—

In my paper I have tried to lay down some general statements on the subject and to explain the probable factors which determine the number and significance of the rings of growth in our Ceylon timbers.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Nov. 3rd, 1902.

CARDAMOMS :—
- All round parcel, well bleached per lb. R1·20
- Do. dull medium do. R1·00
- Special assortment, 0 and 1 only do. R1·35
- Seeds do. R1·05

CINCHONA BARK :—
- Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
- Ordinary assortment per lb. 50c. } scarce.
- Nos. 1 and 2 only per lb. 57c, } scarce.
- Nos. 3 and 4 only per lb. 45c. } scarce.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R62·50

COCOA :—
- Finest estate red unpicked per cwt R45·00
- Medium do do do R37·50
- Bright native unpicked and undried R33·00
- Ordinary do do do R25·00

COCONUTS—(husked)
- Selected per thousand R50·00
- Ordinary „ R43·00
- Smalls „ R35·00

COCONUT CAKE—
- Poonac in robins f. o. b. per ton R80·00
- Do in bags none.

COCONUT (Desiccated).
- Assorted all grades per lb 20c.

COCONUT OIL—
- Dealers' Oil per cwt R16·00.
- Coconut Oil in ordinary packages f. o. b. per ton R355·00.—R347·50 offered and refused.

COFFEE.—
- Plantation Estate Parchment on the spot per bus. None
- Plantation Estate Coffee f. o. b. (ready) per cwt.—R62·00.
- Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
- Ready do per lb.—47c.—slightly firmer.

COPRA—
- Boat Copra per candy of 560 lb. R50·25
- Calpentyn Copra do do R51·50
- Cart do do do R45·50
- Estate do do do R51·00

CROTON SEED per cwt—R11·00

EBONY—
- Sound per ton at Govt. depot—none.
- Inferior R70·00.—Sales of the 13th Oct. Sound quality not sold. Next sale 1st De .

FIBRES—
- Coconut Bristle No. 1 per cwt None
- Do „ 2 None
- Do mattress „ 1 None
- Do „ 2 None
- Coir Yarn, Kogalla „ 1 to 8 R15·00
- Do Colombo „ 1 to 8 R11·00
- Kitool all sizes None
- Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
- Large lumps per ton R600
- Ordinary lumps do R600
- Chips do R350
- Dust do R250 Prices nominal Fine qualities scarce.
- Do (Flying) do R125

SAPANWOOD— per ton R45.—Nominal.

SATINWOOD (ordinary) per cubic ft. R4·00 } Sales of the 13th Oct.
Do (Flowered) per cubic ft. R11·10 } Sales of the 13th Oct.

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	56	46	35
Orange Pekoe do	49	40	32
Pekoe do	41	32	25
Pekoe Souchong do	38	28	23
Pekoe Fannings do	39	29	22
Broken mixed—dust, &c	28	23	19

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1901 AND 1902.

COUNTRIES	Black Tea 1902 lbs.	Black Tea 1901 lbs.	Green Tea. 1902 lbs.	Green Tea. 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1902 cwt	Coconut Oil. 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago. 1902 cwts	Plumbago. 1901 cwts.
To U K. ..	85898578	86101773	554570	156549	6910	..	6919	27726	305501	310192	140964	224293	190868	12908	7555338	21	8606288	110699	167430
„ Austria ..	36808	47151	..	..	1	...	1	...	...	5600	38640	12665	7249	6563	123800	...	8510	...	..
„ Belgium ..	54325	14516	...	..	143	..	143	497	50	99800	171785	3408	3752	20914	281370	82723	19032	12939	16434
„ France ..	180819	223603	...	..	4	...	4	800	448	48000	33680	238	602	90706	28000	....	56020	1414	395
„ Germany ..	496699	448194	...	..	26	..	26	3062	92848	723939	483073	12146	9534	139752	1689415	104457	981095	54631	41003
„ Holland ...	4514	18494	...	..	...	..	..	..	..	47000	197400	..	3716	476	273370	..	5000	1155	202
„ Italy ..	16434	11218		..	...	..	..	32	435	198958	172200	2424	7004	...	...	10	11285	7	100
„ Russia ..	10376411	7760512	106435	..	8	...	8	100	448	130	..	181	134	33136	..	..	...	1673	3713
„ Spain ..	3281	...	..	..	...	..	..	31	..	257402	91553	..	..	...	23750	..	...	..	...
„ Sweden ..	67438	40143	...	..	..	..	..	400	...	..	..	1129	199	...	54930	..	15120	433	204
„ Turkey ..	30608	35102	..		...	...	..	..	..	112	...	...	...	..	...	...	..	..	...
India ...	735966	1010048	25731	16124	84	...	84	7	86018	..	2296	59930	112285	5	1950	...	149500	1856	503
„ Australia ..	16141308	18108275	..	1714	1938	14	1952	514	...	4174	30888	5	168	...	674360	221	1944	267	431
„ America ...	3968002	2121333	1110085	488544	820	...	820	7	7039	318500	6275	78969	14030	...	1758525	...	99100	205614	132035
„ Africa ..	405472	289511	1200	..	15	..	15	..	2726	..	..	218	76	..	55960	1	991881	..	...
„ China ...	3383380	2533260	...	4853	42	..	42	100	7245	10200	112	545	1114	..	1918	..	-	797	..
„ Singapore ...	161947	115302	...	...	1	...	1	5250	2240	...	..	474	3106	...	..	...	...	...	...
„ Mauritius .	51819	44126	..	...	280	...	230	..	..	..	..	...	..	...	..	..	..	..	..
„ Malta ..	265480	268308	..	...	...	...	--	...	..	...	..	--	..	..	...	..	..	...	..
Total export from 1st Jan to 3rd Nov, 1902.	122816355	119250869	1798021	667784	10231	14	10295	39126	504993	2039007	1318869	390631	353737	301290	12513692	187433	11116063	391490	362453

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, October, 1902.)

☞ No Price Current having reached us in time for this issue, we omit the usual quotations and fill up the page with ordinary matter.

FIXATION OF NITROGEN BY ALGÆ.

When we expose pots of sand to which phosphates, potash, and magnesium salts have been added, to the usual soil of a garden, we soon find that they get covered with various green algæ; and if we chemically analyse the surface of the sand, we often find a considerable amount of nitrogen, rising sometimes to as much as 0·08 per cent.

Messrs. Schloesing, jun., and Laurent observed the fixation of nitrogen by algæ in experiments, in which they noticed the diminution in volume of this element in a confined atmosphere, even in the presence of Leguminous plants, if the sand were covered with green algæ. Later, M Kossowitsch has reported that this fixation of nitrogen from the atmosphere by the algæ only took place when these were associated with bacteria. M Bouilhac found by exact experiments that the algœ, Nostoc punctiforme, sown in a sterilised mineral solution without a supply of nitrogen, does not develop, but that it is otherwise when this algœ is associated with soil bacteria; this fact has been observed at Rothamsted. M Stoklasa often got vigorous blue Luins growing in sand, and yet bearing no nodules on their roots. M. Denoussy also observed the same fact, but only when the pots of sand had been invaded by algæ, and especially by certain species, which avoid full daylight, by retiring below the surface of the sand. It must, however, be recognised that though it is easy to observe the various algæ which cover the sand, and to note that that the sand has gained nitrogen, it is much more difficult to see the bacteria presumably associated with the algæ. To sum up the subject, it is perfectly established that Leguminous plants bear bacterial nodules on their roots, and fix free and uncombined nitrogen from the atmosphere. This is a point gained, and it explains the name of ameliorant plants, by which they have long been designated. The question may be asked: Are these the only plants which have this power? Do the Algæ equally possess it? Can the lower plants get possession of atmospheric nitrogen only as far as they are associated with bacteria organisms? These points further investigations have to prove.

The above facts have been summarised from Prof. Deherain's second edition of his "Traite de Chimie Agricole, 1902. J J Willis, Harpenden. —*Gardeners' Chronicle.*

GUTTA-PERCHA AND RUBBER IN GERMAN NEW GUINEA.

The gutta-percha from gutta percha trees which Mr R Schlechter discovered on his expedition to the South Sea in the Finistere and Bismarck mountains of German New Guinea, as medtioned in our issue August 4th, has now been put to a test. All have come to the conclusion that it is a good medium gutta suitable for cable purposes, and similar to the Kelantan or hard white gutta-percha. Its loss through washing amounts only to fourteen per cent. It contains fifty-six to seventy-four per cent gutta-percha, and thirty-four to thirty-seven per cent resin, and has been estimated at about 6s, and even 8s to 10s per kilo. The rubber samples from the same district have been tested and the sample of Ficus elastica has been found equal to a superior African of 5s 3d to 5s 9d per kilo in value. The rubber from Castilloa elastica proved to be similar in quality to good Peruvian balls, and had a value about 6s per kilo. The Hevea brasiliensis rubber showed a very good quality, similar to the Para rubber which now comes from Ceylon. This Para rubber on account of its dryness and light colour, is much in demand and fetches ten per cent more than actual Para rubber.—"Tropenpflanzer."—*India-Rubber Trades' Journal*, Sept. 1.

RUBBER YIELD OF GERMAN AFRICA.

The official reports on the German Colonies in Africa devote special attention to the development of their India-rubber resources, though the results in this direction have not yet proved so successful as was at one time anticipated. For one reason, as a recent report on Kamerun expresses it: "In consequence of the falling off of the supply of rubber and ivory in those parts of the country from which they have hitherto been obtained, it is only by the opening up of fresh districts that the trade can be kept up to its present standard." Still rubber and ivory continue to furnish the larger part of the exports from Kamerun, Togo, and German East Africa, and now and then, for a while, an increased yield is obtained. Meanwhile the Government is seeking to encourage the forming of rubber plantations, as well as to discourage the destruction of native rubber plants. According to a British report on recent trade in these German colonies, the value of the rubber exports were as follows:

Kamerum—£94,893 in 1899-1900; £102,926 in 1900-1901—the increase being due to higher prices realized.

Togo—£18,304 in 1899-1900; £26,068 in 1900-1901—more rubber having been gathered.

East Africa—£66,859 in 1899; £52,933 in 1900—exports having declined in volume.

From these figures it would appear that the average production of India-rubber in German Africa during the five years covered by the latest available statistics has been 1,757,414 pounds.

The imports of crude rubber into Germany from her African colonies, during five years past, have been:

		Togo and Kamerun.	East Africa.	Total.
1897	... *pounds*	744,700	167,200	911,900
1898	... ..	698,280	70,180	768,460
1899	... ..	1,111,800	140,800	1,252 600
1900	... ...	902,000	100,980	1,002,980
1901	... ...	847,800	120,340	968,140

The yearly average deduced from this table is 980,816 pounds, indicating that the mother country fails to profit from the handling of an important share of the rubber produced in her colonies.—During the same five years Great Britain imported rubber direct from Togo and Kamerun as follows:

	1897.	1898.	1899.	1900.	1901.
Pounds ..	152,208	177,632	156,688	146.944	147,728

In addition to the various native rubber species in German Africa, several imported species promise good results, and the experiments made in planting, under expert scientific supervision, seem likely to be of benefit to the cause of rubber culture generally.—*India Rubber World*, Sept. 1.

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for November :—

Vol. XIV.] NOVEMBER, 1902. [No. 5.

SCHOOL GARDENS.

EVERY new movement experiences a period during which it is the subject of suspicion, and even of contempt. "Qui bono"? is the question that is uppermost in the mind of those who are not directly interested in it, and to give them a satisfactory reply is well-nigh impossible.

One of the greatest drawbacks in the connection with the establishing of School Gardens is the want of sympathy that is exhibited by those whose co-operation is as much to be desired as it was counted upon. But in place of sympathy and help there is often a supercilious curiosity, indicated by such a question as "What are you doing"? as though the answer could be given in a word!

Now for the benefit of those who honestly would be informed, we shall endeavour to clearly state the case for the School Garden scheme, enumerating its objects under different heads. (1). We will take what some may smilingly term the æsthetic side of School gardening. We will accept the description, and add that one of the objects of the scheme is certainly to make the surroundings of school children congenial and pleasant to them. The bare hard walls and dreary surroundings of a school are far from inviting to a child. There is nothing to attract, nothing to brighten up the place, nothing to relieve the eye of the little scholar—in fact nothing suggestive to look upon, but everything impenetrable and irresponsive, and acting as a counterfoil to the lively intelligence and curiosity of the child-mind. Now, is it fair to the child that such should be the case, that, so far from providing "natural" food for the hungry mind to feed upon, we should endeavour to dull the edge of curiosity, which, so to speak, is the spur that impels him to the acquisition of knowledge? On the other hand it is our duty to provide all that is cheering and suggestive and calculated to preserve and cultivate the natural bouyancy of heart. In many cases we find children drawn (oftener driven) from their bright and healthy surroundings to be immured within the dismal walls of a school-room, their elastic minds compressed and forced to dwell for hours together on the dull routine of class work and their own educational sevitude. It is here that the new scheme comes in, to lighten the burden of the scholar by keeping him from dwelling on the *drudgery* and making him think only of the *pleasure* of work. For it cannot be denied that it is environment and association that to a great extent control mental exercise and establish mental conditions; and it should be the object of all those who have the oversight of children to furnish their receptive minds with such associations of ideas as will in after life make them cheerful and hopeful individuals, ready to look on the bright side of the picture, and not drepressed and depressing, always taking a gloomy view of life.

Those who have seen school children in a garden will understand the degree of pleasure they derive from it. When the town child find himself among foliage and flowers he is not less delighted than a caged bird that has been released. Beauty, colour, variety, sweet odours, all these attributes are elements of pleasure to him, while arrangement, form, symmetry, order, neatness, all these qualities are bound to react on the mind, and, bearing fruit, establish such ideals and resolutions as we all hope for in our children.

(*To be continued.*)

OCCASIONAL NOTES.

To those who have been enquiring for the price of chillies in the London market we would state that the London *Grocer* quotes Zanzibar chillies at from 34 to 37 shillings per cwt. "Capsicums" range from 16 to 80 shillings per cwt.; "long peppers" 55 to 58 shillings per cwt.

The rainfall for October as recorded by us will give some idea of the nature of the weather last month. Our own measurements reached a total of 38·27 inches against 31·47 in the Fort the two places being within a distance of 3 miles from each other. Rain fell on all but two of the 31 days, and the heaviest fall was measured on 1st November, viz., 5·43 in. This is certainly very unusual, and some people are speculating whether there is any connection between the heavy rains and the comet of Perrine!

Cannabis sativa (Indian Hemp), is according to a co-respondent pretty commonly found growrng around dwelling houses in the Balangoda district, but only in small enough numbers not to attract attention, as the general impression is that the cultivation of the shrub is prohibited. The plant is allowed to wither *in situ,* and is then further dried and sold to the Moorman "Cadger."

On this subject the *Ceylon Observer* says:—We do not think there is any Ordinance at present in the local list prohibiting the cultivation of Indian hemp, any more than of the poppy; because in deference to the Buddhist prohibition of such drugs, nothing has ever been done in Ceylon worth notice in this direction. But it will certainly become necessary now, in view of what our correspondent states, to pass such a law guarding the cultivation. Very possibly under the Opium or Bhang Ordinance any one turning the hemp or poppy into drugs for personal use or sale, can be punished.

NEW FODDERS.

Sorghum halapense, now known as *Andropogon halapensis,* and from which the widely-cultivated cereal *A. Sorghum* (Karal-iringu, S.) is supposed to be descended, has been more than once put forward as a good fodder. The grass is sometimes referred to as "Johnson grass," and it is curious to find people anxious to grow plants with a strange name, when they would never think of taking up some of the indigenous forms of vegetation and endeavouring to improve them. Such people were naturally disappointed to find that the far-famed Cow-pea was almost identical with the native beans known in Sinhalese as "Li-me" and "Nil-me"; and that the Florida velvet bean was of the same genus and species as the Tamil "Achariyapala."

Johnson grass, as we have indicated above, is a grass "not uncommon" as Thwaites puts it, in the Central Province of Ceylon, and probably seen every day by the inhabitants who, however, do not connect it with the *Sorghum halapense* of Botanists or the Johnson grass of America.

A correspondent writing to the *Agricultural Journal* of the Cape, refers to information received by him as to "Johnson grass" making excellent grazing, and states that the seed can be sown on the dry ground and within a short time will grow most luxuriantly.

Mr. P. MacOwan, the Government Botanist at the Cape, writes:—"*Sorghum halapense,* the grass to which the Americans have given the absurd name of 'Johnson grass,' is one of the fodders or supposed fodders, like 'Teosinte' and 'Wagner's pea introduced by speculative seedsmen, and praised far beyond their worth, just to make sales and rake in the money." He then quotes the experience of a N. S. W. farmer to this affect: "It is of no use as a fodder in this district. It is of no value and is a great trouble to get rid of after we once get it to grow, and all who have sowed it wish they have never seen the thing. No one who ever saw the Johnson grass growing would have anything to do with it. It grows very coarse and tall, and very hard. No cattle will eat it while there are any other kinds of grass." It is said to grow wild along the banks of the Orange River and other parts, much as the common reed does, but is not sought after by cattle

Mr. MacOwan recommends *Pentzia virgata* as a wholesome and fattening fodder for the Karoo, where conditions do not admit of a regular grass crop, though, as he states, the food value of the veldt depends upon dwarf bushes whch grow socially and with alternate use and rest prove a stand-by in all seasons.

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF OCTOBER, 1902.

1	Wednesday ..	·03	17	Friday ...	·14
2	Thursday ...	·05	18	Saturday ..	·04
3	Friday ...	·85	19	Sunday ...	1·90
4	Saturday ..	5·08	20	Monday ...	Nil
5	Sunday ..	2·78	21	Tuesday ...	Nil
6	Monday ...	·80	22	Wednesday	1·45
7	Tuesday ...	·63	23	Thursday ...	·36
8	Wednesday ...	4·55	24	Friday ...	·60
9	Thursday ...	·95	25	Saturday ..	·75
10	Friday ...	2·15	26	Sunday ..	·26
11	Saturday ..	2·18	27	Monday ...	·04
12	Sunday ...	·40	28	Tuesday ...	·64
13	Monday ..	2·07	29	Wednesday ..	·02
14	Tuesday ..	·02	30	Thursday ...	1·24
15	Wednesday ...	.95	31	Friday ..	1·32
16	Thursday ..	·62	1	Saturday ...	5·43

Total...38·27
Mean...1·23

Greatest amount of rainfall registered in 24 hours, on the 1st November 1902, 5·43 inches.

Recorded by ALEX. PERERA.

COTTON CULTIVATION.

[Just now when Cotton is being spoken of as one of the likely crops for the large tracts of waste land in the North-Central Province that will be made accessible by the Northern Railway. the following account of Cotton Cultivation, based on experience in Queensland, should prove of considerable interest to many. The author is Mr. Daniel Jones of the Queensland Department of Agriculture, and we take over the paper from the *Agricultural Journal* of that colony.—Ed. *A.M.*]

One important factor proved by our local experience and emphasised by scientific investigation in other countries where this crop is largely grown is, that this crop is about the least exhaustive to the soil of any we are acquainted with. Local experience has shown that the richest soils should not be chosen for this crop. Many errors were in this way committed in past years. The less fertile areas would have been far more suited to the cotton plant. Undoubtedly, at times, cotton will need fertilising. This, however, need not concern the planter at the outset of his operations, unless he farms very poor soil, which in Queensland is not very probable.

It will be well for the planter to keep this fact in mind, and not concern himself at first so much about the fertility of the soil as thorough cultivation of that which he crops.

In our past experience we always found that the rich land forced the plant so much to wood that not only was the yield meagre, but the quantity of resulting foliage and wood much retarded picking. This especially was the case in wet seasons, but, on the other hand, in seasons of sparse rainfall, the trouble was not so acute. An illustration of this is seen in this season's experiment at the Acclimatisation Society's plot at Bowen Park, where the dry conditions have so retarded the growth that little difference is noted between plants of very robust growth, such as Sea Island and Egyptian, as compared with the more modest growth of the Upland variety, which, despite the unparalleled dry season, has returned a very fair crop of cotton.

Cotton has always been regarded in Queensland as a dry-season crop. Its vitality under drought conditions is well recognised. The climatic influence most adversely affecting this crop is excessive wet, and to this cause the major part of our losses in the sixties and seventies, when cotton was largely grown, is to be attributed. The cycle seems to have now alternated to the other extreme for some years past; hence the risk from this cause need not, in the southern part of the colony, be so much feared.

The Varieties to Plant

Will much depend on climatic conditions, and as far as many parts of the State are concerned must be, for some time, experimental. In the south, experience thus far has demonstrated that the Upland variety is the best suited to our region.

In the North, probably the longer-stapled varieties, such as Sea Island and Egyptain, will be grown. These three species, differing as they do in texture and length of fibre and value, appear to have become so blended and intercrossed as to almost conceal the original distinctive features of each species. Broadly speaking, we distinguish Sea Island by the clean black seed and extra long fibre; the Egyptian by its shorter fibre and brown or sometimes pale-green seed with the lint adhering somewhat. The Upland variety is the shortest staple with a grey seed, but is sometimes black in such varieties as the Okra, the fibre adhering closely to it.

An American authority expresses the opinion that the Upland cotton is a hybrid produced by blending the properties of several species under the cultivation of a long series of years. All who know American practice are well aware of the importance cotton-growers attach to such experiments, and we in Queensland can note the advance in quality of cotton grown to-day by comparison of that produced here thirty years ago. The species mentioned as growing in the cotton belt of the United States are given as *Gossypium herbaceum*, L.; *G. roseum*, Tod.; *G. nankin*, Mey.; *G. mexicanum*, Tod.; *G. maritimum*, Tod.; *G. hirsatum*, Mil.; *G. barbadense*, Lin.; *G. herbaceum*, the short-stapled variety, is the plant most favoured for cultivation, by reason of its more prolific yield and adaptation to regions where the Sea Island and Egyptain varieties from climatic causes do not prove profitable. So hardy is this plant that its cultivation is of the simplest; more especially is this observed in the Central and North Queensland coastal districts, where it grows uncared for once the seed is sown. The difference in growth of the shrub easily distinguishes the Upland from the other two varieties, the former being much more dwarfed than the others. Sea Island and Egyptain bushes often attain the height of 10 or 12 feet, and make spreading bushes. The Upland confines itself to a modest 4 or 5 feet bush, at the same time developing a denser foliage than the other sorts. This dwarf habit lends itself as more favourable both in regard to tillage operations as well as to the removal of the crop.

In the Central and Northern coastal districts, the Egyptian and Sea Island sorts, in conjunction with the Upland varieties, might well be tried. The specimens which I have seen growing in our Northern districts give no room to doubt but that the long-stapled sorts will do well as far as growth is concerned. The excessive rainfall in these areas will somewhat militate against achieving the best success; and the question resolves itself into the experiment of ascertaining if, by planting the crop at favourable periods, the ripening stage may be carried beyond the rainy season. In the event of this being practicable, there should be no apprehension as to successful cotton cultivation in our Northern regions. Thus far our practical knowledge of districts suitable for this crop is as yet but very meagre. Save for a few isolated

patches on the Darling Downs, a few experimental plots North and West, from which I have at various times received fair samples of cotton, Queensland, with the exception of the East and West Moreton districts, represents untried localities. There is every reason to believe that in the interior and drier parts this shurb will thrive, more especially as its drought-resisting qualities surpass most crops in ordinary cultivation. In deciding on varieties to plant, the planter must be guided somewhat by climatic influences. Long-stapled varieties do better in the Northern and more humid parts, and the short-stapled varieties do better in Southern and Western areas,

PREPARATION OF THE SOIL.

The cotton shrub being a plant depending a great deal on its tap root, which observers will note is the first prominent indication of vitality in the newly bursting seed, moderately deep tillage becomes necessary in order to get the best results. Of course, if grown in a deep, friable soil, so vigorous is the root extension of the shrub that in the short space of a few weeks the tap root penetrates to a depth much beyond the depth usually ploughed. This is undoubtedly one reason why the shrub is able so well to sustain the drought conditions often prevailing. This deep tillage is an advantage; nevertheless, this aspect in past practice did not receive more attention with our local cotton-growers than was usually given to mazie or other crops.

The best that was done was to plough about 5 to 6 inches deep, harrow thoroughly and drill, sow the seed, keep the crop clean; and, under even this superficial system of cultivation, the crop throve and yielded well. It is not to be expected that the intending planter can gain complete success by a system of indifferent tillage. So much depends on this feature with respect to yield, quality of fibre, condition of the lint as regards absence or presence of dirt in the form of weed seeds, vegetable matter, soil, &c., that the margin of profit is often materially affected thereby. Thorough tillage means financial advantage, and this must be borne in mind by the intending cotton-grower.

The main essentials, then, in preparing the soil are moderately deep ploughing—cross ploughing also, if necessary; thorough harrowing, to have proper pulverisation and a good seed bed free from lumps, so that the young plant shall be in no danger of the harrow or scuffler rolling on its little crown a mass of soil to its detriment.

These few hints are to the practical farmer scarcely necessary, but perhaps may be of some use as brief reminders to those who are new to the pursuit, and who will need to give attention to them.

SELECTION OF SEEDS.

The question of selection of seed is, for the present, one that until opportunities arise must to some extent remain in abeyance. Excepting a amall supply, in the hands of the Acclimatisation Society, of the Upland, Sea Island, and Egyptian varieties, true to name and all of the best sorts, there is no seed in the State available for distribution, save some Upland variety of mixed but good sorts at the Ipswich Cotton Factory, which has been kindly placed at the disposal of this Department for distribution. Some of this seed, I may say, I have grown this season, and although it is now some five or six years old, about 50 per cent. appears, by experiments carried on by myself and the Actlimatisation Society, to be fertile seed. Thus, in order to supply the numerous demands made upon this Department, it is proposed in the absence of fresher seed to make distribution of what is available, notifying recipients of the need of allowing for about 50 per cent. of the seed as likely to be unfertile. This simply means sowing double the quantity than would otherwise be needed. Of course those fortunate enough to obtain seed from the Acclimatisation Society, who can only distribute in small quantities, will find that all their seed is fertile, and can sow sparingly.

In general practice, selection of seed is the result of observing and marking off the most prolific and largest podding plants in the field. In selecting, attention should be given to length of staple, texture of lint, strength of fibre, habit of growth, and other features that commend themselves to the planter. Selection in this manner gives the planter good seed for the succeeding sowing, and tends to the evolution of a better cotton plant having the prime points of advantage I have mentioned.

It is recognised that a difficulty often exists in tracing the origin of most of our varieties of cotton. The plant hybridises readily without human aid, and probably the interchange of seed from remote countries so varies the character of the shrub and its staple, causing the recognition of the original very hard to decipher. Most probably we are indebted to the good offices of our insect friends, by reason of their wonderful service as hybridisers in consonance with natura law, for the origin of many of our best varieties of cotton. The cotton-planter will do well to keep this point in view, and make selection of seed from such plants as appear to him to have had the benefit of cross-fertilisation and exhibit good qualities.

The kinds of cotton introduced some years since by the State Department of Agriculture, and which in mixed varieties will be distributed this season, are all of them good species of Upland cotton. Our experience of these fibres in manufacture in the Ipswich mill, and our knowledge of their suitability for plantation purposes in South Queensland, is such that we can recommend them as being varieties worthy of cultivation.

One imoprtant point in the selection of seed should not be overlooked—and that is the question of proportion of seed to lint after undergoing the ginning process. When the variety is characterised by large heavy seed and the lint adheres in unduly large quantity, it is wise to discard the same for a variety that does not carry these demerits. Cotton from which the lint can be cleanly removed, and of which the seed small, will be the most profitable for

farmer and merchant. A good variety of Upland, having the merit of small seed and easy and cleanly separation from the lint, will usually yield 300 lb. clean fibre to the 1,000 lb. of unginned cotton. When the ratio of lint to seed goes below that stated, it is time for the planter to seek better varieties. Good varieties grown in West Moreton of the Upland sorts during the period of the cotton company's activity, and which can be recommended, were—Okra, Southern Hope, Jeff Welborn's Pet, Peerless, Jones' Improved, Elsworts' Truitt's Improved, Champion Cluster, Hawkins' Improved.

Sowing the Seed.

Presuming the farmer has his soil in good tilth for his planting operations, his next duty is, in the absence of a properly constructed cotton drill and planter—an implement, unfortunately, as yet not obtainable in Queensland—to sow the seed by hand. He will use a light plough to strike out his drills either by means of guiding poles or with the more expeditious land marker, and care must be taken to have the drills uniform in depth and width, as each operation materially facilitates the subsequent cultivation of the crop. The usual plan adopted is to draw drills about 4 feet apart, 3 inches deep, dropping the seed by hand at such distances as to finally leave a stand of plants 2 feet or 3 feet apart in the drills. When seed is plentiful, it is prudent to sow thickly, and later on thin out the plants to the spaces mentioned. In poor soils, the lesser distance may be settled on, and in richer soils the wider space may be adopted or exceeded as experience of the fertility of the soil may suggest.

Frequently crickets and beetles make havoc among the young plants, destroying numbers while in the succulent tender stage of growth. It is, therefore, not prudent to finally thin out the plants to their standard distances until all danger from this quarter is past.

The seed is sown sometimes after soaking in water for twenty-four hours or so, and this is one advantage when the seed is old or when planting is intended in the absence of sufficient soil moisture, as sometimes happens in planting large areas when the land is quickly drying up. Generally, the seed is sown in the dry state and covered in, awaiting the rainfall. This is, of course, attended with some risk, as in the event of a partial rainfall sufficient moisture may be unavailable to bring the plant above soil, and the germinating seed may perish. This is a contingency that must be faced in all cultural pursuits, and is not common alone to this crop. It certainly is more trouble to sow in wet soil, but, on the other hand, when the areas are small and supply of seed a consideration, this system will probably be the safest. The seed can be covered in the drills either by harrowing, or, perferably, by removing the front and hind tines of the scuffler, and working the soil into the drill by running this implement up the furrows. This gives good cover, and proves better tillage, and at the same time checks the germination of grass and weeds much better than the harrow does. It must not be forgotten that young cotton plants cannot stand the struggle for existence with weeds, and it is better to safeguard the plant in this way than have it succumb by reason of the struggle with pests and grasses. The number of plants per acre, calculating on distances of 4 feet by 3 feet, is 3,630; on the basis of 4 feet by 2 feet 6 inches, the number is 4,356.

Theoretically, 1 lb. of seed should be about sufficient for oneacre. About 300 seeds weigh 1 oz. I merely wish to mention this fact in view of the scarcity of seed now available, and to indicate a method of sowing without waste. As in all probability the demand for seed this season will exceed the supply, intending planters are advised that by steeping the seed for twenty-four hours or so, and sowing by hand in wet soil, making allowance of about half for unfertile seed (if from the Ipswich stock, if from other sources this contingency need not be taken into account), a way is demonstrated of meeting the exigencies of the case. Sowing should be completed during October in the southern part of the State—early in the month is preferable, because the plants thus have a longer growing period, and thus the crop is increased. Cotton is a child of the sun; thus as soon as warmth appears in soil and atmosphere the crop will assert itself.

In our own practice our standard distances were frequently settled for some soils as close as 18 inches to 2 feet apart. This, of course, involves the use of much more seed, and is a question for the planter to determine for himself. American growers, I may state, endorse the system of planting at much the same distances as here indicated. Cotton sown under general conditions as regards moisture and warmth will appear above ground in from three to five days after sowing. Care must be observed that the seed is not buried too deep, 2 to 3 inches being the limit of depth at which it is tadvisable to sow.

BY HIGHWAYS AND HEDGES.

Some time ago we referred to the provision made for a "wet day" by the villagers in the Salpiti Korale, who preserve the pulp (as well as the seeds) of the jak by boiling and sun-drying. In the Anuradhapura district we found the people collecting the small variety of mushroom, which at certain seasons springs up in hordes in tank beds, and preserving them in the same way for future use.

There is a great deal written now-a-days about cattle fodders, especially for dry districts, where it is recommended that the leaves of suitable trees (whose deep roots render them safe against drought) should be depended upon rather than the herbage of shallow-rooted grasses. In this connection such plants as Erabodu (*Erythina indica*) and dhall (*Cajanus indicus*, Ratathora S.), and even the jak should not be lost sight of. In the Balangoda district it is a common sight to see cattle making a good meal of lantana flowers, while *Mimosa pudica* constitutes an alternative diet. In the N.C.P. "tora" (cassia) takes the place of the latter (which is an un-

common weed), and "tora" seedlings are to be found springing up naturally from seed-beds of cattle dung, strikingly showing how seeds are disseminated after passing through the alimentary canal of animals.

Speaking of fodder plants we might mention that the Algaroba bean described in the *Agriculture Magazine* for June, 1901, is now fully established in the Colombo Stock Garden, and as it is easily propagated by cuttings there should be no difficulty in multiplying a tree specially recommended for drought-stricken districts.

The excessive dryness of the North-Central Province is said to render the destruction of trees by burning very easy. By lighting a fire round the foot the trees are slowly incinerated, even it is stated during showery weather, when the wood is consumed underneath the bark.

Another condition due no doubt to excessive dryness, is the hollowness of the trunks of trees of any age. The hollow stems of large tamarind trees—and they are much larger than in other parts—which mark the sites of old villages form a convenient harbour for snakes.

Many of the wild forms of vegetation in the Anuradhapura district have bright showy blossoms. Chief among these are *Memecylon umbellatum* which bears what Trimen calls "brilliant bosses of (blue) flowers along the entire length of the branches," *Cassia margniata*, and species of *Bauhinia*.

The hop and honeysuckle are generally cited as examples of plants that twine from right to left. Indigenous species which have the same property are *Limacia cuspida* and *Dioscorea pentaphylla*.

In the "Buried Cities of Ceylon" mention is made of the viscid juice obtained from a tree, used with lime and coconut water for producing a polished surface on masonry work. The name of this tree is given as "para" (*Dillena dentata*). The popular name is apt to be confused with the rubber tree known as such, while the word *Dillena* is evidently a misprint for *Dillenia*. According to revised nomenclature the botanical name of the tree should be *Wormia triquetra*, while the native name correctly written is "Diya-para."

We all know the green rose, which might be looked upon as an abortion of a flower; but the latest novelty is the blue-rose which has been sent to Kew Gardens from the United States. The plant is said to have reached with blooms in excellent condition, and it is thought will claim rank with the choicest new orchid.

NATURE STUDY LESSONS.

SECOND COURSE IN THE STUDY OF PLANT LIFE.

2. THE ROOT.

The roots of plants are generally spoken of as the organs of nutrition, because it is by means of the roots that plants take up the food they obtain from the soil.

We must first distinguish the actual feeding roots from others. In a large tree, the bigger roots have lost the power of absorbing water (with plant food in solution) from the soil. They indeed *collect* nothing, and their chief duty is to fix the tree firmly to the ground, and to *convey* liquid matter through their woody tissue which is similar to that of the stem, about which we have already learnt something.

The roots which actually take part in the absorption of plant food from the soil are the *most delicate* roots, and absorption is confined to that part of each feeding root which is situated behind the extreme end. This absorptive region is covered with fine root-hairs—generally very closely packed together and so greatly increasing the absorbing surface.

In time this delicate part becomes discoloured and hardened, the root-hairs drop off, and the power of absorption is lost. But before that the rootlet has pushed into the soil and fresh hairs have formed on the new-formed length behind the root tip. And this process goes on on all healthy roots which, so to speak, travel in search of food.

To prove to yourself what you have been told, you should carefully—*very carefully*—raise a small plant or seedling of any kind with all the adhering earth, and gently place it in a basin of water till all the particles of earth attached to the roots are detached. If no injury to the delicate parts of the roots has taken place, you will be able to observe the root-hairs I have spoken of, and their situation on the roots.

You will now have some idea of the apparatus for absorbing plant food from the soil and how delicate it is; and you will no doubt begin to think a little of how we could best protect these delicate structures upon which the health and vigour of the plant so much depends, as well as how we could help them in their work of providing nutriment for the plant. But about these matters I shall have to tell you something when we come to speak of the soil.

The actual tip of the root that penetrates the earth will be found to be protected by a "root-cap" (which is constantly being renewed from within); so that each delicate root has, so to speak, a boring instrument at its end to burrow out a passage for it through the soil. You should try and make out these 'caps' at the end of roots. A magnifying glass will help you to do this. If you have the screw-pine (Wetakeyiya) growing anywhere near, examine the ends of the roots—even those above ground—and you will probably be able to see the root-caps on them.

But what is the nature of a root-hair? It is a hollow structure—a tube, so to speak, of the smallest capacity—and communicates with one of the cells of the root wall and so with the whole plant itself.

Now, I think, you have a fair idea of the way in which the roots perform their functions as nutritive organs. They do so, as it were, by innumerable minute mouths which drink in liquid food and pass it on from cell to cell, and so the fluid is transmitted upwards through the longer and larger roots on to the stem itself to be borne through its branches to the leaves.

But how, you will ask, does the plant get all its food in a liquid form—for I believe you know already that it is only liquid matter or solutions that can enter the cells, and hence that the various elements of plant food must be first dissolved before they can be available to the plants. Well, for the present it is sufficient for you to know that this dissolving out of plant food from the mass of soil is effected by water aided by certain agents in the soil as well as in the root hairs themselves. These solutions of plant food constitute the crude-sap to which we have already referred.

The larger roots may therefore be looked upon as merely continuations of the stem; these divide and subdivide into finer branches till we finally find them as delicate rootlets carrying the threadlike tubes we spoke of as root-hairs—the true absorbing media of plant food. Roots are produced under various conditions:—

1. *By the Germination of Seeds.*—Dig up germinating seeds of beans and Indian corn (or paddy) and observe the production of the roots. Notice that in the bean a main or tap-root will be first produced, while in the Indian corn or paddy several fine roots are produced.

You could also study the production and development of roots by germinating seeds of Indian corn or paddy—(previously soaked for a few hours) in a small box with a few sheets of damp blotting paper. Keep the paper damp and cover the box with a sheet of glass for a few days and watch results.

2. *From Cuttings.*—Place a cutting of croton in a bottle of water and observe the development of the roots. Wrap the bottle round with paper to exclude light and air in the production of roots.

3. *From Leaves.*—Take a leaf of Bryophyllum (Akapana), tie a thread to the leaf stalk and suspend the leaf, against a wall, to a nail or pin. Keep the leaf damp by sprinkling water on to it and watch for the production of roots from the margin of the leaf.

4. *From Tubers.*—Divisions of potatoes and yams containing buds develop roots.

5. *From Branches.*—If a narrow ring of bark be removed from a rose branch, and the branch be fastened down to the ground at the point where the bark is cut, then covered with earth and kept damp, roots will spring out and enter the soil.

Or if a ring of bark be removed from a shoeflower branch, and two halves of a bamboo pot be secured firmly round the part, and the pot filled with coir dust at the bottom and good soil above, roots will strike into the pot if kept damp. After a branch has been thus in the pot for some time a small notch should be cut below the pot, and the notch deepened gradually at intervals of 3 or 4 days till the branch, by now rooted, is severed and ready to form a new tree.

The production of roots on growing stems above ground you see in the Banyan (Ma-nuga), on the Vanilla (where the roots attach themselves to the bark of trees), in the pumpkin (which sends out roots from its trailing stem), in the loranthus (pilila) which fixes its roots on other trees and lives upon them, and so on. These and other peculiarities of roots you should make a point of observing in your walks through the country.

As in the case of stems, roots also act as stores of nutriment for the future use of the plant, and you are familiar with these swollen roots in the manioc (manyokka), sweet potato (batala), and radish (rabu), all of which are used as food for man.

Certain roots yield dye stuffs such as chaya root (sayamul), others are used medicinally, as, for instance, the root of the horse radish tree (murunga). The roots of cus-cus grass (sevandara) contain a fragrant otto, and sugar is prepared from the juice of the beet root.

RINDERPEST.

(*Concluded.*)

How to Extract the Bile.

"The animal should be laid on its left side, and the skin and flesh on the right side immediately behind the last rib cut through; the ribs are then raised, and the gall-bladder becomes visible. The gall-bladder is then punctured with a small knife or trocar, and the gall allowed to escape into a wide-mouthed bottle, previously sterilised. If properly stoppered wide-mouthed bottles are not available, then ordinary white quart bottles may be used, with a glass or enamelled funnel, which can be procured from most country stores. Every precaution must be taken that the operation is performed in a thoroughly clean manner, the hands of the operators, and also all instruments and utensils, being thoroughly cleansed and sterilised before use. The surface of the gall-bladder should also be wiped over with an antiseptic solution before being punctured.

Directions for the Selection of Biles, &c.

(*a*) Biles of all shades of colour, except those that are red from the presence of blood and thin, watery biles of a pale yellow colour, may be accepted so long as they are clear and free from sediment, and where practicable several different galls should be mixed together; this modifies and equalises the strength and safety of the gall. The selected galls should be kept separately for at least 12 hours; if any gall smells or changes

colour after keeping, it must be rejected. The good galls are then mixed together before being sent out.

(*b*) Gall is considered most effective and gives the best results when obtained from a sick beast on the 10th day after artificial inoculation, or on the 4th or 5th day after the visible symptoms have become apparent in natural infection. Earlier or later galls should be avoided, and gall taken from an animal which has died, unless the duration of the disease is known, is not to be recommended unless carefully examined.

(*c*) The gall should be used on the second day after being drawn if practicable, but if kept cool either by placing the bottles in iced chests, or wrapping them in wet cloths, and placing them in a cool draught, may be kept fresh and safe up to the third or even fourth day.

(*d*) Both before and after the gall is placed in the bottles, they should be disinfected, and also the cloths that are wrapped rouud them, before being sent to the inoculator.

(*e*) The inoculator should not extract the gall from the affected animal himself, nor come near to the infected cattle; but if it is necessary for him to do so, he should change his clothes and boots, and disinfect his hands well before commencing to inoculate, also see that everyone handling the cattle has been thoroughly disinfected.

(*f*) As it is never certain when inoculating within an infected area, that the herd is completely free from infection, the needle of the syringe should be cleaned, and disinfected in a five per cent. solution of carbolic acid or alcohol after each inoculation, and the skin of the animal at the seat of inoculation should be cleaned and disinfected both before and after the operation with Jeyes' Fluid or other similar disinfecting solution.

(*g*) The small cup or vessel containing the gall, from which the syringe is repeatedly filled, should be kept covered with a small piece of linen or calico, wrung out in the disinfecting solution, and the operator's hands and syringe should be frequently disinfected.

(*h*) As infection may be in any herd unknown to the operator, he should disinfect his hands and clothes well after inoculating each herd, and for the same reason, it is not desirable to have the same boys to assist in catching different herds of cattle.

The objections to Pure Bile Inoculations are :—

(*a*) Biles vary so much in their immunising properties, and there is no practical method of examination on the veld which will indicate whether the bile being used is strong or weak in immunising properties; hence the operator is unable to regulate the dose which he should inject, or to calculate the duration of the immunity which the inoculation will confer.

(*b*) Inoculation with pure bile does not produce its effects at once, complete immunity is not established until about the tenth day; an inoculated animal may contract a severe form of Rinderpest up to the sixth day after bile inoculation, if exposed to infection.

Further, there can be little doubt that many pure biles intensify the disease, and hasten the fatal termination in already infected animals; it is, therefore, not so suitable for the inoculation of infected herds as glycerinated bile or serum.

(*c*) Bile inoculation—either pure or glycerinated—necessitates the destruction of a large proportion of the animals to be inoculated, not less than six per cent. when the necessary care is exercised in the selection of suitable bile. In this respect it compares very unfavourably with serum.

(*d*) Lastly, pure bile will not keep. Dr Turner say :—

"In the laboratory, using minute precautions to prevent the introdution of putrefactive organisms, and by placing the fluid in an ice chest, it is sometimes possible to preserve the bile, in a state in which it can be used without danger, for a period of ten days. But usually the bile is already infected with putrefactive organisms in the gall-bladder itself, so that any amount of care is futile"; aud Veterinary Surgeon Shepherd, when referring to the formation of abscesses after bile inoculation, says "that these are not necessarily due to carelessness—I have frequently found microscopically putrefactive and other bacteria in abundance in the very best looking Koch gall."

Method of Inoculating.

"After having secured the animal to be operated on, the necessary dose of bile is injected under the skin of the dewlap by means of a hypodermic syringe, and well rubbed in. Care should be taken that the point of the needle is not inserted into the flesh, but between the shin and the flesh only. The local result of inoculation with bile is a hard, somewhat painful swelling, about the size of a man's fist, which gradually disappears in the course of a week or two.

Glycerinated Bile.

"Edington's Method is made by adding one part of glycerine to two parts of bile. The mixture should be well stirred together, and allowed to stand for eight days. Experience has taught us, however, that if urgently required, the glycerinated bile may be safely used, even for intravenous injection, forty-eight hours after being mixed. The dose of the glycerinated bile is from 15 to 35 c.c. —according to the size of the animal—injected into the cellular tissue under the loose skin of the dewlap, and well rubbed in. When used in an infected herd, large doses should be given, as it possesses distinct curative action; and in all animals which have a high temperature, indicating that the fever is already established, large doses should be injected into the jugular vein direct. It was claimed for glycerinated bile that it did not communicate the disease, as fresh pure bile was liable to do, the glycerine having the effect of destroying the active organism of Rinderpest, as well as those of putrefaction, but that it exercised no modifying action on the immunising substances contained in the bile, and although the immunity which it conferred was a passive one, this was considered an advantage rather than otherwise, as it rendered the inoculated animals susceptible to a modified reaction when injected, ten days after, with a dose of 0·1 c.c. of virulent blood. A second dose of virulent blood, of double the strength, was injected from

ten to fourteen days after the first. Unfortunately the difference in the strength and immunising properties of the different biles made it practically impossible to fix any exact dates on which to apply the blood inoculations with safety, and yet to give a reaction that would strengthen the immunity. In many herds no visible reaction followed the first blood inoculation, and yet the second blood inoculation caused such a general and severe attack, that a large percentage died of the disease. In some instances even the first blood inoculation caused a heavy mortality, clearly showing that some samples of glycerinated bile gave but a very evanescent immunity. To overcome these drawbacks, a larger dose of glycerinated bile was used, and it was followed up with blood inoculations at shorter intervals, beginning with 2 minims, and gradually increasing the dose. Several herds were immunised by this method, but it entailed a considerable amount of additional trouble and expense. Glycerinated bile is now used mainly to give a passive immunity similar to serum, until the infection in the herd, or in the near neighbourhood, has died out. If necessary it may with advantage be followed by a dose of pure bile. It is now rarely followed up by virulent blood, principally on account of the danger that exists in this country of communicating other diseases besides Rinderpest. The chief advantage of glycerinated bile over serum is that it can be prepared immediately on the outbreak of the disease, at any centre where serum is unobtainable. It will keep effective for many months—in one instance it proved effective after three years—and it requires very little skill to prepare it.

The question of defibrinated salted blood and serum as inoculating media for the prevention and cure of Rinderpest are also dealt with at length, and the pamphlet concludes with the following:—

Considerations for Future Action.

Should Rinderpest become epizootic again in South Africa, and prevail in a virulent form over wide areas of the country, rendering the cattle liable to infection, and re-infection for many months, it would be necessary to give the herds an active immunity which would last until the danger were past, and such an immunity could only be conferred by an injection of one or other of the following immunising materials:—

(*a*) Inoculation with pure bile.

(*b*) Inoculation with glycerinated bile followed by pure bile, or repeated doses of virulent blood, or

(*c*) The simultaneous inoculation with strong standardised serum and virulent blood.

There are, however, very strong objections to the use of virulent blood, whether after glycerinated bile, or along with serum,—

(*a*) Because it conveys active Rinderpest to the cattle, every inoculated herd becoming a fresh centre of infection, and

(*b*) On account of the danger of introducing other infectious diseases besides Rinderpest, such as Redwater, Anthrax, Quarter-evil, and other diseases of a similar character which affect cattle in South Africa, not yet clearly differentiated, but which are known to be communicated by blood inoculation, and which cannot always be guarded against even by careful microscopic examination.

This is also the principal objection against the use of defibrinated salted blood.

We have, however, every hope and expectation now that the war has ceased, and with it the necessity for moving cattle about in all directions for transport, and protection, that the outbreaks of the disease will be more or less sporadic, and comparatively easily suppressed by strict quarantine, and the prompt inoculation with serum or bile, both pure and glycerinated. It is upon serum, however, that our principal reliance must be placed,—

(*a*) Because it can be produced in large quantities, and kept for long periods ready for use as required. The serum prepared by Drs. Turner and Kolle at Kimberley in 1898 retained its efficacy unimpaired for two and a half years, and some of it was used effectively after three years, but its strength was evidently becoming reduced at the latter date.

(*b*) Its strength can be ascertained before it is issued for use, hence the dose can be regulated.

(*c*) Its action is immediate, a clean animal is safe as soon as it is inoculated.

(*d*) It is also curative in its action in the early stages of the disease when used in large doses.

(*e*) It does not—as far as is known at present—communicate any other disease.

The methods of inoculation which I would recommend in future sporadic outbreaks of Rinderpest are briefly as follows:—

Infected Herds.

These should be inoculated at once with either serum, glycerinated bile, or defibrinated immune blood. Every animal which indicates infection by a rise of temperature should receive a large dose of not less than 100 c.c. of strong serum, 30 c.c. of glycerinated bile, or 300 to 400 c.c. of ordinary immune blood, obtained from a recovered animal which had not been fortified. All affected animals should receive the inoculation direct into the jugular vein, as it acts more promptly and effectively than when injected under the skin. Fresh pure bile should not be used in an infected herd, if any of the other inoculating materials can be obtained, as some biles tend to intensify the character of the disease in those already infected, and its immunising effect is too slowly developed to protect the healthy cattle in the herd against infection, if they are kept in contact with the sick. If no other means are available, however, the temperature of the whole of the cattle in the infected herd should be carefully taken by clinical thermometer, and those only which register a normal temperature should be inoculated with pure bile; the others should be separated from the inoculated lot at once, and carefully attended to. If glycerine can be obtained, the spare bile should be mixed with it in the proportion of *one* of glycerine to *two* of bile. This mixture after standing for forty-eight hours, may be injected intravenously into the infected animals in large doses, not only with safety, but with marked benefit. Fresh, pure bile may, however, be used as a second injection, following serum or glyceri-

nated bile, in all animals in the herd which give no indication of being affected with the disease ; this will confer a lasting immunity sufficient for all practical purposes.

CLEAN HERDS.

When it is decided to inoculate a clean herd which is in danger of becoming infected by reason of the proximity of the disease, I would recommend that all the cattle in the herd be inoculated with not less than 20 c.c. of glycerinated bile, 30 c.c. of strong serum, or 200 c.c. of defibrinated immune blood. The strength and endurance of the immunity conferred by these inoculating materials is proportionate to the amount injected, hence, if the disease is prevalent in the neighbourhood, larger doses may be used, or an injection of fresh, pure bile may be given ten to fifteen days later. This will confer a lasting immunity on the cattle, and obviate the loss arising from the inoculation, or risk of introducing the disease.

GENERAL ITEMS.

To accustom a weak-mouthed horse to a bit, or in other words, to harden its mouth, the *Cape Agricultural Journal* says a rubber-covered snaffle is the best. If the horse is young and only just broken, it is recommended that a mouthing bit be used every day till he gets used to the feel of it, and if he is to be driven a rubber-covered bit should be used.

Nutrient qualities of fruit vary considerably with the nature of the fruit ; such as banana, fig, date, and grape ranking very highly: one pound of bananas is said to contain as much nourishment as half a pound of meat, and in their own indigenous country, Uganda, they are converted into jam, champagne, beer, vinegar, and brandy. The date also contains a large percentage of nutrient material, and the native of the country to which it is indigenous not only feeds himself on it, but gives it to his horse and camel. Figs also are most wholesome and nutritious—grapes especially so. Apples are good for liver, brain, and throat complaints ; oranges are nourishing, and have a slight tonic influence on the liver, while the lemon is a popular remedy for rheumatism, and has no equal in the treatment of skin diseases—it is not only curative but preventive in the latter. The constituents of fruits are sugar, acids (either citric, phosphoric, malic, or tartaric), distilled water, and a small percentage of fat and albumen. Important among the uses of fruits may be noted their diuretic and laxative effect, and the influence they exert upon the disease germs which may be in the system.

The proper distance to plant mango trees, says the *Queensland Agricultural Journal*, is 35 feet each way ; oranges and lemons 30 feet. Any small crops may be planted between the trees for the first few seasons, provided deep cultivation and manuring are followed. This will keep your orchard on the "improve" all the while.

The same paper refers to two methods of curing chillies :—(1.) When the chillies are ripening, go over the field once a week, picking all the ripe ones. Leave, a long stem on the pod. Expose the pods to the sun for a day or two to toughen the skins and stems. Then with a long, slim needle string them through the stem on strong twine 8 or 9 feet long. When the twine is full, hang it up in a dry cool shed where there is plenty of ventilation. Be careful not to string any poor or damaged pods. When dry, store them in a dry cool room, hanging them on poles or nails. (2.) Another, and a good plan, if the chillies are to be exported, is one which we know by experience to be good, as we have kept them for 12 months without their changing colour or strength. Make a fairly strong brine. Fill a stone jar or a keg with the chillies, and pour the cold brine over them, filling the vessel to the top. Bung down closely. In 2 or 3 months, or even after a longer interval, either strain the brine or make fresh, carefully washing out the vessel. They will keep fresh for a long period.

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JOURNEY TO A RUBBER PLANTATION ON THE ISTHMUS OF COLUMBIA.

By C. O. Weber, Ph. D.*

THE well-known difficulty of investigating satisfactorily in Europe any of the numerous questions of importance connected with the collection of the latex from the rubber trees, its composition, and the most satisfactory manner of converting it into india-rubber, made the commission I received in the early part of this year, to inspect and report upon the state and possibilities of the extensive rubber plantation of the Las Cascadas Plantations Company, Limited, at the very outset an acceptable one. The fact that this plantation is situated in the Isthmus of Panama seemed to me a comparatively slight matter, although I must own to occasional apprehensive pangs on being treated by some of my friends, and others, to somewhat vivid descriptions of the terrors of mosquitos, malaria, yellow fever, and small-pox. I will say at once here that I found all these blood-curdling stories gross exaggerations. Colon is certainly an abominable hole, but had I to take the choice I would, without an instant's hesitation, prefer to live at Colon rather than in the slum districts of either London, Manchester, or Salford. The same, only more so, is to be said of Panama, which is a fairly well-built town upon rocky subsoil. Particularly the mosquito bogey appears to me an absurd exaggeration as far as the isthmus is concerned. Only once during the whole journey did I get really badly bitten; this was in my cabin on board the R.M.S. "Para" on the first night after leaving Jamaica for Colon. It appeared that besides taking in coal at that port, we had also shipped a liberal consignment of mosquitos.

The real trouble of an expedition like the one I undertook was never suggested to me; it consists in the fact that as soon as one leaves the beaten track (Colon to Panama) every trace of civilised comforts at once vanish. The food is artrociously bad, the cooking worse; all drinks even water taken direct from the streams, are at almost fever heat, and often there is nothing to be had but rain water. It is this bad food, the monotony of the diet, and the insipidity of tepid drinks which I felt to render a stay in the Tropics rather trying. Of course, on a plantation with a well-established settlement all these difficulties largely disappear.

As is well known the stretch of the isthmus from Colon to Panama, through which runs the track of the illustrated Panama Canal, is all low-lying, on the Colon side largely swampy land, the mean elevation of which above sea-level does certainly not exceed 80 feet. There are a number of banana plantations alongside, or within near distance of the canal track, but nothing of any magnitude.

Shortly after leaving Colon, the mountain ranges appearing in the far distance, south and south-west of the town, begin slowly to close in upon the track of the canal, coming eventually, near Panama, right upon it, and it is this hill district which, intersected by innumerable small rivers and brooks, very gradually rises to altitudes 1,200 feet and upwards, which furnishes at altitudes of from 200 to 800 feet, or perhaps even somewhat higher, the most suitable land for the cultivation of India-rubber, cacao, and coffee.

In this hill district, connected by their own road with Las Cascadas station, lies the plantation of the Las Cascadas Plantations Company, Limited, which comprise a total area of very many acres a large part of which is planted out with rubber (Castilloa elastica), cacao, and coffee. The number of rubber trees on the plantation now amounts to 70,000, of which 15,000 are from 11 to 12 years old.

After arriving upon the plantation and fitting up the laboratory required for the examination of the latex, and the testing of rubber on the spot, my first concern was to ascertain the exact species of the Castillca on the plantation. This appear to me all the more important, as there is one species of Castilloa known which yields plenty of a latex, but one containing no rubber, and there appear to

* From the *India Rubber and Gutta-Percha Trades' Journal*, Sept. 29, 1902.

be several varieties yielding either a poor quality, or very little rubber. Of course, coming on the plantation in the rainy season, when the trees bear neither flowers nor seeds, was not exactly calculated to facilitate the botanical determination, and I was, therefore, compelled to make a fairly close study of the morphological and physiological feature of the trees. On the other hand, had to be borne in mind the fact that the whole of our present-day information respecting the botanical characteristics of the various species of Castilloa, and the respective value of each of them for cultivation purposes, are in quite a hopeless state of confusion.

According to the usual description Castilloa elastica is a tree growing to a height of from 36 to 54 feet, the trunk at about 3 feet above ground attaining to a diameter of from 24 to 48 inches. The bark is smooth and yellow. the wood soft and perishable. The leaves are from 6 to 12 inches in length, of a clear and brilliant green, and their lower side is more or less covered with a growth of fine brown hairs. Very characteristic of Castilloa elastica is the phenomenon known as dimorphism of the branches and which consists in the branches which spring from the tree at an angle of 45 degrees at a certain point rather abruptly taking up a horizontal position. I purposely omit entering here upon a discussion of the flowers and fruits of C. elastica as a comparison of their characteristics with those produced by the trees at Las Cascadas is at the present moment not possible. Cross, the well-known Kew botanist, describes these trees as growing to a height of from 160 to 180 feet, with a diameter of 5 feet, but he gives no information respecting the age of these trees. In all probability these trees were an enormous age, to be reckoned by centuries rather than tens of years. J. H. Hart, Superintendent Royal Botanic Gardens, Trinidad, states that the oldest Castilloa tree, there is over 75 feet high and has girth of 4 feet at three feet above ground. Some trees 15 years old are from 58 to 60 inches in a girth. Against these two authorities we posses however, the certain information that in Mexico, Honduras, Nicaragua, and Ecuador the height of C. elastica varies between 40 and 60 feet.

There are a number of other species or varieties of Castilloa, with regard to which a considerable amount of uncertainty exists. Indeed, only one of these, C. tunu Hemsley, is satisfactorily established as a distinct and different species, which, moreover, although containing a large quantity of latex, yields no india-rubber at all. The C. Markhamiana described by Collins as being found in the isthmus is considered by several very competent authorities not to be a Castilloa at all, but a Perebea. I searched everywhere for this species without ever coming across it, nor had any of the various experienced native collectors I questioned ever heard of any other but the Caucho tree (C. elastica.)

Koschay, in a letter which last year appeared in the March issue of the "Tropenpflanzer," describes four different Castilloa as occurring in Costa Rica. Of these C. tunu has already been mentioned. Of the rubber yielding Castilloa the best is the one possessing a whitish bark; it yields plenty of excellent rubber. Another variety has a black bark with a rough and irregular surface; it yields a rubber as good as the white variety, but the tree is rapidly exhausted. A further variety is characterised by a reddish bark, very thin and fragile; it yields very little latex, but the rubber produced of good quality.

To this must be added that the castilloa of Panama appears to differ from all other known varieties by the occasionally quite enormous size of the leaves. Leaves 20 inches in length occur very commonly, especially upon young trees. For this reason it has been suggested that the Castilloa of Panama is a separate species.

Now, as regards the trees at Las Cascadas, while at first sight they certainly strike one as typical Castilloa elastica, on closer examination show a number of differences which, at any rate in the absence of flowers, render the identification of the species none too easy. In the first instance, the bark of these trees, although very smooth, is certainly neither yellow nor white, but a delicate pale pinkish brown. The leaves even on the older trees are not very great, but still distinctly larger than the leaves on grown up trees of C. elastica in Guatemala, Honduras, Nicaragua, and Mexico. The hairy covering on the lower side of the leaves is much less striking, but the young leaf shoots at the end of the branches appear quite as densely haired as those of any typical Castilloa. Also the phenomenon above referred to as so characteristic of Castilloa is very strikingly displayed by all the Castilloa trees at Las Cascadas.

On the other hand, the only valueless specie of castilloa, C. tunu, is absolutely unknown on the isthmus, and in my wandering I have never encountered it.* It is equally certain that the Las Cascadas Castilloa is entirely different from Koschay's black and red varieties; the appearance of its bark could not possibly be described in the terms used by Koschay for the latter two trees. In how far Koschay's white Castilloa corresponds to the Las Cascadas tree is difficult to say. The bark of the latter might, with some appearance of justification. be described in Koschay's term as "whitish," but considering that the large silvery patches on it do not appear to be the actual colour of the bark, but seem to be due to a lichen, and considering further that all the lichen-free portions of the bark are by no means whitish, but as I stated before, of a light pinkish brown colour, I prefer to adhere to this latter description.

Taking all these points in conjunction it will readily be seen that the Las Cascadas rubber trees exhibit all the characteristics of Castilloa elastica in regard to the general appearance of the tree, the shape of the leaf, the hairy growth on the margin of the leaves, their under side, leaf stem, and the leaf shoots, as also the phenomenon already alluded to as the "dimorphism of the branches." I hold these data sufficiently conclusive to demonstrate that the Las Cascadas rubber tree is indeed the true Castilloa elastica. The fact that these trees produce a good yield of an excellent quality of rubber may well be taken as contributory evidence in the same direction.

As regards the unquestionable differences of these trees from the C. elastica as generally described, I cannot say that I ascribe any importance to them. Castilloa elastica posses es such an enormously wide geographical distribution—from lat. 6° S. to lat. 22° N.—it occurs under so very greatly varying conditions of soil, elevation, humidity, and temperature limits that it would be most extraordinary if it accommodated itself to all these different conditions without, at least some morphological change. Indeed, it seems highly probable that some of the varying statements regarding the growth of Castilloa elastica in different districts may find their explanation in the influence upon this tree of different climatic conditions. To some extent this may also be true with regard to the various conflicting statements regarding the yield of rubber obtainable from these trees.

On this question of the amount of rubber yielded by Castilloa elastica the information at our disposal from numerous sources is characterised by a degree of discrepancy perfectly appalling. According to Cross a Castilloa of from 18 to 24 inches in diameter produces 13 lb. of rubber annually, but he asserts that certain exceptional trees may yield as much as 100 lb. Collins observed that a 6 year old Castilloa possessing a diameter of 19 inches on being tapped in April, in the dry season furnished 20 gallons of

* Nor is it at all known, not even by hearsay, to the native rubber collectors on the Isthmus.

latex, from which 49 lb. of rubber were obtained and he declares this an average yield of all trees, the trunk of which, before branching out, reaches a height of from 18 to 27 feet above the soil. In Nicaragua it is found that from its sixth or seventh year a Castilloa tree yields from 4 to 6 lb. of rubber annually (Crawford). Dr. Morris states that a Castilloa, when first tapped, should yield 16 lb. of rubber. In Mexico, it appears to be generally assumed that Castilloa trees, when from 4 to 5 years old, will produce an average yield of 6 lb. of rubber. However, the "Bureau d' Informations Agricoles du Mexique" is rather more careful, giving the yield of the trees in question as amounting to from 4 to 5 lb. of *latex*, corresponding to 2 lb. 6 oz. of rubber.

J. H. Hart (Trinidad), states the yield of Castilloa as amounting to from 2 to 6 lb. but from quite a recent communication, I take it that an experimental tapping of one of his largest trees only produced about 14 oz. of rubber.

According to these above set out statements we would have to come to the delightful conclusion that, from its sixth or seventh year Castilloa elastica will yield from 6 to 49 lb. of rubber annually.

On the other hand, we have the results of the experiments of Dr. Trimen, Superintendent of the Botanical Gardens of Ceylon, and these results are as follows:—

5 years old.	Mean yield of	77 trees:	2·3 oz.	per tree.
6 ,,	,,	61 ,,	2·0 oz.	,,
8 ,,	,,	61 ,,	1·8 oz.	,,
12 ,,	,,	61 ,,	4·3 oz.	,,

My chief reason for quoting Dr. Trimen's figures is merely to call renewed attention to the absolute necessity of carefully ascertaining the yield of the Castilloa tree in any district in which it is intended to cultivate it. Dr. Trimen's figures can not be looked upon as representing the yield of Castilloa elastica anywhere but in Ceylon or Java, but they convey a vivid idea as to the extraordinary degree to which different conditions of soil and climate may affect the yield of rubber.

My own results obtained at Las Cascadas are as follows:—

Age of tree.	Yield of latex.	Per cent. of rubber in latex.	Yield of rubber.
6	1 lb. 13 oz.	26	7·5 oz.
7	2 ,, 5 ,,	26	9·6 ,,
8	3 ,, 1 ,,	29	14 2 ,,
11	5 ,, 3 ,,	31	1 lb. 9·7 ,,

As the trees can with perfect safety be tapped twice yearly, the annual rubber yield may be taken double that in the last column of the above table. These yields, as regards the trees of 8 and 11 years of age, respectively, are the means of a number of fully-developed trees of the two respective ages. The yields of the younger trees above given were obtained on tapping two representative trees of the respective ages, and taking the mean of the yield obtained as the real yield. I consider the above figures rather below than above the mark. But it is nevertheless well worth pointing out that as even Castilloa trees of the same age are apt to exhibit astonishing differences in their development it is only to be expected that they do so likewise as regards the quantity of rubber they produce, and it is, perhaps,' not an altogether safe procedure to ascertain the aggregate yield of a rubber plantation by simply multiplying the number of trees on the plantation with the, however carefully, ascertained yield of a limited number of trees. It is further my opinion that the method of planting and rearing young rubber plantations, always speaking of Castilloa elastica, is a matter deserving of much closer and more careful study than it has so far obtained. The method of simply planting out in a forest clearing so many seeds, or seedlings, at so many feet distance I consider, altogether inadequate. With this highly important matter I propose to deal at some future occasions.

The question regarding the best method of tapping the rubber trees is one which just now is engaging the attention of most of those occupied rubber planting. Of course, there are always the methods of the natives to fall back upon, but it could not be said that these are on the whole calculated to inspire much confidence this for the simple reason that the native collectors in all parts of the world never show the slightest regard for the trees they are tapping. If they do not actually cut the trees down, or in some other way deliberately bleed them to death, they still tap them with an utter disregard of all precautions for their preservation. Such methods are out of the question when we come to tap the trees on the rubber plantation. Here absolutely the first consideration is not only to conduct the tapping in such away as to preserve the life of the tree, but even to prevent this operation from injuring its vigour and growth.

TAPPING.

It does not require much demostration to show that the process of tapping must to a considerable extent depend upon the position, distribution, and arrangement of the laticiferous vessels in the trees. It is generally stated that the milk-ducts of rubber trees lie in the layer of bast underneath the bark, and that no milk-ducts are to be found in the inner parts of the trees, the wood or cambium. This as a general statement may be true enough, but it certainly does not strickly apply in the case of Castilloa elastica. If we chop one of the stout branches off a Castilloa tree, or, better still if we cut down a young tree, and carefully examine the cut, we can easily see with the naked eye that although the bulk of the exuding latex issues from the layer of bast immediately beneath the bark, still there are quite a number of apparently rather large milk-ducts distributed through the wood of the tree, and also that there is a considerable exudation in the lignefied tissues surrounding the pith centre of the trees; It will be a highly interesting problem to ascertain by a careful microscopic study of the various strata of the trunk of the Castilloa tree, whether there is any direct communication (anastomose between these widely separated milk-ducts in the various parts of the tree. How far similar conditions exist in other rubber trees I am at present unable to say, but it seems to me very improbable that castilloa stands alone in this respect.

Whether there is any communication between the milk-ducts in the different parts of the tissues of the trunk of Castilloa or not, can, however, not alter the fact that in tapping the trees on a rubber plantation only those layers of the trunk situated on its periphery can be drawn upon. Indeed, it is the layer of bast only immediately underlying the bark which is worth considering for tapping purposes, as it is generally admitted that any cuts into the wood of the tree are liable to permanently injure, or even altogether destroy it. It is, therefore, quite clear that as regards the rubber plantation entrusted to me one of the most important questions to be solved was to ascertain and decide upon the most satisfactory method of tapping the trees.

A microscopic examination of longitudinal sections of the bast layer of Castilloa at once revealed the fact that while this layer contains an enormous number of milk-ducts running longitudinally through the tissue, there are surprisingly little evidence of lateral intercommunication (anastomoses) between them. In exact agreement with this observation is the fact that longitudinal incisions produced an absurdly small flow of latex, indeed, in many cases none at all, this for the simple reason that the number of milk-ducts opened by a vertical incision is, in the absence of horizontal branchings, simply the number of milk-ducts occupying the width of the cut in the horizontal direction. Compared with the total number of milk-ducts in the layer of bast

surrounding the cambium the former number is, of course, insignificantly small. Moreover, we must bear in mind that the latex is held in the milk ducts by capillary force, and in order to obtain a flow of it from any incision we largely depend upon the pressure exerted upon these milk-ducts by the turgescence of the cellulose tissues of the tree. It will readily be seen that a vertical incision largely relieves this pressure, and consequently the flow of latex obtainable by such an incision will not even be proportional to the number of milk-ducts, however small, which have been cut into.

HORIZONTAL CUTS.

On the other hand, very little reflection will show that in applying a horizontal incision, not only do we open all the milk-ducts running through the area defined by that incision, but moreover the pressure due to the above mentioned turgescence is not in the least interferred with, and assists materially in producing a most copious flow of latex. It would, therefore, appear to follow that while vertical cuts are entirely useless, at any rate, as far as Castilloa elastica is concerned, horizontal cuts produce the maximum flow of latex, and a system of horizontal cuts therefore offers the best prospects for an effectual tapping of the trees. This, no doubt, is so, but the circumstance must not be overlooked that a horizontal cut is not very satisfactory for the gathering up of the exuding latex, this particularly in conjunction with the fact that a Castilloa tree cannot be drained by a single small horizontal cut as is, for instance, the case with Hevea, but requires a whole series of cuts. This renders it desirable that instead of tapping Castilloa with a number of small cuts a continuous cut would be preferable and one which drains practically the whole area of the trunk. There is only one cut of this descripton, and this is the one known as the spiral cut which, indeed, has always been largely employed by the native collectors exploiting Castilloa trees. I have, indeed, satisfied myself that the flow of latex obtainable from a spiral cut applied at an angle of not more than 45 degrees produces excellent results as far as the flow of latex is concerned.

There is also the repeatedly advocated system of an ascending series of V-shaped cuts, the apices of which are connected by a vertical cut which serves as a channel down which the milk is enabled to flow. In the first instance, I consider this vertical cut objectionable, as, while it defaces the tree, it does not contribute to the yield of latex obtained. Moreover, in the case of the Castilloa trees at Las Cascadas this vertical cut would be quite useless as the latex yielded by the trees issues from the cuts as a thick cream which does not flow, so that in this case the V-shaped cuts would only about have the effect of a double system of crossing spiral cuts.

The next question to be settled was the tool with which the above-named spiral cuts are to be applied. The instrument in universal use for this purpose throughout Central America is the "machete," a sort of cutlass. This formidable tool requires very dexterous handling in order to produce a regular cut, and even in the hands of the most experienced "hulero" produces and enormous mass of woody *debris* which clings to the cuts, and subsequently are taken up with the latex. The extraordinary mass of wood and bark in the Central American rubbers is entirely due to the tapping being performed with the machete. There is certainly no difficulty of removing from the latex these particles of wood and bark, but it goes without saying that if it should be possible to avoid this or any other contamination at the outset it is much to be preferred to any, however effectual, process of subsequently removing it from the latex.

A NEW TOOL.

For this reason a narrow plane has been recommended for the tapping of the trees, but there are several drawbacks to it. It certainly gives a perfectly continuous cut, and one free from the above-named *debris* but it very soon gets clogged. The layer of bast to be cut through in order to obtain the full yield of latex is very considerable, and necessitates the blade of the plane protruding very considerably a circumstance not calculated to faciliates its use. The thickness of the layer of bast to be cut through not only varies not inconsiderably from tree to tree, but it varies also in the same tree at different heights of the trunk. A plane gives under these conditions very little chance of adapting the depth of the cut to the depth of the layer of bast, and consequently, according to the setting of the plane either the layer of bast is not entirely penetrated, or the cuts pass more or less deeply into the wood istelf.

I therefore made experiments with a triangular cutting tool, the cutting edge of which is formed by one of the (rounded) angles, and after several modifications, I arrived at a form which answers the purpose admirably*. To cut or tap the trees with this instrument requires some experience but certainly very much less than the machete. The cuts are absolutely clean and continuous, and their width is naturally regulated by the cutting angle and the depth of bast to be cut through. This is exactly as it should be. For trees of different age, or of different diameter, tools with different cutting angles may be employed.

It has often been proposed to provide the instruments used for tapping with guards so as to prevent their penetrating into the wood. This is, no doubt, a very praiseworthy notion, but unfortunately one which it will be found practically impossible to adopt for the already stated reason that the thickness of the layer to be cut through varies within such wide limits as to render the proposal quite impracticable.

The just described tapping tool does not, of course, prevent the penetration of the cuts into the wood, though I may at once state that its liability to do so is certainly much less than with any instrument operated by striking, such as the adze, or machete. But in the experiments I conducted at Las Cascadas I gradually came to the conclusion, rather heretical in view of the nature of the numerous statements, on this point, that the tapping to begin with has surprisingly little effect upon the well-being of the tree, and further that cuts penetrating into the wood of Castilloa elastica, although they may retard the healing up of the wounds, are not necessarily injurious to the tree. They certainly do not affect its physiological functions, but only represent a danger as they offer a chance to certain insects to lay their eggs into the wood, so that subsequently the trees may suffer from, or even succumb to the ravages of the larvæ and insects (wood-burrowing) beetles) emanating from these eggs. But this danger is easily avoided by painting the cuts after the collection of the latex and "scraps" with an antiseptic paint. It also appears that this simple and inexpensive treatment assists materially in the healing of these cuts, as all the cuts thus treated began to heal up already within a week after the tapping.

(To be concluded.)

* I shall revert to this subject in a subsequent paper.

VANILLA.

Cultivation in the Seychelles.

(*Concluded from Page 160*--Sept. 1902.)

CURING THE PODS FOR MARKET.

There are many different modes of preparing vanilla, but for brevity's sake one alone will be described; it is probably the simplest, and appears to be as successful as any other. About 400 of the longest pods are placed in a basket and plunged into hot

water (190° F.) for ten seconds; this is repeated twice, the dips being increased to twelve and fifteen seconds respectively, with intervals of half a minute between each two. After the third dip, when most of the water has drained off the pods are placed in a wooden box or barrel lined with blankets, and closely covered up with the same material. When lot 1 is finished, lot 2 is similarly treated, and for them the water may be a few degrees cooler, or the dipping times a trifle shortened; and so also with lot No. 3, while No. 4 may be treated as No. 2. Perhaps it is as well to add that 190° F. is not an absolutely essential heat, but it is about as high as it is safe to go; while even the longest pods may be adequately treated in water at 170° F. if they are kept in it long enough. An experienced preparer will be guided more by the appearance of the pod after each dip than by any fixed formula. When small quantities are dealt with less heat is needed, and the above figures are given for a boiler 22 inches in diameter by 12 inches deep. It is best to have good-sized boxes or barrels to sweat the pods in, those holding 2,000 or 3,000 each being preferable, for the more pods there are together the better heat is retained. The lots (I, 2, 3, and 4) should be kept apart, a fold of blanket being laid on each if all go into one box. By the following morning they should have changed to chocolate or puce colour, and are then ready to spread on the drying shelves; but if there is a large number together, and the heat has been well kept in, they may be left for another twenty-four hours.

A curing house for preparing a crop up to 2,000 pounds (dry) may have the following dimensions and fixings: 30 feet long, 15 feet broad, 13 feet in height of walls. It should be divided into four counterparts, two on the ground and two above, each being approximately 15 by 15 and 6½ feet high. One compartment on the ground floor is used as a hot room, having a flue 2 feet wide covered sheet iron running through the centre. If the heat is too intense from this, sand may be sprinkled on top to reduce it. Above this flue and around two sides of the hot chamber tiers of shelves are fixed 6 inches apart, on which the pods are spread to dry. The shelves may be conveniently made of laths, on top of which mats or canvas can be laid, or fine-meshed wire netting would serve the same purpose, perhaps, better than anything else. . . . The worker, sitting on the floor, keeps the four lots of pods—long, medium, short, and split—distinct on the shelves. This facilitates the sorting, the short and split pods needing to be examined sooner and oftener than the longer and sound sorts, as they dry more rapidly.

A good average heat for the hot chamber is 110° F. A few degrees more or less does not matter, but pods are apt to dry too quickly if the heat is much greater. The slower the progress the more uniform and better is the result. As they begin to turn soft and show longitudinal wrinkles the pods are removed from room 1 to 3, and after reaching a certain degree of flexibility they pass on to the shelves in room 4 and there finish their curing. If kept too long in either a hot or warm room the thin ends of pods shrink too quickly, and this is to be avoided. In a large crop there are always some inferior, ill-nourished pods in which this occurs, but the last remark will be useful to a beginner. When fully cured the pods are much wrinkled and pliable, bending easily around one's finger. There is considerable difference in the degree of dryness preferred by different curers. If the contents move easily all along a pod, without any unevenness being noticed when it is drawn between the finger and thumb, it is nearly dry enough; but the right stage can only be learned by experience. When finished the pods are well wiped with bits of soft flannel and then kept in boxes with close fitting lids. It is better to sort them roughly into lengths as each day's lot is put away, and tie up the various sizes in bundles of about 200 each if the numbers allow of it, for they have to be examined once or twice a week in order to remove the moulded ones, and this is much more quickly done with bundles than when they are loose. Moreover, it makes the ultimate accurate measuring easier. Either at this time or later the different qualities are more exactly separated, none but faultless pods, without scar or defect in curing, being allowed in the first quality. The rest rank as seconds, etc. The split pods and the pods that have been cut on account of mould are also kept distinct. It is well to keep a crop at least three or four months before marketing. By that time nearly all shaky pods that are liable to mould will have shown themselves. All are then measured and tied up in neat bundles of 50 pods each of even length, the pods varying in length not more than one-eighth of an inch.

The general sightliness of a marketed crop has much influence on the price it will bring, and whatever whims buyers get into their heads the producer must conform to or suffer in pocket. Bundle tying is somethig of an art, and a deft hand at it is valuable. Sixteen or thereabouts of the shapliest pods in each 50 are selected for the outside; the rest are tied up as a core, being kept in position by a few turns of the fibre-tying cord, while the chosen sixteen are carefully placed round them. The bundle is tied in either three places, near each end and in the middle, or in two places, an inch or more from the ends, according to the length of bundle. The core-holding string is pulled out before the final tie is fixed. Two-tie packets are boxed as they are. With those of three ties buyers prefer that the end cords be removed before packing, to enable them to examine the bundles inside and see if the contents are of uniform quality. If kept tied some time before being packed the bundles set, as it were and retain their neat shape. The tin boxes used here fore packing vanilla in measure 12½ by 8½ inches in width, are 4½ inches deep, and hold about 12 pounds. Each box has a label pasted on it which bears the growers trade mark, the length and number of packets, their quality, and net weigh, and a similar label is put inside. As some chemical action is set up when vanilla rests in contact with tin or iron, thin vegetable parchment paper is placed in the boxes to keep the two apart, The lids are then sealed close with pasted paper and the tins packed in wooden cases, six in each, and thus dispatched to market.—*Agricultural News.*

VANILLA.

The fruit of the *Vanilla planifolia Andr.* does not give out the characteristic odour of vanilla when freshly gathered; and it is only after the subsequent preparations that this odour is gradually developed. While writing a work on this subject for Planters in the French colonies M. Henri Lecomte found that this preparation which gives very variable results, is purely empirical; and he was induced to study the conditions under which vanilla is produced. The following particulars are taken from his notes on the subject communicated to the Paris Academy of Science by M. Guignard. At the outset M. Lecomte discovered, in the various parts of the vanilla plant, the constant presence of an oxidising ferment similar to those studied by M. G. Bertrand, and which are now known by the general denomination of "oxydases," their presence being noticed in the stalks and leaves of the plant, the liquid extracted from them, the green and ripe fruit, and also the prepared vanilla from Mexico, La Réunion, the Seychelles, and the Comores.

Strangely enough, while the most esteemed vanillas of commerce contain the oxydases in considerable proportion, those of inferior quality do not contain them at all, or only to a very slight extent. The

presence of manganese, which M. Bertrand regards as the vehicle of the oxygen, was noticed in all the matters at the author's disposal.

The above observations led to the belief that the oxydases contained in the fruit of the vanilla must play an important part in the preparation of the essence itself; but an apparently serious objection may be opposed to this supposition. In the method of preparation now adopted at La Réunion, the first operation to which the fruit is subjected consists in immersing it for about twenty seconds in water kept at the temperature of 80 to 85 degrees Centigrade. Now at this temperature the oxydases might be supposed to lose their characteristic property but experiments, repeated several times, showed that the interior of the fruit, immersed in boiling water for thirty seconds, did not acquire, after such immersion, a temperature higher than 55 degrees Centigrade. Now, in practice, whole basketsful of the fruit are immersed in hot water, which does not attain boiling point, but at most 85 degrees Centigrade while the immersion only lasts for twenty instead of thirty seconds. It may therefore be concluded that the temperature inside the fruit never attain 50 degrees Centigrade, and that under these conditions, not only is the oxydase not altered but that on the contrary the temperature it acquires is that which is very favourable to preservation of the essential properties.

There remained to determine the nature of the substances capable of being transformed into vanilla, under the influence of the oxidising agent. Following up this investigation, Mr. Lecomte found that the juice extracted from the vanilla plant contains another ferment possessing the property of hydratizing the starch and which, acting on a solution of coniferine, promotes the formation of a substances possessing the same reactions as that the constant presence of which was noticed in the tissues of the vanilla plant. The simultaneous presence of two distinct ferments, one hydratizing and the other oxidising, the existence of which appears intimately connected with the production of vanilline was, therefore, noticed in the vanilla plant.

In fact, having selected two similar specimens, A and B, of ripe fruit, forwarded in spirit from La Réunion, the author proceeded to prepare them by boiling. Specimen A was first raised to a temperature of 100 degrees Centigrade for ten minutes, while B was not subjected to this operation, the two specimens being otherwise prepared in the same manner and in the same space of time. Specimen A became soft, and only gave out a scarcely perceptible odour of vanilla; but B on the contrary assumed the characteristic odour of vanilla, while having become partially covered, after a few days, with small crystals, which were easily recognised as those of vanilline.

By way of conclusion, the following hypothesis may be ventured as to the formation of vanilline in the fruit during its preparation:—The hydratizing ferment may be supposed to transform the nascent coniferine into coniferylic alcohol and glucose, the presence of which latter substance is indeed constant in vanilla; and moreover, the coniferylic alcohol is probably transformed into vanilline by the action of the oxydase.—*Journal of the Society of Arts.*

THE CACAO FUNGUS.

By Albert Howard, B.A.; A.R.C.S., F.L.S.,

Mycologist to the Imperial Department of Agriculture for the West Indies, late Scholar of St. John's College, Cambridge.

The Fungus found on the pods and branches of the cacao tree agrees, as far as the characters of the pycnidia and spores go, exactly with the form described above on the sugar-cane. In the case of the pods the pycnidia are often formed singly just under the epidermis, and the latter is ruptured by the growth of these structures. In diseased branches, or on the trunk of the tree, the pycnidia occur usually in colonies just under the bark. The appearance of a branch attacked by the Fungus, which has been kept in a moist chamber a short time, is shown in Fig. 10, and a transverse section through one of the colonies is given in Fig 11.

Some general indication of the appearance of cacao trees and pods apparently attacked by this Fungus may be of interest. It is quite common in Grenada to see cacao trees dying back to a slight extent at the extremities of the branches, a phenomenon probably due to poverty of soil, wind, drought, or defective root-action, or perhaps to a combination of these causes. In all such cases there is a sharp line of demarcation between the dead and living tissues, and although several Ascomycetes are to be found in the dead wood, they appear to be purely saprophytic in character. In many cases, however, dying back goes on to a very great extent, extending to the larger branches and the trunk, and, in spite of the production of suckers at the base, the trees are often killed outright. In such cases there is no boundary line between dead and living tissues, but an intermediate zone, often as much as two feet in length, always occurs between the obviously dead and living tissue. Mycelium can be easily detected in the young wood in this transition region, and the pycnidia referred to above are to be found under the bark. The mycelium can be detected in the wood at some distance in advance of the point at which it seems to end in the bast, a point which seems to indicate the saprophytic origin of the Fungus The mycelium makes its way in the wood from element to element by means of the pits in the walls of the vessels and cells, and where the hyphae have commenced to darken in colour this point can be determined without staining (Fig. 12).

In cases where pods are apparently attacked by the Fungus this is very common near the 'breaking-grounds,' where the 'beans' are extracted by the pickers, and where it is the custom to leave the empty husks on the ground in heaps. The husks speedily become covered with the spores of the Fungus, as this form lives on them as a saprophyte. The rind of the pod turns brown and mycelium soon spreads to the mucilage surrounding the seeds completely destroying the pod and its contents, usually in from six to ten days. The diseased areas commence as a brown spot, as a general rule either at the free end of the pod, or in the groove round the insertion of the stalk, or at the point where the pod come in contact with the branch. These places are those which are liable to be moist long after the rest of the pod is dry, and indicate the probability that infection may here be effected by spores without any previous wounding.

The artificial cultivation of the Fungus was carried out in an exactly similar manner to that employed in the case of the sugar-cane Fungus described above and as far as possible similar cultures of the two forms were made and examined at the same time.

Stages in the germination of the spore are shown in Fig. 13. The germtube grows out into a long hypha, at first slowly, but afterwards much more rapidly, and extensive branching eventually takes place. Septation of the hyphae was not noted before twenty hours after sowing, and after two days fusions of the hyphae were common: about the same time the mycelium commenced to grow down towards the water on the floor of the moist chamber, reaching it four days after sowing (Fig. 7). When three days old the mycelium gradually changed colour, passing through various shades from light yellow to olive green, and at the same time the hyphal contents began to aggregate in certain portions of the mycelium, leaving the rest empty. Oil drops also made their appearance. The appearance of the mycelium, when eight days old, closely resembles

that shown in Fig, 8. No further development was noted in hanging-drops, except that the thickwalled oil containing hyphae became dark brown three weeks after sowing, and appeared identical with the old mycelium described above in the case of the cane Fungus. As in the sugar-cane Fungus, advantage was taken of the aerial development of mycelium in single-spore hanging-drops to prepare cultures free from Bacteria.

In plate-cultures in the cane extract medium a copious development of greyish mycelium was obtained on the third day, which formed a dense velvety pile, a quarter of an inch in height, on the surface of the gelatine, and in which dark bodies could be detected with the naked eye. When examined on the sixth day these dark bodies were found to be pycnidia in which paraphyses and spore formation could be detected, after the manner indicated in Fig. 9.

On sterilized cacao and oak-wood small dark bodies were noted in nine days, and these when twenty days old proved to be the pycnidia of the Fungus.

It will be seen therefore that the development, under artificial conditions, of the Fungus of the cacao tree corresponds exactly in all its details with that found on the sugar-cane, so that morphologically regarded the two forms are identical.

It was now necessary to perform infection-experiments on cacao trees and pods, with pure cultivations of the Fungus.

These were as follows :—

1. On cacao pods :

(*a*) Two nearly ripe pods were selected for the experiment, and were washed with alcoholic corrosive sublimate, and at the points where incisions were to be made small cavities were made in the rind by lifting the surface and cutting out a small portion of the tissues underneath. Into one of these chambers actively growing mycelium, three days old and from a pure culture, was introduced and the pod was bound up with budding-tape. The other pod was treated in a similar way, except that no mycelium was introduced and thus served as a control. Five days afterwards, about a quarter of the surface of the infected pod had turned brown, and in eight days after infection the whole of the surface was deep brown, and there was a considerable development of pycnidia for some distance round the point of infection. The protrusion of the spores as a greyish 'tendril,' visible to the naked eye, from the ostiole of the pycnidium, and their gradual darkening were beautifully shown on this pod. Near the point of infection the spores were visible as a black dust on the surface of the pod, and in most cases the 'tendrils' had broken down into their constituent spores, each showing the transverse wall and the dark-brown colouration under the microscope. Further away the colour of the spores became lighter and 'tendrils' were more numerous These were composed of spores loosely cemented together, in which the transverse wall had not yet appeared. The control pod in this experiment showed no infection.

(*b*) The above preliminary experiment was repeated and in this case two nearly ripe pods were infected with mycelium, and a third was used as a control. Distinct infection took place in three days while the control gave negative results.

(*c*) Next, four half-grown pods were selected for experiment, in order to determine whether the spread of the Fungus is as rapid here as in nearly ripe pods. In each case small cavities were made in the rind, and in the first pod ripe spores from the infected pod in experiment (*a*) above were placed in the cavity. In the second pod a portion of the rind containing growing mycelium from the infected pod (*a*) above was introduced, and in the third pod actively growing mycelium from a pure culture was used for infection. The fourth pod served as a control. Seven days afterwards distinct infection was noted in the first pod, the rind having turned brown about a quarter of an inch all round the cavity, and in the discoloured tissue mycelium was extremely abundant. In the second pod infection had proceeded further, about one square inch of the surface being attacked. In the third pod about six square inches of the surface was decayed, and it was found that the mycelium had penetrated to the mucilage surrounding the seeds and had completely invaded the interior of the pod. Numerous pycnida were observed under the epidermis near the point of infection. The control pod gave negative results. This experiment is of some interest as it throws light on the steps by which a saprophytic form may gradually become parasitic, and confirms previous observations on the influence of a nutritious food-material in increasing the activity of a Fungus.

(*d*) Next, a preliminary experiment was performed on two nearly ripe cacao-pods, in order to determine whether infection could be produced by spores without previously wounding the rind. A drop of sterile water containing spores was placed on the surface of the pod, and was covered by a small glass cell which was sealed on to the rind by means of grafting wax. The cell was covered with a dark bandage to shield the spores from direct sunlight. Seven days afterwards the spores had developed a mycelium on the pod, but penetration of the intact rind by mycelium was not noted in either case. Unfortunately time did not permit of carrying out further experiments to settle this point definitely ; but a consideration of natural infections seems to indicate that pods at any rate are capable of being infected by germinating spores directly. If this were not the case it is difficult to explain why infection almost always begins at those points on the pod which are moist for the longest time, viz. the free end of the pod, the groove at the insertion of the stalk, and the place where pods come in contact with the branches.

2. On the cacao trees :

In the infection-experiments performed on the cacao tree itself, a small portion of the outer dry bark was carefully removed and the exposed bast washed with sterile water. A small chamber was made by raising the bark and cutting out a small portion of the bast down to the cambium. After introducing the infecting material, the barklid of this chamber was depressed and the whole covered with a water-tight bandage of budding tape. The control plants were treated in the same way, except that no mycelium or spores were purposely introduced into the cavity.

(*a*) Two branches of a healthy cacao tree were selected for the preliminary experiment In one cavity actively growing mycelium in the cane-extract medium was introduced, while the other branch was used as a control. Eight days after infection the Fungus had killed the bast up to about eight inches above and below the chamber, at which point the branch was nearly ringed. The mycelium could be traced more than a foot above and below the chamber, both in the bast and in the wood, and to a considerable depth in the latter. Numerous pycnidia were developed under the attacked bark, some of which were liberating their spores. The control showed no infection.

(*b*) Eight healthy cacao plants about eight months old, growing in bamboo pots, were next selected for an experiment. Nos. 1 and 2 were infected with spores taken from a pod attacked by the Fungus, 3 and 4 with portions of the diseased rind of a pod containing actively growing mycelium, 4 and 5 with vigorous mycelium from a pure culture in cane extract and 7 and 8 were control plants. After binding up the wounds the plants were placed in the shade and watered daily. Eight days afterwards it was found that infection had taken place in all the plants from 1 to 6, while the control plants showed no infection. There was scarcely any difference in the amount of infection when spores or diseased cacao-pod rind were used, except that plant No. 1 was killed outright by the Fungus. When culture-mycelium was used

infection was more extensive, one of the plants being killed while the other was evidently dying. In each case (5 and 6) pycnidia were formed under the rind.

(c) Four vigorous young trees about eighteen months old were now selected. The first was used as a control, the second was infected with spores, the third with a portion of a diseased pod taken from near the still healthy tissue, and the fourth with pure culture-mycelium. Eight days afterwards distinct infection was noted in No 2, while in Nos. 3 and 4 the trees were nearly ringed near the infection chamber, and the mycelium could be tracted in the bast and wood as far as six inches above and below this point. Pycnidia were noted under the bark near the chamber. The control tree showed no infection.

(d) Attempts to induce infection by spores growing in water on the bark, in a manner similar to that used in experiment 1 (b) above, failed. The spores germinated, but I could not detect any penetration of the living tissues by the hyphae.

These infection-experiments show that the Fungus can behave as a parasite towards cacao pods, and is a dangerous wound-parasite of the cacao tree itself. The nature of one of the tree diseases in Grenada, and of an important pod-disease, is therefore placed beyond doubt.

CULTURE OF THE PASSION VINE.

Mr. G. Alderton, jun., writes:—"Would you kindly give me information *re* culture of passion vines and your opinion on prospects of growing same in a soil growing blackbutts, redgum, and stringybark. The soil in one part is composed of from one to two feet in depth of sandy loam, and in others, it is more of a sandy reddish clay. The latter is the heavier and moisture soil, but I fancy the other, because the situation is higher and the aspect is easterly. I propose to raise the passion vine from seeds sown in a seed-bed in spring, and transplanting to rows of, say 10 feet x 12 feet. Is this distance correct, and would it be best to trellis fence fashion, which would mean hand-hoeing all between the plants one way, or could I use trellises high enough for horse-work each way?

I also intend to grow tomatoes between rows while vines are small. I mention this, as a market gardener told me he would not grow tomatoes on his farm, as the land will grow nothing after them.

Would you advise pruning passion vines each year, say, leaving a main leader to top rail of trellis, and pruning all laterals back to same each year (between growths)?

Would Jordan almonds bear in this district? The elevation is about 500 or 600 feet, and nearly free from frost?"

In reply, the Fruit Expert, Mr. W. J. Allen, expresses the opinion that the sandy loam referred to should grow good passion fruit, provided the frosts are not too severe. The vines would not do so well on the more clayey red soil. If it were a red sandy loam they would probably do well, but generally speaking, they do not do well when planted in heavy soil. Ten feet by 12 feet apart is as close as passion vines should be planted in rich ground, and they are better a little further apart. The best form of trellis is one of posts and wire, with a post between every second vine projecting 5 feet out of the ground; on the top of the posts are fastened two wires about 6 or 8 inches apart, the vine to be trained up a stick or small pole until it reaches the wires, then trained along the latter. Mr. Allen would not recommend a higher trellis than 5 feet. A good man with a horse and cultivator can work nearly all the ground without having to do much handwork. Mr. Allen would not advise growing anything between the vines unless manure is applied literally, as, if the plantation is expected to pay, the ground must not be robbed of its best properties by rapidly maturing crops before the vines themselves have come into bearing. It would be a great advantage to the vines if it were possible to lime the ground before planting. The dressing in the case of soil indicated should be at the rate of not more than one ton per acre.—*Agricultural Gazette of N. S. Wales*

PLANTING NOTES.

Insect Tormentors of Horses.—The *Chasseur illustré* says that a decoction of 1 part of stramonium leaves to 3 parts of water, boiled for 20 minutes and applied, when cool, to the face, about the ears, inside the legs, about the belly and croup, is sufficient to keep a horse free from its insect tormentors during a whole day. Stramonium is said to be much efficacious when thus used than tobacco.—*Queensland Agricultural Journal.*

The Cure of Snake-Bite.—In an article recently published on the prevention of deaths from snake-bites, M Henri de Parville cites several well-authenticated cases in which the anti-venomous serum of Dr. Calmette, head of the Pasteur Institute at Lille, has been the means of saving life. Dr. Calmette, it may be remembered, was himself bitten on the hand by a cobra when experimenting in his laboratory a short time ago, and only escaped death by the application of the serum discovered by himself. A mining engineer, in a letter to the writer from Australia, also relates how he was bitten in October by a deadly serpent, and an hour afterwards was fast losing consciousness, when the timely intervention of Dr. Calmatte's antidote brought him back to life. But the most striking testimony to the value of the French professor's serum comes from India, where a was woman recently bitten by a venomous snake of unusually large dimensions, and cured when she was at the point of death. To prepare the serum, the venom has to be procured from living serpents, and it was while engaged in this risky operation that Dr. Calmatte came near losing his life. The Pasteur Institutes at Lille and Paris forward consignments of the saving serum to all countries in which venomous serpents are found.—*Australian Field.*

Precautions to be Taken by Consumers of Vegetables.—We (*La Revue Agricole de l' Ile Maurice*) think it will be useful to reproduce a paragraph inserted in the *Agriculture Moderne* relative to the treatment which raw vegetables should undergo before being eaten. The recommendations by Dr. Ceserole have all the more importance in hygiene, as market garden produce in the colonies is often treated with liquid manure. It has for a long time been known that intestinal worms are generally transmitted to us through the medium of vegetables. Dr. Ceserole, of Padua, has devoted careful study to the subject; he has examined the sediment of sterilised water in which various market vegetables had been washed, such as lettuce, endive, radish, celery, &c. The microscope revealed in this water the presence of fifty-two common species of fauna. But, besides these parasites, Dr. Ceserole found a number of microbes—notably, a bacillus analogous to that of typhoid fever, the septic bacillus, and the bacillus of tetanus. This infection of the vegetables is especially to be imputed to watering them with liquid manure. Great care has consequently to be exercised. Lately, Metchnikof, of the pasteur Institute, has discovered that a certain number of parasites appeared to have their origin in intestinal worms. Dr. Ceserole recommends that, to avoid danger, the vegetables previously well washed should be plunged for half-an-hour into a 3 per cent. solution of tartaric acid, which has an agreeable flavour, is cheap, and of great antiseptic power.—*Queensland Agricultural Journal.*

AN EXTENSIVE APPLE ORCHARD.

A company composed of representative horticulturists in Iowa and Missouri has been organised with a capital stock of $1,000,000, for the planting of what it is claimed is to be the largest orchard in the world. This orchard is to cover 5,000 acres of ground planted with 50 trees to the acre. The land for this experiment has been chosen in Laclede County, Missouri, about 150 miles southwest of St. Louis. This choice has been made because of the discovery that apples grown in this county have taken the first prize in competition with most of the other countries in the same State, which is peculiarly adapted both in soil and climate to the successful growth of fruit crops. About 100 acres of this land will be planted with trees next spring, and it is estimated that within six years the whole of the orchard will be bearing fruit. While the main object of the company is that of raising apples, many peach and other trees devoted to small fruit will be planted during the first years, in order to produce an early dividend upon the investment. The underlying principle of the company which is undertaking this work is that co-operation of a commercial character can be developed under the direction of men skilled in business and horticulture, and that if this assumption is correct, the venture can be made more profitable than is possible from individual investments in the same line, and that too the chances of loss incident to such investments when made in a small way are not so great. It is estimated that each of the 250,000 trees to be planted on this area will produce five bushels of apples thus making a total yield of 1,250,000 bushels, equivalent to about 500,000 barrels. It is expected that the bulk of this crop will be exported to Europe. During the fiscal year of 1901 the export of apples from the United States was 840,605 bushles, of which 794,660 were sent to the United Kingdom. As showing some of the methods to be adopted, a cold storage plant will be built in St Louis as soon as this orchard has come into bearing. This will be the main shipping point and it is intended that the storage plant shall have a capacity for 150,000 bushels. Another interesting feature of the work is the announcement that the St Louis and San Francisco Railroad has taken such an active interest in the plans of the company that it has agreed to construct a branch of about 3½ miles through the property. It will also build at frequent intervals along the line of this branch warehouses which, it is expected, will facilitate the prompt handling of the crop.—London *Times*, Oct. 4.

COCONUT PLANTING IN CEYLON:

SUCCESS IN DRY DISTRICTS: HOW TO GET APPROXIMATE AREA.

(By a Veteran.)

The number of coconut estates in the island that pay R100 an acre of profit may be counted on the fingers of your two hands. I was up in the Rajakadaluwa District two months ago, and an estate about a mile this side of Battuluoya, belonging to a native, just nearly made me envious. I never expected to see such bearing and such fine trees in a district with only 54 inches of rain—what I saw there and 15 miles farther North on the road to Puttalam has caused me to modify considerably my views as to the bearing capabilities of the coconut palm in comparatively dry regions so long as the soil is free.

Although headmen's reports are not very reliable, they are the only means of knowing the acreage of the thousands of small gardens planted with coconuts in the different districts. It would be impossible for any European to get reliable information on this matter, and it would be only a very unreliable guess to try and form an estimate,

I am afraid you must be content with the information you can get through the different Kachcheris. [Until the Cadastral survey is closed. —Ed. *C.O.*]

RICE-CROP PROSPECTS, 1902-03, IN BURMAH.

The District Officers' reports on the rice-crop prospects on the 30th September 1902 in the 14 chief rice-producing districts of Lower Burma are to the following effect:—

Summary.—The estimated area under rice in the 14 principal rice-growing districts is reported to be 6,649,006 areas against 6,558,190 acres actually cultivated last year. Amherst reports on unexplained increase of 28,900 acres, and Pegu, Toungoo and Hanthawaddy report increases of over 10,000 acres. Floods have caused damage in Tharrawaddy and Thôngwa and have caused a decrease in cultivation in Henzada. In Myaungmya the fallow area is large owing to cattle disease and sickness among the cultivators, and in Prome owing to untimely rainfall. Otherwise prospects are bright.

THE TEA BUG OF ASSAM: IMPORTANT DISCOVERY BY MR. MANN.

Calcutta, Nov. 10, 7·55 a.m.

Mr. Mann, Scientific Adviser to the Planters, states that the Tea Bug in Assam is found from eggs onwards on the tea bushes and not in the ground.

THE STORY OF THE JAK TREE.

Mr. Carruthers' Lecture, the second one of the "Kandy Popular Lectures," was given at the Town Hall on Monday evening before a large and appreciative audience. The evening was fine, the lecturer in excellent form, the Chairman (Hon Mr H Wace) jocative and the audience good-humoured. With these conditions combined "nobody could deny" that the lecture was a success. The lecturer (I cannot help calling him so) took pains to say his was not a "lecture." Of course, all knew only one, who rose to the heights of a "lecturer"—and that was, that grand old dame, Mrs Caudle. As the Town Hall is devoid of mosquito curtains, the members of the male sex felt safe and happy that there was to be no "lecture." Mr Carruthers said, he was going to treat us to "The Story of the Jak Tree." Delightful visions of dear old Hans Charles Andersen and Mrs Prosser rose into our minds and we, indeed, got them reproduced in another form. The seed in its embryo state to the plant, the radicle, roots, stem and leaves and the flowers were described in a free and easy style. There was hardly anything of the technical. The lecture was illustrated by lantern slides from the "cradle" to plant-life. The drawings for the slides were stated to have been very good, but by the time they had to be shown they had

faded a good deal and were not very distinct on the screen. One especially when it came up, he described it heaving a deep sigh, as being in "the sere and yellow leaf." In his observations of tree and plant-life in the Gardens one bright moon-light while noting down, he of all people mistook a papaw tree for a cot on tree. You know, Sir, he is not the only one that has been moon struck. Many of us can freely confess to that experience once or more in their lives. It proves the truism, clearly, that the best of us after all is human.

The hour ran out much too fast and the worthy lecturer had reluctantly to close "The story of the Jak Tree." It was a good story.—Mr De Saram, the District Judge, moved a vote of thanks to the lecturer. It was judicially delivered without one *if* or *but*, short and sweet. Mr Copleston seconded and announced that two reading circles had been formed. The audience as they got into the Hall were given a leaflet entitled "Notes for Students," being "an advance" introduction to the lecture which simplified it. It goes without saying that these educational efforts are due to the indefatigable exertions of the Honorary Secretary, Miss Gibbon. The next lecture will be "Charles Dickens." A good many are endeavouring to read up his life and works to be *en courant* with the lecturer. The Secretary will, I am sure, be delighted to hear this piece of news. It will be next month and "may I be there to see."

CULTIVATION OF COTTON IN GERMAN COLONIES.

There is, says the *Hamburger Börsen Halle*, no doubt as to the value of cotton culture to the owner, as evidenced by the grand results of Russia in Turkistan, which will soon render the Russian cotton market completely independent of other countries. These results have drawn the attention of the leading circles in Germany to this branch of colonial economy. The endeavours of the Economic Committee of the German Colonial Society, regarding the production of cotton, are not to be limited to Togo, but Eastern Africa is also to benefit by them. Already the existence of indigenous cotton at Kilimatinde, Tanga, Wilhelmsthal, Mandera, Kissorawe, Kilwa, Kilossa, Bismarckburg, a primitive cotton-weaving establishment of the Wahunga, at Kilimatinde, at Rungwe-Urungu, and on the shore of the Tanganyika, does away with the doubt of the possibility of producing cotton in East Africa. A tabulated statement by Dr. Hans Maurer shows that the climatic circumstances and the amounts of the yearly rainfalls do not vary essentially from the quantity of rainfall in the cotton-producing districts in the North America. The cotton enterprise in East Africa is to be placed at once on a broad basis by founding a teaching institution, and by the settlement of American cotton farmers. The managers are instructed to concert proper measures for procuring the necessary means, so as to secure the undertaking for at least two years. The Government of German East Africa, a number of cotton-spinning associations and industrialists, have already granted financial help to the undertaking. North-American negroes from the Normal and Industrial Institution at Tuskegee are to be engaged for East Africa.—London *Chamber of Commerce Journal*, October.

THE INDIAN ACACIAS.

India can lay claim on only twenty species, which are distributed throughout the plains, two species reaching an altitude of 5,000 feet above sea-level. But of these twenty species, three are of considerable commercial importance, *viz.*, *A arabica*, *A catechu* and *A. senegal*; the remainder being more or less of ornamental character. A few foreign species have become completely naturalised in India, such a *A. dealbata*, the Australian Silver Wattle, and *A melanoxylon*, the Australian Black-wood. These latter are now found plentifully in the warm temperate tracts of India, especially in the Nilgiri Hills of South India, where they are introduced so far back as 1840. *A. concinna*: The first species noticed is a scandent bush met with all over India, the pods of which are used as a detergent and often confounded with the soap nut (*Sapindus mukorossi.*) The bark is used in tanning, but its chief commercial value lies in its pods, which are largely imported into Bombay from Kanara. The pods are also largely employed in washing silk and woollen goods, as the best tinctorial results are obtained when yarn is washed with these pods previous to dying. Tarnished silver-plate washed with these pods attains great brilliancy. *A. Farnesiana* yields the well known "Cassie Flower" of perfumers. "Cassie Pomade" made in India at one time had a great reputation. It was prepared by an Anglo-Indian Engineer of Naini Tal who used to send supplies of it to London. After his death the trade in Indian Cassie Pomade died out. Mr. Umney, of Layman and Umney, considered the produce from Cassie Flowers grown in India, superior to that grown in Grasse, in France. However, the possibilities of a trade in Cassie Flowers are present, for the tree abounds in India; but it wants some one with enterprise to develop it. *Jacquemontii* is another valuable shrub, distributed throughout India, up to an altitude of 3,000 feet. It bears sweet-scented flowers, and its chief product is a gum, which is recognised as one of the spurious gum arabics, which comes chiefly from Baluchistan and Sind. Messrs. Rowntree and Co., Ltd., of York, have pronounced the gum of this species as "the best of the series of Indian gums examined by them for the confectioners' requirements.' It is described as strongly mucilaginous and sweet in flavour. *A leucophlœa* is another Indian species of some economic value; it is found all over the Punjab Rajputana, Central and South India and Burma. Its presence is held to denote a rich soil. It yields a gum of some commercial value, the bark affords a strange fibre, and is used largely as an astringent in alcoholic distilation by natives, and is therefore called the 'Distiller's Acacia.' We next come to *A. modesta*, the well-known 'Phulai' of the Punjab plains. It yields a good gum classed by Bombay merchants as 'Amritsar Gum;' and a beautiful, strong, durable timber, largely used for agricultural implements. *A. pennata* is a climbing shrub, met with in the sub-Himalaya region, East Bengal, South India and Burma. Its bark is a commercial product used to tan fishing nets in Bombay. *A. senegal* met with chiefly in Rajputana and Sind yields the true Gum Arabic of European commerce, the *verek* of the Negroes, and comes chiefly from the French Colony of Senegal. A very full account is given in the *Ledger* before us of the produce of this tree, and its commercial value. *A. Arabica* is the tree which yields the true *Indian* gum arabic, found over the greater part of India, and known as the *Kikal* or *Babul* tree. There are several varieties of this species, or rather, we

should say, several forms of it. It is the most important of all the Indian Acacias from the economic point of view. *Acacia catechu* is the tree that yields the well-known "kutch" or "kath" of India. In addition, it yields a very good gum and a hard, durable timber.—*Indian Gardening and Planting*, Oct. 9.

IRRIGATED COFFEE.

(To the Editor *Madras Mail.*)

Sir,—Will you kindly publish a recent experience of mine in regard to my Irrigation Coffee? I have a plot of four acres which has special facilities for irrigation during the hot months. A portion of my oldest trees (7 years) are planted there. They have given me four crops, including the present, and the last crop was 22 cwt out of these four acres. The plants did not suffer to any extent. On the contrary, they put on fine wood for this year, but I was rather disappointed with the existing crop,—I commenced picking in August—which I do not estimate at more than 7 or 8 cwt for the whole plot. To my very agreeable surprise, I find now that the plants are throwing out "spike," mostly in a "forward" condition, and in a fortnight or so I expect them to blossom; and this means that in May and June I shall have another crop, which, judging from the vigorous condition of the spike, must be rather abundant. One of the principal objections raised against coffee grown under irrigation is that the plants get no rest as in the Mulnaad, but the admirable condition of my plants, which *are giving* a fourth crop and *are preparing* for the fifth, shows that properly irrigated and well-manured, the plants take care of themselves, and take rest only when necessary.—C. Meenacshaya, Gowripuram.

THE FIBRE INDUSTRY.

Sir,—Mr. V T Vencataram Iyer, of Valavanur' South Arcot, has done a great public service by publishing the results of his valuable experiment into the plantain-tree fibre, thereby drawing public attention to an industry which may prove a blessing to India where these trees are grown very largely, and he deserves the thanks of every well-wisher of India. Now that he has satisfied himself of the highly remunerative character of the fibre, I beg to make a suggestion to him, which, whilst conferring a great benefit upon the landlords who grow these fruit trees on a large scale in Southern India, may prove highly advantageous to himself. In Tanjore and Trichinopoly Districts, to my personal knowledge, these trees are grown largely. If he could practically instruct in person, or by an agent, some of these landlords, in the method of extracting the fibre, and arrange with them the sale to himself of the fibre, he could, while putting some money into their pockets for what hitherto had been a valueless article, gradually develop for himself an export trade, which might eventually grow into gigantic proportions. If there were many gentlemen amongst us who possess the same practical turn of mind as Mr. V. Iyer, such a suggestion would be needless, but our men are mere theorists carping, criticising and complaining, without any earnestness for making practical efforts.

Whilst on this subject, I take the liberty of suggesting another fibre of much greater value than plantain fibre, which could be extracted from pine-apple plants. These might be grown in a plantain-garden so that both these valuable products could be had out of the same plantation. A very interesting and instructive letter on pineapple fibre was published in the *Madras Mail* of the 24th June, 1901, and if Mr. V. Iyer cannot readily lay hands on this letter, I shall be most happy to send it to him. The process of extracting that fibre, adopted in Japan and the Philippines, as I learnt from Dr. Watts, is likewise simple. C. Meenacshaya.

Gowripooram.

—*Madras Mail*, Oct. 27.

COCONUT BEETLE IN THE STRAITS.

The following resolution was proposed by Mr. E V Cary and seconded by Mr. C R Meikle:—"That in view of the alarming spread of the coconut beetle pest the Government be asked to appoint a special European Inspector in each State, whose duty it shall be to see that the provisions of Enactment V. of 1898 are strictly enforced. "That, in the opinion of this Association, it is essential that all trees which have been badly attacked shall be deemed to be 'beyond recovery' and forthwith uprooted, split up and burned, unless the owner can satisfy the Inspector that such trees have been regularly attended to in the past and are at the time of inspection free of beetle. "That for a second offence no excuse shall be accepted by the Inspector. That the burying of uprooted trees should not under any circumstances be allowed, the Enactment being amended, if necessary, to provide against this. That the Inspector should pay special attention to the enforcement of section 6 of the Enactment with respect to the breeding places of beetles. That all other palms which are infested by the coconut beetle shall be deemed to be 'breeding places' within the meaning of the Enactment and dealt with accordingly." It was agreed to alter the draft resolution and to insert the word European before Inspector. The Chairman said he was in a position to state that the High Commissioner had interested himself in the matter and it was satisfactory to know that we had his sympathy. As regards the breeding places of the beetle he considered that all rubbish heaps, serdang, and sago trees where the beetles are known to breed should be treated as such, and that uprooted trees should on no account be buried. There seemed to be no complaint of beetle in either Negri Sembilan or Perak, and he thought that when the Enactment was properly carried out Selangor would also be free from them. Mr. Meikle said that he concurred entirely with what the Chairman had said, but if the matter was not taken in hand at once he was afraid that coconut cultivation would be impossible. He went over an estate a few days previously which was covered with dead serdang and other palms in which the beetle breeds, but the coconut trees showed no signs whatever of being attacked, proving that if the pest is taken in hand at once there need be no fear of the beetle attacks becoming dangerous.—*United Planters' Association F. M. S.*

GRAVE CHARGE AGAINST A MANURE MERCHANT.

Mr. A J Forest, chemical merchant, carrying on business in Brussels, was charged at the Mansion House Police-court, yesterday with obtaining large sums of money under false pretences from Mr. Henry Hollingshurst, chemical merchant, of 127, Fenchurch-street, in connection with the purchase of quantities of basic slag used as a fertiliser or manure.—Mr. Cranstoun, barrister, who prosecuted, said that Mr. Hollingshurst had entered into contracts with the defendant for the purchase of hundreds of tons of basic

slag, the stipulation being that the slag should contain from 38 to 45 per cent. phosphate of lime. Cargoes which were sent over from Brussels were subsequently re-sold by the complainant to customers in Ireland. There was an arrangement between the complainant and the defendant, under the terms of which ·75 per cent. of the purchase money was to be paid on the analyst, by Dr. Dyer, a well-known analyst, of the sample of the cargo, and the balance on delivery. The allegations were that, whereas the samples submitted to Dr. Dyer contain the full proportion of phosphate of lime, on the faith of which the complainant made payment, the bulk of the cargo contained in some cases merely 7 to 8 per cent. of phosphate, and was practically useless, being, said counsel, little better than ground brick-dust. The customers of the prosecutor in Ireland were naturally furious when discovery was made with regard to the quality of the slag, and demanded back the money which they had paid, and in the result the prosecutor had necessarily sustained considerable monetary loss.—The prosecutor stated in evidence that he had paid the defendant in respect of slag over £1,900. Samples of cargoes showed a deficiency in one case of 20 per cent. phosphate of lime, and that it was quite unmerchantable. In round figures he was about £5,000 to the bad over the business. The case was adjourned, the defendant being admitted to bail.—*Globe*, Sept. 27.

COFFEE PLANTING IN SOUTHERN INDIA.

Nelliampatty Hills, Palghal, P.O. S.I.

You will probably be surprised to hear from me and will perhaps not remember me even when you see my name. I left the College in the spring of '94, and came out to India shortly after. As I believe a good many fellows go to India from the College, perhaps some of my remarks may be of use, and I shall certainly be very glad if they are. . . .

I have been coffee-planting ever since I came out, and am not doing altogether badly as things go, but from want of capital have not been able to do as much as I should have liked. No fellow ought to come out here with anything under £1,800 if he wants to do anything in coffee, as superintendents' billets are hard to get, and there are already plenty of men in the country ready to jump at any place there is going. The best way for a fellow who has a little money, is to get a share in a young estate, not all opened, and try to get the superintendence or management of that. It is a mistake to put in money where there is much old coffee, as with prices in their present high condition not many men are inclined to part with it (unless there is something pretty far wrong).

The life of a coffee-planter is, generally speaking, very interesting and jolly, but of course not all beer and skittles; plenty of hard work, both in the field and in the office, and many fellows have to give up on account of fever, which is to be found in all coffee districts with very few (if any) exceptions.

As to kit, a fellow can bring out his ordinary English clothes and not go wrong, and it should be remembered that a few things can be obtained in India. Clothes can be copied splendidly by native tailors if good patterns are brought out, and it is a mistake for a fellow to buy a huge kit "expressly made for India," the greater part of which he will probably find useless to him. I speak from my own experience. If a fellow intends going in for shikar or big game, he cannot do better than the following battery if he has money to dispose of: *i.e.*, one double-barrelled 8-bore for all thick-skinned beasts like elephants, bison, etc., one double-barrelled 450 express and one double 12 bore shot and ball gun. That is the most serviceable battery that can be had. I speak from my own experience there too, having had some with every variety of game there is in Southern India. If a man has only a moderate amount of money to expend on guns, he will find a 12-bore paradox the most useful. . . .

—*Empire Review*, Oct. A. G. M.

COFFEE IN BRAZIL

A telegram to *O Paiz* from Miraccma states that the drought has ruined the coming coffee crop in the State of Rio, that had providentially escaped the frost and that great misery prevails. Since then it has been raining hard for several days, so we suppose telegrams will be received to the effect that the little flower left from the frost and drought has been finally washed away by the floods and that there will be no crop at all. Then, we suppose, everyone would be starving but happy.—*B. Review*, Oct. 1.

RUBBER: A GOOD STORY.

He is a bold man who attempts to predict the price of rubber a few weeks ahead. A friend of ours, some eight weeks ago, offered to bet a new hat that the price of "Para" would go up to 3s. 6d. before the end of November. We like to bet on certainties, and as this was not one, we did not accept his kind offer. He followed his opinions in good time and bought largely for his firm. May we be pardoned for saying that he is one of the few rubber men at the present time going about with an obvious smile and a whole-hearted contentedness delightful to witness. At the time of writing the price is still below his prophesy but he has still ten weeks or so to run. Let us hope he will still be chuckling at the end of that period. Some funny stories are told of how forecasts of the rubber markets are arrived at. We don't mean by this that the arduous study of its rise and fall is treated by any of the buyers with levity, but still on a matter which ofttimes defies the most careful calculations outside influences sometimes creep in. Perhaps the yarn is not new to some of our readers, but to most it will be. A buyer of rubber had wearied his brains out one evening late in December of 1901 in his attempt to come to a decision as to his purchase next day. He could not afford to let the matter stand over until the next sale. He went to bed late and for a while he could not sleep. When he did fall over he dreamed that he went into a shop where they sold rubber done up in packets like tea. He asked the shopman (who by the way resembled one of our best known brokers) for a pound and when he got it he laid down three shillings and one sixpence. Before the shopman could handle the money the sixpence went a missing mysteriously. After hunting for a time the shopman gave it up

with the words "It's lost for ever." When the buyer awoke next morning the yarn goes on to say that he remembered the dream so vividly that he could not bring himself to buy at the sale—the price being then just about 3s 6d, with an apparently rising market. The point of the story lies in the fact that within a fortnight the price had gone down to 3s 3d and within the month it had sunk to 3s. So if he *had* bought before his sixpence would have been "lost for ever." Such a dream may be merely a coincidence, but when it occurs it is apt to puzzle the man to account for it. The buyer in question has, we believe, never been visited again by such a truthful dream, nor had the subject of rubber even ever been prominent during his fleet before, nor has it been since. Any of the gentlemen engaged in the same occupation who have experienced similar "portents" are invited to let us hear them.—*India-rubber Trades' Journal*, Sept. 15,

SNAKE BITES AND THEIR REMEDY.

Now that anti-venene is generally employed as a remedy for snake-bite in India, it may interest the public to know something of its methods of application. It should be premised that the effect of snake-bite depends on (1) the quanity of venom injected in relation to the weight of the human being or animal bitten; (2) whether the venom is injected into a blood vessel or into the tissues. If the fangs of the snake penetrated a blood-vessel and a sufficient amount of venom is injected into the circulation direct, the person or animal is doomed. In such a case there would be no time to use anti-venene or any other remedy, and death might take place in ten or fifteen minutes. Luckily cases of this kind are quite the exception. On the other hand, when the snake injects the venom into the tissues death does not occur for hours, and frequently no symptoms set in for hours, also. It is in these instances that anti-venene can be effectively employed. It has been demonstrated that the amount of venom which kills an animal of certain weight when given intra-venously takes from two to three hours to kill a similar animal of the same weight when given subcutaneously. The average time in which death takes place after cobra-bite is about eleven hours. The extremes vary from half-an-hour to twenty four hours; so in the great majority of cobra cases there is ample time to use the remedy. When the patient is seen in good time, and before the symptoms have become advanced, the treatment is by subcutaneous injection; if the dangerous stage seems to have been reached, it is best to inject direct into a vein. When given intra-venously, this antidote acts very quickly and patients can be saved at a stage of the poisoning when it is not possible to save them by the ordinary subcutaneous method. Anti-venene is now being prepared at the Pasteur Institute. Kasauli, and India should soon ceases to be independent of Calmette's laboratory at Lille, whence it has mostly been obtained. While on this subject we may refer to some recent statements regarding bites from mad dogs or jackals, and the application of turpentine, ammonia, etc., to the wounds. Pure carbolic acid, phenyle, or the actual cautery are probably the best forms of local treatment. Other caustics and turpentine are also beneficial; but no form of local application can be thoroughly relied upon to prevent the subsequent onset of hydrophobia, unless the wounds are very superficial and the caustic is immediately and most thoroughly applied. Cauterisation destroys some of the poison which the rabid animal implants in the wound, when the application is made within a few hours of the bite—some authorities even say up to twenty-four hours; but after twenty-four hours it is certainly useless. It is questionable whether it does any good after ten hours. In every case it is desirable to use cauterisation of some kind as early as possible; and if no application is available, the wound can always be thoroughly washed with water. The object aimed it is to get rid of as much of the poison from the wound as possible, either by applying caustic or by washing it out. By this means the incubation period is prolonged and time is gained for successful treatment at a Pasteur Institute,—*Pioneer*, Oct. 29.

AN AUXILIARY PRODUCT TO TEA.

(To the Editor of the *H. & C. Mail.*)

SIR,—At the last annual meeting of the Indian Tea Association I was glad to notice that Mr Robert Hart, who had for many years practical experience of tea planting and enjoys the reputation of being an authority on all that concerns tea, advised the planting out of an auxiliary product to tea, such as sisal fibre, grown from the "Sisalana Agave," and, better still, that he has the courage of his convictions, as I learn from good authority he has arranged for the necessary seedlings to plant out between six and seven hundred acres during the next three years.

This would serve as aid to the profitable working of tea concerns, not only by being in itself a valuable commercial product, but also by covering the cost of the obligatory employment of the whole labour force during the slackest part of the year, that is to say, the complete labour force in a garden is only required eight or nine months of the year, whilst the rest of the months a good half of the coolies are given employment in Sylhet, more with a view to their receiving living wages than for any direct benefit.

In planting out sisal on land belonging to a tea garden, the initial cost of the plants, and in three or for years' time the purchase of a fibre-extracting machine, would be the only items of prominent expenditure. The cost of planting should be small, as putting out from 700 to 1,000 plants per acre is all that is necessary. There would be the existing establishments, both European and native, engine and boiler, buildings, labour force, &c., to be further employed and used in the production of the fibre; the only direct chargeable items would be the actual pay of the coolies employed in planting out and upkeep of the plants. Besides the above advantages, land unsuitable for tea would be made productive under sisal. Belonging to most, if not all, tea estates such land is to be found. Also those parts of a garden planted with tea giving little, if any, remunerative results, would grow sisal to advantage. The benefits of planting out sisal as an aid to the prosperity of tea concerns should be great. The demand for fibre, such as the "Sisalana Agave" produces, according to all information obtained from reliable sources, promises well for some years to come, and even if with the natural increase of production, prices should fall, India, with its cheap labour, will always hold its own, certainly with all those countries which now produce it. R. WOOD.

—*H. & C. Mail*, Oct. 10.

THE PEARLING INDUSTRY.

A most interesting report on the pearling industry by Mr. Justice Dashwood, the Government Resident of the North Territory, has been forwarded to the Acting Premier of the Commonwealth. In 1901 the pearl shell raised in the Torres Straits fisheries was valued at £105,403. The indnstry is carried on by coloured labour, white men being nnable to stand the trying character of the life. The industry, it is said, will be practically killed by the White Australia policy.—*Commercial Intelligence*, Oct. 9.

CEYLON GAME PRESERVATION SOCIETY.

AND NILGIRI HARES.

Some time ago, the Nilgiri Game and Fish Preservation Association received a letter from the Fish and Game Preservation Association of Ceylon, asking that the Association might forward them fifty Nilgiri hares. The Association was then of opinion that there were not sufficient on the hills. They are now so plentiful and so great a nuisance to the native market gardeners that these men are everywhere seen, asking sportsmen to hunt them. I know a sportsman, says an Ooty correspondent, who has secured on putta land on an average two hares every time he was out, while the *Asian's* mighty porcupine-slayer, who has, the blessings of all Badaga cultivators, has, without the aid of firearms, accounted for no less than 55 porcupine, for the flesh of which he has constant applications. The greatest enemy of the hare is the jackal, and it is a pretty sight to see some three or four of these animals surrounding a hare and covering it down—especially on a moonlight night. Jackals are just now very plentiful in the nights near the Hobart Park, and are playing mischief with domestic poultry. Under the circumstances the Association might well give the Ceylon Association 500 not 50 hares.—*Indian Daily News*, Nov. 5.

QUININE AND ITS HISTORY.

The Cinchona trees were chiefly to be fonnd upon the Eastern slopes of the Andes, and until the discovery of quinine the Peruvian bark of commerce was drawn in the main from this district, the finest qnality, grown in the town of Loxa, and known as Crown Bark, being long reserved for the Royal Family of Spain. Of conrse, the demands of Europe soon denuded the native forests of their trees, and led to the cultivation of Cinchona in other districts. The Dutch were the first to make the experiment of cultivating the plant in Java, where they met with much snccess, their example being followed by the Indian Government and by English residents in the East, with the result that for many years past there have been extensive plantations in the Neilgherry Hills, British Sikkim, Bombay, and British Burmah, while the growers of Ceylon have extensively planted it in Colombo.*—W. N. Broun in *Journal of Horticultural*, Oct. 23.

* Not within 100 miles of Colombo which is by the seashore, but on the hills from 3,000 to 6,000 feet above sea-level.—Ed, *T.A*,

PASTURE :—GOOD INTEREST.

Mr. Alfred Tucker, secretary of the Totnes Union Chamber of Agricultnre, writes to the *Western Morning News* :—In November last I applied on an eighth of an acre of pasture land after the rate of four hundredweight of kainit and two hundredweight superphosphate an acre, and in the first week in April one hundred weight of nitrate of soda. The grass adjoining was unmanured. The grass was cut the middle of July and the hay carefully weighed, with the following results :—No manure, 27 cwt an acre; complete manure, 55 cwt an acre. I may add that the experiment was made on an old pasture field in good heart on clay and shale subsoil. —*Liverpool Echo*, 18th Aug. 1902.

ROCK SALT FOR STOCK.

Allow me through your paper to call the serious attention of all farmers, during this sadly wet and critical harvest, to the great importance of allowing all sheep and horned stock access constantly to as much rock salt as they will take, as well as a daily allowance of dry food. In the disastrous years of 1879 80, when I was farming largely for the late Duke of Bedford, I fully believe that many flocks of sheep that then perished with fluke and other liver rot would have been saved if these simple directions had been attended to.—H S Fenning in *Agricultural Gazette.* [Applicable to certain districts in Ceylon ?—Ed. *T.A.*]

THE ORIGIN OF PEARLS.

From early classic times the question of how pearls were formed has been discussed, and various theories have been put forward to account for the occurrence of these gems in oysters and other molluscs. The identity of the material from which they are built up with that of the shell-substance has long been recognised, and among the causes suggested for their production may be ennmerated concretions from the shell-forming fluid, perforation of, on other injury to, the shell, an aborted or displaced egg or a grain of sand, acting as a nucleus round which the shell-forming fluid accumulates, and, the action of a parasite, supposed to produce in the mollusc a result analogous to that caused in plants by the puncture of a gall-insect. Among those who have tried to produce pearls by artificial means, the most famous is Linnæus, who received from the Swedish Diet a reward of about £500 for his supposed discovery, which, however, turned out to be valueless. Nevertheless, it was, when first announced, rated so highly that it has been put forward by some writers as the reason why the great naturalist received the patent of nobility which is generally supposed to have been the reward for his services to Science. Dr H L Jameson, who has lately re-arranged the collection of pearl-bearing oysters in the British Museum (Natural History) has devoted a good deal of time and labour to the investigation of this matter and the results arrived at by him have just been published in the Proceedings of the Zoological Society. He has come to the conclusion that true pearls, which are fonnd in the flesh substance of the oyster or mussel, are entirely due to the presence of a parasite. What he call 'blisters,' or secretions of pearly matter attached to the interior of the shell are produced by the deposit of nacre or mother-of-pearl, in order to close an aperture, arising from injury, or to coat some irritating foreign substance introduced between the animal and its shell. Good examples of 'blisters' may be seen in the Natnral History Museum in the small metal images of Buddha, inserted by the Chinese in the shell of a pearl-bearing, and coated with mother-of-pearl, and the same collection contains small fish and crabs similarly coated.

As Dr Jameson was unable to go again to the Southern Hemisphere (from which he had recently returned) to study the true pearl-oysters, he began his observations at Billers, in Morbihan, where there is a small, but somewhat noted, bed of pearl-bearing mussels. He was soon able to trace the formation of pearls in these molluscs to the larval form of a worm closely allied to the fiver-fluke which infests sheep. The parasite which has been found on the inner surface of the shell make its way into the flesh substance of the mussel, and then curls up and passes into a resting stage. Pound it there is developed by the mussel a number of cells clining its resting-place, and these cells coalesce to form the pearl-sac in which the intruder is enveloped. In the ordinary course of events the larval worm becomes calcified in its prison, from the outer wall of which the pearl-substance is deposited layer on layer, and the growth of the pearl probably goes on at the same rate as the thickening of the shell. Dr Jameson has found that the larva may leave the sac, migrate in some other part of the body of its host, and there again settle down. This is evidenced by the fact that empty sacs have been met with in the body of the mussel. He was also successful in working out the life-history of the parasite, which, at Billiers, migrates into the mussel from the tapestry shell, and at Piel, on the Lancashire coast, from the common cockle, these being in each case its first dwelling. The perfect stage, in which reproduction takes place, seems to be passed, at least at Morbihan, in the black scoter, one of the diving ducks widely distributed in the Northern Hemisphere, in which adult forms were discovered. The eggs expelled by the duck are probably carried into the tapestry shell, and there hatched out, the larvæ being carried out by the water to find their way into the mussels. At the Fish Hatchery at Piel, and at the Brighton Aquarium, Dr. Jameson succeeded in artificially infesting mussels with these parasites and in producing small pearls. He is of opinion that the study of the parasites infesting the pearl-bearing oyster will throw light on the question of the artificial production of pearls. The life-history will probably correspond to that of the parasite infesting the pearl-bearing mussel. The first host will, no doubt, be some other mollusic found on the pearling-grounds, and the perfect stage will be reached in some of the file-fishes which feed on the pearl-oyster. Dr Jameson suggest that when these questions have been solved young pearl-oysters should be laid down in beds easily accessible, and with them the molluscs in which the parasite passes the first stages of its existence. In this way he thinks his investigations may be turned to economic account by inducing in the pearl-oyster the pathological condition which, as he has demonstrated, gives rise to pearls in the common mussel.—*Standard*, Aug. 28

THE PLANTAIN FIBRE INDUSTRY.

A good deal has been said and written of late years on the possibility of creating a plantain fibre industry in India, and it is interesting therefore to have the testimony of an intelligent Hindu landholder who has tried it. Mr V T Vencataraman Aiyar, of Valavanur, South Arcot, has placed at our disposal some practical notes on the subject which we cannot help thinking very valuable and instructive. In his experiments he has used the discarded stalks and sheaths of the common plantain, which are usually thrown away or burned after the fruit has been plucked. Samples of fibre extracted by him from these were sent three months ago to Messrs. Ide and Christie, the chief fibre-brokers of London, who valued them at prices ranging from £35 to £25 per ton. The following extract from Mr Venkataraman Aiyar's notes is particularly interesting:—

My experiments, the results whereof are more or less in accord with those reported to have been obtained in Kew Gardens, Jamaica, etc., show that an average plantain stem cut for fruit would give about 1¾ lb of the clean, lustrous, long stapled and commercially valuable fibre; and an adult with a week's experience can work about 8 stems a day, a boy being given to assist him in tearing the sheaths into longitudinal pieces of ¼ inch width and in collecting the broken fibre and in drying, then and there in the sun, the fibres extracted. The adult's wages being put down at 4 as. and the boy's at 1½ as. a day, we get 14 lb of fibre for 5½ as. (In other countries where plantain fibre industry is usually carried on, they get, it is said, over 2 lb a stem, but this I think is due to the dexterous experience in extracting the fibre with the help of "the cheap simple but effective contrivance"; and here too, after some experience I think the same results, if not more, can be had.) Even taking the outturn as per my experiment, and granting that special men are to be engaged for fibre-extracting work, the charges for extracting 1 ton of fibre from plantain stems as they are cut for fruits, amounts to R55 a ton; to this add R35 (this has been ascertained) for freight, traders' commission, insurance, etc., charges, and charges for bundling and pressing the fibre in bales, the total comes to R90. Even adding R10 to cover any extras, the charges to an agriculturist up to the stage of placing the fibres in the London market is R100. From Messrs Ide and Christie's quotations above given, even taking the value at only the lowest price, *viz.*, £25 a ton, there is a net profit of 25 × 15 or R375—R100, or R275 for a ton of fibre. On an acre of plantain in these parts are grown about 1,200 stems; so the outturn per acre will be about a ton. Even taking this at only ½ a ton per acre, there is a clear additional income of R140 an acre; and as this means conversion into money of fruit-cut stems thrown away to rot on the ground, I venture to say it is opening a new source of agricultural wealth.

As regards the process of manufacture Mr Vencataraman Aiyar says:—

The cheap contrivance in use in the Philippine Islands is said to be the cheapest and most effective method yet invented. It consists of a small wooden plank and fixed to it is a blunt iron knife weighted with a lever under which the longitudinal strips of the plantain sheaths are drawn; this drawing process repeated twice or thrice separates the stalk and the juice from the sheaths and there remains in the hands of the operator a beautifully clean, long and lustrous fibre. This cheap contrivance can be made by a common blacksmith locally for about a couple of rupees. I had one made to enable me to extract fibre for purposes of experiment.

At the same time, Mr Vencataraman Aiyar points out that it is no use trying to start the industry on an acre or two of plants. The cost of extracting, cleaning, baling and transporting small quantities would be prohibitive, and he concludes that the only business-like plan is to plant considerable areas and to set up factories capable of dealing with the fibre in merchantable quantities. He himself wanted to buy from Government some 400 acres of waste land near his own village for the purpose; but the land has since been auctioned to a number of persons, and he has been unable to carry out his purpose.—*M. Mail*, Oct. 21.

The Silky Oak—attains a height of 70 to 80 feet. The colour is a light grey, beautifully crossed with silvery waves, and when polished the surface has a delicate lustre. Bedroom suites made from this wood possess a dainty appearance.—*Commercial Intelligence*, Oct. 23. [This is the *Grevillea* so common in our planting districts: has any one in Ceylon utilised the timber for cabinet work and with what result?—Ed. *T.A.*]

CACAO IN ST. LUCIA.

Mr Geo. S Hudson, the Agricultural Instructor, contributes the following interesting notes on cacao cultivation in St. Lucia :—The cacao crop promises fairly well. The first main crop pickings have already commenced, but the crop is a peculiar one. We have a small quantity of large ripening pods, and then an almost complete break in the crop, of a month or six weeks (corresponding with the very wet season experienced from May 24 to July 6), and then a large quantity of small pods, from July and August flowers, which will ripen mainly in December and January next. On the whole the crop promises somewhat better than it did this time last year.

MANURING CACAO.

At the September monthly meeting of the Soufrière Agricultural Society a useful paper was read by Mr Wm. M Smith, manager of Union Vale estate, on this subject, which it was decided to publish together with some notes by the writer on 'Artificial Manures for Cacao.' The concrete points argued in these papers are :—

1. That stable or pen manure is best preserved (for about three months) in a covered pit 4 feet deep, with a good layer of straw at the bottom to absorb moisture, and alternate layers of manure, straw and dry earth, watered daily with urine and stable washings collected in a receptacle from stables floored with concrete.
2. That such manure should be applied broadcast over the whole surface of adult plantations and lightly forked in.
3. That artificial manures have in many cases proved more efficacious and cheaper than natural manure.
4. That basic slag at the rate of 5 to 10 cwt. per acre, applied in December or January, followed by 1 cwt. of sulphate of ammonia the following August or September has given the best results in St. Lucia and also Grenada, on the experiment plots worked by the Imperial Department of Agriculture. The cost of such applications would be from £2 10s to £5 per acre. The results in increased crops have justified the expenditure several times over.
5. Nitrate of soda, 1 cwt. per acre, is clearly indicated in the attacks of *Diplodia* and other diseases where the foliage is first affected.
6. Bone meal, about ½ lb to each hole, is the most satisfactory application when young plants are being put out.—*Agricultural News*, Oct. 11.

LIMES IN GRENADA.

The Grenada *Federalist* reports that at the recent meeting of the managing Committee of the Agricultural Society, the question of planting the Spout land in limes took place. 'It was urged that the lime industry was likely to prove a valuable assistant to cacao and spices, and that an object lesson was necessary to enable peasant proprietors to have some idea of the method of cultivation and a knowledge of the value of the product. Lime fruit had been recently selling locally for export, at very good prices which were more remunerative than anything that cacao could bring, and it was urged that the systematic cultivation of this plant, would, therefore, be of very great benefit to the community. A vote was agreed to for cultivating one acre of the Spout lands in limes.'—*Agricultural News*, Oct. 11.

COCONUT BEETLES.

The following letter from the Inspector of Coconut Trees, to the Chairman of the United Planters' Association is interesting,

Sir,—I have the honour to inform you that the Government, through this office are taking immediate steps to see that the provisions under Enactment IV of 1898 for the preservation of Coconut Trees, is properly enforced.

2. The staff which I hope shortly to have at my disposal will I believe prove sufficient to carry out the necessary measures for this purpose, and I trust that before long the disastrous effects caused by the present ravages of beetles may be minimised as much as possible.

3. It must, however, especially in certain localities where the trees are seriously infected, take some considerable time before any really satisfactory improvement in many of the plantations can be looked for : meantime, I would ask your Association kindly to cooperate with me in the work and assist me in making the best progress possible.

4. In many of the coconut plantations, and this applies more particularly to native holdings where the ravages of beetles are worst, it will I fear be necessary to take very stringent measures, but I would prefer using most pressure by persuasive means, pointing out to owners and tenants alike how much it is to their own advantage, if they will themselves help in getting rid of these pests.

5. With regard to this a great deal of good can be done by their keeping their plantations clean and allowing no rubbish heaps, rotten stumps, or mounds of manure to accumulate, everything as far as possible should be burnt.

6. Your Association may therefore be able to afford me valuable assistance by using their influence with owners of plantations to take these ordinary precautions as far as it lies in their power.

7. I am aware that it may happen that any owner or occupier may be considerably hampered from keeping their plantation's free from beetles owing to the trees in their immediate neighbourhood being neglected, and if this is so and reported to me I shall at once take measures to have this remedied.

8. In conclusion, I have only to add that I shall appreciate any information on the subject which your Association may be able to give me, and any suggestion that may be made will receive my best consideration. —I have the honour to be, Sir, Yours, etc., Inspector of Coconut Trees. F.M.S.—*Perak Pioneer*, Oct. 25.

MALTA'S NEW INDUSTRY VINES.

Baron Ugo Testaferrata, a member of the old Maltese nobility has established a new industry in Malta. After ten years' planting and experimenting he has proved that the vine can flourish on Maltese soil, and is now able to produce 10,000 gallons annually of excellent wine, with an alcoholic strength of 15 per cent., and maintaining an unaltered standard from vintage to vintage. This wine is in growing demand both in London and New York, and has been awarded a silver medal at an international wine exhibition at Turin.—*Daily Mail*, Oct. 27.

RUBBER COMBINE.

New York, Friday.—*Commercial Advertiser* this morning says that the United States Rubber Company, acting with Sir Martin Conway, of London, is forming a large combine to control the Bolivian supply of rubber, King Leopold of Belgium, it is stated, is a stock-holder in the concern. It is estimated that the new company will produce twelve million pounds of rubber annually.—*Central News*.

BEAR SHOOTING IN CEYLON.

Though not frequently met with, bears are by far the comomonest of the "dangerous" animals of Ceylon. It is owing chiefly to their nocturnal habits, and the fact that they frequent the driest, rockiest and most difficult country, that sportsmen comparatively seldom get a shot at them; whilst natives hold the very name "walaha" in such dread that even the reward offered by Government for their destruction does not often tempt them to molest the savage brutes.

For a certain friend of mine, however, they held a special fascination. G made bear shooting a regular pursuit, and though most reticent as to his fields of operation, used to whet my ready appetite with such alluring descriptions of various trips he had made, that I arrived at a pitch of keeness which seemed to touch him in a soft spot, and one day he promised to show me a famous locality for bears if I would accompany him and vow to keep the place dark. A second invitation was unnecessary—I fairly leapt at the idea. We talked it over far into the night, and before the sound of G.'s ricksha wheels had ceased to grate on the drive, I was making a list of my requirements, and consulting a map of the Uva Province, wherein lay our chosen district. The next day was spent in getting together a few necessaries, and on the following morning we started early, taking one attendant each and my cook Peter, who was invaluable whether at home or in camp, his only drawback being a marked upward tendency of the elbow, which periodically got him into trouble.

We shipped on a little British India coasting steamer, which ran round the island once a week, and were landed at Hambantotte late in the evening. Here we stayed the night, and early next morning two bullock carts were chartered, one for us and one for provisions, luggage, &c., and Peter was instructed to procure some fresh food in the shape of fowls and rice. The unwonted ease of his existence was too much for him, however, and he had been putting in all his spare moments getting hilariously drunk. Consequently when we were ready to start, Peter was conspicuous by his absence. After much searching we found him, chasing the fowls he had bought up and down a street, and stuffing them back one by one into the crate from which they had escaped. No sooner had he got them all back than he (at sight of us) dropped the bag of rice and spilt half its contents. During the flustered operation of gathering it up more fowls escaped, and, with a ready eye to the main chance, helped to pick up the rice. There was no time to chide the erring Peter, and eventually, amidst the creaking of cumbersome carts, the shouts and strange urgings of their drivers, and the screams of turbulent poultry, we made a start with as much dignity as our surroundings would allow.

We followed the road through the salt lakes, crossed the Mahagam river, and came to the banks of the Manik Ganga (Jewel River), the sandy bed of which is composed almost entirely of quartz, sapphires, and rubies. Whilst quite valueless, the effect is most Aladdin-like, the water magnifying the tiny particles into sparkling gems of enormous size. Following the river for some distance, we forded across, and, after fighting our way through creeper-covered tracks for another two hours, camped in about the worst bit of country I had ever seen. It was simply a tangle of dry jungle, interspersed with small ravines, choked with boulders, and low, rocky hills, seared and jagged on all sides by fissures and gaping cracks. There was just time to run up a hut of jungle sticks and "talipot" mats before the sun set, and, after a dip in an adjacent pool, a good square meal, and a cheroot, we turned in and dreamt exaggerated dreams of what sport the morrow would bring.

Two hours before sunrise we were sipping tea and munching a biscuit, and G then led the way to a corner of his happy hunting ground, where it was likely that we should get a shot at some bear returning to his cave amongst the rocks above. Sending my boy Gregoris to a point of vantage, with instructions to whistle softly should he see anything, we took up our positions one on each side of a junction of two ravines, and waited. Fully half an hour passed and there was no sign from Gregoris, but suddenly I was startled by a shot from G, followed by the most human-like wails; and before I knew what had happened, a bear rushed into sight and was gone again without giving me a chance to draw a bead on him. G came tumbling down in his tracks, and we followed headlong in the direction the wounded animal had taken. We could just discern occasional spots of blood on the hard ground, and pressing on we came to a standstill at a small-mouthed cave in front of which were unmistakable signs that a family of bears lived within. It was quite light, though the sun had not yet risen, and again we hid among the broken rocks and waited in positions commanding the mouth of the cave. Scarcely had I recovered breath before I saw the ungainly, semi-comical figure of a young bear ambling along, stopping now and again to pounce upon some insect and, unconscious of danger, coming straight towards us. My excitement was intense, and I watched his movements with deep interest, wondering whether G could also see him, till suddenly he stopped and, protruding his loose, mobile lips, stood up and sniffed suspiciously. With my rifle resting on a rock, I took a quick but deliberate aim at the light mark on his chest, and pressed the trigger. It was a happy moment, and I tingled all over to see him collapse at the shot and drop dead without a sound.

We returned to camp and had a bath and breakfast, after which we prepared to bolt the other inmates of the cave, hoping to find G.'s animal and finish him off. Peter who loved to be thought a bit of a shikari, was deputed to carry my spare rifle and the crackers, and on arriving at the spot we made a careful survey, finding as we had expected another entrance to the cave about 15 yards from the first. Talking our loudest, we lit a candle and peered into the large entrance, and saw dimly that there were several deep holes in which the brutes were probably lying, listening to every sound we made. We directed the two boys to jabber their loudest and walk away. After their voices had died down, we left Peter at the large entrance and crept round to the other. At a sign from G Peter then lit one of the crackers and threw it in. There was a muffled report followed by the most infernal chorus of coughing barks, and to our consternation, out rushed a bear, not from the entrance we commanded but the one near which Peter stood. With a yell that would have wakened the Seven Sleepers, he dropped everything and ran like a rabbit, followed by the bear, which I at once noticed was going lame. We could not shoot as Peter, in dodging among the rocks, constantly crossed the line of fire. We went after him, but

could hardly run for laughter at the wretched Peter who was shedding portions of his raiment as he fled. G who was a little in advance to the right, at last got a chance and took a snapshot. The bear gave a roar and bolted up a stony gap on the left. I clambered up in hopes of cutting him off, and found myself face to face with the beast who was doubling back. He looked like charging, and I took a hasty shot, which sent him flying amongst a shower of loose stones. I shouted to G., thinking he was finished off, but not a bit of it. A moment later there was another shot and a loud "Hooroo !" The beast was at last dead, wedged in between two boulders between which he had fallen. He was the same animal G. had wounded in the morning, and was a a large male, with a coarse, mangy coat covered with thicks. He must have been lying somewhere round the corner when Peter threw in his cracker the result of which was to bolt him out of the wrong door. Whether the rest of the family had left the cave we had not had time to see, and decided to revisit it at nightfall and lie in wait for them, whichever way they went. On getting back we found Peter with eyes protruding and teeth chattering. His fright had reduced him to a jibbering idiot for the time being, and every sentence he muttered held the word "walaha."

We spent the rest of the day exploring the immediate locality and found several caves, the dusty floors of which bore the clubfooted marks of bears. All these retreats had more than one entrance and deep pockets or fissures in which the brutes lay in security and darkness. That evening G. with a fine long shot dropped a female bear dead as she came shuffling out of her den, and I succeeded in missing one of the easiest of shots and scaring, not only the animal at which I fired, but two others of whose presence we were hitherto unaware. In giving chase G. stepped on a ticpolonga snake, which writhed round his foot and bit at the tough leather of his boot and gaiter before it was shaken off and killed. The occurrence had a decidedly damping effect, and G., with a face as white as his topi, sat down and thought for five minutes, then drained off his flask of brandy, and suggested curried fowl for dinner. Peter, whose culinary resources were unlimited, quite surpassed himself that night and gave us an excellent five-course dinner, the original materials for which were, as far as I can remember, tough chicken, tinned beef, jam and rice. G. soon forgot about the polonga, and was hardly visible through the smoke of his cheroot as he sketched our plans for the next day.

Unless there is any incident to distinguish it, the description of one day's bear shooting is so like another that it will suffice to say that we accounted for seven animals and a porcupine, which I killed with a shot gun, and which we ate, finding the meat excellent. We worked our way back slowly, coming across several good patches of snipe ground on the way. We also saw a great many peafowl on the borders of the coast forests, but, being the close season, we had to be content with seeing them. In one of the villages at which our bullocks were changed we saw a man whose face had, years before, been half bitten away by a bear. He was an awful-looking object, but for us, fresh from the haunts of these vicious brutes, he had a peculiar, if morbid, fascination. Peter, in view of a certain recollection, refused to look at him.

—*Field*, Sept. 6. TOM-TIT.

WHERE GREEN TEA IS GROWN (? MADE.)

A Rangoon paper says that green tea is largely grown in Hsipaw and Taung Peng in the Northern Shan States, and now that the railway is extended to the former station, a considerable quantity will doubtless find its way to Burma. The last Administration Report says the new season has opened with brighter prospects ; that prices have risen and the old stocks in Taung Peng have been absorbed. The greater part of this tea crop is used for pickled tea, an article to be found in every Burmese house and largely used by Burmese at every ceremony or in invitation to such ceremonies. But the manufacture of dry tea is increasing. It was noticed in many places last year where it had not been seen before, and it is believed some was taken on to Mandalay. The amount of pickled tea sent into Burma from the Shan States last year by rail was valued at over eight lakhs, and dry tea valued at three lakhs was sent during the same period. There is also a considerable amount carried by carts and pack animals in the dry season.—*Indian Daily News*, Oct. 8.

PEARL OYSTER INVESTIGATIONS IN CEYLON.

It is understood that the investigations at the Marine Laboratory, Galle, by Mr. James Hornell have resulted in the settlement of several problems that awaited solution and is very confident of successful fisheries, if Professor Herdman's recommendations to Government were carried out. Our contemporary says that Mr. Hornell has received authority to bring a cargo of young oysters to Galle, to be placed in the shallow water at the foot of the ramparts with a view to practically testing whether a transplantation of oysters on a large scale to Galle would be a useful measure. Mr. Hornell was to leave for Trincomalee by the ss. "Lady Havelock" last month to make another survey of the harbour there and of Lake Tamblegam, coming back in time to join Capt. Legge for the inspection of the pearl banks next month.

TEA AT PESHAWAR :

GOOD DEMAND FOR GREEN TEA.

We are indebted to the Rev. J Gelson Gregson (who writing on 4th October, had just completed a tour of 6,300 miles touching Cashmere, Peshawar, Simla &c.) for the following interesting information, to which we attract the attention of our planters :—

"It may interest you to hear something about the tea trade in Peshawar, a station I visited last month—and while there was taken through the City and was surprised to see a great many *tea shops*, where cups of tea are sold all day long. The Afghans and Pathans are great tea drinkers, so the *tea shops* were as numerous in *Peshawar* as *whisky shops* are in *Glasgow*. I could not help thinking that this would be an opening worth cultivating for Ceylon tea, especially when I tell you that a very large trade is done with China. I was very hospitably entertained by one of the largest native merchants in the

City, and he gave me very excellent China tea, out of beautiful China tea cups *from Russia*—he showed me the cases of China tea, and said that Afghans always drink *green China Tea*—his trade is not confined to Peshawar, but extends beyond the frontier to *Cabul* and other places and on the other side of the frontier.

"Here is an opening for good *green tea* and *Ceylon* ought to compete advantageously with *China*."

A BIG PARA RUBBER CROP.

According to the United States Consul at Para, it is believed that an exceptionally good crop of rubber will be harvested in that province this season. The rubber fields of the lower river, and especially in the islands, are slowly but surely failing, both in quantity and quality, but the decrease is more than made up by the development of new fields and the expansion of the old fields on the Upper Amazon. While all the more important tributaries of the Amazon are supplying their full quota of rubber, and even making a promising increase, interest, he says, will be centred in the now famous Acre territory and in South-Eastern Ecuador. In the regions reached by the Purus (of which the Acre is a tributary), Jurua, Beni, Madre de Dios, Javari, Ucayali, Japura and other great effluents of the Upper Amazon, which penetrate Peru, Bolivia and Ecuador, there are illimitable rubber forests as yet unexplored, which will now be gradually developed. Many seringueiros, or rubber gatherers, are making their way to these regions, and it is reported that several syndicates are about to begin operations in new fields in Bolivia and Peru.—*Home paper.*

FOR HOUSEKEEPERS.

"For keeping meat in hot weather.—Boil water until it whirls, and put the meat raw into it directly it comes from the butcher. Keep it in the water for ten minutes only—it can be either boiled or roasted afterwards."—*Home paper.*

GUATEMALA AGRICULTURAL PROGRESS.

According to the report by H M Consul at Guatemala for the year 1901, it is stated in the Government report issued by the Agricultural Bord of Guatemala that considerable progress has been made in the acclimatisation and cultivation of various new products. To this end there has been imported from abroad seed of cotton and tobacco, maize from Chalco and Texcoco, Australian oak and other timber, &c. These seeds have been distributed amongst the agriculturists of the different zones so that experiments might be made. The Agricultural Board has had leaflets drawn up on such products as are new in the country, and distributed amongst all agricultural classes, so that the most modern and scientific rules as to planting, &c., might be observed when making experiments. There has been a great impulse given to the production of such grains and vegetables as are largely consumed in the country, more and more attention being paid to the cultivation of maize, beans, potatoes and wheat, and remunerative prices have been obtained. There is no doubt whatever that there is room for many vegetable and dairy farms, especially in the high-lying districts and in the neighbourhood of the larger towns, and many of the smaller proprietors are turning their attention in this direction with result pecuniarily satisfactory to themselves. *Annual Series*, 2,868.—*Board of Trade Journal*, August 28.

BIPEDAL LOCOMOTION OF A CEYLONESE LIZARD.

I have frequently observed with interest the erect attitude assumed by the small Agamid lizard *Otocryptis bivittata*, Wiegm., when running rapidly, and have long suspected that the short front legs were not used at such times. But the rapidity with which the animal runs, and the nature of the ground which it usually frequent, have prevented very close observation. I have, however, recently fully satisfied myself that its action is truly bipedal. The lizard happens to be common in the Botanic Gardens here, and on several occasions one of them has crossed a smooth sanded road immediately in front of me. I have thus been able to see clearly that the anterior limbs are carried quite free from the ground, progress being effected solely by the long hind limbs.

It seems possible that the closely allied and similarly built lizard *Sitana ponticeriana*, Cuv., may have the same habit. Does the Indian species of Otocryptis (*O. beddomii*) progress in the same fashion?

At present the habit has been recorded only of one or more Australian lizards, notably the "frilled lizard" (*Chlamydosaurus kingi*), which has been very cleverly photographed in the erect attitude by Mr. Saville Kent.

E. ERNEST GREEN.

Peradeniya, Ceylon, August.

—*Nature*, Sept. 18.

EFFECT OF FUEL OIL.

HOW THE SUBSTITUTE FOR COAL HAS CHEAPENED FREIGHTS.

Sir Marcus Samuel has just called the attention of the British public to the possibilities of the future in connection with the substitution of oil for coal as a fuel for steam vessels. The steamer "Pectan" of the Shell Transport Company, has made a successful trial trip. Mr Melrose, of the U.S. Navy Department, predicts the use of oil in the near future as fuel for war-vessels. They might have gone farther and told of the remarkable conditions now existing on the Pacific coast of the United States. There fuel oil has long passed the experimental stage. Over fifty steamers now sail from the port of San Francisco with oil for fuel. The steamer Mariposa has just returned from Tahiti, a return trip of 7,200 miles, under steam generated exclusively by oil. Pressure and speed were easily maintained, and she reached port one day a head of her schedule. Her fuel cost just half as much as coal; there was no expense for painting ship such as is necessary when coal is used. Particularly interesting is the opinion of Lieutenant Winchell, who has reported on the voyage for the United States Government, as to the character of men that should be employed in the fire rooms where there is an oil-fuel installation. It neither requires physical endurance nor previous training with coal fire. The me

placed in charge of the contrivance, however, should have mechanical aptitude, and possess readiness of resource and nerve. The senses of sight, hearing, and touch must be exercised at all times, since it is essential to keep a good look out on the furnace to note by the sound the working of the blowers, and the completeness of combustion, and to check by the sense of touch the workings of mechanical contrivances. If fewer men are needed in the fire rooms it is requisite to secure men of high intelligence, who can judge quickly as to the tendency towards impairment.

THE MONEY SAVED.

Less space was occupied, the fixed charges for labour were greatly reduced, the feeding of the fuel took less time and cost less. In fact, no disadvantages, were discovered, and the advantages were manifold. It is estimated that on one troopship making the trip from San Francisco to Manila and return the saving on fuel through the use of oil has been at least £5,000 for every such voyage. The result of the lack of demand for coal is remarkable. In San Francisco harbour alone fully £600,000 worth of capital in ships has been forced into idleness. Shipowners and skippers no longer find it profitable to voyage to Japan and Australia and return to San Francisco, awaiting cargoes of grain to Europe. The competition in carrying the small imports of coal has been so keen and the freight rates are now so low that the shipowners prefer to have their vessels idly ride the becalmed waters of the bay rather than take the chance of obtaining valuable cargoes in foreign ports. One of the benefits is that grain importers of California can obtain low rates to Europe. The vessels engaged in carrying coal are usually designed also for the grain trade to Europe. As this coal trade is gone, there is only one source of revenue left, and that is the grain trade. Here, again, keen competition has entered, and as a result there are low rates on grain to European ports.

COLLIERS OUT OF WORK.

Twenty-three shillings is the present low price for a grain charter from San Francisco to Great Britain or the Continent. The use of fuel oil has put the colliers out of business, and in turn they have sought operations in other channels. The rapid increase in the shipping facilities of the world due in great part to the artificial demands for transportation growing out of the South African and Spanish wars, has induced a reduction in ocean freight rates for cargoes in bulk, and to that extent favoured the farmers and producers, if not the manufacturers. This favourable situation is accidental. When Mr. Morgan and his associates shall have completed their transportation arrangements, an oil-burning equipment for every vessel being a projected part of the plan, the tramp steamer will be out of the running. In connection with this oil question the Standard Oil Company has a great fight on its hands in California. The trouble lies between the Standard people and a big oil and transportation company. The Standard Oil people are building a pipe line 200 miles long from the great oil-fields in Kern County to tide water in San Francisco Bay. The Standard Oil Company will use this pipe line for the transportation of oil from wells acquired by the corporation. It will also carry oil for producers. The rate of transportation to producers will conform to that of the railway companies connecting with the oil-field, as the Standard Oil and the Southern Pacific and Santa Fe Railway Companies are working under a tariff agreement.

CHEAP OIL.

A big California corporation, which owns some of the best wells in the oil district and owns a coast line of steamers engaged in the oil-carrying trade, has surveyed a direct route from the oil-field to ocean, and has agreed that if pledged freight to the extent of 10,000 barrels of oil daily it will build a railway, and thus furnish relief to the owners of wells having no connection with the Standard Oil Company or the railway companies. Thus far freight to the extent of 9,000 barrels of oil daily has been guaranteed. This fight is a very pretty one because the Californians in it are worth, in the agregate, £20,000,000, and have already had several successful skirmishes with the railway companies. The outcome of the fight will be that oil will be the cheapest thing on the Pacific coast or the two companies will combine. The latter is the outcome to be expected. The issue of this shipping congestion is in doubt, but it will make American competition keener than ever, for the ocean freights will be so slow that they will be but a small matter in figuring prices in any part of the world. This will include the transportation of fuel oil for sale, and with the present situation along the Pacific coast in view it is but reasonable to suppose that a great majority of steam-going vessels will within a few years have substituted oil for coal. There is plenty of oil in the United States, and much in other countries. Its price is merely a question of transportation, and that again is merely a question of the construction of pipe lines to tide water. The last naval Appropriation Bill passed by the Congress of the United States carried an item of £4,000 for experiments to be made with oil on naval vessels and these experiments are now in progress. The same plant which has been used for years to test the efficiency of different grades of coals is now being used to test oil, a fact which speaks for itself. It may soon become a question with the various peoples of the earth not as to the future coal supply, but what of the oil supply? The balance of trade may hinge on this in the future, for the cheapest transportation governs the market.

J. D. WHELPLEY.

—*Home paper*, Sept. 23.

RUBBER PRODUCTION IN SIAM.

H. S, Consular Assistant at Bangkok reports that among products which do not yet take a regular place in the exports of Siam, but for which there may be a future, is undoubtedly rubber. The question is now under consideration, and it is known that rubber-producing trees are found in some quantity in certain parts of the country, notably in the eastern province. One or two small experimental shipments have already been made, but little is known at present of the product or the possibility of cultivation, and the Ministry of the Interior are prosecuting enquiries. It is believed that traders from the French side of Mekong have been obtaining rubber from the eastern provinces of Siam for some times.—*Board of Trade Journal*, September 25.

BRAZIL CACAO CROP.

The United States Consul reports that the cacao market has been steady at average prices, and the demand fully equal to the supply. No

crop in Brazil is subject to such fluctuations as cacao, and for this reason comparisons with previous crops are valueless. Little interest is manifested in the product in this region. The total shipments from the Amazon for 1902 have been :—The total for seven months, January to July, being 2,890 tons. Something more than one-third has been taken by the United States, and the balance by Europe. France, as usual, is the largest consumer, with Holland second. The trade with the United States is, however, increasing, and before long that country will doubtless consume the bulk of the cacao product of South America.—*Board of Trade Journal*, Sept. 25.

MANURE YOUR COCONUT PALM.

Under this heading, an esteemed correspondent sends us the following valuable particular :—

There is a coconut estate in Heneratgodde which it is worth while to look at for those who are engaged in that occupation. The soil is generally hard and composed of large gravel, except as usual in the Agras. The trees stand, some 18 feet apart, some twenty, and some twenty-four. Almost every tree bears its indelible marks of early neglect. When the present proprietor took the estate in hand some six or seven years ago, the average yield per tree was ten nuts in the year. This can be readily believed when you look at the trees on the estates surrounding this one. For, they are certainly incapable of yielding more than ten nuts. By persistent manuring the present proprietor of the estate of which I speak has raised the average step by step to something over fifty nuts already. He is not likely to stop until he reaches the round hundred. I have obtained an average of 135 on an experimental block of two and a-half acres where the situation, soil, age and distance between trees are all more favourable. Some of those trees have given me more than 200. An average of 100 is, therefore, no impossible result for a proprietor who manures.

According to general experience a weak tree standing in the midst of strong healthy ones never regains its strength so as to bear as well as its neighbours. What I saw on the Heneratgodde estate seems to be exceptional. A weak tree standing among, and having a trunk the circumference of which is scarcely one third of that of its neighbours, bears here as well as they.

The cost of the manure used and its application cannot be computed at less than one rupee per tree, which represents the value of 25 nuts. Anything therefore that a tree-yields over 35 nuts must be put down as clear gain. Add to it the gain from the breeding of cattle, deer, sheep, pea fowl and bee, which takes place on this estate, and no proprietor has cause to grumble over the smallness of the return from the coconut as compared with other industries. The worst that can be said against the coconut is that it takes some 25 to 30 years to bear on hilly ground, though it flowers at the fifth year and brings a good income about the tenth year in lowlands composed of alluvium.

In Jaffna and Batticaloa it is usual for the natives to manure and plough their coconut estates. In the Colombo District only a very limited few do it. It is a means of quadrupling the income of one's estate. But here one prefers to extend one's acres instead of increasing the yield by manuring and ploughing a limited area. There seems to be no remedy for prejudice."—Ceylon "Catholic Messenger," Oct. 14.

CACAO.

EXPERIMENTAL PLOTS AT GRENADA.

A report by Mr. Murdo McNeill, the Agricultural Instructor for June last, gives an account of the work done in connexion with the experiment cacao plots at Vendome, Belle Vue, Vincennes, Nianganfoix and Columbier estates, and other agricultural efforts in that colony. Considerable improvement is recorded in the condition of the cacao trees in these plots since they were placed under the care of the Imperial Department of Agriculture. 'Results of the manurial experiments have been so far extremely satisfactory. At Nianganfoix estate, on Section A of the plot treated with pen manure, only an average yield of 5 bags per acre for the last two years were obtained, while on Section B, to which basic slag followed by sulphate of ammonia had been applied, an average yield of 6 bags per acre was obtained in 1900, and of 8½ bags per acre in 1901. This would seem to indicate that the latter method of manurial treatment is the one most likely to prove successful in renovating old and neglected cacao trees on red clay lands in the interior of the island. Several visits were paid by the Agricultural Instructor to the holdings of peasant cultivators and, where possible, practical demonstrations were given in budding oranges and other plants. Efforts are also being made to encourage the cultivation of limes in localities unsuited for the growth of cacao, and allusion is made to an interesting experiment in reforestation at present being carried on by the Hon. W. H. Lascelles near the Grand Etang Lake.' The trees which consist of the native 'gommier' (*Dacryodes heandra*) planted 4ft. apart either way, are now two years old and are described as 'being' from two to two-and-a-half feet high and growing well.'—*Agricultural News*, Aug. 30.

WEEDING OF GRAIN IN INDIA.

In the hilly districts of Western India, along the Sahidra mountains or Western Ghauts, where rain falls nearly every night during June to September, and even in daylight hours the clouds descend with striking frequency, the weeding of the principal grain crop, called Natchni, is a carnival of hard work, conducted on a communal system.

The crop is a very prolific small-grained cereal, grown on steed hillsides under heavy rainfall, and transplanted when about a month from seed-sowing. Botanically it is Eleusine coracana, known as Natchni, Ragi, and many other names in India, Thibet, and Abyssinia.

Word having been sent round that the field belonging to Bagu, the son of Babaji, is ready for weeding, all the workers of the village, probably 100 or more, assemble soon after daylight at the house of Bagu. It may be raining heavily, and Bagu's house is not commodious ; but as each guest carries a rain-hood made of split Bamboo and leaves, giving protection from crown to hip, and has Nature's water-proof on the limbs, the lack of house room is of little consequence. The guests arrange themselves in a semicircle, with back to the wind and with the knees at the breast, sit on the heels as only an Indian or a coal-miner can do, and eat a hearty breakfast of boiled Natchni, flavoured with Chillies and Asafœtida, amid discussion of the season's prospects and the character of the latest tax-gatherer. Then, headed by the village musician beating a drum with his hands, they proceed in single file to the field, and range themselves on the windward margin ; at a signal the weeding-hooks are unhitched, the naked brown legs, doubling in front of the body, disappear as by magic, and weeding is started in time with a harmonious refrain, describing the mercy of the gods, the liberality of their employer, and the probability of dinner being equal to their sumptuous breakfast. But this only a prelude ; the drum is tapped faster,

the voices rise higher, and the weeds are spitted with feverish energy as the song describes the doings of the old chieftains who held the mountain peaks, and took all they wanted from the people of the plains; and the drummer in rear of the line dances to and fro, beating with frantic gesture wherever the line falls behind, and the wave of song passing along the line keeps everyone working with demoniacal energy, while the freqneut passing clouds leave everything dripping with water.

The field appears a quagmire, but from the steep slope and frequent rain the cultural result is satisfactory, aud from a distance the effect of the rude music, re-echoed from mountain and glen, is plaintive and weird as the notes rise and fall in gentle cadence, or scream with fierce joy of battle as the workers emulate the deeds of heroes on the hapless weeds.

Early in the afternoon the workers return to the house of their host, a bedraggled and worn-out crew, who have done as much work in six hours as is usually done in twenty; they leisurely eat another meal, learn whose field is to be done tomorrow, and by sunset retire to their own homes, to repeat the orgie of labour daily while the weeding season lasts. G. Marshall Woodrow. —*Gardeners' Choronicle*, Aug. 23.

THE TEA CASES (CUSTOMS) IN AUSTRALIA.

THE LEADING JOURNAL UPON THE CASE.

The Melbourne *Argus* of 19th September contains the following editorial on the above subject:—The decision given yesterday in one of the tea prosecutions instituted by the Minister of Customs affords another illuminating example of Mr Kingston's methods, Parliamentary and Departmental. Under the Commonwealth Customs Act certain regulations created a special standard for tea and special tests of which Great Britain and America know nothing. These regulations came into force in November. In ignorance of their existence, shippers at the Indian and Ceylon ports sent to Australia, teas which would have been accepted in other parts of the world, but which failed to quite satisfy one test of the several imposed by regulation. The ash, which should not exceed 8 per cent, was found to be 8.5 per cent. In other respects the consignment more than satisfied the artificial standard set up here. The aqueous tea extract was said to be more than 26 per cent. above requirements, and the soluble ash also was considerably over the stipulated percentage. In short, the tea was a thoroughly good and sound commodity, which in a detail fell short of the new technical requirements. Mr Blackett, the Government analyst, called by the prosecution, was fain to admit that "he believed the tea was perfectly wholesome, and, apart from the regulations, was fit for use." On the strength of this evidence, the Court, which has power to fine up to £100 for adulteration detrimental to the public health, declared that the minimum penalty of £5 would meet the case. This is the view a court of justice takes of an affair which Mr Kingston represented in the House a few weeks ago filled him with virtuous indignation and convinced him that he must do his duty or submit to the brand of cowardice.

Truly this Minister's ideas upon courage and veracity would form a stranger subject of analysis than any of the goods imported by the reputable firms whom he seeks to stigmatise for unfair dealing. If words have any meaning, his language when challenged by Sir Malcolm M'Eacharn on this very point conveyed that he was fearlessly exposing and punishing men who attempted frand and injury upon the public. He spoke of "those who would palm off Indian mud and charge for it;" of "old and decayed leaves, nauseous to taste and without aroma;" of "exhausted tea," of "rotten and decayed stuff." And the sequel of all this intemperate abuse, uttered by a politician quite unscrupulous as to what shifts he resorts to screen himself momentarily from attack, is the complete moral exoneration of the first defendants proceeded against. It really passes patience that the Minister at the head of a department requiring above all things unprejudiced, judicial administration should comfort himself in this spiteful and reckless fashion. Even if the absurd contention be granted that all cases of simple error or accidental breach must be adjudicated upon in a police court, it surely does not follow that the defendants must first be "ragged" and rated by Mr. Kingston as a prelude to being found innocent of any wrongful intent by a competent tribunal. What Mr. Kingston flaunted as a high-minded championship of the rights of the consumer proves, in Messrs. Gollin's case at least, to have been simply petty persecution. The firm's application to be allowed to reship the tea, as is done elsewhere, was treated with contemptuous silence. The minister would be satisfied with nothing less than the destruction of the shipment—a course taken under sensible and civilised administration only where a commodity is certified unfit for human use. When new regulations are introduced, it is only fair to treat considerately shippers who have acted in ignorance of the new conditions. The fair treatment in this case was to allow reshipment of goods sound and wholesome in themselves and saleable in open market elsewhere, and shipped to this port in ignorance of the new tests. But Mr Kingston only saw in the incident and opportunity to exercise his authority and to lampoon the traders. Sir Malcolm M'Eacharn's refusal to follow the lead of such a Minister will now be explicable to his constituents.

"CEYLON SILK-WORMS."

The following extract from a letter addressed by a well-known agriculturist in Algeria to the French Consul is of general interest and we have, with the permission of M. Labussiere, had it translated to lay before our readers:—

"As I intend to devote myself to various entomological experiments upon the various kinds of silk-worms more or less known, I take the liberty of making my request known, based on a purely scientific idea.

"The many ravages that are made in the silk-worm nurseries by diseases inherent in the domesticated silk-worms, have led me to believe, after many long years of experiment, that the best means of eradicating the disease which would ruin the silk-husbandry of France, would be to make some alliances between our domestic races and the wild ones.

"I would then make known to the Entomological Society of France, to which I belong, the results I should have obtained, and I hope, if I

succeed, to be able to create a race better able to resist disease. Cultivators would once more take courage.

"It appears that, in the neighbourhood of Colombo, there are different kinds of silk-worms, notably one called *Attacus Taprobanis*, living upon the cinnamon bush. The caterpillar of a green colour gives a large open cocoon in the shape of a pear, greyish brown. Could I obtain some eggs or some living cocoons, of these different kinds of silk-worm, or if not all, then of one of them, and would it be possible at the same time to inform me on what they feed? By lending me this help, you would enable to complete my work and would render a great service to science, which, so far, knows nothing whatever of those Ceylon kinds of worm. Of course I shall be happy to pay those who take the trouble to collect and send these."

In our Review of Agricultural and Other Industries in Ceylon, we notice "Silk-worms" and give a summary of what has been done in the past:—

"There is a spot on the banks of the Kelani river 3 or 4 miles above the Bridge of Boats *en route* to Hanwella called 'Orta Seda' or Silk Garden, where the Portuguese are believed to have fed silk-worms. The Dutch unsuccessfully attempted to propagate the silkworm, plant mulberry trees, and produce silk at Jaffna, (See Tennent, vol. 1, page 265.) Tennent also notices the presence of the Tusser silkmoth which feeds on the country almond (*Terminalia Catappa*) and the very common *Palma Christi* or castor-oil plant; but nothing has been done with the Tusser to make it a commercial success. In the British period Bennett takes credit for introducing the white and digitated mulberry (as well as the opium poppy), and on 21st September 1829 a Government regulation was passed to encourage the growth of 'silk and opium' among other agricultural produce. He thought the Northern Province eminently adapted for the silkworm and mulberry plant being the least humid part of the island; as Tennent thought it best adapted for the Tusser silk and castor-oil plant. Bennett gives instructions (page 217) for the information of mulberry nurseries, and he quite hoped to see silk a staple of the north of Ceylon. He proposed shading the mulberry plant with plantains and afterwards to grow an under-crop of Indigo."

We have never heard of the Ceylon silk-worm that feeds on the cinnamon bush; but our Entomologist. Mr. E. E. Green, will, we feel sure, tell us all about *Attacus Taprobanis*: whether it is likely to suit our Algerian friend's purpose, and, if so, the best way in which the Consul can secure and forward the needful supply of eggs.

THE CURRENCY QUESTION:

BANKING AND MERCANTILE

OPINIONS.

In view of the interest centered in the Currency Question at present, we have sought and obtained the opinion of some of the leading members of the Mercantile Community, and of some members of the staffs of our Banking Offices in Ceylon. We submit them as received:—

A leading Fort merchant and an old resident writes:—

"Most of the large rice and other business now-a-days is financed by bank drafts, or 'boondies.' For rice from some of the small Indian ports, rupees may be shipped, but I don't think to any important extent. The rupees taken to the Coast in quantity are taken by the Tamil cooly, I don't see why in a little time he should not take sovereigns and half-sovereigns instead.

"As regards local currency, what the local 'Times'' correspondent said the other evening is nonsense, *i.e.*:—'The latest idea is to force small coins on the public. The public have not demanded small coins and do not require them; it is merely another attempt to retain the Gold Ordinance in force, for the benefit of the Banks. If a large quantity of small coin is minted it will merely lie in the vaults in company with the sovereigns." Most people in Ceylon would be as well satisfied to receive two 50 cent pieces as a rupee and, if Government would expedite the issue of these largely, the pinch would soon be relieved. At the same time I do not see any objection to a *Ceylon* rupee, coined so as to be easily distinguished from an Indian rupee, being put into circulation here; it would meet local requirements.

"It would not, however, be current in India and we need never ask the Government of India to permit it, for the maintenance of the value of the rupee is partly regulated by their restriction of the coinage of it in India. A Ceylon rupee would have to be exactly of the same fineness and intrinsic value as the Indian one. We don't require a mint for this; they can be coined where the present subsidiary coins are turned out."

A very different view is taken of the situation by a Banker as follows:—

"Run on its present lines this Gold Ordinance will never work, and the sooner it is repealed the better for all parties. It is absurd to attempt to force the sovereign on the public, who not only don't want it, but it is an absolutely useless coin for many purposes. As well make the American dollar or any other foreign coin legal tender. The Treasury are at a deadlock and will not part with a single rupee; a disgraceful state of affairs. Let them ship off their gold to India at once and import rupees; it is not for the public to do this, and as matters stand it is really the public in the long run who have to pay the cost of importing.

"A Ceylon Government rupee would lead to many complications. If the Treasury are unfit to supply small coins, how much worse it would be if they ran short of their own rupees."

Per contra, a merchant in a big way thinks,—

"I cannot see why our Bankers should be exempted from obligation to bring *some* rupees from India, any more than that Government should be. Suppose I sell a sterling bill to a Bank here, the Bank agrees to pay me for it at a certain rate of exchange, so many *rupees*; presumably the Bank has them, but, if not, why should Government supply the Bank with these rupees? I am unable to see why a Ceylon rupee should lead to any complications. Bankers should pay for sterling bills with them such as I refer to above. The only person for whom Indian rupees are wanted seems to be the Tamil cooly, but surely it would not be much of a hardship to

require him to take sovereigns or half-sovereigns much more easily carried, and easily convertible in India. I can see no reason for undoing recent legislation and I would be sorry to see it asked for."

To this still another Banker responds :—

"Banks do import rupees for their own constituents and several lacs have been imported within the last week or two. When a Bank buys a merchant's bill it is payable in the currency of the island, notes or gold, which are legal tender, not necessarily Indian rupees. A Ceylon rupee would do well enough as a purely local token. Indian rupees are wanted by the trader as well as the Tamil cooly. The trader buys rice at small ports in India where there is no Treasury or means of changing a sovereign for rupees. If the Government wish to encourage the trade of the island, they should use the best means for so doing, and that is in assisting the small trader by supplying him with a coin that he can trade with."

But here again is the opinion of still another leading merchant, who is very outspoken :—

"We are very ready to blame Government in all things ; but if the cause of the present scarcity of silver in the island be enquired into, it will probably be found that the Banks have lately been importing unlimited supplies of gold at a profit and plugging Government with it in exchange for notes. They then take these notes to the Treasury and expect to get silver instead of gold in exchange. If the Banks find that they cannot supply their constituents with sufficient silver, why do they not import it, as they did the gold instead of looking to Government to do so for them ?

"The way for Government to prevent a recurrence of this state of things is to pass an Ordinance making legal tender consist of a certain proportion of gold and a certain proportion of silver, according to the ascertained average requirements of the community. The Banks would then be unable to flood the Treasurer with gold as they have lately been doing to their own profit, while grudging the expense of the importation of the silver they require."

Another Banker writes :—"Since the Government undertook to exchange notes for sovereigns the Banks greatly availed themselves of this mode of getting funds from India, when it was found necessary to import coin, not so much because sovereigns are cheaper to import (the difference between the cost of importing rupees and sovereigns is slight) but because the gold coin is so much easier to handle than is the rupee. Notwithstanding this, Banks have quite recently imported considerable quantities of rupees from India. What merchant in Colombo ever receives actual coin from the Bank in exchange for bills purchased, and if the Bank insisted on paying him in coin what would the merchant say ? A Ceylon rupee would lead to no complications so far as internal circulation is concerned; but the native who trades with small Southern Indian Ports where there are no Banks would not require them. He wants something which is easily passed there, and the only thing which suits his purpose is the Indian rupee. Why he should not pay a premium for them here is another question. Up to the present the Banks have been good enough to import them for his benefit. The Tamil cooly also wants Indian Rupees but in smaller quantities than the trader does. Had the Government before making the sovereign legal tender, appointed a small Committee of officials and representatives of the Mercantile Community to discuss the question, probably little would have been heard by the outside public about the Currency Question. Merchants should not overlook the fact that they benefit when Banks have a cheap and easy way of laying down funds in Ceylon inasmuch as they then get a better rate of exchange for their bills."

A member of the mercantile community, of some considerable experience, says :—

"I think Government is bound to produce rupees if that is the currency of the country. The Government of India makes about 6d. profit of every rupee she supplies to Ceylon and I certainly think she should give the Ceylon Government a share of that. A few years ago, when the value of silver was about 1/4, they made nothing, but now the value of silver is down to about 10d. and they still sell the rupee for 1/4. If this question had been brought up when the value of silver went down and when the exchange was fixed at 1/4, I think the Government of India would have acquiesced at once. With regard to the coining of rupees in Ceylon I think it would be very much better if Ceylon continues to get her supply from India and succeeded in getting a share of the profit which India gets at present—sufficient at least to cover the expenses of taking rupees from India to Ceylon. Government might threaten to coin her own rupees in order to coerce the Indian Government into giving a share of the profits."

Another merchant takes a decidedly anti-official view :—

"The first principle in currency legislation is or should be—*convenience i.e.*, to facilitate the machinery of circulation whereby the commerce of the State is furthered. The stability of the rupee having been secured before the gold standard was established, the latter was not a necessary corollary and its imposition would only be intelligible on one of two grounds—(*a*) convenience in circulation and (*b*) a byway to profit for the Government.

"I believe this latter view has been before the authorities and inasmuch as it has been proved that the gold standard has seriously interfered with the smooth running of the country's trade and chief industry (See Hatton Bank's recent advertisements)—there is, to my mind, no justification for its continuance. To hamper the industries of a country for a little immediate profit is a proof of narrowness and want of statesmanship which sometimes marks those who are only experimentalists in finance—who lose the main principle in the attempt to carry out ingenious theories. I see no object in a Ceylon Government Rupee. We have all the needful machinery for the proper production of a silver currency close by.—Government largely profits by its own minting and the only aim, therefore, should be the weal of the State."

Yet another Banker :—"It is perfectly true that the Banks are importing gold to a considerable extent, but Government brought in an Ordinance, after, presumably, 'due deliberation,' notifying that they were prepared to receive sovereigns and why should not the Banks act up to the Ordinance as I may say Government is doing. Government in the Ordinance have the option of issuing gold *or* silver in exchange for their notes and they are exercising this option by issuing sovereigns and refusing to issue rupees,

"In the articles and correspondence that have recently taken place, the fact that Government is making R200,000 a year profit of the currency has apparently been lost sight of. Surely with this profit Government can afford to meet the requirements of the Colony, for it must be borne in mind that the profit on the currency is made out of the Public not out of Government money.

"If Government wish to put a stop to the present dilemma, they should cancel the ordinance and revert to the former position which worked satisfactorily for all parties concerned. As regard the position of the Gold Currency in India, the Indian Government will freely exchange rupees for sovereigns at their currency offices and this is exactly what the Ceylon Government will not do; hence all this inconvenience. If the Ceylon Government was not prepared to meet the public as the Indian Government has done, it should not have introduced the Gold Ordinance at all. The Indian Government, when the gold coinage was introduced, endeavoured to force sovereigns on the public, but soon found the public would not take them and gave up the attempt. Gold is of no use to native traders; they require silver to pay the small men with, to whom a sovereign is of no use unless it can be promptly changed for an equivalent in rupees.

"This cannot be done and, therefore, sovereigns are refused. A premium is now charged to change a sovereign into silver in the bazaar here, and I am informed a much higher premium up-country and in villages outside Colombo is ruling."

THE FUTURE OF GREEN TEA MANUFACTURE:

AMERICA ENTERS AS A COMPETITOR.

Those men in India and Ceylon, who have expended brains and money in working out and perfecting new processes for green tea manufacture, will have to hurry up with their patents, or they may be left behind by our American cousins. The South Carolina tea-growing experiment, which has made a good deal of noise for its size, and inspired many a spread-eagle "scare head" in the pages of the American daily press, is still pushing its way into notice, and has, according to the *Boston Herald* of the 7th September last, induced Congress to grant a sum of $10,000 to be expended in further "green tea experiments." The illustrated printed page which is devoted to "booming" the Pinehurst venture, has this startling legend in large type:—"Green tea made by machinery at the Government Plantation. Discovery destined to drive Foreign Brands out of the American Markets." There is no secret made of the new process, which is to produce the green tea of the future, and start it on its conquering career. The prophetic soul of the journalist, who writes the subject up, "wears his heart upon his sleeve," takes the American public into his confidence, and is as open with his information as he is far-reaching with his vision. The green leaves, he tells us, are tumbled into a revolving metal cylinder, and exposed to a high temperature of about 400° Fahr. Inside of the cylinder are flanges which catch up the leaves and keep them constantly tossed about. And that is nearly all! Of course, there are spicy paragraphs over and above which are purely scientific—sops thrown to the sapient souls among the *Herald's* readers—where much is made of "volatile oils," "oxidising processes, 'chlorophyll" and "enzyms;" and which must cause the constituency of the paper to feel that when all is done, its intelligence, at least, is not affronted. It is a high note that is sounded throughout; but then there is nothing American intended to win the ear of American public which finds its way to notice on a minor key. "Secretary Wilson," we are told "believes that an excellent quality of tea can be produced in the Southern States at a cost of 20 cents (American) a pound, but there will be more profit in growing teas that retails at $2 to $20 a pound! There are plenty of rich people who are willing to pay such prices for teas which are of proportionably high quality." Happy American tea-growers! Ceylon might well question the advisability of sacrificing so much money to win for its green teas, an honoured place in the American market; but a corner of the "purdah" has been lifted on the Pinehurst venture, and there is disclosed the comical fact that 125 lb. an acre is the average outturn for a year's working! As we read these figures we are permitted to see that from whatever quarter of the globe the "hustler" is to come who is destined to displace us as the tea-growers for the world, it cannot be in South Carolina that we shall look for his advent.

The Pinehurst tea plantation is pretty much on a par with the ideal American infant of whom we read and marvel at. This child has a mission from the day it draws its first breath, is an object lesson to all other infants, and has the theme to demonstrate of "How to do it." The American infant is said to be able to amuse itself from the very first: objects to being walked about or fooled around with: wants a quiet time for thought: takes regular meals and when duly replenished, displays no weakness for more; keeps decent hours, and is *never* known to awake during the night! So it is with Pinehurst. Has it not amused itself from the first with its meagre acreage of tea trees, and tickled the fancy of the Eastern Planting World as it tabulated its total yearly crop of 3,000 lb.? Has it not insisted through its newspaper press and its Congress votes on being taken seriously, not a thing to be dandled or fooled around with: a wide-eyed bumptious youngster, appearing before the world attired in "scare-heads," and newspaper illustrations? Has it not a great future before it, on which at the slightest provocation, the American press fastens its attention and tootles to its glory in the highest of "high falutin" strains? Ah! we are reminded that Ceylon too has an American Commissioner who, on a handsome salary, is supposed to ceaselessly forward the interests of Ceylon tea in the great Republic; and has for years been in a position to learn

how best to frame a statement, write a telling letter or make a taking speech, in order to win America to the drinking of our fragrant beverage: but when we contrast what he has done and at so high a figure, with what Pinehurst has accomplished—and for nothing—through the press especially, it is rather a humbling affair. It makes us think that although we *are* the people,—wisdom, after all, does not dwell with us.

However, Pinehurst is not likely to disturb the equanimity of the Ceylon tea-grower, with its pickanniny labour force, and a total tea outturn which would hardly affect the dividend of any decent-sized property in Ceylon, were the whole handed over to it as a gift. But the Americans are an ingenious and clever people, and it is not at all unlikely that when they take to training their brains on the mechanical appliances needed for tea manufacture that the effort will result in a good shot. For black teas, there is now really no necessity for anything new in the way of machines, the market being fully supplied. It is to perfect the manufacture of green tea, that the chances of today lie. Neither India nor Ceylon really need mechanical assistance from any one, there being plenty of local talent about. But now that South Carolina has taken to green tea manufacture, and has to model and make its own machinery, it is quite on the cards that the Premier Green Tea Apparatus may yet be of Western manufacture, and the product of the American brain!

PATENT GREEN TEA FISHING MACHINE.

In a couple of days more, Mr. Alleyn and his Agents, Messrs. Brown & Co., will come before the public with an invention in a new machine which, it is claimed, will produce true finished green teas, without the use of pans or other hot air apparatus,—teas which can compete with the best greens of China and Japan. This is important news for the Planting Community, more especially as the time taken—3½ hours—to turn uncoloured teas into true greens, is so moderate, and since no colouring or extraneous matter, whatever, is used. Considering what it can do, the price of the machine, R1,500, is by no means heavy; for, finished green teas fetch a good deal more than the ordinary raw greens. We congratulate Mr. Alleyn on bringing his invention to a successful issue, and we hope he and his agents may be well patronised.

USEFUL NOTES ON GREEN TEA MANUFACTURE.

To the Editor, *Indian Gardening and Planting*.

Sir,—I have much pleasure in giving you what information I can in reply to your correspondent's following queries:—

(*a*) What produce a metallic, steely taste in the cup, and how is this to be avoided?

Without personally witnessing the whole process of manufacture in your correspondent's factory, it is not easy to locate the exact cause of this objectionable flavour, as many things may produce it. However, if the following course is followed this defect should not be noticeable. The green leaf should be perfectly fresh, without any signs of natural withering, when it is first steamed or roasted into a flaccid condition for rolling. All external moisture from steam, dew, rain etc., should be dried off before the rolling commences. The steam should not be carried through rusted pipes, or allowed to come in contact with any rusty ironwork before it reaches the leaf. The pans should be made of hard cast-iron, not wrought-iron; and always kept scrupulously clean and dry. When the leaf is in the pan, it should not be stirred about with any metallic implement, but with a smooth flat round-edged piece of wood, and a cotton cloth pad.

(*b*) How to avoid too green a colour, and obtain a uniform grey green, without artificial colouring?

The Drummond-Deane system has a tendency to produce a rather greenish tint. But a thorough panning, with the precautions previously mentioned, ought to modify the colours naturally to a grey-green. The panning is at fault somewhere.

(*c*) How is a grey colour produced with artificial colouring matter?

Such a shade can easily be brought on by putting a teaspoonful or so of fine pulverized soapstone (steatite) in four or five pounds of tea during the *last* panning, which should be carried on till all the soapstone has been taken up, and the leaf has assumed a glazed grey appearance. All artificial colouring should however be avoided, unless it is especially demanded as in the Asiatic markets. The vernacular name for soapstones is *sailkhari*.

(*a*) How is gunpowder tea manufactured?

The round gunpowder tea cannot easily be produced with any of the ordinary rolling machines. The roundness is the natural result of special hand rolling, and also rolling the leaf separately with little flat boards in a circular figure of-eight way on a flat surface. The Chinese recommend the addition of a little gum during this process. This class of green tea may be considered a by-product of Young Hyson and Hyson, and I do not think it worth the trouble of manufacturing. But if it is desired for any special reason, then all the coarser leaves should be sifted out after the first ordinary light rolling, and hand-rolled in the above described way. I once made a simple wooden rolling apparatus for this purpose, which did very effective work. But I consider it a mistake to multiply grades. Young Hyson, Hyson, and a little Dust and Broken Leaf, called *Samut* and *Sikkin*, respectively, by the natives, are the most paying kinds of green tea.

I hope in the above I have given all the information your correspondent requires; but without actually seeing the manufacture at any given place or time, I cannot be as exact in my replies as I would like to. I shall, however, always be most happy to help in all such cases to the best of my ability.

J B LESLIE ROGERS.

Amballa, Punjab.

Indian Gardening and Planting, Oct 23.

THE GREEN TEA OF BENGAL.

REPORT BY MR. J. B. LESLIE ROGERS.

As desired, I have much pleasure in submitting the following report on two samples of Bengal green tea, lately forwarded to me.

No. 1. The "Deane-Judge" (coloured or finished) pure green tea:—Appearance approaching Hyson quality. Leaf well rolled and fairly even. Colour very fair, but not of one uniform tint, which should be a good grey-green throughout. Aroma, good but requires bringing out more. Infusion:—Leaf, a pale

olive, tending too light a green. Liquor, a good pale straw-green. Flavour, very fair, but not fully developed and slightly raw. Aroma, faint and evanescent."

No. 2. The Drummond Deane" (uncoloured) Appearance, Young Hyson mixed with broken leaf. Leaf rather flat and broken. Colour very mixed and blackish green, lacking the uniform grey green tint admired in China teas. Aroma, slight and not as good as No. 1. Infusion :—Leaf, pale olive, tending to too light a green. Liquor, a pale straw-green, but little too thin. Flavour, fair, but somewhat raw and undeveloped. Aroma, very faint.

General Remarks;—Both these samples must *undoubtedly be claseed as green teas*, but the defects of amateur manufacture are still very apparent. The "Deane-Judge" I consider superior to the "Drummond Deane." The former, however, still requires more development in manufacture. I would suggest that the fresh green leaf be made more flaccid before rolling, while the drying and final panning should be continued further. The panning process is most important, as it enhances the aroma, produces an even grey-green colour, and gives the leaf a glossy finished appearance. And I am of opinion a through panning also greatly increases the keeping quality of green tea. I have drunk panned green tea from Dehra Doon fourteen years old, and it was as sound as on the day it was manufactured.

To my mind the Drummond Deane system, though an advance in some ways, is still an incomplete process. It does not go far enough and hence its defects. The pannel No. 1 Dean-Judge is and undoubted improvement, but even that requires further experience before it can be said to produce perfect green teas.

India has marked advantages over Ceylon in the matter of green tea and there is every reason to believe that we will eventually produce the better article. J. B. Leslie Rogers.

Umballa, Punjab.

TEA IN THE UNITED STATES AND THE AMERICAN DUTY.

Writing to us direct from South Carolina under date September 15th, Mr. Charles U. Shepard, the pioneer of local "Tea Culture," reports as follows :—

"I have no further news to communicate than that the leaders of the dominant political party of the country are said to be seriously contemplating the re-establishment of the duty on foreign teas—and thus that Belgium will continue to enjoy the monopoly of a 'free breakfast table.' I should not be surprised to see the law in force when the present duty expires. But I shall beg for 20 cts. per lb."

Twenty cents a lb. is more than *tenpence*! An entirely outrageous impost, and Mr. Shepard must surely be in a jocative mood We trust he will prove a bad prophet in regard to any duty being continued on tea after the 1st January next. We are quite content to leave the market of Pinehurst or even the markets of South Carolina for all the tea Mr. Shepard can grow ; but surely he is interested in his countrymen elsewhere all over the States becoming consumers of his and our staple—and how is this to be accomplished if a prohibitory, or even the present, duty is continued? At present locally-produced American tea is such a curiosity, that it must command a fancy price, duty or no duty. And as to the future, we are quite content for Mr. Shepard—if he only refrains meantime—to head an Agitation for a 20-cent duty, on the day that the production and manufacture of *one million lb.* of American tea is reached. If this is agreed to, we think, we should be safe, and Mr. Shepard be spared the necessity of adding the role of "agitator" to that of "planter", for quite a generation to come --and by that time (1932 A.D.) the United States should want 400 to 500 (in place of 80) million lb. of tea per annum! So mote to be.

TEA IN INDIA :

MR. ALLEYN'S VISIT TO CALCUTTA AND THE INDIAN TEA DISTRICTS.

NO INCREASED CROPS FROM INDIA TO BE ANTICIPATED FOR SEVERAL YEARS.

Mr. H. M. Alleyn is looking very well after his visit to Calcutta—a great city, but not to be compared with Colombo for cleanliness and scenic beauty—and the Indian Tea districts, including Upper and Lower Assam, Sylhet, and the Dooars. Mr. Alleyn was much impressed with the rich soil and fine tea gardens of Upper Assam, where very great attention is paid to the keeping up of a high standard in the teas turned out, through fine plucking and special attention to the manufacture. Generally in India, careful attention to the factory, through a special man, is the rule. In Lower Assam, coarser plucking is not uncommon; while in Sylhet the tea is not of the same quality; but in all these divisions, the labour question is becoming a very serious one, and entirely forbids the idea of any extensions of cultivation. In the Dooars, there is not the same difficulty about labour; but prices have, of late, become so unremunerative for the teas turned out, that greater care with less quantity is likely to be the rule. The soil is very fine. The idea of manuring to *increased* production, Mr. Alleyn found generally scouted—only to improve quality or maintain the condition of the trees is manuring sanctioned by agents or proprietors.

Altogether, Mr. Alleyn came to the conclusion that not much is to be feared from India for some years, in the way of increased tea exports.

THE TEA WAREHOUSING QUESTION.

[BY AN INDIAN TEA PLANTER.]

The Calcutta correspondent of the *Financial News* recently referred to the possibility of a break in the Indian tea warehouse ring. He said: —"I am told that the warehouse charges as they now stand are often equal to the cost per case of conveying tea from Calcutta to London." I can say positively that this is actually the fact. My disbursements for freight (Calcutta to London) and

warehouse charges for the past two years stand as follows, viz :—

	Freight.	Warehouse charges.	Quantity of tea.
1901 ..	£106 15 1 ..	£112 16 1 ..	67,930 lb.
1900 ...	111 17 3 ..	115 1 6 ..	67,547 lb.

the number of packages being 803 (of which 150 were boxes of 10 lb. net) and 639 full sized chests.

If complaint is made to the warehouse proprietor that his charges are excessive, he will say he can make no reduction, by reason of the proportion he disburses to the dock companies. This may or may not be so ; but it is impossible to get away from the fact that the bonded tea warehouse business is a protected one, inasmuch as there is reason to believe that the Customs authorities have refused to provide officers for warehouses beyond those now existing ; further, there are directors and shareholders of tea companies holding interests in some of the existing warehouses ; so what they lose at the one game they gain in the other.

These united forces, opposed to the weak combination of the planter-importer, and the lack of unanimity existing in their ranks, result in the payment of practically the same charges to-day as have obtained for years past, when the tea-planting industry was in a prosperous condition.—*H. and C. Mail*, Oct. 17.

A CEYLON PLANTER IN QUEENSLAND.

It was necessary to buckle too here and get an "agricultural billet." So we started work at 5s per day for an Australian M.L.C. and did up his flower garden. After a week at gardening we had a few days' compulsory rest and got another job at 4s per day and omnibus fare 6d extra. When working in this way, an occasional cup of tea and some bread and butter were brought out and a short spell from hard labour was much appreciated. Our third gardening billet in Brisbane was a six weeks' job with a quiet family in South Brisbane, the other side of the beautiful new Victoria Bridge spanning the Brisbane River.

THE CITY OF BRISBANE

is very much improved in twelve years and has become a very handsome-looking town. There was great depression in business, of course, and wages were very low, indeed. Situations were very difficult to obtain, employees being dismissed instead of new engagements being made. Even the Queensland Government is "dead broke" or any way very "hard up" judging from their recent dismissal of some old and valued public servants including Mr Wragge, the clerk of the weather, and Mr Bailey, the Government Botanist ; also the staff of the Botanical Gardens including the "Ranger" and the "Propagator" and a host of clerks, in different departments of Government service left at the end of June, last, to save some thirty thousands of pounds per annum. It seems somewhat inconsistent to the writer's mind that useful men should be so roughly handled, and about the same time the tax was taken off tea and kerosine oil, making a dead loss to the Government of over £50,000. The labour party are said to have brought this about and it is likely there will be some more thinning out.

To return to my own personal experience : beyond smashing my thumb in a mowing machine I got on pretty well with my No. 3 Agricultural employer. My last Brisbane boss had a fine collection of French roses trained against the walls around the lawns and tennis court. On the other side was a very costly fowl run or rather four separate fowl runs for prize fowls. In addition to hatching naturally, we hatched artificially by an American Incubator and raised chickens at a temperature of 102°, so that my time was taken up pretty well both by day and night gardening and hatching chickens. The climate of Brisbane during June, July, and August (the winter months) was simply delightful rather cold at 6 o'clock in the morning and after 6 p.m., but a perfect climate for a white man to work in. Now the scene is changed : the hot weather is beginning in September, and the Northern ports of Queensland are awful places for ticks and "scrub-itch," also small ticks that torment a man and prevent him from sleeping at night. The days are frightfully hot and uncomfortable and the water is not particularly good in many places I have had to live in lately. Most of the private houses and hotels are roofed with iron, making them cold before sunrise and as hot as the place where there is no snow at midday. After taking a great interest in my work and raising some splendid drum-head, cabbages, carrots, tomatoes, lettuce, water-cress and other vegetables, in spite of the drought, my boss told me he contemplated leaving Brisbane for a holiday with his family and that I had better find another job. I accordingly wrote to a "Coffee Planter" in Mackay and received a favourable reply : "A three months' job" at £1 per week and

"TUCKER."

The ss. "Aramac" of the A U S N Company was leaving Brisbane for Northern ports. Our passage was delightful, smooth sea, bright moon-light nights and pleasant passengers. Mackay looked green and fresh three months ago, but is dried up now. Driving over the Bridge spanning the Pioneer River we came to an anchor at Cremorne Hotel surrounded by coconut palms. Mrs Keller made me comfortable at Cremorne, and the maid told me there was a good bathing place in the Creek, so we took soap-dish and towel, the former was not required for it was salt water ! There was a great kick-up in the town of Port Mackay and big guns went off and *broke the Hotel windows*. Everybody sang the National Anthem and the Band played "Sons of the Sea," it was a warm reception for me and celebrated Peace in South Africa.

MACKAY.

Mackay is a pretty little town with wide streets planted with shade trees in the centre of the main streets. Sydney and Victoria streets possess some good buildings and comfortable Hotels. Trade was very slack. A drive in the mail coach to the Leap through a large number of abandoned sugar plantations and shut down mills made rather a sad impression. There must have been a big sugar boom, for no less than *twenty-five* sugar mills have been shut down. Sugar is still cultivated in a small way, but the price is very low both for cane and made sugar. There is a great fuss about white-grown sugar, but very little of it produced up to date, Indians, Japs, Chinamen and other Asiatics are still working the cane fields and factories, the white man is at a considerable discount and it would

almost pay him to blacken his face! The Leap mail man dropped his letters and newspapers into the respeetive Post boxes nailed on trees by the road side. The Leap is a high mountain and projecting rock where an Australian "Gin" or native woman took a leap and passed into the next world when the Police were in pursuit of her husband. There is an Hotel and Post office but an exceedingly dead place—healthy situation, but no excitement but Kangaroo shooting and an occasional visit from Swagmen and poor fellows *on the Wallaby*. Mrs Hunter at the Leap hotel and Mr and Mrs Hill of the Post-office have been there many years, but are not making a fortune. "Shank's Mare" carried your correspondent to Mount Jukes. We met a mounted bushman rounding in cattle now and again and saw a small patch of sugarcane here and there with a humpy or leaf hut. Gum trees—Gum trees—nothing but, gum-trees? No water fit to drink in the creeks, a dried upcountry and very uninteresting. We passed one good shaded creek where some ladies were picknic-ing and overtook me before reaching Mount Jukes. We were tired and covered with ticks on arrival in the house of the Manager of the Mount Jukes Company. The same evening arrived at my destination "Inglenook," Mount Jukes another small coffee plantation opened up by Mr. H. F. Blaxland who had sent for me on a three months' engagement on £1 per week and found in everything. Here I found very good coffee four years old.

THIS COFFEE

had been planted under dense shade, but not found to answer and the shade trees were "barkringed" and the coffee bushes are bearing better this year in consequence. For two months I opened the centres and handled the trees and when engaged at the upper fields carried my lunch to the field after breakfast and a billycan of tea. The crop ripened in June, July and August, and we were gathering crop in September. Australian white boys gathering for five shillings per week and their "tucker" they gathered an average of 100 lb of cherry and had picked six thousand pounds of cherry up to the 6th of September when my engagement came to an end. Taking a cheque for £12 12s 0d for thirteen weeks, I waited in Mackay for a steamer to take me to Cairns where I was in hopes of finding another coffee planting engagement, but was disappointed after the expense of travelling long distances in visiting small coffee plantations. The train took me to the Barron Falls, a distance of 20 miles through 15 tunnels and a fine view of the Barron Falls and the fall of Stoney Creek. There was little water tumbling over the falls, but the scenery was wild and picturesque, the land too steep for planting purposes, only one very small coffee plantation situated upon the falls, the property of Mr. Alfred Street and worked by himself and three sons. The coffee had just given 7 tons from 10 acres and there were 4 acres more that gave less crop—10 cwts. per acre was very fair and the coffee was a good sample though only valued at 5½d per lb. Mr. Street could offer me nothing in the way of employment as he said

HIS COFFEE PLANTATION

only just paid its way working it with his family and a few natives to gather the crop, one son looking after the picking and ploughing between the rows of coffee planted 10×10 feet apart. Another son dried the parchment pulped by a Gordon-brest-Pulper, the parchment was being dried like tea on trays over a slow fire (rather a new *modus operandi*) in curing coffee for market, after hulling, it is roasted and ground and put up in tins. Mr. Street put me over the Barron river in his punt and we lunched at the Hotel near the Kurunda station, the train left at 4 p.m. to Cairns. Next day I took the steam tram to Hamilden plantation, chiefly sugar with a central mill.

SUGAR—COFFEE—TEA.

Dr. Reed, the Manager, advised me to go on to Hillville Sugar Plantation to see Mr De Moleyens and Mr Butter, but both were away from home and I had the trudge to Hillville through the bush for nothing. Mr De Moleyens was at the Cairns Hotel and told me it was no use going out to his coffee plantation as they were reducing expenditure and looking after the coloured labour themselves—so here I am in Geraldton, another Northern Port of Queensland. Under these circumstances I would strongly advise Ceylon men to stay away from Queensland for there is no hospitality as in Ceylon for a planter looking for a berth, long experience goes for nothing.

A small patch of five acres of coffee on the Company's place was handed over to a Chinaman because it would not pay working expenditure. In leaving Cairns for Geraldton seems to be "jumping out of the frying pan into the fire" for here the Banana gardens are worked by Chinese proprietors and there is no coffee worth mentioning

Geraldton is the only place where there is a good rainfall—120 inches in a year, just the climate for tea, but no one has ventured on its culture, and there is no experimental Government plantation. Mr Howard Newport from India lives at Redlynch near Cairns, and is the "Government Coffee Expert"—up to date he seems to have made a very poor show in the advance of the coffee enterprise.

We had a couple of days Agri-Horticultural Show last week, and I saw a sample of tea made from the bushes grown at Cairns, but it seemed poor stuff. I believe the bushes are to be kept for seed-bearers.

BAD INVESTMENTS.

Now, to give your readers some idea of wha has been done in coffee in Northern Queensland the only coffee plantation worth mentioning in Cairns, has cost four thousand pounds to open and does not pay. The Mount Jukes coffee plantation has got about five acres of good coffee to show for six thousand pounds expended; another little patch of *500 trees* called the Blackwood Coffee Plantation, cost £1,500 and gave 65 lb of coffee in cherry! Two other coffee plantations in Mackay are abandoned after leaving a heavy loss and Mr Wood, a book-seller in Mackay, offered me one "selection" for £200 (two hundred acres of bush with a Cottage, the coffee was burnt by a bush fire).

The above report by an old Ceylon planter may prevent Ceylon and Indian planters from making mistakes, otherwise, easily made by reading magazine articles written by tourists and globe-trotters who make up a "flash in the pan" article. I hope my next letter will be more encouraging to intending visitors to Australia who want to commence *de novo*. H. C.

SUBSIDIARY PRODUCTS IN THE CEYLON PLANTING DISTRICTS.

When our Governor Sir West Ridgeway in one of his home speeches said that if Tea were to go, Ceylon might stagger, but would in time right herself, he doubtless had in his mind's eye, the Subsidiary Products in the Planting Districts, together with Coconuts, Cinnamon, Mining and Trade generally, as the ground of his confident hope. Individually none of these subsidiary products may count for very much, nor run in statistical tables into the magnificent line of figures which tea can tabulate; but they are there as helps, and in the event of a disaster to tea—which Heaven forbid—would prove as useful in such distressful times, as cinchona did when coffee suffered its total eclipse and the outlook for the Colony was hopeless in the extreme. Homilies on the ancient text "Don't have all your eggs in the one basket," have been preached in these columns with a persistency which to some, may have seemed tiresome, but cannot by any be adjudged unwise; and to place planters, who were desirous of embarking in a subsidiary way in products other than tea, the *Observer* press has issued from time to time up-to-date Manuals and Handbooks for instruction and guidance, not to speak of the evergreen *Tropical Agriculturist.* We are glad to think that although the wilderness we had to cry in was at one time wide, we have not cried in vain; and today, planting opinion fully recognises the wisdom of having more than one string to the bow, and has acted on it.

The difficulty, which meets the man who is bent on an extension of interests, and a partial insurance for the future, is to find the product that will pay best in the long run. We would emphasise "the long run"; for the energy of the Ceylon planter is proverbial, and it is not once nor twice his zeal has so outrun his discretion that an opening which would have led the few to pleasant fields and pastures new, has been rushed by the many, and trampled into a waste which was profitable to none. We have had cinchona which helped many a man in the transition stage between coffee and tea, turned at last—through overproduction—into a commercial drug in every sense, sinking into chaos. The "deepest deep" which memory can recall in the case of Ceylon produce, being a parcel of "bark" which failed to cover shipping and London charges, and brought as its only return to the unfortunate proprietor—a debit note from London: reminding us of a Kentish fruit farmer who in return for a consignment of plums to Covent Garden, got a memo. showing 1s 6d balance *he had to pay!* Cinchona has not been the only minor product that showed a fair prospect of a decent return for a time and then gradually shrank into the limbo of the unprofitable. There is, of course, an outside public that benefits by all this; but planting is not a purely philanthropic occupation, nor is it run fo the benefit of the outsider; and enterprise is liable to be checked when disappointment so frequently dogs its footsteps. Still, the lesson to be learned from the past is not to cease from doing; but to be wary in your doing. There is a call for men to think for themselves, for independence of action, and for avoidance of the ruinous policy of "Follow the leader."

Among the subsidiary products of the island, Cacao takes a first place, and given a suitable soil and location, it has, on the whole, done handsomely for its growers. It stands, however, more on its own feet than most other by-products, is a cult of its own, needs unwearied attention, special observation, and each tree has to be studied. The scare of the bark fungus has now given the coarser and stronger varieties a first place; but there has been of late a return to the old love, and the plump round red beaned Caracas is again in evidence. "We know now how to deal with the fungus when it appears" say the men who are venturing on it, and as "knowledge is power," the chances are in their favour.

Cinchona, after years of a discredited life, is again being played with; but there is a fearful pleasure connected with it. Not to speak of the chances of snuffing out—especially in the richer varieties—was there ever a more sensitive market than the bark one? The late slump in prices, brought about by unusually large shipments from Java, was not, we were informed, at all justified by the statistical position of the article. Yet a mere temporary increase in imports was productive of a serious alarm which found unpleasant expression in the lessened value of the unit of quinine. It is clear that cinchona is not a good stand-by for the man who *must* harvest; for if their numbers were to sensibly increase, there would be history repeating itself, and the tale of a vanished fortune would have again have to be re-told.

Cardamoms have, for some time, done so well that they have been extended both on estates and in native gardens. Activity too is reported from the world outside Ceylon. Companies, who have properties in favourable localities, sanction grevillea and other fire-wood clearings with cardamoms as an adjunct, to cover in time the cost of the extension; but while exports increase, prices decrease, and as the market for this spice is a limited one, the future is not without clouds on the horizon.

About Rubber there is a glory. *It*, at least, cannot easily be over-done and Ceylon has shown that it is capable of producing a quality which commands top prices. Its growers are enthusiastic: old planters who meet them, with the pride of possession tinging their speech, are reminded of the halcyon days of cinchona culture, when by a species of simple arithmetic the growing plants were panned into sterling coin, and the owner, who was usually the demonstrator, was proved to be in possession of a prospective fortune. It went in this way:—Bark is worth so much. Each tree carries so many pounds; there are an ascertain-

able number of trees to the acre, and the acreage of the estate is known: hence—and here the calculation ran into thousands. Even when the cautious had allowed 25 aye and 50 per cent for contingencies, what a smack of fat things still remained! Alas! the sequel. But there is less chance of rubber being overdone; albeit in every countryeof the habitable globe where the tree can b grown, men of all races are today devoting thought and time to its cultivation; while the hovering shadow of chemical research bent on finding a substitute for rubber. is a little disquieting when we recall the fate of indigo.

Other Subsidiary Products Pepper, Nutmegs, Vanilla, Annatto, Croton and such like minor ones, all increase the revenue of estates at little cost, and are each worthy of attention. None of them, perhaps, is usable as a crutch; but valuable as a staff. What each man has to do is to find what he should select as the best adjunct to his primary culture; and, remembering that Agriculture and especially Tropical Agriculture, is subject to many ups and downs,—stick to his subsidiary products till the dark days pass and be ready to profit by the bright ones when they dawn, which they surely will do sooner or later. Ceylon may have produced many disappointments; but it knows nothing of despair.

FORTUNES IN RUBBER.

HOW AN AMERICAN FINANCIAL PAPER REGARDS THE PROBLEM.

One of the American financial papers, namely, "The Daily Financial News," of New York, has a long article on American enterprise in exploiting profitable rubber fields. This article contains a considerable portion of fact, but, when it comes to calculating the prices obtained for rubber it is very much out. For what it is worth, we quote it here:—

"Mexico is full of opportunities for enterprise and capital. The surest, cleanest and often the quickest fortunes are those made by, the intelligent development of the uncultivated resources of nature. "There is in the eastern and southern part of Mexico a long, irregular strip of land 15 or 20 miles wide, which has a soil as fertile as any in the world, and it is in this strip of land that the rubber trees thrive. Another fact that makes opportunity for Americans is that this rich territory, which was once almost inaccessible, is now reached by railroads which have been built through subsidies from the American Government. "By their crude methods the natives killed the trees which gave them a livelihood. Moreover, the native method tended to inferior rubber far from clean. For such crude rubber the natives got about 20 cents per lb. Then came the Americans with intelligent business methods. In the first place, it was obvious that, inasmuch as the supply of trees had been reduced through their destruction by the natives, the first step should be to plant more trees. Immense nurseries were started, the young, broad-leafed plants looking like fields of tobacco. The shoots are set out 400 to the acre. When they have started on a strong, assured growth they are thinned out, usually at six years old, and 200 are left standing. Each tree that is cut down at this stage will produce about 5 lb of rubber worth 70 cents, so that in this process of development each acre produces $700. In some cases trees are tapped for rubber milk when they are four years old, 400 young trees, tapped by native methods, yielding 44 lb, worth $30·80 at each tapping. It is usually considered advisable, however, to wait until the sixth or even the eighth year before beginning to draw the rubber milk. The bark is cut carefully, and only a limited quantity of the milk is taken at a time, so that the tree is not injured and its growth not in the least retarded. From an eight-year-old tree 1 lb of rubber a year may be safely taken. When there are 200 trees to the acre the product of each acre a year would be 200 lb of rubber, worth $140. This would be obtained without any expense or labour in maintaining or caring for the trees, the only work being the tapping.

ENORMOUS POSSIBILITIES.—"A man owning 100 acres would thus receive $14,000 a year income. But rubber trees grow rapidly, and as they increase in size the quantity of the rubber milk which they will produce grows in an equal rapid ratio. A tree nine years old will give 1¾ lb. of rubber; a tree ten years old, 2½ lb. in the same time; a tree fifteen years old will produce 5 lb. a year, so that 1 acre will yield 1,000 lb., worth $700, and the product of 100 acres would be worth $70,000. The enormous possibilities of the rubber business have led investors to buy large tracts of rubber land in Mexico, including Senator Clark, of Montana. Those who have bought rubber lands in Mexico have paid small prices. The land was formerly owned by native plantation owners, who did not cultivate it, being too indolent or too ignorant to develop its resources.

RUBBER FOR MARKET.—"American ingenuity has devised several new methods for getting rubber ready for the market. The milk is drawn from the bark by suction, so that the pure sap is obtained free from the grit, bark, and foreign substances which were always present in such large quantities in the rubber sold by natives. After the rubber milk is obtained the pure rubber is separated from the other ingredients of the sap, in much the same way that cream is separated from milk, by a patent process. In the new method introduced and practised by the Americans there is no waste of sap. By the natives half of it is wasted. When the rubber is coagulated it is tied up in bales and shipped to New York, where it sells at from 75 cents to $1 a lb. and the total expense of extracting it, separating and coagulating it, and shipping it to the Eastern market, is not more than 5 cents a lb. This shows enormous profit."—*India Rubber Trades' Journal* Oct. 13.

EXTRACTION OF RUBBER FROM BARK.

The question of extracting rubber from the bark of certain rubber trees has repeatedly been suggested and experimented upon. So far, little success appears to have been achieved.

It certainly does not strike one as a very difficult matter to devise a process for the extraction of the rubber from a bark which really contains a fair amount of it. But it is certainly impossible to devise such a process without any direct reference to be operated upon. In other words, a thorough chemical examination of the bark in question is the first step to be taken. Further, there may be a large quantity of rubber in the bark, but it is most likely accompanied by a considerable proportion of resinous matter, the separation of which from the rubber would be quite as important as the elimination of the bark. Otherwise it might be found that the rubber extracted is of such inferior quality as to be almost valueless commercially. This, to a large extent, is what has been found in the various attempts of extracting gutta percha from the leaves of the gutta trees.

The resin accompanying the rubber in the different rubber trees varies very considerably in properties, and unless these are known it is quite impossible to give any directions as to their separation from the rubber. If the amount of

resinous matter present should turn to be so small that its presence in the rubber could be tolerated there would still be the question of the nature of the tissues of the bark which has to be separated from the rubber. Under favourable circumstances, it is quite conceivable that this might simply be dissolved away by a careful alkaline treatment, in which case a very pure rubber indeed might be obtained. But it is impossible to devise an efficient treament of this kind without a very complete knowledge of the bark to be operated upon.

The first step towards the desired end is therefore obviously a thorough chemical examination of the bark referred to in the enquiry.—[Reply to Messrs C. & Co.—*India-Rubber Trades' Journal*, September 29.

INDIARUBBER, GUTTAPERCHA, AND BALLATA :

TREES SUITABLE FOR NATAL.

BY M. SEHOF.

Most people are under the impression that India rubber and gutta percha are the same product. This is not the case, as they come from different plants, and are used for different purposes. The Latin names show at once the difference—Gummi elasticum and Gummi plasticum—the former being the India rubber and the latter the gutta percha tree.

I once undertook a trading trip from Manaos, at the mouth of the Amazon, up the river in company with an old Spanish 'ragataos,' or trader, to supply the India rubber gatherers with foodstuffs, cotton prints, tools, etc. We bought our goods at the 'aviadore,' or merchant, consisting mainly of Farinha Maniok, garne secca (dried beef), salt, and also a good supply of cheap wine 'vino tinto' (red wine), and a few other things necessary to the seringuerios, or India rubber gatherers. It would take too long to give fuller details of this journey, which lasted close on nine months I may also say that though I spoke Spanish fairly well I had no knowledge of Portuguese, and yet my partner never once tried to take advantage of my ignorance of the language spoken in those parts. Besides ourselves we had four boys in the boat and about two tons of goods. Without many stoppages, we rowed and sailed till we reached the Tapajos, a southern tributary of the Amazon, and here I saw for the first time how India rubber is collected. Each seringueiro, also called cauchero, has his estrada, or district of about 100 to 150 trees.

The true and best India rubber tree is the Hevea braziliensis, called by the natives Xerringa. There are of course, many other kinds of rubber-producing trees and plants—Hevea guyanensis, Syphonia elastica, Manihot, etc. It is of the Hevea brasiliensis and the Manihot glazowii I wish to write, as of these two in particular I have personal knowledge.

The Hevea braziliensis is a large tree. I have seen some over 60 ft. high ; it has pretty yellow whitish flowers, hanging in long bunches. The husk of the seed has a peculiar way of bursting open with a loud noise and ejecting the seed with considerable force. The leaves are large, and set in three on one stem. The cauchero goes out to work either very early or late in the afternoon, to tap his trees. When he is working in a part of virgin forest he very often has to cut his way through the vegetation to get to the tree he wants to bleed, and when there, his first care is to clean the tree and sweep round about. He then cuts with a single tap of his short-handled "machado," or hatchet the bark but never the wood. According to the size of the tree, from 12 to 30 cuts are thus made. He starts as high as he can reach, and comes down pretty low to the ground, and after each cut he fastens his little tin cup, or 'tigelinhas,' with a little mud under each of the cuts, into which the latex will drop, not flow, from one to three hours. If a slight rain happens to fall it will spoil the rubber very much and this is one of the reasons why many caucheros prefer to tap in the evenings as it very seldom rains in the evenings. An estrada of 150 trees gives about 35 to 40kg. of rubber in one tapping. Of course, this varies greatly according to the size of the tree, and whether newly tapped or whether they have already been tapped for years. In one year each estrada will be tapped about 20 times, and can thus give nearly 750kg. of raw rubber. The trees are tapped about every two or three days. Having fastened all his cups, he starts again at those he fastened first, and taking them down empties the contents into a tin bucket or gourd ; never into iron, as this spoils the colour of the rubber.

If he has far to go to his huts he puts a little ammonia into each bucket to prevent the latex thickening, and if his huts are close at hand, the buckets are emptied into large flat earthenware pans. After the whole harvest is over, the real work of preparing the rubber for the market begins and there are many different ways of doing this. I have personally only noticed two ways.

A large earthenware pot with a narrow hole is filled with wood or with nuts of the uauassu (or Urucury palm which are plentiful on the Lower Amazon, Having lighted his fumeiro, the ground is carefully swept, and he puts his pans containing the latex close at hand to the fumeiro. As soon as he considars the smoke thick enough, the cauchero takes a wooden spoon, from four to six feet long (like a baker's peel) ; the broad flat end of this is first held in the smoke and then dipped in the latex. He allows a moment for any drippings to fall back in the vessel, and then quickly returns it to the smoke. The thin layer of latex sticking to the spoon dries almost immediately the water has evaporated, and the first thin sheet of India rubber is ready. The cauchero proceeds in this way, dipping his paletta, or spoon, in and out till he has a lump of rubber about 5 to 7lb weight ; he then takes it off. It comes off very easily, and he starts again. These lumps are then dried in the sun for several days, as it is most important to get them perfectly dry.

The other method of smoking is to hold a long stick, which is flattened in the middle, over the smoke and is kept turning round, while the assistants pour the latex very slowly over the middle of the stick till a large roll of rubber is formed. These biscuits or loaves, as they are termed, as soon as they are perfectly dry, are carried on poles to the river stations to be exchanged for goods or money. India rubber of the Hevea braziliensis collected and prepared in this way, commands the highest price of all rubbers in the market. The price varies, according to the quality, at between 4s; to 6s. per lb. in the European market.

There are two other trees which I wish to mention, because I firmly believe that both would be suitable for Natal. With one of these trees, the Manihot glazowii (Portuguese 'Manisoba Leitera'), I have had personal experience. At Sylva, which was then the terminus of the railway from Monte Video, Uruguay, the railway manager there gave me 1,500 two year old plants which had come by steamer from Ceara, Brazil, to plant out. The climate of Sylva is considerably cooler and certainly not wetter than that of Maritzburg, and yet these trees thrived well, although the soil was very poor, sandy, and rocky. Out of 1,500 1,200 grew into fine strong trees. They were about 8 ft when planted and in thirteen months stood from 12 to 13 ft high. I had also some seed which were very hard ; I soaked them in water for five days, but three months passed before they sprouted. These seedlings in 8 months after sprouting were 4 to 5 ft high.

The Manihot, or Leitera, bears flowers and fruit. The fruit is something like a walnut, but very hard. It is tapped in its third year twice, allowing three days between each tapping. The rubber comes under

the name of 'Ceara scraps' on the market and fetches good prices, abont 5s per lb, each tree giving about 500g gum when 5 years old, 700 to 800g when 10 years old, and by careful tapping will last from 50 to 100 years and more. I know of no other trees which increase so rapidly and surely, and which require so little attention.

I have seen the Manihot grow in bare rocky ground, where every other plant is killed by heat and dryness, but the Leitera looking beautifully fresh and green.

The other tree is the Bassia parki, which is a North and Central African tree. I have seen it growing only in its wild state on the Upper Nile. It is also a very large tree, with long, dark green leaves, which stand in bunches at the end of peculiarly marked twigs. It bears a very pleasant tasting fruit, from which the natives make butter, which is known in the market as ghee or Karite butter. The fat of the fruit is also exported largely for the manufacture of soap and candles, and fetches good prices, and latterly the latex of this tree has come on the market as a first rate gutta percha, and has realised 1s 9d per lb. This tree I have only seen wild and have no further experience of it, but I believe it would grow well in Natal, and, what is more, would pay well.

Of balata I hope to write something in another issue of the *Journal,* as I have taken up too much space already.

[I have noticed with great pleasure some criticisms on my article *re P. insignis.* One of these, written by Mr James King, says that this or that partionlar tree, etc., should not be recommended for Natal. I did not recomended any particnlar tree, and distinctly said that I only mentioned P. insignis as an example how to plant a forest. To recommend any single class of tree for a whole country is, in my opinion, not very safe, and should be left to experts. —M Sehof, St. George's Estate, Hatting Spruit.] —*Natal Agricultural Journal,* Sept 26.

CONCERNING COFFEE.

An international convention will be held in New York during November for the study of the production and consumption of coffee. At present, little is known of the best varieties as regards quality and methods of cultivation, the most profitable for different markets, amount of consumption and any other information that may tend to improve its use and quality. Hawaiian coffee, when care is taken in its cultivation, harvesting, drying and packing processes is not surpassed by any produced in other countries. Age adds greatly to the value of choice coffee. The pioneers in Hawaii had a practice of drying the berries in the sun for weeks, than bagging and storing for months drying in a loft. Those who can remember drinking genuine Kona coffee, will never forget the delicious aroma that filled the room when it was poured out at the breakfast table, reminding of the fabled "nectar of the gods." Customs change, however, with the passing years, and much of the coffee drunk nowadays is imported from the "faraway." A coffee plantation in Kona, Hawaii, well kept and with its crops well dried and aged, will pay as well now as in years past, if the coffee planters take care to have none but the best sent to market. Genuine Kona coffee is as good today as it ever was, but the older it is, the better its quality. In the American market, the principal coffees are the Rio, Maracaibo and Java. Pure old Kona, when genuine. is better than any of them.—*Hawaiian Planters' Monthly* for September.

THE SILK INDUSTRY IN BENGAL.

In his annual report for the past year, the Director of Land Records and Agriculture, Bengal, states that the work done by the Bengal Silk Committee with the assistance of Government in rehabilitating the silk rearing industry of the Province by teaching the rearers how to eradicate disease, continued to prosper. Malda seems to be a long way ahead of other Districts in the number of intelligent rearers who have learnt modern ideas. Many old rearing houses have been properly ventilated, new houses are being built on approved plans, and the Collector reports that mulberry cultivation is extending all over the District, especially in Gour.—*Madras Mail,* Nov. 11.

FERTILIZING BANANAS.

Experimenting on a banana plantation under irrigation, and where bananas have been grown for 12 years, sulphate of ammonia applied alone, very quickly give an impetus to vegetative vigour; the trees grew very large but produced bunches of very disappointing size relative to the huge plant. On another piece basic slag was applied; this fertiliser is rich in phosphate and lime, the trees were not forced to huge growth as with the sulphate of ammonia, but the bunches produced were very good and well repaid the cost of fertilizing. The bunches were about equal with both fertilizers, but the trees with sulphate of ammonia were the best looking. However, as the basic slag only cost £4 10s. a ton and the sulphate of ammonia, cost £15 a ton, the best net return was of course with the slag. An application of lime alone did not show any results where two tons and-a-half were applied per acre, but where five tons were applied the trees at once responded, the stems were stouter than on the rest of the plantation, and seemed very firm with very strong roots, and the fruit was much improved. Further experiments will probably be carried through with simple fertilizers like Bone Meal, which contains an appreciable amount of nitrogen, and is especially rich in phosphates; and with Coconut Meal from the Oil Factory, which contains nitrogen, phosphate and potash, but is richest in the first named. Then complete commercial fertilizers may be tried, that is, compounds of the different elements containing nitrogen, phosphoric acid and potash, calculated on the needs of the plants, and the soil, as indicated by the first simple experiments with single fertilizers. To get the maximum of crops the soil must be perfectly adapted to the needs of the plant, and the experiments are being carried through at some expense in the hope that some combination will be hit upon that will cause the fields to yield fruit quicker and of a higher grade, when, as in the case with fruit-growers generally in other lands. the result may give a good return on the outlay for fertilizing. The soil being already fairly rich in potash as shown by chemical analysis, no experiments have included potash, but in the great majority of soils, every fertilizer for fruit trees should be strong in potash.—*Jamaica Agricultural Society,* August.

A CRATE OF ORANGE PLANTS—from the Royal Botanical Gardens, Sibpur, Calcutta, arrived in the Darius on Monday. The case was consigned to the Secretary for Agriculture.—*W. Australia Morning Herald,* Oct. 29.

MALARIA IN CEYLON.

The *Lancet* has the following on Dr. Chalmers Report on Malaria:—

Dr. Albert J. Chalmers, Registrar to the Ceylon Medical College, has made a preliminary report on the prevalence of malaria in Ceylon, with a view to its prevention. The report contains much instructive and useful information and deals with some points which have hitherto hardly obtained the attention which they deserve. The paper contains three addenda of which the first is devoted to an interesting theory to explain how man and the anopheles originally became infected with the malarial parasite, and the second gives a copy of a pamphlet on malaria which has been distributed to the various stations in Ceylon. The theory of the origin of the disease which is propounded by Mr. A Perry, Principal Medical Officer and Inspector of Hospitals, Ceylon, raises two points which are not without practical importance. They are: (1) Is it possible that the infection in man can take place by some other means than through the mosquito? and (2) If this be not possible how did the cycle of the life of the parasite start? In his account of the incidence of malaria in Ceylon, Dr. Chalmers first shows that the disorder is a powerful factor in the disease and death rates of the Island, and he proceeds to show that there is a definite relationship between the prevalence of the distemper and the amounts of the rainfall. In reference to the causal relation existing between the climatic conditions and the incidence of the malady the writer says: "There appears no doubt that the reason why so few, sometimes no, anopheles are seen in the dry season for months together—e.g., in Accra and Kumassi, West Africa—and then the sudden appearance of these insects in numbers is due to their hybernation in dark protected spots. They come out again in the wet season, as this is the time *par excellence* when they find the pools of water with suitable algæ for propagating their species and, in my opinion, this is the reason of the relationship between malaria and the rainfall." Dr. Chalmers states that at the date at which he wrote his report, he had not had sufficient opportunity of studying the anopheletes and their haunts in Ceylon to make an exhaustive statement on them, but that he had found the anopheles Rossii, an anopheles which resembled ("but not quite exactly") the anopheles vanus, and third which he calls anopheles X, in which the costal margin of the wing was "decorated with two white spots." It is incidentally mentioned that there had lately been a severe outbreak of malarial fever at Katancudy during which Dr. Hallock, who was medical officer there, acted with great discernment and by promptly cleansing the village made at once a marked effect on the disease. Dr. Chalmers gives a brief account of the dwellings and of the habits of the different peoples who live in Ceylon—of the Europeans, Burghers and the Sinhalese, of the Tamils, the Mahomedans, and the coolies. The Hindoos, the Buddhists, and the Mahomedans are particularly liable to infection from mosquitoes, not only because they wear little clothing, but because their religions observances entail their attendance at the temples and at mosques during the night. Rice fields form a suitable breeding ground for the anopheles, and so well is this fact recognised that an Italian law passed as long ago as 1866 makes provision for regulations in regard to the distance from dwellings at which the culture of rice is permissible. In regard to Ceylon it is thought that such restrictions could not properly be made, but it is suggested that the building of new houses near to existing rice fields might advantageously be forbidden. The importance of educating the people as to the cause of malaria is insisted upon in the report and it is suggested that the best way to accomplish this is to begin in the schools, and that as apothecaries are often sent to remote stations on the occurrence of a severe outbreak of malaria an opportunity should be given to them to learn how to take blood-films and how to recognise the anopheles and its larvæ. Such a course of study, it is noted, might advantageously be given at Ceylon Medical College. The most interesting points which the report shows may be briefly summarised as follows: (1) malaria at the present time is epidemic in Ceylon only in certain localities; (2) the island contains many anopheletes and the conditions which exist there are peculiarly suitable for their development; (3) a large proportion of the existing anopheletes are not infected with the malarial poison; (4) coolies affected with malaria are constantly being introduced from India to Ceylon. There is, therefore, a possibility that malaria may become more prevalent if these facts are not realised. The mode of spread of the distemper will be this, Coolies suffering from the disease will go to a part of the country which contains healthy anopheletes. The anopheletes by sucking the blood of the infected coolies will become affected, and in their turn will infect men previously free from the malady. Dr. Chalmers is justified in his belief that "anyone suffering from malarial fever in a country in which the anopheles abounds is a danger to public health." In the report this teaching is given as a personal opinion, but it is a fact about which there can be no shadow of a doubt, and Dr. Chalmers rightly founds his recommendations as to prophlaxis on the certainty of its truth.

COCONUT PLANTING IN BRITISH NORTH BORNEO.

In March of this year I visited a coconut plantation in British North Borneo and took the following notes, which may be of interest to some of your readers. Distance from Sandakan, two hours by steam launch. Six thousand coconut trees planted in 1896, of which 1100 are now in bearing, and the balance will all be in bearing in two years. Judging by the crop now on the trees and the usual yield in the district, the probable crop will be at least 3000 nuts per acre when the trees are in full bearing. Present selling price, $36 per 1000 delivered in Sandakan; present value of dollar about 1s 9d. Arrangements have been made to plant other 9000 trees this year; terms, fifty cents per tree to be paid to the contractors when the trees are three years old, during which time cash advances are to be made to the contractors for food.

Fourteen families were engaged on the new plantings, and when I visited the plantation with the agent he told me no advances had yet been made, although the contractors had been at work some months clearing away the jungle and preparing the land for planting; but on coming away the agent showed me a list of moneys asked for by the contractors amounting in all to $175, or about a sovereign to each contractor. I did not see the new coconut plantings, but I was told that most or all of the new land had been planted, and this was the first advance,

The contractors on this plantation are Philippinos, some of whom migrated to British North Borneo during the late war with America. The contractors are allowed to plant foodstuffs between the coconuts, such as potatoes, yarns, bananas, pineapples. They soon have a stock of poultry, and nearly all the contract money should be in hand at the expiration of the contract time. labour can be obtained in plenty for this kind of work. After the third year the chief work is to keep down the jungle growth, which should not cost more than $3 per acre per year, and in the fourth year cattle may be introduced, and the cost of clearing the jungle will become still less. The great enemy of young coconut trees is the wild pig, but this plantation has not, so far, suffered much. Under the present contract system the loss, if any, during the first three years will fall on the contractors. Where wild pig are plentiful a barbed wire fence seems to be a safeguard against their depredations, which rarely continue after the third year.

I visited the manager's house, situated on the edge of the sea beach, and under the shade of the coconut trees now in bearing—a pleasant, breezy spot. He told me the drinking water was good, fish cheap and plentiful, poultry in plenty, and pigeons of several kinds could be shot. Meat was scarce, as it had to be brought from Sandakan. The manager was leaving, as the heavy work connected with the opening of the now plantation was finished, and the present acreage is too small to afford a European superintendent. I estimated the acreage at 200 acres, allowing seventy-five trees to the acre. The trees were planted too close, and it would be better to pay the contractors a little more and only allow fifty trees to the acre.

A smaller estate than 400 acres should not be attempted, as the living expenses of a European manager would be too heavy on a small acreage. The total cost of planting 400 acres I estimate at £7 to £8 per acre, which expenditure would be extended over seven years. In this estimate I have allowed a very liberal sum for unforeseen contingencies, and I allow £120 to £150 sterling a year for living expenses or salary of the proprietor until the trees come into bearing, after which the salary would probably bo about £1 per acre. After the seventh year there should be an appreciable crop. One hears of coconuts bearing in five or six years, but it would be better not to rely on any appreciable crop until after the sixth year, and an average of 3,000 nuts per acre (allowing fifty trees to the acre) would probably not be obtained over the whole plantation until the tenth year, after which a certain amount of manure would be required to maintain this output.

I estimate the profit from 400 acres of coconuts at £2 to £2 10s per acre. The duration of a coconut estate seems to be unlimited. When the trees are worn out new ones are planted. The price of coconuts seems to have been well maintained for the last century. Mr. John Ferguson published in the *Ceylon Observer* about twenty years ago a list of prices obtained in Ceylon for coconuts from the beginning of the century, which showed a steady rise in value, and since 1880 the price of coconuts has risen considerably, partly due to the increasing quantity of soap made from coconut oil, and partly to the demand for coconut kernel in sweetmeats.

Young men with some capital who are willing to devote ten or twelve years to the task would find coconut planting in British North Borneo a very enjoyable out-of-door life, with plenty of leisure and a fairly certain income when the trees come into bearing. Very little knowledge is required by the coconut planter, and that little can be acquired while the trees are growing. The only caution I would offer is as regards selection of land. The prospects of a planter are rendered more favourable if the soil is good, and if labour, communication, and food supplies are duly taken into consideration when selecting the land. A railway has lately been made seventy miles along the west coast of British North Borneo which passes through good land for coconuts, and is being extended thirty-three miles into the interior. I should advise land being taken up in the vicinity of the railway. When the interior line is completed it will be pleasant to go to the hills for a change. Very fine deerstalking can be obtained on the higher level. On the lower levels near the sea snipe abound in season, also wild duck, and, for those who want big game, both wild cattle and rhinoceros are to be had in British North Borneo. Wild elephant exist on the east coast, but a somewhat prohibitive tax of $150 has to bo paid for each elephant.

From the foregoing it may be gathered that a coconut planter's life does not entail much hard work. Before the plantation comes into bearing the amount of attention required is not sufficient to fill the time of an able-bodied European, and it would be as well if the proprietor could obtain some additional employment; but when the trees begin to crop, the supervision of the collection of the nuts and their sale, as well as the upkeep of the plantation, would afford a pleasant out-of-door employment, with plenty of leisure.

H. W.

—*Field*, Oct 18.

THE PEARLING INDUSTRY OF NORTHERN AUSTRALIA.

According to "Australasian Hardware and Machinery" for September, a report on the pearl-shelling industry in Northern Australia has been furnished to the Federal Government by Judge Dashwood, the Commissioner specially appointed for that purpose some time ago. At Port Darwin, according to this report, the industry gives employment to 291 persons, and at Thursday Island to 2,214, or 2,505 in all. Of the owners some 35 are Europeans, but 13 are Torres Strait islanders, while all the drivers are coloured—more or less. The Commissioner is of opinion that, given better wages and conditions of living, white men might be obtained to undertake the work, but he is satisfied that the industry could not be profitably carried on with the increase of expenditure which this would entail. Some time ago the transference of the headquarters from Thursday Island to Merauke, in Dutch New Guinea, was spoken of, but the Commissioner thinks this port would be altogether unsuitable. In 1900 the pearl-shell raised at Thursday Island was valued at 116,697*l*. A report by Mr M S Warton, the resident magistrate at Broome, Western Australia, on the pearling industry in the north-west of that State, has since been laid before the House of Representatives. It confirms Commissioner Dashwood's conclusion that the industry cannot be carried on by white labour alone. In Western Australia, says Mr Warton, 618 persons are engaged in pearl-shelling, of whom only 110 are white men. As indicating the value of the trade to the Commonwealth, it is shown that from the fleets engaged in collecting pearls 20,000*l* is paid yearly in Custom's duties.—*Board of Trade Journal*, Oct. 23.

MICA MINING IN INDIA.

A very acceptable volume on the subject of the Mica Deposits of India, written by Mr T H Holland and published in continuation of the series of memoirs of the Geological Survey of India, has just been issued. It is of a far more entertaining character than have been many of its predecessors; and the writer has not scrupled in his descriptions of the mica mining industry to be as interesting as if the volume were not a scientific treatise, The primary object of the work is to

describe the Indian occurences of mica commercially valuable, and of course this only implies a very limited area. Mr Holland points out that such an area must necessarily be restricted in extent as the combinations of circumstances necessary for the formation of mica-crystals of the proper size and without the flaws commonly produced by earth movements are always restricted in extent. I therefore follows that large mica deposits are commercially very valuable to the country which possesses them, and according to Mr Holland India possesses an area which should give her a good share of world's trade in mica, and at any rate should make mica mining of far more importance than it is at present. Mica appears to have been used in India in the past very extensively as medicine, it was considered to have magical as well as medicinal properties. Of conrse it is now used in India principally in the manufacture of ornaments. But mica is being largely used in other directions abroad, and as has been mentioned is a valuable commercial asset to any country. Mr Holland therefore mentions that it would not be very surprising if Government were to show an inclination to temper the encouragement already given to the mica miner with restrictions intended to discourage his wasteful methods of mining and the tendency which he has shown, not unnaturally, to secure immediate returns by want only excavating shallow workings over large areas. The paper is also intended to convey to the mica miner a brief resume of the nature and history of the mineral in which he is so largely interested. It is rather doubtful, however, whether the book will ever find its way to those who follow the industry and if it do whether Mr Holland's erudite discursion on the minerological and chemical characters of the mineral will be properly understood and appreciated. The mica deposits of India appear to be fairly widely distributed. The Tibet border, the Bombay Presidency, Burma, Central India, and the Central Provinces, Madras, and Mysore, the Punjab, and Rajputana, all claim valuable mica quarries, and there is not the slightest doubt that properly worked and safeguarded the mica mining industry could be developed to a far greater extent than it is at the present time. Considering that mica is now so largely used in the electrical industry exportations of the mineral would doubtless be heavy and profitable. Although the volume contains a good deal of information that will be of use in the industry itself, it is chiefly a mineralogical record, and as such it is complete and satisfactory.—*Bombay Gazette*, Oct. 6.

THE TEA BONDED WAREHOUSE RING.

A correspondent of the *Financial News* of October 28 writes :—" Allow me to add my testimony to the excessive charges made by the warehouses on the unfortunate tea Importer. Following the lines of your correspondent, ' An Indian Tea Planter,) in your issue of the 17th instant, here are the disbursements of an Indian tea garden for freight and warehouse charges, as well as the amount and value of the tea grown for the past two years :—

Year.	Tea sold. Lb.	Value. £	Freight. Amt. £	p. c.	Wareho. Chs. Amt. £	p. c.
1901	90,544	3,171	135	4 25	165	5·20
1900	141,826	4,360	243	5·57	220	5·04

" The number of chests for 1901 was 1,087 and for 1900 1,455, being a total of 2,542. You will observe that the statement of your Calcutta correspondent, that he was told that the warehouse charges are often equal to the cost per case of conveying tea from Calcutta to London, is amply borne out by the above figures, where for 1900 the ware house charges amounted to 5·20 per cent of the value of tea, as against 4·25 per cent paid for freight.

This, however, is not the only grievance of which the importer has to complain in regard to these charges, though whether the warehouse proprietors are responsible for it I cannot say. The importer, before he can obtain possession of his tea, has to pay through his broker the charges for freight and warehousing, which, of course, no one complains of ; but when he comes to receive his account sales he finds that he is charged, in addition, interest at 5 per cent for three months on both charges ; so that on the above sums, amounting for the two years to £763, he is mulcted to the tune of over £10. One would naturally suppose that if these charges did not fall due for three months the importers should receive, and not pay interest. But it is ' the custom of the trade' one is told, and has meekly to submit. Again, should the importers wish to delay receiving the proceeds of the sale until prompt date—viz., three months—' the custom of the trade' comes in, and he is forced to take a cheque, less three months interest at 5 per cent, and which he has to deposit with his bankers, who will barely give him 3 per cent for it.

" Take, besides these iniquitous warehouse charges and the others already referred to, those for brokerage, agency, and miscellaneous, and can it be wondered at if the lot of the tea planter, with the price at 5½d—6d per pound, is at the present time not a particularly happy one ? To make one's meaning perfectly clear, copy of pro forma account sales is appended :—

ACCOUNT SALES OF TEA, &c.

80 Chests, 5,840 lb.—6d		£146 0 0
CHARGES.		
Freight—33/9 ..	£10 15 4	
Warehouse charges ..	12 0 6	
Public sale, 14 lots ..	0 10 6	
Int. on frt. 20/7—6/11, 110 ds. ..	0 3 5	
Do warehouse, &c. 12. 11/, 90 ds. ..	0 3 2	
Brokerage 1 per cent...	1 9 2	
		25 2 1
		£120 17 11
91 days disct.		1 10 3
		£119 7 8

—*Home and Colonial Mail*, Oct. 24.

AGRICULTURE IN CEYLON :

(In connection with subjects treated of in the "Agricultural Magazine.")

IRRIGATION

has done much for Ceylon. It has changed Anuradhapura, or rather the North-Central Province, from a howling, fever and parangi-stricken wilderness, into a fertile, smiling garden. It has done and is doing the same in other neglected parts of this island. In spite of Mr. Digby, it is doing much on the opposite continent to minimise the effects of recurring famines.

Now South Africa has come under British Rule, the attention of its administrators has been turned to irrigation. Mr. Willcocks, C.M.G., M.I.C.E., has reported to Lord Milner that on irrigation, and irrigation alone will depend the permanent development of the country. Agriculture is neglected for gold and diamond mining and is, what it was fifty

years ago. It is primitive; and farmers move from the highlands to the lowlands and *vice versa* with the seasons. The necessity for irrigation is accentuated by the fact that the rainfall is uncertain and erratic. Water must be stored during the season of heavy rainfall, for use when the seasons are dry. Mr. Willcocks has experience of irrigation in India and in Egypt, and speaks of the "immense benefits" derived from irrigation in those countries. He makes a novel suggestion to raise the necessary funds for irrigation works. The mine-owners should be compelled by laud to devote a percentage of their profits towards the execution of irrigation works, so that when the mines are exhausted, the country may not drop from the "height of prosperity to the depths of poverty"!

BETEL CULTIVATION

is carried on all over the island, but on a large scale, only in certain villages. Along over the main line of railway, the bulk of the traffic in betel leaves, is from Mahara and Henaratgoda. Why this is so, I cannot say. It may be that the soil of these villages is peculiarly suited for its cultivation. It is known to be a very paying crop, and a small plot of land planted with these vines is known to yield quite a respectable income. I doubt, however, whether the local yield can equal the reported yield in the Madras Presidency, which is said to be at the end of the first year R30 per acre per mensem. The vines in the island are trained on dead wood and are closely planted. In Madras, they are trained on "Katurn Murunga" trees, which are first planted on the land. The vines are evidently very carefully tended and cultivated in India, for it is said that they receive half-yearly supplies of annual revenno and the delicate vines are fed with milk! In the island, the only manure used is, I believe, the leaves of the "Keppetiya."

"THE PROPER METHOD OF PLANTING TREES"

is a very useful and instructive article. It is written by Mr. A. Despeissis, of Western Australia and refers to the planting of orchards. However, there are many hints in it which will be useful to all classes of planters in the island. Holes should be wide enough to admit of the spread of the roots—the wider the better. Coconut planters take special note of this, especially those planting on stiff soils. A very good method of securing wide holes, is to fill them by cutting the surface soil all round them. By this means, a 3 in. by 3 in. hole nearly doubles itself. Where the sub-soil is stiff, it is said the holes should not be deeper than the free surface soil, else the hole acts as a basin for the retention of water and the roots of the plants rot and they die. One of the most troublesome of planting operations, is to plant in straight lines. It is difficult enough to line straight, but in cutting and filling the holes, the pegs are displaced and in planting, subsequently, the lines are hopelessly destroyed. A method is suggested for placing a plant exactly where the peg was, which, unfortunately, will not be found practicable on tea plantations, except at a prohibitive cost. The zig-zagging of the lines of a tea estate, are not very apparent owing to the formation of the bushes, but breaks in the lines of

COCONUT

trees, are an abomination and an eye-sore. The method suggested is to take a long narrow plant and cut a V shaped notch in the centre and at each end. Place the plant on the ground with the peg at the centre notch. Drive pegs deep into the ground at each notch at the ends of the plant, remove the centre peg and cut the hole to the required dimensions. When planting, place the plant on the ground so that the notches at the ends will fit into the pegs on the ground, and place the plant where the centre notch is, which will be the exact spot where the living peg was originally. All this may be slow and tedious, but it will ensure good work, and whatever is worth doing, is worth doing well.

For a hard impenetrable soil, as is occasionally met with on the cabook hillocks of

COCONUT PLANTATIONS,

it is suggested that the bottom of the hole should be shattered with dynamite or blasting powder. Crevices are formed which permits of the free passage of water and of roots. An idea is very prevalent amongst coconut planters, that placing the plants deep down in the holes is the perfection of planting. The evils of this system are seen in seasons of wet, when it becomes necessary to remove the plants from the holes, and plant them outside, to prevent their dying off. My system has always been to fill up the holes to within one-foot at the outside from the surface, however deep they may have been cut. This writer deprecates deep planting for the same reasons that I hold.

According to a lecture by Mr Orpen, the head of the Agricultural Department at Rhodesia, the

CHENA CROPS

in that country are similar to those in India and Ceylon. The crops are

INDIAN CORN, KURAKKAN

and what is called *kambu* in India. The first is consumed in the form of meal converted into porridge or bread and beer. For long journeys, the corn is parched or "sprung." In this form, it is called "porri" here and is always to be seen rendered by "kadala," or parched gram, women. The "sprung" corn ground and mixed with a little salt forms the rations of native soldiers on the ward. In a six weeks' march against Langahalele in 1873, the native soldiers were provided with the meal of parched corn and were able to perform the march successfully on this nutritious diet.

"KURAKKAN"

is supposed to be the most nitrogenous of farinaceous grains. The natives consider it more nutritious and satisfying than other grain. The same opinion obtains in the Wannie and other interior districts of this Island. A villager will, by preference, have a meal of kurakkan to one of rice. It is more satisfying, possibly owing to its indigestibility. He says he can go for a whole day on a meal of kurakkan, while before half-a-day is over, he grows hungry on a meal of rice. It is eaten in the form of "pittu" with scraped coconut, or boilt and made into large pills, dipped into curry gravy and pushed down the throat. Mixed with honey, it is made into "halapa." Ceylon has not as yet developed a trade in the export of its fruit. Perhaps time will help in the development of this trade, and a few notes on the packing of fruit for export, will be useful. The first requisite for the successful transit of fruit is careful picking. Fruit should not be allowed to drop on the ground and be injured. They should not be packed immediately after picking, but should be laid out for a few days to "harden" and for the superfluous moisture of the skin to dry up. In transit, *cold* chambers destroy the flavour. Cool, ventilated chambers are necessary. It is best that each layer of fruit should have a separate chamber, or in large cases, such as barrels, the lower layers of fruit, have to bear the weight of every thing above them. Valuable and large fruit, should have a compartment for each. Mangoes for export should not be picked ripe, but when "full" and ripening during transit.

GUATEMALA COFFEE CROP DESTROYED.—A San Francisco firm which is interested in the coffee business in Guatemala has received a cablegram, states Reuter, from its representative in that country stating that the entire coffee zone has been destroyed by the recent volcanic disturbances, and that enormous losses have been sustained. The eruption of Santa Maria continues. The coffee plantations are buried beneath several feet of sand and ashes.—*Westminster Budget*, Oct. 31.

TEA BUG OF ASSAM.

A DISPUTED POINT.

Mr H Harold H Mann, B Sc., contributes the following notes :—As is well-known *Helopeltis theivora*. "Tea Bug of Assam" as it was called by Mr Wood-Mason, the "Mosquito Blight" as it is generally termed—is the most alarming pest which has yet appeared on tea cultivated in India. It causes the more disquietude as it tends to increase as years go by,—fluctuating according to season, but generally increasing and invading new areas. During 1901, which was a particularly bad year in almost all districts subject to the pest, a very moderate estimate gives seven lakhs of rupees as the nett loss to the Indian Tea Industry from this cause alone.

Though we have a knowledge, thanks to Peal, Wood-Mason, Dudgeon, Watt and Green, of the general life-history of the insect from the egg to the adult stage, yet there remain several points which have been very obscure. Of these the most important is the question as to what becomes of the insect during the time when it apparently disappears from the tea bush. So complete is this disappearance, as a rule, that most planters living in affected districts in North-East India have hardly ever seen a single insect during January, February and March. Mr Dudgeon has suggested that it hibernates in the ground, but offers no evidence for his position, and declares frankly that he had not been able to verify his conjecture. It has also been supposed that hibernation takes place in water and swamps, but again, not a scrap of evidence in favour of the view exists, and the same may be said of the very general idea among tea planters that in the cold weather the *Helopeltis* goes on to various jungle trees.

With a view of acquiring information on this point, I have spent a considerable time in January, February and March of the present year in two of the districts most affected by the pest—Darjeeling-Terai, and Cachar—at a period when the insect was supposed to be hibernating. As a result I have come to conclusions, of which the following is a summary. The *Helopeltis theivora* can be found on the tea bush in every stage of development during every period of the year. The cold weather kills off the bulk of the mature insects and practically all the larvæ, but at all times sufficient remain to carry on the pest to the next season, and in addition the bushes are full of eggs. These latter were found not only in the usual position on the young shoot, but also at a much lower part of the bush than had previously been noticed embedded in the usual fashion in the mid rib of the large mature leaves. The larvae were found on 11th January in small numbers on unpruned and sheltered bushes, then forming about 2 per cent of the total number of insect caught. By 12th February, however, a very different proportion of adults and larvæ were obtained, and now instead of 2½ per cent the larvæ formed 80 per cent of the total catch. This proportion was approximately kept up during several weeks from that date. The difficulty in obtaining evidence of their presence at this time is due to their attacking almost entirely the slightly shaded young leaves, the surface growth being rarely injured in the early part of the year.

The insect could further not be found on any jungle plant at this time. Though jungle of very miscellaneous character was systematically searched both by myself and by the children who are regularly catching the insects and who are extremely expert at the work, not a single one was discovered in any form.

It appears, therefore, evident that there is from present knowledge no need to assume a hibernating stage at all for *Helopeltis theivora*, and that the insects remain and can be found in every stage of growth from the egg to the mature female full of eggs in the tea-bush, at all times of the year. Whether the egg found low down in the bush, as described above can be considered as a special hibernating egg, I can hardly say, but there certainly was no difference in structure or in method of deposition from that usual during the regular season. Inasmuch, then as there is absolutely *no* evidence of the cold weather being passed by the insect in the soil, in water, or on other trees, and furthermore, as careful observation can always detect the insects and their eggs on tea bushes in affected districts, their is no need to imagine any hybernation stage at all in India, and beyond a certain retardation in development due to the reduced temperature, the reproduction of the insect may be considered to take place in a similar manner throughout the year, and to be carried out on the tea bush itself during the whole period. These observations have a practical interest, and may lead to a sound method of attempting to deal with the pest, and experiments in this direction are now in progress.—*Indian Daily News*, Nov. 10.

THE LONDON CIRCULAR ON THE TEA CESS.

Dear Sir,—I am instructed by the Tea and Produce Committee of this Association to hand you the enclosed copy of a letter, dated 22nd September, 1902, from Mr A C Kingsford, Chairman of the Planters' Association of Ceylon, embodying a resolution of the Thirty Committee, dated 13th September, 1902, and to ask whether you are prepared, on behalf of the interests that you represent, to agree to the proposed increase of the Tea Cess from 30 cents to 50 cents per 100 lb.

I am further instructed to invite an expression of your opinion generally, and any suggestions you may have to make, as to the appropriation of the funds at the disposal of the "Thirty Committee."

At a meeting of the Tea and Produce Committee, held on the 22nd October, the following resolutions were passed, and are communicated for your information :—

1st.—"That, while the Committee approve of the encouragement given to the Green Tea industry, they do not consider it necessary or desirable at the present moment to increase the Cess as recommended by the 'Thirty Committee.'"

2nd.—That the following suggestions put forward by Mr Rutherford meet with their approval:—"That the 'Thirty Committee' guarantee 4 cents per lb. bonus on 7,000,000 lb. of green tea out of the 1903 Cess, which it is proposed should not be increased over its present rate, and in the event of there being insufficient funds from which to pay a bonus on green tea exported in 1903 in excess of 7,000,000, then the payment of the bonus of 4 cents on such excess quantity shall be a first charge on the unexpended balances for advertising, etc., and on the Cess of the following year."

Answers to this circular should be sent in on or before the 10th November, 1902.—I am, dear sir, yours faithfully,

WM. MARTIN LEAKE, Secretary.

61 and 62, Gracechurch Street, London, E. C., 27th October, 1902.

PROTECTION OF BUILDINGS AGAINST LIGHTNING.

There is a subject of great interest to people out here, as elsewhere, says "Max" in *Capital* of 30th ultimo, and that is how best to protect their buildings against destruction by lightning. The question has been discussed over and over again. I remember a good many years ago the London *Times* opened its columns to a lengthened correspondence on the point as to whether the

ordinary lightning rod which is considered so essential to all our chimney stalks and church steeples, and which appears to be so highly resented by the cock on the top of the Scotch Kirk in Calcutta as interfering with the dignity of his environment, was really of any use as a protection against destruction by lightning. At the end of that discussion, in which many experts took part, the balance of evidence inclined towards the opinion that the ordinary lightning conductor was really of very little use for the purpose for which it was erected, and that very often it was a positive danger to the building. Since then the "lightning rod" question has often cropped up for discussion, and always some little contribution to our knowledge on the subject, mainly gained by observation and experience, has been added. Again, I see there is a discussion going on, and a new generation is anxiously asking what engineers have to say on the best methods of protecting buildings from destruction by what we call lightning. *The Scientific American* says: "The rod should traverse the edges and peaks of the roof and the lower parts should go to the ground at all the corners of the building for best protection." The terminal points must go to wet earth, or into a well if one is handy. This looks like, not one rod, but a complete network or cage of rods. The journal above quoted also states that no insulators should be used on the rod. So far, *The Scientific American.* And now come the conclusions of a number of scientific men who formed themselves into a Lightning Research Committee, and which seem to bear out the American opinion. After nearly a year's investigation, these scientists found the old theory of the protective value of a single road on a church steeple or tall chimney completely exploded. They found that lightning often struck a building and committed damage within a few feet of the conductor. The conclusion arrived at was that if a thorough protection of a building is possible, it can only be effected by a network of protectors spread over or around the building, and with many earth connections. It would be interesting to have the views of the chiefs of the Indian P W D on this subject, and it may be as well for all those who are living at ease under their old fashioned lightning rods to bestir themselves, and get into copper cages at once. All the unsightly single lightning rods that disfigure our public buildings may as well come down, in view of the proved fact that they are not only absolutely useless but may turn out to be sources of positive danger.

THE CAMPHOR INDUSTRY OF FORMOSA.

The camphor factory at Taikwakan, one of the two most promising camphor districts near Taipeh, had to be closed the year before last (says the (*Kobe Chronicle*) on account of the havoc wrought among the trees by the aborigines. The same course had to be taken at Nansho a few months ago, and this factory has also discontinued business. We now learn from the vernacular paper that it has been arranged to start the manufacture of camphor at Taikoyo, near Gilan, and that charters have been granted to the Komotsugumi and other firms. The yield of camphor during the present fiscal year at Taikoyo will, it is estimated amount to about 360,000 catties. Preparations for the new station are now being pushed forward.—*Overland China Mail,* Oct. 25.

JAVA CINCHONA AND QUININE.

Notwithstanding the increased monthly shipment of cinchona bark from Java to Holland during 1901, prices realised were satisfactory. At the auctions in Holland the unit price rose from 7·25c in January to 10·45c in June, only, however, to recede to 7·65c in December. The average unit price was 8·30c for the ten auctions held, and the average percentage of quinine in the bark was 5·45 per cent. The equivalents of above quotations in sterling are:—

Currency. Cents.	Sterling. d.
7·25	1·45
10·45	2·09
7·65	1·53
8·30	1·66

The exports of bark from Java during last year compared with those of the four previous years are as follows:—

Year.			Quantity. lb.
1901	...	...	... 13,901,586
1900	...	...	... 12,068,718
1899	...	...	... 12,414,402
1898	...	...	... 12,123,310
1897	...	...	... 8,498,726

The quantity of sulphate of quinine produced by the Bandong factory and sold at auction in Batavia during 1901 was 1,014,000 oz. (English). The average price paid was 1 1-10d per oz., the equivalent of 1 7-10d per unit. The bulk of the quinine was shipped to the United States and London. Some parcels were also forwarded to Australia, British India, China, Japan, and the Straits Settlements.

The following are particulars of quantities sold and average prices realised at Batavia auctions last year:—

Date of Sale.		Quantity in oz.	Average price per oz.
February 27	...	... 120,000	11·67 pence
April 3	...	... 108,000	12·88 "
May 15	...	... 104,100	13·52 "
June 19	...	... 96,100	13·32 "
July 24	...	... 84,400	12·21 "
September 5	...	... 62,000	11·34 "
October 9	...	... 111,300	11·66 "
November 13	...	... 183,400	11·34 "
December 18	...	... 144,000	11·44 "

—*Tea.*

A NEW SYNTHETICAL GUTTA-PERCHA.

I thought we should not have to wait long. There has been such a lot of artificial, synthetical, and other wondrous kinds of rubber announced to the world that it is only fair that gutta-percha should at last have a look in. And it has got it. The "Electrical Review" tells us that "synthetical" gutta is an accomplished fact. But if anyone standing outside the rubber industry wishes to see what a farrago of nonsense and ignorance is looked upon as information to the rubber trade, and, alas, others besides he should peruse that article—and ponder.

That this artificial preparation is capable of replacing gutta-percha for insulating purposes, even for submarine lines, is by no means impossible, but it will take several years' practical test to establish beyond doubt the stability of this new preparation. On this point it is difficult to prophecy without even knowing the constituents of the new Gutta. All that can be said is that this stability will be determined by that of its most

unstable constituent, and as soon as this is known we shall be better placed for making a forecast.—*India-Rubber Trades' Journal*, Oct. 27.

HORNSBY-AKROYD OIL ENGINE.

We think the facts set forth in the advertisement of this oil engine are of sufficient importance to merit calling special attention to the same; for, we are told that "it has now been demonstrated without doubt, that the 'power-bill' for the whole of the island could, on a very conservative estimate, be reduced by one half, by using liquid fuel in a Hornsby-Akroyd Oil Engine." No doubt there are other "Oil Engines" which also show capital results according to the testimonials advertised to the value of "Campbell's," "Cundall's," "Clayton and Shuttleworth's," &c. The great matter is the economic gain by using liquid fuel.

PLANTING NOTES.

THE VINEGAR CURE.—"D C S" writes to the *Madras Mail*:—One of my chaprasis, whilst leaning up against a door post, suddenly jumped with a shout and then almost doubled himself up nursing his leg and groaning that the pain was shooting up to the top of his thigh. The cause of all this bother was discovered in the shape of a vigorous young scorpion which had landed its symmetrical sting in the calf of the chaprasis's leg, I almost at once had the calt well rubbed with vinegar, and in a very little while afterwards the chaprasi looked up with a beaming smile on his face and, much to the gratification of the other servants who were looking on, remarked to me:—"*Sirkah babut atcha dawai Sahib.*" He was up and attending to his work in 20 or 30 minutes time as if nothing whatever had happened.

GOLD, GOLD EVERYWHERE!—Here is a bit of a warning for Sir West Ridgeway and any others who may expect to find paying gold deposits in Ceylon. In the *Empire Review* for November, "T. B.," writing from the Gold Coast, West Africa, says:—

"The colony, of course, can claim to be a gold-bearing country, and in my opinion and many others, that is all that can be said for it. Every yard of it I believe to be gold-bearing, but it is so fine and well distributed that it is well-nigh impossible to collect it; you can take a bit of float quartz from almost any part and get a colour from it, but still no reef has been found above water-level, and water-level is no great depth in this country (averages 100 feet) and no indications in leaders to denote better gold below. I am speaking from experience (from sinking shafts, striking leaders and following and from adit levels with 100 feet of backs), also I am situated so as to come in contact with some of the most prominent engineers that have been engaged in reporting on properties in West Africa. Nothing sensational has been met and certainly nothing is expected in that line. As things stand at present so much capital has been thrown into the country that companies are in duty bound to spend more till they get decided reports on their ventures; read what papers you will, in none can you find a report giving satisfaction or proving by the value of the mine. Promises, yes, by the score, but nothing tangible, and I do not think there ever will be."

A GOLD CURRENCY.—There are bankers in our midst who decidedly prefer gold as a currency if only there was silver to back it; and no wonder—for one small package of gold will bring as much value, as 25 packages with 3 lakhs of rupees. Think of the extra trouble and cost in counting and packing, in freight, in delivery, in checking, etc., etc.!

"THE COARSER PRODUCT OF INDIA AND CEYLON"!—The *North China Herald* (October 1st) commenting on the report on the trade of Hankow "the future Chicago of China" says:—The gross value of the trade, in spite of a short tea crop and a serious falling-off in shipments of the leaf, "falls little short of the value for 1899 when the highest figures recorded for any year were reached. The business in black tea showed a considerable decline, but there was a marked recovery in the export of brick and tablet tea. When tea was the great staple of Hankow, and the British public had not been led away by its cheapness and strength to prefer the coarser product of India and Ceylon, the trade of Hankow was mainly in British hands; what was then known as "muck and truck" now bulks very largely in Hankow's exports, and it seems that Continental buyers can pay better prices than their British competitors for the hides, nutgalls, wood oil, vegetable and animal tallow, bristles, skins, sesamum seed, etc., which make up the deficiency caused by the decline in the demand for China tea.

CULTIVATION OF SUNFLOWERS.—The first year of the twentieth century closed with a curious sale, at the Baltic sales-room, of a cargo of Sunflower seeds, which changed hands at £11 5s per ton. Though a small trade has been done in Sunflower seeds for nearly 200 years, this transaction was the first in which a whole cargo—300 tons sent from Odessa—was dealt with. In Russia, where the cultivation of the Sunflower and the manufacture of oil from its seed is conducted on a large scale, the variety grandiflora is the one grown. The species rises in a slender stalk of 5 feet high, producing one monster head, the average yield being as much as 50 bushels of seed to the acre. So rich is it in oil, that that quantity of seed will yield 50 gallons of oil; while the refuse of the seed, after this quantity of oil has been expressed, weighs 1,500 lb. when made into cattle cakes. Few people in England who grow the Sunflower for ornament have any idea of its usefulness. It is among neglected crops in which there is money. Besides the seed, every other portion of the plant can be utilised. The leaves furnish an excellent fodder; while in Russia the stalks are prized as fuel, and their ashes, which contain 10 per cent. of potash, are readily sold to the soap-makers. Naturally in Russia the chief virtue of the Sunflower lies in the oil contained in its seed. The oil is of a clear, pale yellow colour, almost inodorous, and of an agreeable mild taste, so that it is in great request as a table article. Why Sunflowers are not cultivated on an extensive scale in England, it is difficult to say. Poultry and cattle like the seed, either in its natural state or crushed and made into cakes. No plant produces such fine honey and wax; when the flower is in bloom, the bees abound in it.—*Journal of the Department of Agriculture of Western Australia.*

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata)wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booki ngnecessary before the end of February, also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

"SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: J. P. WILLIAM & BROTHERS,

WILLIAM, HENARATGODA, CEYLON. *Tropical Seed Merchants,*

Liber's, A.I. and A.B.C. Cdes used. HENARATGODA, CEYLON.

Correspondence.

To the Editor.

DIFFERENT EUCALYPTI (GUM TREES.)

Botanic Gardens, Sydney, Oct. 2.

Dear Sir,—Noticing a remark in your Journal for September, page 196, I beg to inform you that the botanical name of the Tuart is *Eucalyptus gomphocephala* D.C. and that of the Crimson Flowering Gum is *E ficifolia*, F.V.M.—Yours faithfully,

J. H. MAIDEN, Director.

A NEW REMEDY FOR MALARIAL FEVER.

London, Oct. 8.

Dear Mr. Editor,—In looking over the *Tropical Agriculturist* of the 1st September, I read on page 188 that "Brucea Sumatranæ is said to be as much a specific for dysentery as quinine is for malaria." This is no compliment to the drug because it is well-known now that quinine is not the medicine to take for malaria, and it is being abandoned in all parts where it is possible to obtain the extract made from Cassia Beareana. This remedy has been tried by hospitals in the United States, after reading the interesting account of the cure that this plant effects when it attacks the blackwater fever. From your remark I should think that you had not seen the book I am enclosing herewith, which is a republication from the "Lancet," and some remarks by Mr. Holmes appended.

Men are going out now to the East and West Coasts of Africa and also to Central Africa, with supplies of this drug, because they do not now dread attacks of this severe form of malarial fever, known as blackwater fever.

One doctor from the United States reports that one of his patients was attacked on the 16th May, 1902. He took quinine sulph. 8 grains on Friday, the 16th May and had a subsequent attack. He then took Cassia Beareana 30 drops in water every two hours, taking 1 oz or a little more altogether. He had no subsequent attacks. The blood was examined on the 16th May, 1902, and contained the tertian parasite; on May 21st it was examined again and there was no sign of any organism. This shows how thoroughly the drug does its work.

If you know of anyone who would like to make experiments with this remedy, we should be pleased to send some if they are unable to obtain it out there.—Yours truly,

THO. CHRISTY.

GREEN TEAS.

London, Oct. 8.

Sir,—I am pleased to see much more attention given in the direction of making "greens," if only the proper class of greens could be turned out. In London it would appear that a large quantity could be placed if Ceylon arrived anywhere near the class of China greens asked for.—*Colouring greens*: now is it to be checked is the question put The "Thirty Committee" should take up this. and endeavour to arrive at some method of check, as *to colour* tea bids farewell to Ceylon's boast of *Pure Ceylon Tea.* "TEA."

CACAO IN 1877 AND 1902:

A Leaf from the Past.

Among old papers we came across the following letter never published before:—

Gang Warily Estate, Gampola, Oct. 16, 1877.

Dear Sir,—I enclose for the benefit of the readers of the *Observer*, and more particularly for those who are taking an interest in the advancement of the Cacao cultivation enterprise, some valuable information received from Home in the shape of an extract from the "Journal of Applied Science" for 1874,—a *multum in parvo* of all that relates to the cultivation and preparation of Cacao for the market. As this new product is exciting, and, I think, deservedly so, a good deal of attention at present in the Spicy Isle, the matter embodied in sheets sent, seems to me to be particularly applicable to its growth in Ceylon. As the enclosed is a copy of a copy some errors may have crept in, but, I daresay, they will be immaterial. I trust Sir James Longden will take an interest in this new industry in which his past experience would be sure to be a valuable help and guide to intending pioneers, and with a little encouragement from Government in the way of supplying plants of the most approved kinds, etc., a creditable future for this fine plant and excellent beverage may be safely predicted. There may be failures at first—but, if at first you don't succeed, why just "try, try, try again"!—Yours truly,

CA' CANNY.

[Referring the above to the writer, it has brought us the following very interesting reminiscences.—Ed. *T.A.*

Dolosbage, Oct. 16, 1902.

Dear Mr. Editor,—I was much interested in reading my old letter bearing date, 16th October, 1877, exactly a quarter of a century ago, and it recalled to my recollection all the early anticipations and struggles with this grand product. What sanguine estimates we used to frame, when Old King Coffee gave us the go-bye, of the new products which, we hoped, would take its place—Cinchona, Liberian Coffee, etc.—gone, gone, are all the old imaginary figures. How nice they looked on paper; but they may have served a purpose in keeping up one's spirits during troublous times. Even "Queen" Tea looks as if she were going to follow suit!

I think you will find by turning up old *Observers* that I was one of the first to call attention to cacao as worthy of cultivation. Hearing that there were old cacao trees on Pallekelly estate, I made a special visit there. I forget the date, but it shows it was an early one for the old trees I saw were in a neglected sort of state, and the late Mr. R B Tytler was not then very enthusiastic about its cultivation on a large scale.

The cacao article from the "Journal of Applied Science," I have carefully read over, and consider its matter good; but, of course, modifications must be made* when adapting it to the state of things

* Much that has been written in our *Tropical Agriculturist* and in Mr. Hart's useful little book has placed the article of 28 years ago out of date. —Ed. *T.A.*

in this beautiful Isle of the sea. I have no special remarks to make on cacao generally. There are younger and more up-to-date cacao planters now in the field who would be able to give you more information than I can. After 1896 I had personally little to do with it. Up to about that time I got fair yields from my place, and very good prices. Then the price went down with a run and cacao had to take a back seat. Tea was all the go, and chief favourite, and no wonder, seeing that it was more easily dealt with in planting, preparation, freedom from pests, and as giving quicker and better returns.

I consider this climate rather wet. My cacao elevation is from (say) 1,600 to 2,000 feet above sea level. My oldest trees were planted (with a view to extended cultivation) in November 1873—seed at stake, and they are still to the fore, though I must say Helopeltis has made its withering mark on some parts. Were I a young man, I should like to have another innings at cacao in spite of all the ills it is heir to, and they are many!

Experience, capital and suitable land there is no getting on without, and a lot of attention must be devoted to it from first to last. Cacao and Para Rubber should do well together. I wonder there is not more grown in Native gardens—*a la native* coffee—where there are hundreds, yea thousands, of ideal spots suitable for its growth. The prevalence of stealing is a great drawback. A villager cannot grow vegetables or fruits, etc., but some rascal, who toils not, watches his opportunity to rob, and the poor cultivator is left lamenting. And that is the reason a large quantity of unripe fruit and vegetables is brought to market.—Yours truly,

J. D.

GREEN TEA: A QUERY.

16th Oct.

DEAR SIR,—It would be interesting to know from manufacturers of Green Tea what outturn or percentage from leaf, for say a whole season, is generally secured as against that made into Black Tea, conditions being equal.—Yours truly,

VERDANT GREEN.

[The experience of some of the larger Green Tea manufacturers in Ceylon is, we believe, that they get quite as large a percentage of green tea from a given quantity of leaf, as they did formerly of black.—ED. *T.A.*]

HUMIDITY OF THE ATMOSPHERE.

Katugastota Estate, Oct. 18.

DEAR SIR,—Will you or any of the subscribers to your paper tell me how to work out the humidity of the atmosphere, *i.e.*, given the temperatures shown by the dry and wet bulb thermometer how can the humidity of the atmosphere be deducted.

HUMIDITY.

[The following table gives the information your correspondent requires: the saturation point being taken at 100, the figures give the percentage of water vapour in the air:—

o Difference between dry & wet bulbs.	Temperature of dry bulb thermometer. 60	Difference per deg.	68	Difference per deg.	76	Difference per deg.	84	Difference per deg.	92	Difference per deg.	100	Difference per deg.
0	100		100		100		100		100		100	
		6		6		6		5		5		5
2	88		88		89		90		90		90	
		6		5		5		5		5		4
4	76		78		79		80		81		82	
		5		5		4		4		4		4
6	66		68		71		72		73		74	
		4		4		4		4		4		3
8	58		60		63		64		66		68	
		4		4		4		4		3		3
10	50		52		55		57		59		61	
		3		3		3		3		3		3
12	43		46		49		51		53		55	
		3		3		3		3		3		3
14	37		40		43		45		48		49	
		3		3		2		2		2		2
16	32		35		38		41		43		45	
		2		2		2		2		2		2
18	28		31		34		36		38		40	

Example.—What is the humidity when the dry bulb thermometer shows 86 and the difference between the dry and wet bulbs is 9°?

For temperature 84° and difference 8° the table gives 64; the difference for 1° being 4.

For temperature 84 and difference 9° the percentage is therefore 64—4=60.

Now with diff. 8° and temp. 84° the p'tage is 64 (from table.)

" 8° " 92° " 66 (from table.)

For a diff. in temp. of 8° the diff. p'tage is 2 increasing, and " for " 2° " " ½ "

Hence the percentage of humidity at 86° with a difference of 9° is 60+½=60½ %. H. O. B.]

SEED OF "GMELAIA ARBOREA": A CHANCE FOR THE MANAGER OF ABBOTSFORD AND OTHERS.

October 20.

[*To the Editor "Tropical Agriculturist."*]

SIR,—With reference to the letter in your number of 1st October, 1902, from "John Fraser," I have the honour to state that there is a large amount of *Gmelaia Arborea* in the forests of the North Coimbatore division, and that I could supply him with seed at the proper season (March-June). This year was a magnificeint seeding year and had I only known in time I could have supplied him with a large amount. Unfortunately, a heavy seeding year is generally followed by one or two bad years and so I have doubts about being able to collect large quantities for the next year or two. I should like to know about what amount Mr. John Fraser requires.—I have the honor to be, Sir, your most obdt. servant,

A. W. LUSHINGTON,

District Forest Officer, Coimbatore (North).

SILK-PRODUCING MOTHS.

Peradeniya, Ceylon. 20th Oct., 1902.

Dear Sir,—By *Attacus taprobanensis*, your correspondent alludes to the insect now referred to as *Attacus atlas*, Linn.,—popularly known as the "Atlas" moth, the largest and one of the most handsome moths found in Ceylon. Our other representatives of the same family are the "Tussar Silk" moth (*Antheraea paphia*, Linn.) and the "Moon" moth (*Actias selene*, Hubn.). All of these species produce silk of a certain economic value; but they belong to the family *Saturniidae* which—though allied to—is distinct from the family *Bombycidae* to which the true silkworm (*Bombyx mori*, Linn.) belongs. With regard to the suggested crossing of domestic with wild forms, it should be noted that *Bombyx mori* (the true silkworm) is distinct, not only in species, but in genus and family also, from any of the large silk moths of Ceylon. *Bombyx mori* does not occur, in a wild state, either in Ceylon or India. It is a native of China, whence it has been introduced to all parts of the world.

It is a well-established fact that crosses, even between closely allied species, almost invariably produce infertile offspring, (e.g. mules). In the present case, where the proposed parents are separated by three stages of affinity (species, genus and family), I think it extremely improbable that

1stly,—the insects could be induced to pair:

2ndly,—if this initial difficulty were overcome, the resulting ova would probably be unfertilised:

3rdly,—If fertile eggs were actually produced resulting in healthy larvae which reached maturity, the hybrid moths would—almost certainly—be themselves infertile.

Under these circumstances success seems to me very problematical. However, the experiment can do no possible harm and, if your correspondent wishes to try it, there should be no difficulty in obtaining living cocoons of *Attacus atlas*, which is a fairly common species in Colombo. Any of the Colombo taxidermists (Mr. Lazarus for instance) could probably procure them in numbers. Packed in a light box, they should reach Algeria in good condition.

The known food-plants of *Attacus atlas* are "Mahogany" (*Swietenia mahogani*), Cinnamon, *Memecylon umbellatum*, *Osbeckia* sp., Tea *Camellia*, Cardamom (*Elettaria cardamomum*), *Cinchona*, and *Phyllanthus emblimatica*. The caterpillars have also been raised—in captivity—on apple leaves.

E. ERNST GREEN,
Govt. Entomologist.

GREEN TEA: QUERY AS TO PERCENTAGE FROM LEAF.

Oct. 21.

Dear Sir,—I see no response to my query as to outturn of green tea from leaf. My experience does not agree with that of the authority you quoted in foot-note to my previous letter on subject. "Ball," in his book on green tea-making in China, puts down 23 per cent as outturn of dry tea from leaf (panning system) and I am sorry to say that my experience, by steaming process, during a considerable period, coincides with this. Being a matter of so great importance to all concerned I hope others may be induced to give results of their experience.—Yours faithfully, VERDANT GREEN.

[The authority we quoted for 25 per cent was backed by experience on several estates in a wet district.—Ed. *T.A.*]

SALT AS MANURE.

Oct. 21.

Dear Sir,—Can it be that the Government is at last awakening to a sense of its duty to Agriculture in one particular direction, with which the *Observer* has identified itself for years past? The Planters' Association, I believe, at one time sought to induce the Government to issue salt at special rates for manurial purposes, but it failed in its efforts. That must have been in prehistoric times. I can recall the agitation in your columns for the past 10 to 15 years, editorially and through intelligent correspondents, in order to convince the authorities that salt can be denatured so as to render it unfit for human consumption, and that, even if such salt can, by washing or otherwise, be used for food, efforts so to use it would be too infrequent and too seldom successful, to be regarded as a danger to the revenue or to be weighed in the balance against the benefits which agriculture and stock will derive from cheap salt. The Government Agent of the Western Province is said to have sent a sample of salt to at least one low-country planter, and made inquiries which point to an early concession. If such be granted, all honour to the Lieut.-Governor, during whose administration light seems to be dawning on the official mind.—Yours truly,

PROGRESS.

TEA AND ITS ENEMIES.

Shawlands, Lunugala, Oct. 22.

Dear Sir,—I am enclosing you, ½ dozen tea leaves all spotted over—as were the coffee leaves I sent to your office in 1870. The only difference, so far as I can recollect, is that those were yellow underneath. Have you seen anything like this before? I trust it is nothing serious—and I am yours faithfully, CHANNING ESDAILE.

[Our veteran friend Mr. Esdaile, who goes back further in Uva and Rangala than any planter now at work in Ceylon, brings "days of old" to mind with a vengeance, when he recalls what happened in 1870. In the previous year *Hemileia vastratix* was seen for the first time in Ceylon in Madulsima, and how it spread and wore out coffee we need not repeat. Tea, we are glad to assure Mr. Esdaile is in a very different position: it has its enemies, especially in blights affecting the leaves of which this is one. We have seen bushes, often, we believe, similarly affected; but to make sure will send on the leaves to Mr. Carruthers for examination. In the meantime Mr. Esdaile

understands the vast difference between coffee and tea: in respect of pruning and of getting rid, by burning, of any pest affecting the leaves of tea in a way that could never be done with poor old coffee.—ED. *T.A.*]

GREEN TEA: REPLY TO "VERDANT GREEN'S" QUERY.

Galpothagama, Horana, Oct. 23.

DEAR SIR,—In answer to "Verdant Greens'" query *re* percentage of outturn made tea from the green leaf in making green tea—the average outturn for a whole season would be about 22 per cent: daily outturns varying according to weather from 21 to 23 per cent.—Yours truly, "GREEN TEA."

[We are taken aback by this result obtained on a large lowcountry plantation, in view of the 24 to 25 per cent we were assured was obtained on other well-known places. How is the difference to be explained?—ED. *T.A.*]

ELK DEER (GONAMUWA) AND OTHER KINDS OF DEER IN CEYLON.

Veyangoda, Oct. 24.

DEAR SIR,—On enquiry from the Director, Colombo Museum, as regards the different kinds of deer in Ceylon, I have been favoured with the following reply, dated 21st October, 1902:—"In reply to your letter of 18th inst., the following are the different kinds of deer found in Ceylon. 1, sambur or elk (gona); 2, chubul or spotted deer (tiemuwa); 3, muntjak or red deer (velimuwa or oluwa); 4 mouse deer (meeminna.)" I find that there is another very scarce and peculiar kind found in Ceylon, called elk deer (gonamuwa), in colour somewhat similar to that of elk, a quite distinct kind, size and shape same as spotted deer, there are two rows of small white spots about half inch close, each on the back only, inside the ears, round the eye-brows and top of the tail is white. To anyone interested I can show a tame pair of this deer under one-year old. You may give my name and address.—Yours faithfully, OWNER.

[The writer adds "The pair of elk referred to are to be seen at the Kola Estate, of Mr. J. P. Williams, within 1½ mile of Veyangoda railway station on the cart-road.—ED. *T.A.*]

RAIN GAUGES AND MEASUREMENTS.

Columbia, Hewaheta, Ceylon, Oct. 25.

SIR,—My rain gauge have been a puzzle to me the last week. Perhaps you would help me to solve it. 8 find my gauge is 5 inches in diameter area= 19·635 inches (sq). Measuring glass is 1 6/ inches in diameter area = 2·4052885 inches (sq) How is the computation worked out that 4½ inches deep of water in measuring glass = ·50 of rain?—Yours, W. E. T.

[Our correspondent will be glad to have the following from a competent scientific authority:—

Suppose ·50 inch to have fallen in the rain-gauge: the area of the gauge being 19·635 square inches, the total volume collected will be ·50 × 19·635 = 9·868 cubic-inches. Now since this amount is received in a measuring glass, the area of which is 2·405 square inches, it will fill it to a height equal to $\frac{9\cdot868}{2\cdot405}$ = 4·08 inches.

The difference between this result and 4·50 (the height measured by your correspondent) is due to the rounding of the bottom of the measuring glass and the irregular thickness of its sides. Its capacity is thus less than it would be if the interior were of the perfect cylindrical shape assumed in the above calculation. Measuring glasses are generally graduated by actual experiment.—H. O. B.]

THE EUCALYPTS AND THEIR OILS.

The Technological Museum, Sydney, Oct 25.

The Editor, "Tropical Agriculturist."

SIR,—I have much pleasure in forwarding by this post a copy of the work on "Eucalypts and their essential oils" just completed at this Museum. It is the result of years of research on living material in the home of these interesting and valuable trees.—Your obedient servant,

RICH. F. BAKER, *Curator*.

[A notice of this very useful and important publication when it is received, will appear in due course.—ED. *T.A.*]

DEER IN CEYLON.

Hambantota, Oct. 26.

DEAR SIR,—In connection with the letter *re* 'Elk Deer' in Friday's *Observer*, the deer referred to is the 'hog deer' or 'swamp deer' of India, the 'paddy field' deer of Ceylon, Axis Porcinus of Naturalists. It is found from Polgahawela through the Mirigama, Veyangoda, and Kalutara districts down to the Southern Province where it reaches as far East as the Matara district.

It is one of the four real deer found in Ceylon, of which the other three are the 'Elk' (the 'Sambur' of parts of India), the spotted deer (the 'Chitul' of parts of India) (Axis Maculatus), and the Muntjak, barking deer, rib faced deer or jungle sheep of Indian and Red deer of Ceylon sportsmen, 'Khakur' and 'Bukri,' of the N.-W. Provinces and Deccan, respectively, (Cervus Aureus,)

The spots mentioned by your correspondent are always visible in the young of the Axis Porcinus; but disappear as the animal grows older when it assumes the slatey dun colour of the 'elk,' whence the combined name 'Elk-deer' in Sinhalese as the Sinhalese never, by any chance, speak of the Elk as a deer. It is, because of the spots in the other species when young and which are entirely absent in young elk that this last gets one of its scientific names of Rusa Unicolour.

The mouse-deer is not a deer.

W. F.

"SATURATION OF THE AIR."

DEAR SIR,—Will you kindly give the following information through the medium of your paper?

What is the maximum minimum and average mean degree of saturation of the air in Colombo?

How do the figures compare with Bombay, Madras and Calcutta?

How do they compare with Kandy and Nuwara Eliya?

What is meant by the term complete saturation of the atmosphere?

ONE WHO WANTS TO KNOW, YOU KNOW.

[Our scientific referee kindly answers the enquiry:—

"A given volume of air at a given temperature can hold a certain quantity of water vapour in the state of transparent gas. When this quantity is exceeded, the water vapour condenses into spherules which become visible as mist, fog or rain. The air is said to be saturated when it holds the greatest possible quantity of invisible vapour. The figures given in the above tables represent the proportion of invisible water vapour in the atmosphere at the time, to the maximum amount it can hold in that state; the latter being represented by 100.

	Mean max.	Month.	Mean min.	Month.	Yearly Avr.
Colombo ...	82	June	69	Feb.	77
Kandy ...	88	Aug.	62	March	71
Nuwara Eliya ...	92	Aug.	54	Feb.	76
Calcutta ...	90	Aug.	75	April	83
Bombay ...	88	Sept.	66	Dec.	78
Madras ...	85	Oct.	61	June	76

"The absolute maximum rises to 100 at every station in every heavy rain-storm. The absolute minima recorded are:—

Colombo	53 in April, 1884.
Nuwara Eliya	41 in March, 1892.
Kandy	41 in March, 1899.

"I regret I cannot supply you with the same information at the Indian stations.—H. O. B."]

TEA LEAVES FROM MADULSIMA.

[Here is Mr. Carruthers' report on the affected tea leaves sent us very lately by a Madulsima planter.—Ed. *T.A.*]

Royal Botanic Gardens, Oct. 29.

The diseased spots on these leaves are on naked eye or lens examination not typical of any of the injuries caused by any of our known fungi. The Government Entomologist to whom I showed the specimens, tells me that he has seen similar spots on tea leaves in upcountry estates, but was unable to find any proof of their being of insect origin.

On making sections of the leaves through the diseased spots, and searching under the miscroscope very little mycelium of a fungus is to be found and only in dead cells of the leaf. On the surface of the leaves are to be seen many of the fruiting stalks of a fungus *Penicillium sp.* These are confined to the dead portions of the leaf at the centre of the discoloured spots. As the fungi named Penicillium are all saprophytic, *i.e.*, living on dead matter, it is probable that this fungus is an after effect, and not the cause of the disease. I have, however, begun an experiment of inoculating some leaves on a healthy tea bush with spores from these leaves, and will note if any effect is produced, that is if the fungus will grow on living tissue.

The material sent is not sufficient for a diagnosis of much value to be made The earlier stages should be examined and the conditions under which it arose should be known.

All such leaves should be taken off and *burnt* and it should be noted whether there are any fresh cases after the old ones are removed, J. B. CARRUTHERS.

GREEN TEA AND PERCENTAGES.

Nawalapitiya, Oct. 31.

Dear Sir,—I have made Green Tea for the past two years and all you can turn out in a 12 months inclusive of fannings and big yellow leaves picked out. is 22½ per cent. The man, who can turn out 25 per cent on his blacks (unless he goes in for crediting 5 per cent below his actual plucking for each day) is a smart man and deserves well at the hands of his agents and employers.—Yours truly,

C. T.

INDIAN HEMP—OR "GANGA."

Oct. 31.

Dear Sir,—Could you tell me what the law is as to the *cultivation* of Cannabis Sativa? I mean on a large scale, for it is a common thing in certain parts of the Island to see a few plants of "ganga" growing round dwelling houses. The produce of cannabis goes into the hands of the peripatetic moorman.—Yours truly, D.

[We do not think there is any Ordinance at present in the local list prohibiting the cultivation of Indian hemp, any more than of the poppy; because in deference to the Buddhist prohibition of such drugs, nothing has ever been done in Ceylon worth notice in this direction. But it will certainly become necessary now, in view of what our correspondent states, to pass such a law guarding the cultivation. Very possibly under the Opium or Bhang Ordinance any one turning the hemp or poppy into drugs for personal use or sale, can be punished.—Ed. *T.A.*]

CURE FOR RHEUMATISM.

Colombo, 9th Nov., 1902.

Dear Sir,—The following reference to a new "cure for rheumatism" taken from *Country Life* is worth reproducing.—Yours truly, D.

About a year ago there was published in a London paper a recipe for the cure of rheumatism. Since then scores of people have written to thank the editor for it, many of them informing him that the simple prescription cured them after having been unsuccessfully treated by three or four physicians. Others, who have heard of the cure, have asked us to reprint the prescription. Everyone either suffers from rheumatism or knows someone who does, and we recommend our readers to paste the recipe on a card-board and take great care of it. Lord Anson feeling that it was a shame that such a recipe should be so little known, paid £300 to a medical man for the privilege of making it known to the public. These are the ingredients:—Sulphur 1 oz; cream of tartar 1 oz; rhubarb ¼ oz; gum guiacum 1 drachm; honey 16 oz. A tablespoonful of this is taken night and morning in a tumblerful of white wine—hock, for instance—and hot water.

CENTIPEDES *vs.* SCORPIONS.

Galle, Nov. 3rd, 1902.

DEAR SIR,—There is an excellent native remedy for the bites of centipedes and scorpions. A mixture of burnt coir yarn and coconut oil applied to the bite will not only relieve the pain, but prevent any ill-effects by reducing the inflammation. The application should be continued for a few days till the swelling disappears.—Yours faithfully,

A.

CEYLON OOLONG TEA.

EXTRACT OF LETTER REFERRED TO FROM MR. C. P. LARKIN.

Toronto, Aug. 11, 1902.

Why do you not take up the matter of Oolongs? As the case stands today you know that when we fought only with Ceylon Black teas we made extremely little or no headway with the Japan tea drinker, but when we gave him *his kind* of tea we made rapid headway. So far we have practically not touched the Oolong tea drinker, as the taste for Oolongs is just as distinct as the taste for Black or Green Tea. Now the samples that I have had sent to me from some of the Gardens in Ceylon prove conclusively that Ceylon can produce a tea so much better than the ordinary Formosa Oolong and yet of similar character that with proper handling it will entirely displace those teas. Events have proved that my judgment in the past has been right in regard to Ceylon Blacks and more recently in regard to Greens; therefore I think my judgment should be taken in regard to Oolongs. Besides it would benefit perhaps another class of Planters, that is, the owners of the high-grown Estates on which those fine Ceylon Oolong samples were produced. If there has been some grumbling on their part that the Green Tea Industry will only benefit the low-grown Estate Planters, why there will be reciprocity between them, each benefitting the other, as the Committee will be using their funds to create a demand for both kinds of tea. As to prices: you know that far better prices are paid for Oolongs than for any other kind of tea. And as to any interference with the trade you have now, why there will be no more than if you were introducing Ceylon Cocoa, for as I said before *we are not touching the Oolong tea drinker to any extent today* nor do I expect that we will in future with Black or Green teas. If Ceylon had had Greens as well as Blacks with which to commence the campaign in America, you would not be sending less Black here than you are today, *but you would be sending infinitely more pounds of tea.* And if you add Oolongs to your productions you will in no way injure the Black or Green Tea trade, but simply place another weapon in our hands with which to wipe out the productions of China and Japan. Do not throw this Oolong aside.—Yours truly,

(Signed) P. C. LARKIN.

RAW RUBBER NOTES.—The Balata export from the Dutch Colony, Surinam, amounted in 1901 to 237 tons, of a value of 593.475 gulden.=The German Consul of Cochabamba reports that, according to the Bolivian Government in Puerto Acre, the caoutchouc exported from the districts of Acre, and Aquiry amounted to 49,320 bales, weight 2,032.422 kilos.=The biggest quantity was shipped in May, namely, 125,374 kilos. =San José de Costa Rica exported in 1901 58.687 kilos, of raw rubber of a value of 76,293 dols. —*India-Rubber and Trades' Journal*, Oct. 27.

PLANTING NOTES.

THE VALUE OF GYPSUM as a dressing for grass land is now being shown by the appearance of a paddock in the Drouin district, Gippsland, owned by Mr William Martin. Last season, Mr Martin states, he used eight tons of Hasell's "Corso" gypsum, and the result has attracted the notice of many farmers and graziers in the district, who have noticed the vivid green of the dressed land. One paddock which was being attacked by grubs was dressed with $1\frac{1}{4}$ cwt. of gypsum per acre, the result being that all the grubs were destroyed, and there is now a splendid sward of pasture.—*Agricultural Journal*, Oct. 10.

CURING VANILLA.—A Nilgiri correspondent writes to the *Madras Mail* :—It has now been established beyond all doubt that this valuable orchid can be successfully grown in this district. The planter whom I mentioned in some previous Notes as having taken up its cultivation has from 3,000 to 4,000 plants growing. Any intelligent Kurumber can be made to understand the artificial fertilisation of the flower. The culture would appear to be very simple. In Mexico shoots about 3 feet long are fastened to trees on the approach of the rainy season, and scarcely touching the ground. These soon strike roots attached to the bark and form plants which begin to fruit in three years, and remain fruitful for 30 or 40 years. The curing of vanilla pods is a tedious process and calls for the exercise of a good deal of care and judgment.—*Indian Gardening and Planting*, Nov. 13.

PROSPECTS FOR GREEN TEA: NEW MACHINERY—*Indian Gardening and Planting*, October 30th—has the following:—

Under this latter head of finishing teas, Indian planters will soon be supplied. Two or three systems will compete for favour. That very clever Ceylon planter, Mr. Henry Alleyn, who has lately been in Calcutta, has, in conjunction with a well-known Ceylon engineer, invented a process which is both simple and practicable, and his machine will ere long be on the market. We have been favoured with a sight of his samples and were very favourably impressed by them. Messrs. Drummond Deane as judges will also have something in this line to offer to complete their present system, and the well known firm of Messrs. Davidson and Co. have paid attention to machinery for the purpose. The Alleyn Grieve machine is in the hands of the Calcutta agent for the Drummond Deane Process and will be exhibited at work as soon as machines arrive from Ceylon. From samples we have seen, we are very favourably impressed with it. Before next season Indian planters should be able to make a choice, and the field being a wide one there is room enough for all. Green tea with the present encouragement is bound to grow. The bounty is not so large as was expected, but green teas having secured such excellent prices this season, it was perhaps thought that a bonus sufficient to cover expenses of altering manufacture and the cost of the requisite machinery was sufficient. We agree with the London Committee that "the surest way of obtaining relief from the present excess of black tea is to be found in the manufacture on a large scale of green tea suitable for the American and other markets." Since also the green tea demand offers the only large field left for the expansion of British grown, it stands to reason that it would be unwise to neglect it.

THE ASSOCIATED TEA ESTATES CO. OF CEYLON, LTD.

Directors:—Sir Alexander Wilson, Chairman; A Bethune, Esq., J.P., S R Earle, Esq., and T C Owen, Esq.

Report of Directors and Accounts to June 30th, 1902 to be submitted at the Seventh Annual General Meeting of Shareholders, to be held at Cannon Street Hotel on Wednesday, 29th October, at 12 o'clock noon.

The Directors beg to submit herewith the Accounts of the Company for his year ending June 30th, 1902, showing a gross profit of £2,496 17s 2d., after deduction of the agreed proportion of manuring. Against this has to be put a sum of £446 13s 10d., being one-quarter of the amount standing against Buildings and Machinery, and Immature Cultivation.

After deduction of sundry charges, interest on loans, etc, there remains a credit balance of £787 0s 1d. to go against the loss shown in last year's Accounts of £963 11s 3d., making a debit balance of £176 11s 2d.

The yield of Tea for the year was as follows:—

	1901-2.	1900 1.
Silverkandy ..	121 217 ..	112,045
Chesterford ..	372,550 ..	345,292
Horagoda ..	33,504 ...	42,833
Doragalla ..	270 597 ...	229,035
Total ...	797,868 ...	729,205

This shows an increase of 68,663 lb. on the total yield of the previous year, and exceeds Superintendents' estimates by 15,993 lb.

The cost of production per lb, f.o.b. Colombo, was as follows:—

	1901-2.			1900-1.		
	Exclusive of Manuring, Buildings, and New and Immature Cultivation.	Proportion of Cost of Manuring, Buildings, and New and Immature Cultivation.	Total.	Exclusive of Manuring, Buildings, and New and Immature Cultivation.	Proportion of Cost of Manuring, Buildings, and New and Immature Cultivation.	Total.
Silverkandy	32·13	3·10	35·23ct	35·15	2·01	37·16ct
Chesterford	24·27	2·39	26·66ct	25·34	2·50	27·84ct
Horagoda	27·67	·83	28·50ct	31·77	0·95	32·72ct
Doragalla	24·53	3·95	28·48ct	30·14	5·57	35·71ct

The average prices reduced to the London equivalents for purposes of comparison:—

	1901-2.	1900-1.
Silverkandy	Gross 8·18d or 43·94ct	Gross 7·18d or 42·72ct
Chesterford	do 5·73d or 29·19ct	do 5·59d or 28·74ct
Horagoda	do 5·48d or 27·66ct	do 5·20d or 26·39ct
Doragalla	do 6·24d or 32·21ct	do 6·61d or 34·47ct

The total tea sold for the year realised a gross average of 6·27d per lb., and cost, sold in London 5·21d exclusive of manuring. The exchange for the year averaged 1s 4 11·32 d. The yield per acre was 404 lb over the fields in full bearing.

The Directors have decided that in the interest of the shareholders the cultivation of Horagoda Estate should be discontinued. This decision has been given effect to, and has met with Mr. Fraser's full approval. Excluding Horagoda the estimate for the season 1902 3 is 795,000 lb against a crop of 764,364 lb for 1901-2.

During the year Messrs. McMeekin and Co. relinquished the Secretaryship, and it was taken over by Messrs. Rowe, White and Co. of 16, Philpot Lane, E C. Mr. John McEwan retired from the Board of Directors, and Mr. T C Owen who has had over 20 years' practical experience as a planter in Ceylon, was elected in his place. Mr. A Bethune, the Director retiring by rotation, is eligible for re-election. Mr. J M Henderson, the Auditor to the Company, retires, and offers himself for re-election.

By order of the Board, Rowe, White & Co., Secretaries.

16, Philpot Lane, London, E. C. 21st Oct. 1902.

THE SCOTTISH TRUST AND LOAN COMPANY OF CEYLON, LTD.

Capital, £125,000; First issue (fully subscribed), £75,000; Of which paid up, £45,000; Reserve Fund, £11,000.

Directors.—James Haldane, C A, Edinburgh; John Wilson, of Messrs Honeyman and Wilson Limited, Edinburgh; Henry Johnston, K C, Advocate, Edinburgh; George M Wood, S S C, Edinburgh.

Secretary.—Francis A Bringloe, C.A., 123 George Street, Edinburgh. Registered Office: 123 George Street, Edinburgh. London Office: Adelaide Chambers, 52 Gracechurch Street, E.C. A Gordon Dickson London Agent. Agents in Ceylon, Messrs Cumberbatch & Co., Colombo.

Report by the Directors of the Scottish Trust and Loan Company of Ceylon Limited, to the Twenty-fifth Ordinary General Meeting of Shareholders, to be held within the Company's Registered Office, No. 123 George Street, Edinburgh, on Thursday, the 30th day of October 1902, at 3·30 p.m.

The directors present their Twenty-fifth Report, being for the year to 31st August 1902.

Estates in the Company's Possession.—The year under review has again been a bad one for producers of tea, and prices have steadily decreased, and have now reached a very low figure. The total crop from the Company's properties amounted to 739,010 lb. or 36,000 lb. in excess of the estimate, and represents an increase over last year's figures of 32,313 lb. The average net price realised has been only 6·39d as against 7·12d for last season, or a fall of ·73 of a penny per pound.

Factories, Buildings, and Machinery.—These are in a thorough state of repair. During the year the extension to the Brookside Factory has been completed, and new machinery erected at the Alnwick Factory.

Cultivation of Estates.—The movement to restrict the output of tea which was mentioned in the last report resulted in no definite scheme being adopted by producers. The Directors, however, decided to rest a proportion of the Company's tea, and with this end in view 116 acres have lain fallow throughout the year. Reports from Ceylon speak very favourably of the healthy appearance of the tea thus treated.

Accounts.—The balance at the credit of Profit and Loss Account is ..	£3,548	15	0
And the Directors propose to pay a dividend of 6 per cent per annum, free of Income Tax, of which 2½ per cent was paid as an Interim Dividend at Whitsunday 1902 ...	2,700	0	0
Leaving	£848	15	0

to be carried forwarded to next Account.

Mortgage held in Ceylon by the Company.—The only remaining loan of the Company is now reduced to £2 200

Directorate.—The Directors regret that Mr H Herbert Anderson has resigned his seat on the Board, but has consented to remain temporarily, in an advisory capacity, at the London Office. The Director retiring by rotation is Mr George M Wood, S S.C., and he is eligible for re-election.

Auditors.—Messrs. Moncrieff & Horsbrugh, C.A., are eligible, and offer themselves for re-election. By Order of the Board. FRANCIS A. BRINGLOE, Secretary.

—Edinburgh, 21st Oct. 1902.

THE CENTRAL PROVINCE CEYLON TEA COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

to be submitted to the shareholders at their sixth annual ordinary general meeting to be held in the Council Room, London Chamber of Commerce, Botolph House Eastcheap, E.C., on Monday, the 3rd November, 1902, at twelve o'clock noon.

The Directors beg to submit to the shareholders the audited accounts for the year ending 30th June, 1902.

The total crop of tea from the estates for the past season was 803,315lb. against 809,858lb. of the preceding year, being a decrease of 6,543lb.

The total sales, including bought tea, were 1,049,024lb averaging 5·279d. per lb. net being ·062d less than last year.

As regards cocoa, the crop amounted to 584 cwts., against 521 cwts. last year, the average price being 49s 5d per cwt. as against 66s 10d. Although the quantity has been larger the profits was very much less owing entirely to the fall in price.

There were during the season 62 acres of tea not yet in full bearing.

The rate of exchange, averaged 1s 4·20d per rupee, being practically the same as last year.

The net profit for the year amounts to £2,960 15s 0d after writing off £503 from estates account for depreciation, which with £1,759 9s 2d brought forward from last year, shows a sum of £4,720 4s 2d to be dealt with. Of this amount £1,500 has been applied to the payment of an interim dividend at the rate of 6 per cent per annum on the perference shares to 31st December, 1901. The Directors now recommend a dividend of 6 per cent per annum on the perference shares to 30th June, 1902 absorbing £1,500 and leaving £1,720 4s 2d to be carried forward to next account.

Some 50 acres of tea are being put out of cultivation as being unremunerative at present prices.

Mr F M Mackwood is the Director retiring by rotation, and being eligible, offers himself for re-election.

Messrs. Fuller, Wise & Fisher, chartered accountants, offer themselves for re-electon as auditors.

THE CAROLINA TEA COMPANY OF CEYLON, LIMITED.

Tenth annual report of the Directors to be submitted at the tenth annual general meeting of shareholders, to be held at the Offices of the Agents, Messrs. Frith, Sands & Co., Winchester House, Old Broad Street, E. C., on the 30th October, 1902.

Your Directors beg to submit the Balance Sheet and profit and loss account for the year ending 30th June, 1902.

The Nett Profit is		£6,657 8 5
Amount brought forward from last year at credit of the Ordinary Shares		£306 0 9
		£6,963 15 2
From which has to be deducted Debenture Interest		2,450 0 0
Leaving an available balance of .. which it is proposed to appropriate as follows :—		£4,513 15 2
To Reserve Fund ..	£1,200 0 0	
To a Dividend on the Ordinary Shares of 5 per cent (of which 2 per cent was paid on 24th April, 1902) ..	2,500 0 0	3,700 0 0
And to carry forward to the credit of the Ordinary Shares		£813 15 2

The Crops secured during the season compare as follows with those of previous seasons:—

	Tea from Estates. lb.	Tea from Purchased Leaf. lb.	Cocoa from Estates. cwts.
1901-1902 ..	957,954	47,827	574
1900-1901 ..	953,399	29,575	466
1899-1900 ..	1,131,333	43,195	414
1898-1899 ..	961,757	32,862	555

The cost of the Tea crop has been reduced to 4·39d per lb. free on board Colombo, as against 4·78d for the two previous seasons. The average gross sale price of Tea has advanced to 6·99d per lb. from the low average of 6·34d in the preceding season. A large crop of Cocoa has been secured, but the market continued more or less unfavourable throughout the season. The total area of land now under cultivation is 2,608 acres, comprising:—

Tea in full bearing	1,801 acres.
Tea in partial bearing	630 ,,
	2,431 acres.
Cocoa, Coffee, &c.	177 ,,
	2,608 ,,

Owing to better market conditions during part of the year's working for the lower grades of Tea, and, to some extent, the improved quality of the Tea produced by the Company, the nett result of the past season is more satisfactory, enabling the Directors to write off from Revenue sums, amounting to £190 17s 10d and to recommend the usual sum of £1,200 being placed to Reserve. The Reports received from Mr Megginson, who is now visiting the Company's Estates, are of a satisfactory character. The Estates having been constantly maintained in a high state of cultivation has enabled the management to cope with the depressed condition of the Tea Industry by reducing appreciably the cost of the season's production of crops; but the policy of reverting to higher cultivation involving some increased expenditure in order to keep the properties in thoroughly sound condition, may be necessary, and has the careful consideration of your Board. The manufacture of Green Teas suitable to the requirements of foreign markets has been engaging the attention of your Directors, and this business is now being carried out on satisfactory terms. Your Directors have to express their satisfaction with the work of the Staff in the Company's employ, and with the Agents in London and in Colombo. The Directors retiring by rotation are Mr C A W Cameron and Mr H St. J Oscar Thompson, who, being eligible, offer themselves for re-election.

H. St. J. Oscar Thompson, Director.

London, 8th October, 1902.

THE LANKA PLANTATIONS CO., LTD.

Directors :—George Allen, Esq., Chairman William Austin, Esq., Henry Bois, Esq., and Edward Pettit, Esq.

Agents in Colombo—Messrs J M Robertson & Co.

Secretary—Mr. Charles M Robertson.

Authorised Capital £200,000 in 15,000 ordinary shares of £10 each, and 5,000 preference shares of £10 each, of which latter only 1,470 have been issued.

Report to be presented at the Twenty-second ordinary general meeting of the Lanka Plantations Company, Limited, to be held at the Office of the Company, on Wednesday, the 12th November, 1902, at twelve o'clock noon precisely.

1. The Directors now submit their Report for the twelve months ending 30th June last, together with the balance sheet and accounts of the Company made up to that date and duly audited.

2. The coffee crop amounted to 350 cwt. and realised £1,323 19s 1d. Last year the crop was

139 cwt., and realised £490 12s 5d. This crop was gathered off the suckers growing on the uncultivated trees referred to in the last report.

3. The total crop of cocoa gathered on Yattawatte amounted to 938 cwt., and realised £2,417 13s 7d, against 1,026 cwt. last year, which realised £3,610 3s 10d. The shortage in crops of recent years has been due to the disease which attacked the cocoa trees in Ceylon. It is hoped that Yattawatte has now passed through the worst stage, and will recover as other estates have done which were attacked earlier. Of cardamoms 777 lb. were gathered, realising £27 14s 4d. A large number of Para and Castilloa rubber trees and also coconuts have been planted on this estate, and are doing well.

4. The total yield of tea was 934,650 lb. plucked off 2,181 acres being at the rate of 428 lb. an acre, and realized £25,142 9s 6d, the average being 6·46d per lb. net. Last year the crop amounted to 974,511 lb., which realized £26,979 17s 2d, the average being 6·64d per lb. net. A factory is in course of erection on Thotnlagalla, and when completed a considerable saving will be effected in cost of mannfacturing tea on this estate. This capital expenditure is being charged to Suspense Account as usual.

5. The average rate at which drafts were negotiated on account of the seasons' crops was 1/4 1-32 per Rupee against 1/4 12-32 last year.

6. The following statement shows the approximate acreage and state cultivation of the Company's estates on the 30th June last, as per recent surveys.

Estate.	Tea	Cocos.	Grass.	Chena and Platena and Waste.	Forest and Timber Trees.	Total.
Ampitiakande	291	—	4	—	70	365
Arnhall	174	—	—	255	—	429
Frnit Hill	229	—	—	8	—	237
Fordyce, Garbawn, Gonagala and Paramatta	798	—	5	—	135	938
Rappahannock	322	—	31	30	90	473
Rillamule	195	—	—	343	22	560
Totulagalla	382	—	—	60	114	556
Yattawatte	—	751	95	312	82	1,240
	2,391	751	135	1,008	513	4,798

7. The net profits for the past year amounted to £4,108 15s 7d, to which must be added the sum of £1,144 0s 7d, the balance brought forward from the year 1900-01, making together £5,252 16s 2d.

8. Having already paid a half-year's interim dividend on the six per cent. Preference Shares to the 31st December, 1901, amounting (less property tax) to £415 5s 6d, the Directors recommend payment of the dividend on these shares to 30th June last, requiring (less property tax) £414 7s 2d, and having deducted £1,045 6s 9d, being one-tenth of the sums charged to suspense account during the ten years ending 30th June, 1901, they further recommend a dividend of 4s per share (free of income tax) being 2 per cent on the ordinary shares, amounting to £3,000, carrying forward the balance of £377 16s 9d to next account.

9. Mr. William Austin, the Director retiring on this occasion, being eligible offers himself for re-election.

Mr. John Smith, the Auditor retires and does not offer himself for re-election.—By order of the Board,

C. M. ROBERTSON, Secretary.

22, Fenchurch Street, London, E.C., 29th Oct., 1902.

THE MATURATA TEA COMPANY, LTD.

REPORT OF THE DIRECTORS

to be submitted to the Shareholders at the fifth annual ordinary general meeting, to be held at the offices of the Company, 16, Philpot Lane, London, E.C., on Wednesday the 5th day of November, 1902, at 12 noon.

The Directors herewith beg to submit the fifth annual report and balance sheet for the year ending 30th June, 1902.

After bringing forward the unappropriated balance of £2,210 17s 3d from last year's account, and after payment of debentnre interest and London charges (Directors' Fees, &c.), the net amount at credit of profit and loss acconnt is £3,874 13s 8d.

An interim dividend of 3 per cent has been paid on the preference shares for the half-year, amounting to £120. And the final 3 per cent was paid on the preference shares on July 1st, making 6 per cent for the year, amounting to £120. It is proposed to pay a dividend of 10 per cent less income tax, on the ordinary share capital, which will absorb £800. Thns leaving to be carried forward to next year a balance of £2,834 13s 8d=£3,874 13s 8d.

The past year has been very trying to producers of high grown teas, as buyers have throughout the year almost entirely centred their interest upon low-medium descriptions; notwithstanding this, it has been a highly satisfactory one for the Company, owing to the fact that we have, to a very large extent, been independent of the London market, the bulk of our produce having been disposed of for export.

During the past year a further £500 of the debenture debt has been paid off. This rednces the debt to £6,000 thus enhancing the value of the preferred and ordinary shares.

The average of onr tea is 8·17d as against an average of 7·06d per lb. for all Ceylon tea during the same period, and our crop shows an increase of 13,139 lb. The cost of putting the produce, F O B, Colombo, has been 4 cents cheaper than last year.

Mr Guy Owen retires in accordance with the articles of Association, but being eligible, offers himself for re-election as a Director.

The Anditors, Messrs. Chas. E Bradley & Co. also retire, but, being eligible, offer themselves for re-election.

THE SOUTH TRAVANCORE TEA COMPANY, LIMITED.

REPORT OF THE DIRECTORS

to be submitted at the sixth annnal ordinary general meeting, to be held at the offices of the Company, 16, Philpot Lane, London, E.C., on Tuesday, November 11th, at 2·15 p.m.

The Directors beg to submit herewith their sixth annual report and balance sheet for the year ending 30th June, 1902.

The outturn of tea was 269,250 lb, being 45,750 lb below the original estimate, against 302,329 lb last year.

The average price realised was 4·82d per lb, as against 4·72d last year and 5·38d the year before. The gross profit was £599 6s 1d, against £1,294 13s 4d last year, and £2,158 13s 11d the year before.

After providing £250 for the Debentnre Sinking Fund and writing off £250 for Depreciation of Machinery, there is shown a loss of £632 5s 2d, which after deducting the credit balance of £574 17s 7d carried forward from last year, leaves a debit balance of £57 7s 7d.

During the past year the tea industry has continued to suffer from the low prices alluded to last year. Mr Stewart, the Manager, has just returned to the estate after a visit to England for his health. He has relieved Mr Cook, who was acting for him during his absence.

Shortness of labour, owing to the constrnction of the new railway, resulted in a very heavy reduction in the crop, which was 33,179 lb below the low crop of the previous year.

This is a most disappointing result, and the Directors can only hope that Mr Stewart will be able to

get labour to harvest the full crop estimated for the new season.

The area under tea amounts to 730 acres.

The Manager's estimate for the present season is 310,000 lb.

In accordance with the Articles of Association, Lieutenant-Colonel Colvile retires by rotation, and, being qualified, offers himself for re-election.

The Auditors Messrs. Jackson, Taylor, Abernethy & Co., retire, and, being eligible, offer themselves for re-election.

October 30th, 1902.

THE GOOMERA (CEYLON) TEA ESTATES COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

The Directors beg to submit herewith their eighth annual report and balance sheet for the year ending 30th June 1902.

The accounts, after paying debenture interest and London expenses, show a profit of £404 10s 6d which deducted from the debit balance of £2,175 15s 10d brought forward from last year, leaves a loss of £1,771 5s 4d to be carried forward.

The total crop from the Company's estates amounted to 142,488 lb. realising a net average of 6d per lb., against 245,313 lb harvested from the Company's estates the previous year, which realised a net average of 4·13d.

During the past year the system of high cultivation advocated by Mr. Joseph Fraser, and previously mentioned, has been continued by the Directors. The results have justified the wisdom of this step, as the figures for the past season show. In view of the serious crisis through which the tea industry is now passing, the result cannot be looked on as otherwise than satisfactory. The Directors consider that the prices realised for the tea reflect credit on the management of the Company's properties in Ceylon.

The estimate for the new season is 170,000 lb from Goomera, and 97,500 lb from Hunugalla, against a crop of 150,407 lb (exclusive of bought leaf) from Goomera and 89,480 lb from Hunugalla last year.

The Directors not having drawn any fees for some years, propose drawing half for the past season.

Mr. F E Cobb retires in accordance with the Articles of Association, and being eligible, offers himself for re-election.

The Auditor, Mr. J D Stewart Bogle, C.A. retires and offers himself for re-election.

October 28th, 1902.

CEYLON LAND AND PRODUCE COMPANY, LIMITED.

Directors.—James Wilson, Esq., Chairman, Wm. H Haslam, Esq., Alex. D Wilson, Esq.

Report of the Directors, to be submitted to the eighteenth annual general meeting of shareholders, (on Friday, the 14th day of November.

Your Directors have the pleasure to submit the annexed profit and loss account and balance sheet for the crop year ending 30th June, 1902, duly audited. 319 shares of £5 each, being part balance of the six per cent. Cumulative preference capital, were allotted during the past year, and the premiums received, less cost of issue, transferred to Reserve Fund in the sum of £185. The amount of credit of Profit and Loss account is £7,053 5s 1d, which, with the sum of £327 2s 1d brought forward from last year, leaves £7,380 7s 2d to be distributed. On the 22nd July last an Interim Dividend of 7½ per cent on the Ordinary Shares and 3 per cent on the Preference Shares was paid, and your Directors now propose to pay on the 13th day of December, 1902, the balance of the fixed Cumulative Dividend on the Preference Shares (3 per cent) making 6 per cent for the year, and 7½ per cent on the Ordinary Shares, making 15 per cent for the year, all free of Income Tax, and carry forward the balance of £1,120 2s 2d, subject to the Directors' remuneration for the year under review and to the payment of income Tax, &c. A sum of £954 10s 10d spent upon permanent improvements during the year has been debited to Revenue. In accordance with a Resolution of the Board, a Call of 10s per Share was made upon all Members holding Preference Shares upon which £4 10s had been paid, and the same was payable on the 1st July last. These Shares are now fully paid.

Your Directors have to report that the total Crop of Tea from the Company's Estates for the year amounted to 986,862 lb, representing a shortage on the Estimates of 82,888 lb; there were, however, increases of 10,061 lb made from purchased leaf, and of 68,227 lb made from others, the outturn aggregating 1,440,150 lb, as compared with the provision made at the commencement of the season for 1,444,750 lb, a deficiency of only 4,600 lb. The net average price obtained is again low, it being only fractionally better than that recorded last year viz, 5.46, *versus* 5.28d; the mean rate of exchange (1s 4⅝d) remains the same, and Freights were the turn higher. Your board desire to point out that their declared policy of sparing no expense to bring the Company's Estates into the best possible state of cultivation has been persevered with, and there is no doubt the present condition of the properties fully justifies the course taken; during the year R24,318 (£1,659 3s. 11d.) were expended on manuring Tea and Cocoa, the whole of which has been debit to Revenue Account. The Coca crop totalled 2,865 cwt, as compared with an estimate of 2,325 cwt.; the prices, however, shew a marked falling off. The greatest efforts continue to be taken to keep Cocoa disease well under control, and as a matter of fact the Government Mycologist reports that the work of cutting out cankered parts of trees had been well done, and in his opinion was effective in curing the trees so treated in a very large proportion of cases; he adds, that the measures adopted promise excellently, and if vigorously carried out should ensure that very little need be spent per acre in the future. The census of Coconuts taken in June last indicates a total number of 47,088 trees, equal to 620 acres, at the rate of 76 trees per acre. It was found necessary to extend the North Matale and Strathisla Tea factories, and increase the machinery in the latter building to fully cope with the larger output; the Directors have under their consideration the question of erecting a Green Tea factory on Alloowihare.

Tea.—The output has been a fair average one in point of quality, although the standard of excellence reached in 1901 was not upheld. Unfortunately also the Indian crop contained a large proportion of medium and low class Tea, which, competing with Ceylon, kept prices for common and fair grades much under those of the year before, consequently rendering the result of working of many estates unsatisfactory. On the other hand, however, there was a brisk demand for all invoices with attractive flavour. * * *

Cocoa.—The demand for this article during the first six months of the year was slow, and in consequence much lower prices were recorded. At the end of August values improved, owing to the demand from America, partly resulting from the short Java crop, and a material advance took place which has been since well maintained. Finest kinds—of which the supply is very small—are considerably higher than they were at the beginning of the year, and the Directors are of opinion that the prospects of good values for next season are very favourable. The statistical position of all kinds of Cocoa is good, the deliveries showing an increase on last year's, the stocks being now much smaller.

Acreages.—The following Statement shows the approximate acreage of the Company's Properties at date:—

Name of Estate.	Tea 3 years.	Tea over 3 years.	Cocoa Bearing	Cocoa Not Bearing.	Cocoa, Coffee, &c.	Forest, Grass, Chena abandoned, &c.	Total Acreage
Allowiharie Group	—	214½	319	28	116¼	15	692¾
Andangodde Estate	—	176¼	—	—	—	—	176¼
Fetteresso Estate	5	405	—	—	—	28	438
New Peradeniya Est	—	386†	18	—	—	50½	454½
North Matale Group	—	407	733	10	85	360	1595
Owella Estate	—	—	47	171*	—	239	457
Rickarton	2	538	—	—	—	56	596
Strathisla Group	39½	220	167*	7	—	5¼	438¾
Forest Land	—	—	—	—	—	430	430
	46½	2346¾	1284	216	201¼	1183¾	5278¼
	2393¼		1500				

† And Cocoa * And Tea

N.B.- In the absence of detailed surveys these figures, as mentioned above, are approximate only.

The Estimates for current year provide for a Crop of 1,089,025 lb. Tea from the Company's Estates, 128,000 lb. from bought leaf, and 240.000 lb made for others, a total of 1,457,025 lb., campany with 1,440,150 lb. manufactured last year. The intake at date of latest advices compares favourable the Crop secured at the same time in 1901. The Crop of Cocoa is estimated to be 2,680 cwt.

A vacancy in the Directorate was caused by Mr L A Lewis ceasing to be a Member, and in accordance with the Articles of Association, this has been filled by Mr Wm. H Haslam, of Messrs. Geo. White & Co., 31 Fenchurch Street, E.C. Mr W H Haslam, by rotation, retires from the Directorate, but being eligible, offers himself for re-election. Mr James B Laurie. the Auditor, also retires, but he is eligible, and offers himself for re-election.

By order of the Board, James Wilson, Chairman, Alfred E. Lock, Secretary.

London. E.C., 6th Nov., 1902.

STATISTICS FOR PAST 13 YEARS.

TEA.

Year ending 30th June.	Acres of Tea in bearing.	Crop, lb.	Average per acre, lb.	Teas made for others, and from purchase Leaf, lb.	Net Average per lb realised for all Tea sold in London.	Rate of Exchange.	Rupee Cents.
1890	1131	354842	314	286292	9·46d	1/5½	54·06
1891	1345	480684	358	357648	9·10d	1/6	54·61
1892	1385	503293	364	479005	7·81d	1/4¾	46·63
1893	1406	589192	419	528172	7·70d	1/3	51·33
1894	1451	608110	419	342040	6·77d	1/2½	46·68
1895	1556	597399	348	435908	7·34d	1/1¼	55·40
1896	1556	694720	446	590111	6·80d	1/2	48·57
1897	1571	748994	476	432652	6·51d	1/3	43·40
1898	1636	753151	460	393360	6·22d / 6.27d*a*	1/4	38·88 / 39·19*a*
1899	1754	754768	430	281457	6·75d / 6·78d*a*	1/4¼	41·54 / 41·72*a*
1900	1814	865768	477	406327	6·19d / 6·21d*a*	1/4½	37·51 / 57·64*a*
1901	2103	917038	435	483102	5·24d / 5·28d*a*	1/4⅜	32·00 / 22·24*a*
1902	2391	986862	413	453288	5·38d / 5·46d*a*	1/4⅜	32·86 / 33·35*a*

a Including Sales made in Colombo.

COCOA.				DIVIDEND
Year ending 30th June.	Crop, cwt.	Net Average per cwt.	Highest price realised.	Ordinary* per cent.
1890	1224	95/11	115/	10
1891	1355	108/	129/6	10
1892	1431	96/5	120/	15
1893	2201	90/11	130/9	15
1894	1212	58/4	83/6	15
1895	2840	59/2	65/	15
1896	2335	56/8	80/	15
1897	2266	66/1	85/	15
1898	2523	68/3	80/	15
1899	2594	66/83	86/	15
1900	1574	78/	102/6	15
1901	2378	72/6	103/6	15
1902	2865	59/11	80/	15

a And 5 per cent Bonus.

[* Preference dividend has been 6 per cent. besides, year by year.]

KORALE TEA ESTATES, LIMITED.

Directors:—W. S. Bennett, Chairman, J. L. Shand, H. W. Brett; Secretary:—H. C. Dowling; Agents in Ceylon:—Cumberbatch & Co., Colombo; Agents and Offices:—Shand, Haldane & Co., 24, Rood Lane, London, E.C.; Auditors:—McAuliffe & Davis, Threadneedle House, 28-31, Bishopsgate Street, E.C.

Report of the Directors, to be submitted at the Sixth Annual Ordinary General Meeting of Shareholders, to be held at the Offices of the Company, on Thursday, 16th October, 1902, at 3 p.m.

The Directors now submit the Report and Accounts for the year ending 30th June, 1902, which have been duly audited.

	£ s. d.	£ s. d.
The net amount at Credit of Profit and Loss Account, after providing for General Expenses is	939 1 4	
To which should be added the balance brought forward from 30th June, 1901	142 16 8	
		1,081 18 0
To dispose of which it is proposed to pay a dividend of 1½ per cent on the Preference Shares which will absorb	718 5 6	
To write off Wewesse Factory account	100 0 0	
Directors' Fees	150 0 0	
And to carry forward a balance of	113 12 6	
		£1,081 18 0

Though the estimate of crop has been exceeded, and the cost of production upon all the estates lessened, the Directors regret that the continuation of low prices for all tea prevents the recommendation of a higher dividend. The crop might have been still further increased if the Directors had not continued to carefully nurse the younger fields, in addition which a considerable area of the older tea has been this year rested. The Directors are satisfied that this policy will be to the permanent advantage of the estates. The reports as to the order and condition of the estates are satisfactory, and the large area of promising young tea on Wewesse is likely to rapidly increase the crop yied. In accordance with the Articles of Association Mr. W. S. Bennett retires from the Board, and being eligible, offers himself for re-election. The Directors desire to express their satisfaction with the Agents and Managers in Ceylon, who have done their utmost to carry out the wishes of the Directors for the strictest economy compatible with the efficient working and up-keep of the Company's properties.

By Order of the Board, H. C. Dowling, Secretary.

ACREAGE OF ESTATES.

	Tea. Over 4 Years.	Over 2 Years.	Over 1 Year.	Under 1 Year.	Chena & Patna.	Fuel.	Forest.	Total.
Riverside	...290	—	—	—	88	12	—	390
Glenloch	...178½	—	—	—	82	55½	—	316
Karagastalawa	178	61	1	10	70	58	14	392
Wewesse	...449	151	—	—	151	3	50	804
	1,095½	212	1	10	391	128½	64	1,902

	Crop. 1901 & 1902.	Crop. 1900 & 1901.	Expenditure on Production. 1901 & 1902. Exchange, 1/4 11·32.	Cost of Production. 1901 & 1902.	Cost of Production. 1900 & 1901.	Average Net Price in London. 1901 & 1902.	Average Net Price in London. 1900 & 1901.	Return per Acre.
	lb.	lb.	£ s. d.	d.	d.	d.	d.	d
Riverside	143416	137423	2210 11 1	3·69	3·89	4·86	4·51	494
Glenloch	72519	54839	1370 3 6	4·53	5·46	5·35	5·84	406
Karagastalawa	61021	*63995	1330 19 8	5·23	5·31			342
Wewesse	112330	98000	2595 16 5	5·54	5·68	5·71	5·67	250

* Including 7,000 lb. made from bought leaf.

THE CONSOLIDATED ESTATES CO., LTD.

Authorised capital		£100,000
Divided into 5,000 preferred shares of £10 each entitled to a cumulative preferential dividend of 8 per cent	£50,000	
5,000 ordinary shares of £10 each	50,000	
	£100,000	

Eleventh annual report of the General Managers, to be submitted to the shareholders at the general meeting, to be held at 34, Great St. Helens, E.C., on Wednesday, the fifteenth October, 1902, at 11·30 a.m.

The General Managers have the pleasure to submit their Eleventh Annual Report and Balance Sheet, together with Statement of Accounts for the Crop Year ending 30th June, 1902.

The Profit and Loss Account shows a balance (including £1,081 2s 9d brought forward from last year) of £6,777 8s 5d, after paying Interest on the Debentures, and an Interim Dividend of 4 per cent on the Preferred Shares.

Out of this sum the General Managers propose—

To pay a Balance Dividend of 4 per cent on the Preferred Shares, making 8 per cent for the whole year, which will absorb	..£1,560 0 0
*To set aside for redemption of five per cent of the Debentures at 103	... 2,575 0 0
To pay a Dividend of 4 per cent on the Ordinary Shares	... 1,560 0 0
To place to Reserve Fund	... 500 0 0
Carrying forward the Balance, viz :—	... 582 8 5
	£6,777, 8 5

* By the Articles of Association it is provided that no Dividend can be paid on the Ordinary Shares in any one year unless five per cent of the Debentures have been redeemed for that year.

The following shows the result of the year's working viz :—

NET PROCEEDS OF CROP.

	£ s. d.	£ s. d.
1,726,241 lb Tea at an average net price about 5½d. per lb realized	39,651 1 3	
Cocoa, Cardamoms Cinchona Bark & Cinnamon	1,860 18 4	
Surplus on estimated value of Produce brought forward from 1900-01	17 9 7	
Interest on Account	176 1 0	
		41,705 10 2

EXPENDITURE ON ESTATES.

Messrs George Steuart & Co.'s draft —R454,547 at an average of 1/4 23-64 per rupee	£30,986 7 4		
Less Balance of Coast Advances	323 5 2		
		30,663 2 2	
Bonus to Superintendents —R5,500 @ 1/4 1·32		3367 7 8	
			31,030 9 10
Profit on Crop Account			£10,675 0 4

The General Managers are glad to be able to inform the Shareholders that the anticipations expressed in the last Annual Report have to a great extent been verified, with the result that the past season's operations have heen much more favourable than those of the preceeding year.

During the first six months of the past season, the weather in Ceylon was not favourable for the growth of tea, and at one time the falling off in the crops harvested, as compared with the previous year to the same date, amounted to nearly 150,000 lb; but, on the other hand, owing to short supplies and improved quality of the tea, the average price realised was much better. During the second six months of the season, however, these conditions were precisely reversed; the weather was very suitable for the flushing of tea, and the deficiency of crop was to a great extent recovered, but prices were poor. The net result of the year's operations has been to produce a crop of 1,726,241 lb tea, against 1,787,560 last year, at a cost 4 16 per lb, against 4·35d, while the price realised for the tea averaged 5½d per lb net against 5 5-16d for the previous season.

Exchange during the past season has averaged 1s 23·64d for drafts at three months' sight, which corresponds exactly with that of last year.

The amount realised for products other than tea has been much larger than usual, owing to the exceptional quantity of cinchona bark harvested. This bark realised £1,127 13s 7d, whereas last year the net proceeds amounted only to £239 8s 11d. The General Managers being of opinion that this product can hardly be treated as pure revenue, seeing that each time a tree is barked brings it nearer to final extinction, have decided to carry £500 of the above proceeds to credit of the Reserve Fund. Young trees are coming on to take the place of those that die out or have to be removed, but it takes some years for them to reach the productive stage.

The other extraneous products have realised about the amount estimated, and are all doing well.

No new properties have been acquired since the date of the last annual report, and the total acreage of the Company's estates remains unaltered, viz., 5,484 acres. But in accordance with the promise made in last year's report a careful survey has been made of

the reserve land suitable for tea, and the following tabulated statement gives the result :—

Name of Estates.	Ceylon District.	Tea Full Bearing.	Tea Partial Bearing.	Tea Recently Planted.
Wattegodde	Dimbulla ...	80C	Nil	25
Hoonoocotua	Kotmale ...	559½	25	15
Tallagalla	Kalutara ...	515	48	54
Ellagalla	Matale ..	225	6	9
Rutland	Hewaheta ..	449¼	3	66
Warriagalla	Nilambe ...	422½	83¼	4
Sorana	Kalutara ..	421	79	45
Totals	...	3,392¼	244¼	218

Name of Estates.	Ceylon District.	Reserve Suitable for Tea.	Other Products, Grass Waste, Water, &c.	Total Acreage.
Wattegodde	Dimbula ...	Nil	70	895
Hoonoocotua	Kotmale ..	52	110½	762
Tallagalla	Kalutara ...	25	58	700
Ellagalla	Matale ...	15	190	445
Rutland	Hewaheta ...	17	127¾	663
Wariagalla	Nilambe ...	150	601	1,261
Sorana	Kalutara ...	75	138	758
Totals	..	334	1,295¼*	5,484

* Of which more than 300 acres are planted with Cardamoms, Cocoa, Cinnamon and Cinchona.

Last year's Estimate of Expenditure of Capital Account was £600 to £700, and the amount actually spent was £675 2s 4d, which has been carried to debit of the Factory and Extension Account. This account after having received credit for the proceeds of the New Issue referred in the last Report, shows a small debit balance of £405 9s 3d. The estimated expenditure on this account for the current season amounts to between £800 and £900, being chiefly for additional machinery required for Sorana and Warriagalla.

The Estimate of Crop Expenditure and Yield for the new season have been prepared as usual with much care, and are as follows, viz :—

	Expenditure. R.	Crop. lb Tea.
Wattegodde ..	116,719	450,000
Hoonoocotua ..	80,071	280,000
Ellagalla ...	31,902	120,000
Tallagalla ...	58,552	235,000
Warriagalla ..	65,576	240,000
Rutland ..	64,105	250,000
Sorona ...	66,358	275,000
Totals	R483,283 @ 1/4⅝=£32,974.	1,850,000

Also about 15,000 lb of Cinchona from Rutland, 10,000 lb Cardamoms and 15 cwt Cocoa from Warriagalla and 15,000 lb Cinnamon from Sorana; the value of the whole of such products being estimated at about £1,000 to £1,200.

The General Managers are glad to state that the very full Reports on the Estates which they receive from the Company's Ceylon Agents continue to be on the whole thoroughly satisfactory. The grey blight, which at one time caused considerable anxiety, has happily yielded to the remedial measures applied, and has almost entirely disappeared. So that with normal weather and even moderately good prices for Tea, the prospects for the coming season appear to be satisfactory.

ARBUTHNOT, LATHAM & Co., *General Managers.*
34, Great St. Helens, E.C., 6th Oct., 1902.

THE DOOMOO TEA COMPANY OF CEYLON, LIMITED.

THE REPORT.

The Directors have the pleasure to submit their Report and the Accounts for the year ending June 30th 1902.

The crop realized was 296,863 lb. against an Estimate of 260,000 lb. and netted 36·05 cts. per lb. against 04·39 cts. last year.

The falling-off in price is to some extent due to the fact that there were several alterations and additions to the factory and machinery about the middle of the year which hampered work and prevented the tea being made to the best advantage.

On the other hand the cost of the tea was only 24·33 cts. per lb. against 26·95 last year. This rate is not high and reflects credit on the Manager.

There is now a sum of R40, 059·32 to be dealt with and the Directors recommend its being disposed of as follows :—

That there be passed to Depreciation account a sum of	R 5,000·00
That there be passed to Reserve account	5,000·00
That a Dividend of 7 per cent be paid, absorbing	28,000·00
And that there be carried forward a sum of	2,059·32
	R 40,059·32

The Estimates for the current season provide for a crop of 275,000 lb. tea to cost R71,310·00 exclusive of Capital Expenditure which will not be large.

The acreage of the two estates is as follows :—

Doomoo ..	213 acres	Tea 5 years old and upwards
	12 do	do under 1 year.
	16 do	Timber.
	58 do	Chena and Patana.
	299 acres.	
Verellapatna ..	500 acres	Tea 5 years old and upwards.
	24 do	do 4 years old.
	4 do	do under 1 year.
	6 do	to be planted.
	10 do	Grass.
	2 do	Timber.
	142 do	Chena and Patana.
	688 acres.	

During the year Mr W Kingsbury having left the Island, Mr W Anderson was appointed a Director in his place. The latter gentleman retires in accordance with the Articles of Association but being eligible offers himself for re-election.

It will be necessary to appoint an Auditor for season 1902-03.

By order of the Board of Directors,
J. M. ROBERTSON & Co.
Colombo, 16th October, 1902.

BRITISH CENTRAL AFRICA COMPANY, LIMITED :

PLANTING PROGRESS.

The statutory general meeting was held yesterday (Oct. 31) at Winchester-house. Major George Wemyss who presided, observed that as a good deal of misconception existed in England as to the exact locality of British Central Africa, it might be as well if he stated that it was that region of Africa which would always be associated with the name of Livingstone and with the great Scotch missionary movement in the Shire Highlands and about Lake Nyassa. In 1883 the British interests in Nyasaland had become so considerable that Her Majesty's Government appointed a British Consul to Nyasaland with headquarters at Blantyre. This was immediately followed by the starting of the planting industry, which soon showed most encouraging results in the cultivation of coffee, cotton and tobacco. In 1889 the future of Nyasaland assumed an entirely new aspect by reason of the discovery or re-discovery by Mr J Rankin of a navigable entrance to the

Zambesi by the Chinde mouth. This opened up a direct waterway to the Shire districts, and disposed of the great obstacle to the development of the country caused by its only means of approach being through Portuguese territory. In the spring of 1891 a British protectorate was proclaimed over the countries adjoining Lake Nyasa, and the Protectorate of Nyasaland was instituted. In February 1893, the name of the protectorate was changed to the British Central Africa Protectorate, which this company had been formed for the purpose of developing by establishing through communication by water and rail between Chinde and the Central African lakes region and by developing the planting and mining industries, and British trade generally, within the protectorate. In British Central Africa they were not dealing with the raw uncivilized country one usually associated with the words "Central Africa" but with one which possessed a properly organized civil administration, with its post and telegraph, judicial, medical, scientific, and survey departments, and regularly organized military forces. How important the question of a railway was to the commercial development of the country was evidenced by Mr. Commissioner Sharpe's official report to the Foreign Office for the year 1900-1901, from which he quoted. From Chinde at the mouth of the Zambesi to the north end of Lake Nyasa was approximately 800 miles. For 600 miles there was a waterway upon which steamers were regularly plying—from Chinde to Chiromo 250 miles, and from the south end of Lake Nyasa to the north end 350 miles; but the whole utility of the route practically depended on the facilities for carriage over the connecting link of 200 miles between Chiromo and Lake Nyasa. At present the traffic over this connecting link was mainly dependent on native porters, and the traffic north of Chiromo was practically limited to what they could carry. In addition to providing for the wants of the protectorate and the rapidly increasing demands of the mineral districts of North-Eastern Rhodesia, &c.,

THE RAILWAY

would have to carry the whole trade of the Nyasaland regions, including that from German East Africa, which found its outlet at Langenberg at the north end of the lake; and the easiest and cheapest route even to lake Tanganyika, was undoubtedly by the Shire and Lake Nyasa. Existing means of transport had been utilized to their utmost limit, and the further development of the districts in question was absolutely dependent on the construction of a railway. His Majesty's Government being convinced of this fact, had agreed to grant to the Shire Highlands Railway Company (a subsidiary company of this company) a concession for the construction and working of a railway from Chiromo, via Zoa and the Cholo plateau to Blantyre, and thereafter northwards to a point completing the connexion with Lake Nyasa. The British South Africa Company also realizing the urgent necessity for this railway and the great assistance it would be in the development of their lands in Nyasaland and North-Eastern Rhodesia had assured this company of their support, in connexion with which negotiations were proceeding. The company would enter into an agreement with the Shire Highlands Railway Company to construct and equip the first section of the line at a certain sum per mile to be paid in debentures and ordinary shares of the railway company, together with the land grant received from the British Government. In order to provide the necessary funds for this purpose it was proposed to make an issue of debentures of the British Central Africa Company at an early date. The company had also acquired as a going concern, Sharrer's Zambesi Traffic Company, which had been operating in the district since 1894 with satisfactory financial results. When railway connexion was made with Lake Nyasa, their company would be in a position to quote reduced through rates and fares between London and all stations on the whole of the route to the north end of the lake. The line was the connecting link of a through service from the coast to the north end of Lake Nyasa, a distance of over 800 miles. This service would practically control the whole of the carrying trade for the Nyasaland regions. The company had further acquired the Nyasaland estates comprising about 372,000 acres of freehold land, a considerable portion of which had already been laid out in plantations, from which "maiden" crops of coffee had already been received. The land was not only suitable for coffee, but also for cotton and tobacco. The only obstacle to the development of these industries were want of labour and proper transport facilities and these would be provided for by the railway. For many miles of its route the line from Chiromo to Blantyre would pass through the company's estates. In addition to the Nyasaland estates they would possess the land granted by the British Government in return for the construction of the first section of the railway—about 265,000 acres. A considerable proportion of this land was also in close proximity to the railway. The company had acquired the properties referred to for fully-paid ordinary shares, so that their debentures when issued would be a first charge, not only upon the railway that had to be constructed, but also upon the entire assets of the company. In acknowledging a vote of thanks, the chairman stated that 900 of the Central Africa Rifles who came from the protectorate were going to Somaliland with the relief expedition.—London *Times*, November 1,

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LONDON TEA CHARGES.

A meeting of the Tea Clearing House has been held this week, at which it was decided to endeavour to arrange a conference with the trade with a view to the settlement of the point at issue. 'The trade, having unanimously asked for the withdrawal of the boycotting clause, will probably,' says the *Produce Market Review*, 'only consent to discuss other matters after that is out of the way, but apart from this there is a great deal that can be done by mutual and friendly discussion. The following rough estimate of the London tea charges in the course of a year shows the great importance of the issues to our tea growers, for a burden of some £350,000 a year is a heavy one for an unprosperous industry. It is a small detail in such an amount, but the charge entailed by weight notes is worse than useless, as it complicates matters unnecessarily, and leads to a lot of useless labour. The warrants issued are also far too numerous, and a reduction in their number, by putting more packages on each, would effect a reduction in the stamp charges and would be otherwise useful. Bulking and separate taring are heavy charges that might be avoided, as we have urged for many years. The

empty packages should be cut to scale so that they weigh alike, and bulking ought to be done in all cases on the gardens. We may mention that one of the results of the existing dispute is to advertise the extent of the tea charges, with the effect of leading to competition. For instance, an application is being made to the Customs for a fresh bond by a large waterside warehouse."

AGGREGATE LONDON DOCK OR WHARF CHARGES ON TEA.

Landing charges on tea imported into London for twelve months.—Say 2,200,000 (two million two hundred thousand chests). Average gross weight 90/129 lb.

Landing and Housing Rate, which includes landing, wharfage, housing, separating into chops, weighing, average taring, furnishing landing weights, examining and turning out and in for damage, mending, laying down for private inspection, lotting, nailing down, placing in delivery pile, and delivery by land at 1s 6d

	£	s	d
	165,000	0	0
Bulking and taring at 1s 2d	128,333	0	0
Rent.—10 weeks at 1s 2d per week	45,833	0	0
	£339,166	0	0

Off these gross charges the following discount is allowed to importers :—

Rent at 20 per cent ..	£9,166
Cost of weight notes on above quantity	£3,700
Warrant stamps at 3d ...	4,500
Total weight notes and warrants	£8,2:0

PLANTING NOTES.

COCONUT-PLANTING IN NORTH BORNEO.—"H. W." supplies *The Field* with an interesting paper on this subject (see page 404). Crops 3,000 of nuts from 50 trees per acre, are very good indeed ; but the soil must be rich and the growth rapid and luxuriant to justify planting so widely—usually 70 trees per acre are allowed in Ceylon. "H. W."'s figures are otherwise fairly reliable, we should say ; but he is wrong in saying that we showed the price of coconuts to have continuously increased in the last century. We can recall Ceylon coconut oil a good deal higher than it is now ; but still the present price in Colombo —R350 to R355 per ton is a very satisfactory one.

CAPACITY OF CISTERNS.—When calculating the capacity of cisterns (or tanks) 31½ gallons are estimated to one barrel and 63 gallons to one hogshead.

A Circular Cistern One Foot in Depth.

Five feet diameter holds	...	122½	gallons
Six	do	... 176½	do
Seven	do	... 240½	do
Eight	do	... 314	do
Nine	do	... 397½	do
Ten	do	... 490½	do

A gallon of water weighs ten pounds, and measures 277·274 cubic inches ; a cubic foot of water contains 6·23 gallons, and weighs 62·35 pounds ; one cwt of water contains 11·2 gallons, and measures 1·8 cubic feet ; one ton of water contains 224 gallons, and measures 35·9 cubic feet. *Home paper.*

ANTS AND CATERPILLARS.—A correspondent writes :—With reference to the account which I read with mingled interest and amusement of the ant and caterpillar fight recorded in your column, I have another story in the same category to relate. In my youth, I kept silkworms, and I very well remember how I and some of my schoolfellows once put several trays of the nearly full-grown fat white grubs out of doors for a treat. When we visited them, after an hour's absence, many had disappeared from the trays. We then saw that the ants were dragging them off, several of the insects tugging in unison at each silkworm. Several of the latter had been dragged down three steps of the iron staircase on which they had been placed. I am afraid it became a favourite amusement with us to give our fattest grubs to the ants to carry, but I may say that the former were not hurt in any way by the rough means of carriage to which they were subjected.—*Daily Mail*, Oct. 27.

AN ENTERPRISING PADRE.—We believe, says the *Rangoon Gazette*, the saw mill erected by the Rev Julius Smith at Thandaung which is now cutting up one thousand shingles per day, is the first instance in the province of utilising water power for the working of a saw mill. There are, of course, numerous instances along our rivers of raising water by Means of Persian wheels. But we do not know of any other instance of wood cutting by water power than Mr Smith's and his example might profitably be followed by Burmans and Karens in cutting wood, or husking paddy wherever there are hill steamers to give the necessary power. The Pelton Water Wheel Co., of San Francisco and New York, is the system under which Mr Smith's mill is run. That it is economical and simple is shown by the fact that all the machinery and piping used at Thandung have been erected by Mr Smith with the assistance of one experienced plumber at a cost of R1,750. Of this amount, of course, a considerable portion was consumed by freight between Toungoo and Thandaung, including eleven miles up the hill.

IMPERIAL DEPARTMENT OF AGRICULTURE FOR THE WEST INDIES.—Received: General Treatment of Fungoid Pests. By Albert Howard, B.A., A.R.C.S., F.L.S., F.C.S., Mycologist and Agricultural Lecturer, Imperial Department of Agriculture for the West Indies. *Preface.*—Amongst the enemies to be overcome by tropical planters the parasitic plants known as rots, moulds and mildews take a prominent place. It is impossible to ignore fungoid diseases as the aggregate loss caused by them to the sugar-cane, cacao and other industries amounts to several thousand pounds sterling annually. The object of the present pamphlet is to afford a simple and clear account of the life-history of fungi so that the injury done by them may be readily recognized and suitable remedies applied before it is too late. One of the most serviceable applications for fungoid diseases is what is known as 'Bordeaux Mixture.' Directions are given for the preparation of this (p. 37) as also for the use of knapsack and other spraying machines (pp. 38 39). Special attention is invited to the directions given on pp. 41 43 for collecting and forwarding specimens for examination by this Department. D MORRIS, Commissioner of Agriculture for the West Indies. September 10, 1902.

Monthly Shipments of Ceylon Black Tea to All Ports in 1901-1902.

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb	1902. lb.
January ..	12617540	9056013	727093	612958	104240	151984	740574	714247
February	8333266	7455219	...	919709	135811	121158	1778987	1020948
March ...	7932090	8198179	1288010	896513	82055	91081	2012070	1713916
April ...	8474940	8521388	1297873	988698	111082	93198	2245142	2081904
May ..	10570686	9638555	937138	238239	63310	80669	1644160	2000522
June ...	11425044	12563050	835711	1984976	93699	166479	1730886	1828695
July ..	8488409	10724781	700557	1779011	189567	108785	2593243	1747960
August ...	6030406	7396614	949747	1065599	82595	208894	1612929	1574498
September*	6093129	6652202	485429	795315	74896	70262	1779523	1857897
October ..	8989024	6559765	762616	360844	181891	79943	1840192	1567796
November	6229472		1018996		190988		1539370	
December	12235867		830226		189520		990563	
Total ..	105,497,339		9,699,734		1,539,986		20,638,208	

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.
January	138235	125795	275598	389215	14603250	11050212
February	272221	115332	453774	385705	10974059	10018071
March	510734	566263	350874	311191	12175833	11777143
April	10030	807390	226776	290137	12365843	12782715
May	288333	242651	306644	436410	13810271	12637046
June	276827	403005	404687	714471	14766854	17660676
July	442100	464858	669163	846036	13083039	15671431
August	266787	461229	227578	678095	9170042	11384929
September	214779	563981	388213	688730	9035969	10628487
October	115545	483085	273928	655827	12163196	9707260
November	504614		183124		9666564	
December	313534		366244		14875954	
Total ...	3,704,335		4,549,627		145,188,244	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Australia.	
	1901. lb.	1902. lb.	1901. lb.	1902. lb.	1901. lb.	1902. lb.
January	...	64021	...	..	...	...
February	...	24839	..	4420	...	...
March	75583	14800	...	24210	...	..
April	13016	13676	...	8000	...	...
May	33889	70103	...	..	1714	..
June	12814	87340	..	74225	...	...
July	4478	40574	...	..	...	...
August	...	70900	..	..	...	...
September	5945	50771	...	..	...	...
October	12921	68679	..	..	...	..
November	16540		5615	..	...	..
December	15255		38547	..	1262	..
Total ...	237,231		44,162	...	2,976	...

	America.		All Other Ports.		Total.	
	1901. lb.	1902. lb.	1901, lb.	1902. lb.	1901, lb.	1902. lb.
January ...	...	113332	..	...	...	177353
February ...	...	26480	...	515	..	56254
March ...	227889	62313	12173	100	315660	101423
April ...	79403	53610	7365	9165	99784	84451
May ...	65980	32676	1454	3280	103037	106059
June ...	23046	84184	...	4500	35860	250249
July ...	46896	194016	...	...	51374	234590
August ...	12260	105982	...	1600	12260	178482
September ...	15304	333704	...	6800	21249	391275
October ...	28560	281168	...	..	41481	349847
November ...	36296	..	...	...	58541	...
December ...	11786	...	7612	...	27011	..
Total ...	797,796	...	28,609	..	1,110,774	...

* It is impossible to get the figures for the last month in time for publication; but see pages 428, 429 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Agra Ouvah Estates Co., Ltd.	500	—	..	950
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	90	—	—
Ceylon Provincial Estates Co. Ltd.	500	505	—	—
Claremont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	..	65	...
Clyde Estates Co., Ltd.	100	...	—	...
Doomoo Tea Co., of Ceylon Ltd.	100	..	—	70
Drayton Estate Co., Ltd.	100	—	..	—
Eila Tea Co., of Ceylon, Ltd.	100	..	40	...
Estates Co of Uva, Ltd.	500	250	300	275
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	..	..	1100
Great Western Tea Co., Ltd.	500	700	—	—
Hapugahalande Tea Estate Co.	200	125	150	—
High Forests Estates Co., Ltd	500	525	—	—
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	105	..	...
Kalutara Co., Ltd.,	500	..	200	..
Kandyan Hills Co., Ltd	100	—	..	—
Kanapediwatte Ltd.	100	47½	...	—
Kelani Tea Garden Co., Ltd.	100	..	32½	—
Kirklees Estate Co., Ltd.	100	100	—	—
Knavesmire Estates Co., Ltd.	100	45	50	
Maha Uva Estates Co., Ltd.	500	400	—	400
Mocha Tea Co., of Ceylon, Ltd.	500	800	..	800
Nahavilla Estate Co., Ltd.	500	250	300	—
Nehoda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	..
Penrhos Estates Co, Ltd.	100	75	—	—
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	—	—	30
Putupaula Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd.	500	..	...	—
Rayigam Tea Co., Ltd.	100	—	—	52½
Roeberry Tea Co., Ltd.	100	85	—	—
Ruanwella Tea Co., Ltd	100	...	35	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	15	...	—
Do 7 per cent Prefs.	100	—	—	—
Tonacombe Estate Co., Ltd,	500	375	—	400
Union Estate Co., Ltd.	500	..	110	—
Upper Maskeliya Estates Co., Ltd.	500	550	—	—
Uvakellie Tea Co. of Ceylon, Ltd	100	75	80	80
Vogan Tea Co., Ltd.,	100	47½	...	50
Wanarajah Tea Co., Ltd.	500	..	900	—
Yataderiya Tea Co., Ltd.	100	...	350	335

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Adam's Peak Hotel Co., Ltd.	100	...	30	...
Bristol Hotel Co., Ltd.	100	..	105	105
Do 7 per cent Debts	100	107	...	..
Ceylon Gen. Steam Navigation Co., Ltd	100	—	250	..
Ceylon Ice & Cold Storage Co. Ltd.	100	—	110	—
Ceylon Superæration Ltd.	100	—	—	—
Colombo Apothecaries' Co. Ltd.	100	—	145	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	—
Do prefs.	20	...	...	..
Colombo Fort Land and Building Co., Ltd.	100	80	—	...
Colombo Hotels Company	100	290	..	—
Galle Face Hotel Co., Ltd.	100	—	195	102½
Kandy Hotels Co., Ltd.	100	..	..	130
Kaluganga Nav. Co. Ltd.	70	...	70	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	—	70	—
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	—
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	7½	10	—

LONDON COMPANIES

Company	paid. p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Alliance Tea Co., of Ceylon, Ltd.	10	..	6—7	6½
Anglo-Ceylon General Estates Co	100	...	55—60	—
Associated Estates Co., of Ceylon	10	..	1½—2½	—
Do. 6 per cent prefs	10	..	3—5	—
Ceylon Proprietary Co.	1	..	¼—½	..
Ceylon Tea Plantation Co., Ltd.	10	..	23¼—24	...
Dimbula Valley Co. Ltd	5	..	5—5½	—
Do prefs	5	—	5—6	...
Eastern Produce & Estate Co. Ltd.	5	...	3¼—3¾	..
Ederapolla Tea Co., Ltd	10	...	6—8	...
Imperial Tea Estates Co., Ltd.	10	...	4..4½	—
Kelani Valley Tea Asscn., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	6-8	—
Lanka Plantations Co., Ltd	10	..	4	—
Nahalma Estates Co., Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	9¾	—
Ouvah Coffee Co., Ltd.	10	...	6—7	—
Ragalla Tea Estates Co., Ltd.	10	.	11—13	—
Scottish Ceylon Tea Co., Ltd.	10	—	10—15	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	10—12	..
The Shell Transport and Trading Company, Ltd.	1	...	1½—1¾	... —
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¼	..
Do. pref. 6 o/o	10	...	9—10	...

BY ORDER OF THE COMMITTEE.

Colombo, Dec. 5th, 1902.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1897.	1898.	1899	1900	1901	Av. of 32yrs.	1902
	Inch	Inch	Inch.	Inch.	Inch.	Inch.	Inch
January ..	3·81	2·32	·98	3·72	11·91	3·51	1·95
February ..	1·68	1·98	2·78	0·63	3·55	1·94	4·57
March ..	3·66	4·21	0·88	3·71	5·12	4·76	6·85
April ..	10·97	22·81	6·66	15·12	8·71	11·34	10·01
May ..	8·30	5·80	17·73	10·63	6·28	11·86	11·89
June ..	10·14	10·94	9·23	7·83	5·93	8·28	9·84
July ..	5·24	6·15	1·11	6·77	4·52	4·46	4·63
August ..	9·09	0·97	0·62	7·35	0·46	3·68	2·78
September ..	4·58	6·90	1·48	4·00	3·93	4·94	3·18
October ...	4·71	20·60	12·99	9·47	3·91	14·03	31·47
November ..	11·66	17·38	8·58	9·25	19·84	12·77	20·10*
December ..	8·89	3-05	4·44	5·20	1·70	6·26	2·45
Total..	82·73	103·11	73·48	83·68	75·86	87·83	114·72

* From 1st to 3rd Dec. 2·45 inches, that is up to 9·30 a.m. on the 4th Dec.—ED. *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for Nov. 1902—7½ to 8 mill. lb.

Total Shipments Do 1902—6,250,000 lb.

Do Do Do 1901—6,229,472 lb.

Do Do Do 1900—9,468,060 lb.

[ESTIMATE for Dec. 1902—9½ to 10 million lb.]

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Dec. 1st, 1902.

CARDAMOMS :—
All round parcel, well bleached per lb. R1·20
Do. dull medium do. R1·00
Special assortment, 0 and 1 only do. R1·35
Seeds do. R1·05

CINCHONA BARK :—
Per unit of Sulphate of Quinine 6c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 50c. }
Nos. 1 and 2 only per lb. 56c. } Nominal.
Nos. 3 and 4 only per lb. 44c. }

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R62·50

COCOA :—
Finest estate red unpicked per cwt R50·00
Medium do do do R40·00
Bright native unpicked and undried R35·00
Ordinary do do do R25·00

COCONUTS—(husked)
Selected per thousand R50·00
Ordinary ,, R42·00
Smalls ,, R35·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 20c.

COCONUT OIL—
Dealers' Oil per cwt R16·50.
Coconut Oil in ordinary packages f. o. b. per ton R370·00.—Nominal.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—R62·00.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—50c. Firm.

COPRA—
Boat Copra per candy of 560 lb. R52·50
Calpentyn Copra do do R52 50
Cart do do do R47·00
Estate do do do R52 50

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot R70·00 to 145·00—Sales of this day.
Inferior R35·00 to 100·00.

FIBRES—
Coconut Bristle No 1 per cwt None
Do ,, 2 None
Do mattress ,, 1 None
Do ,, 2 None
Coir Yarn, Kogalla ,, 1 to 8 R16·00
Do Colombo ,, 1 to 8 R11·00
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R600
Ordinary lumps do R600
Chips do R350
Dust do R250 Prices nominal
Fine qualities scarce.
Do (Flying) do R125

SAPANWOOD— per ton R45.—Nominal.

SATINWOOD (ordinary) per cubic ft. R4·00
Do (Flowered) per cubic ft. R11·10

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	59	48	41
Orange Pekoe do	49	42	35
Pekoe do	44	36	32
Pekoe Souchong do	41	31	30
Pekoe Fannings do	41	30	27
Broken mixed—dust, &c	29	23	25

CEYLON EXPORTS ADN DISTRIBUTION FOR SEASONS 1901 AND 1902.

COUNTRIES	Black Tea 1902 lbs.	Black Tea 1901 lbs.	Green Tea 1902 lbs.	Green Tea 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.
To U K. ..	91937443	93506160	587050	180510	7675	..	7675	32222	335307
,, Austria ..	49553	48896	..	..	1	...	1	...	...
,, Belgium ..	81501	17741	...	..	143	...	143	497	50
,, France ..	201431	251042	...	..	4	...	4	940	448
,, Germany ..	588795	489742	...	..	26	..	26	3795	94971
,, Holland ...	4514	19041	...	..	...	..	..	..	..
,, Italy ..	19213	13534	..	..	...	..	..	32	1035
,, Russia ..	11314168	8779508	127115	5615	8	...	8	100	448
,, Spain ..	3281	25[illegible]	..	..	...	..	..	31	..
,, Sweden ..	73725	53298	...	...	..	..	..	4[illegible]0	2014
,, Turkey ..	36463	37582	..	..	...	...	..	..	..
,, India ...	791294	1068640	26970	16124	89	...	89	7	97833
,, Australia ..	17141413	19548559	..	1714	2009	14	1695	537	...
,, America ...	4489273	2529817	1612613	488544	820	...	1820	7	7039
,, Africa ..	510810	326383	1200	...	15	..	15	..	2726
,, China ...	4117102	2606770	6340	4853	48	..	48	100	7548
,, Singapore ...	188599	126514	...	...	1	...	1	5701	2240
,, Mauritius .	67309	44126	..	...	280	..	280	..	..
,, Malta ..	265186	274433	..	...	...	...	..	...	..
Total export from 1st Jan to 1st Dec. 1902.	131881373	129742036	2361283	697360	11105	14	11119	44360	551659

COUNTRIES	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil 1902 cwt	Coconut Oil 1901 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago 1902 cwts	Plumbago 1901 cwts.
To U K. ..	342762	152397	260467	2 7377	12908	8145766	21	8875916	127644	180154
,, Austria ..	5600	38640	21255	8636	13364	143300	...	12510	...	..
,, Belgium ..	103700	172171	3905	5672	22944	338590	93109	233400	15352	19749
,, France ..	55500	59534	238	802	103601	33200	...	96020	1414	395
,, Germany ..	778539	458809	12545	11162	157118	1901290	121947	1137850	61098	46481
,, Holland ...	47000	208600	..	3716	476	319070	..	24415	1155	202
,, Italy ..	214958	216944	5045	8713	...	...	10	11285	[illegible]24	100
,, Russia ..	130	..	181	134	33136	..	..	...	1678	3713
,, Spain ..	284902	111156	..	..	...	27000	..	...	..	...
,, Sweden ..	..	..	1129	199	...	90380	..	15120	433	204
,, Turkey ..	112	...	...	...	..	...	...	..	..	...
,, India ...	..	2296	62140	122273	5	1950	...	149500	1949	506
,, Australia ..	4674	34248	5	197	...	748325	221	1944	388	537
,, America ...	393340	28675	85185	20955	...	2097790	...	102021	233694	151122
,, Africa ..	..	..	218	76	..	55960	1	1119041	...	...
,, China ...	16200	112	846	1114	..	1918	..	..	797	...
,, Singapore ...	...	..	1029	3006	...	...	...	...	...	..
,, Mauritius .	..	..	...	..	...	...	..	..	..	..
,, Malta ..	...	..	..	..	..	...	..	..	...	...
Total export from 1st Jan to 1st Dec. 1902.	2247417	1483582	454188	394022	343552	14204539	215309	11779022	445626	402670

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 5th November, 1902.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay { White ,,	Dingy to Fair	£5 a £6 12s 6d
{ Yellow ,,	Fair ,,	£6 a £6 12s 6d
Madagascar ,,	Dark to good palish	£6 a £6 12s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality ..	160s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s a 3s 6d
	Seeds ..	1s 3d a 1s 7d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish .	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to good bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2⅛d a 2⅜d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	35s a 42s 6d
CINCHONA BARK.—lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	8½d a 1s 6d
per lb. 2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar }	Good and fine bright	4⅜d a 4½d
and Pemba }	Common dull to fair	4d a 4 5-16d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 118s
	Middling to fine mid ..	80s a 105s 6d
	Smalls	55s a 69s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 48s
COCOA, Ceylon ,,	Bold to fine bold	65s a 88s
	Medium and fair	58s a 64s
	Native	50s a 60s
COLOMBO ROOT ,,	Middling to good	13s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	0s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	36s a 40s
	Small and D's	34s a 35s
Japan ,,	Unsplit	33s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £16
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	£70 a £8 15s
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 37s 6d
Turkey sorts ,,		30s a 37s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 2?s
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ...	18s a 25s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 37s 6d
KINO ,,	Fair to fine bright	4½d a 7d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	50s a 70s
OLIBANUM, drop ,,	Good to fine white	42s a 47s 6d
	Middling to fair	28s a 42s
pickings ,,	Low to good pale	18s a 26s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 3d a 2s 10¾d
Assam	Good to fine	2s a 2s 3d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 3d
Borneo	Commonto fine	6d a 2s 2d

	QUALITY.	QUOTATIONS
INDIARUBBER (*Contd.*)		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 2s 2½d
Mozambique ,,	Good to fine Ball ..	2s 6d a 2s 9d
	Ordinary to fair Ball ...	1s 10d a 2s 2d
	Low sandy Ball ...	9d a 1s 6d
	Sausage, fair to good ..	1s 10d a 2s 7½d
	Liver and Livery Ball ..	1s 9d a 2s 3¾d
Nyassaland	Fair to fine ball ..	2s 3d a 2s 8d
Madagascar	Fr to fine pinky & white	2s a 2s 3d
	Fair to good black ..	1s 1d a 1s 6½d
	Niggers, low to fine ..	7d a 1s 9¼d
INDIGO, E.I	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 8d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s 6d a 6s
	Bhimlies	4s a 7s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s 6d
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 5½d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay	Ordinary to middling	5s 6d a 6s
per cwt. Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 9d a 4s 10½d
CASSIA ,,	According to analysis	3s 3d a 3s 6d
LEMONGRASS ,,	Good flavour & colour	5d
NUTMEG ,,	Dingy to white	1¼d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 1d
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb		
Alleppee & Tellicherry	Fair to bold heavy ..	6d a 6¼d
Singapore ..	Fair	6 1-16d
Acheen & W. C. Penang	Dull to fine	5⅛d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	{ Rough & rooty to good	£4 10s a £5 15s
Siam ,,	{ bold smooth...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	115s a 117s 6d
SENNA, Tinnevelly lb.	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's } D's and B's } Small ... }	48s a 120s
Mergui ,,	Small to bold ..	£7 15s a £10
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	18s a 24s
TURMERIC, Bengal cwt.	Fair ...	14s a 16s
Madras ,,	Finger fair to fine bold bright	10s a 14s
	Bulbs ..	9s
Do. ,,	Finger ..	10s a 12s
Cochin ,,	Bulbs ..	9s a 9 6d
VANILLOES— lb.		
Mauritius .. } 1sts	Gd. crysallized 3½ a 8½ in	6s a 25s 6d
Bourbon ... } 2nds	Foxy & reddish 3½ a 8 ,,	4s a 18s
Seychelles 3rds	Lean and inferior ...	3s a 5s
VERMILION lb.	Fine, pure, bright ..	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	57s 6d a 60s

THE
AGRICULTURAL MAGAZINE,
COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for December :—

Vol. XIV.] DECEMBER, 1902. [No. 6.

SCHOOL GARDENS.

WE shall now proceed to consider the educational side of School Gardens. To understand their value as a means of imparting knowledge, we must think of them as a field for Nature Study.

By Nature Study is meant the study of the world around us, as seen in animate and inanimate nature. Every natural object, whether bird of butterfly, plant or flower, rock or steam, has a story to tell us, and it is the object of Nature Study to enable the child to learn the story of every object that presents itself to the eye. It may truly be said of the generality of children that seeing, they see not, since they look with what may be termed the external eye and not with that inward eye that the poet speaks of. What they see passes before them like a panorama—a mere succession of pictures—suggesting nothing to the mind. Many people go through life with the idea that they are leading a kind of separate existence, having nothing in common with other natural objects around them. They know nothing of the interdependence which binds everything in this world together as elements in a universal and marvellously designed whole. Such ignorance it is that begets self-conceit and self-love. On the other hand the student of Nature knows his own worth, and shows us what true humility is.

To know more about Nature, to understand the function of each natural object in the world's economy, is to put by in the mind a rich store of associations that should always supply the child with healthy mental exercise and leave no room for idle thoughts. How familiar is the vacant look indicative of the mind that has no food for thought! Under ordinary systems of education the constant application to the written page brings about a revulsion of the mind, resulting in temporary mental apathy, or, what may perhaps be better termed, mental atrophy.

In Nature Study we see the direct opposite of ordinary methods of teaching. Instead of principles and rules the student deals directly with objects and phenomena, and, by observation and comparison, deduces in an intelligent, and indeed the only satisfactory manner, those truths, which when acquired merely as facts, are so much dead knowledge. In this way are grasped the principles which underlie natural science.

A habit which is acquired in youth is, as we all know, difficult to give up. So that if we are helping to inculcate the habit of observing, to evoke an interest in natural objects—a love of gardening—a respect for order and method—an appreciation of the dignity of labour, and the other concomitant advantages derived from the new system of instruction, then we are surely performing a valuable service to future generations.

OCCASIONAL NOTES.

A gentleman who has grown cotton experimentaly in the Henaratgoda district is good enough to give us his experience in the following note :—"I grew two varieties, viz., the Egyptian and South Sea Island, both good, and I succeeded fairly well and had good crops, but the rats and squirrels made sad havoc of the pods before they came to perfection, and the heavy rainfall just as the pods were ripening damaged the remainder of the crop. I should think it ought to do well in the Jaffna and Batticaloa districts."

The above shows that one of the chief things to be discovered about cotton growing is the proper time to plant, so as to get the crop in at the proper season. As regard rats,—so destructive to arrowroot and ground-nut as well —the only means of dealing with then is by poison baits. We learn that "Rough on Rats" has been used with great success in destroying rats on coconut trees in the Veyangoda district.

The "Life Tree of Jamaica" is said to grow for months after uprooting. Does this mean that its leaves do not wither, or that it grows in the sense of putting out a fresh growth of leafy shoots. If the latter, we have seen a cut log of *Ablizzia orodatissima* (Suriya mara) growing most vigorously for months, producing tuft-like leafy shoots. If the former, then we might call our common Plumeria (temple flower) the life-tree of Ceylon, owing to its wonderful tenacity for life, which enables it to keep its leaves green and blossoms fresh even when out of the soil, if left in the shade. Indeed, we have been told (with what truth we do not know) that the temple tree is emblematic of immortality among the Buddhists. Anyhow it is one of the chosen flowers used as offerings in the temples.

Cassia Beareana is the name of a plant reported to have greater medicinal virtues than quinine in curing malarial fever. Mr. Thos. Christy, writing to the "*Ceylon Observer*," says that quinine is being abandoned in favour of the extract from *Cassia Beareana*, supplies of which are said to be carried by those going out to the East and West Coasts of Africa, and Central Africa. We understand that the *Lancet* has written in favour of the drug.

The production of fruits from the roots of the Jak (lately discussed in the local press) is referred to in the article on the Jak tree. In the General Items column will be found a reference to the tendency of the plantain to bear fruit nearer the ground than usual.

In the account of a remarkable tree, reference is made to the extraordinary properties of *Litsea chinensis* in the setting of broken bones. We are informed by Mr. W. A. De. Silva that the same wonderful medicinal (or shall we say surgical) powers are also possessed by another common plant, namely, the Loranthus (Sin. *Pilila*). It would appear that all parts of the tree are taken together and prepared in the form of a "mellun" for application as a poultice for the space of about twenty minutes (and not much longer than that.) Those who employ this medicinal agent are said to be particular as to the host from which the parasitic *Loranthus* is obtained, as the potency of the drug is believed to vary with the host!

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF NOVEMBER, 1902.

1	Saturday	5·43	17	Monday	Nil
2	Sunday	·07	18	Tuesday	·13
3	Monday	·34	19	Wednesday	·82
4	Tuesday	Nil	20	Thursday	·68
5	Wednesday	·05	21	Friday	·10
6	Thursday	3·26	22	Saturday	·11
7	Friday	·22	23	Sunday	Nil
8	Saturday	·17	24	Monday	·22
9	Sunday	·38	25	Tuesday	·02
10	Monday	1·45	26	Wednesday	Nil
11	Tuesday	·28	27	Thursday	·25
12	Wednesday	1·12	28	Friday	Nil
13	Thursday	Nil	29	Saturday	1·50
14	Friday	Nil	30	Sunday	·30
15	Saturday	3·85	1	Monday	·30
16	Sunday	·04			

Total...15·66
Mean...·52

Greatest amount of rainfall registered in 24 hours, on 15 November 1902, 3·85 inches.

Recorded by ALEX. PERERA.

A REMARKABLE TREE.

If all that is said of *Litsea chinensis*, the Sinhalese *Bomi* and Tamil *Ellumpurukki* is correct. this is certainly a very remarkable tree. Trimen in this Flora says no more than that "the wood is used for house-building; bark glutinous, and used medicinally as an external application for bruises, &c."

The following extract from Ferguson's "All about Fibres, Drugs, &c." gives an account of its medicinal properties:—"There is a tree growing in Patchalapalla district, in the Northern Province, the name of which is Elamborekka, literally translated 'bone-setter.' The medicinal properties lie in the bark, and the native doctors are accustomed to apply the pounded drug in the shape of a poultice to a broken limb, for the space of about 20 minutes, or, as they calculate, for the time a pot of rice takes to boil, when it is removed and the limb bound up, in the confident expectation that the several parts will unite without further trouble. Fabulous stories are told, as a matter of course, of the virtues of this remedy, but a case came under my own observation which may as well be stated. A Sinhalese aged about fifty was brought to Mr. Simon Casie Chetty, late Judge of Chilaw, having been picked up on the roadside, where he was left by robbers. They had beaten him with sticks till his arm was smashed from shoulder to wrist, and the Judge was for calling in at once the Sub-Assistant Surgeon, but the man declined the offer with somewhat of scorn. He was, he said, a vederale (doctor) himself, and could get his arm right. Fortunately for him there happened to be a solitary Elamborekka tree in the jail compound, and he had the bark of it applied in the manner above detailed. It seemed impossible that he could escape am-

putation, but two months afterwards he was in the field superintending his labourers with a sound and apparently strong-limb. For the truth of this statement I can vouch, having seen the battered arm, and also seen the man after recovery."

The name of the above authority is not stated, but we may take it for granted that the account is perfectly reliable, seeing that it has been accepted by the Editors.

Dr. Watt, in his Dictionary of Economic Products of India, makes reference to *Litsea chinensis*, stating that the bark, which is feebly balsamic and mucilagenous, is one of the best known and most popular native drugs. In India, besides being employed as a demulcent and mild astringent in diarrhœa and dysenery, it is said to be used fresh ground with water or milk as an emolient and applied to bruises, as well as a styptic for wounds. Further, we are told that it is a local anodyne for venomous bites. (Watt mentions that *L. zeylanica*, our "wild Cinnamon" and the Sinhalese dawulkurundu [is also used for snake bite.) The oil from berries *L. chinensis* is employed in India as an ointment for rheumatism, while in China and Java candles are made from it.

Mr. E. Hoole, of Kandy, is good enough to write to us with reference to this tree:—The tree is found growing in the Peradeniya Botanic Gardens, and the coolies there seem to be aware of its medicinal properties. The bark, which is glutinous, is used as an external application to bruises and fractures—generally after being made into a poultice with the flour of kurakkan (*Eleusine coracana*).

In the list of drugs (with their uses) prepared for the Paris Exhibition, this tree is referred to, and it is stated that the bark is used in dislocations; also in bruises to produce dispersion of extravasated blood.

Dr. O'Shaughnessy, in his Bengal Dispensatory and *Pharmacopœa* (1841) speaks of the bark as a favourite application to bruises and wounds. Here then is a tree the medicinal properties of which are well worthy the attention of local medical men. As a means of studying native treatment we would go the length of advocating the appointment of a recognised "Vederale" as a "Professor of Native Medicine" on the staff of the Medical College! A specimen of *Litsea chinensis* may be seen in the grounds of the late School of Agriculture, Flower Road.

PRICKLY-PEAR AS FOODER FOR CATTLE DURING SCARCITY.

We seem to have overlooked what is a decidedly useful report on the value of Prickly-pear as a "Famine Food" for Cattle. The use of this otherwise pestiferous weed for feeding stock has been the subject of a good deal of discussion in agricultural papers, but a report founded on actual experiment in India gives us all the information we could desire as to the possibilities of the plant as a fodder under tropical conditions.

The Prickly-pear (*Opuntia Dillenii*) is generally known as the "Cactus," and is not so common in the moist as in the dry districts, where it occurs in abundance near the coast. It is called "Katu-pathok" by the Sinhalese, and "Naka-kali" by the Tamils. In the Northern Province, where it is said to be a nuisance, there should be abundant opportunity for repeating, if necessary, the trial of the plant as a fodder in times of drought.

The Director of Land Records and Agriculture, Bombay, referring to the use of Prickly-pear as food for milch cows says:—"The experiment of feeding pampered milch cattle was a failure. Their milking qualities could not be kept up. . . . The animals, however, ate enough of the pears to prove that they could be kept alive on it."

We might, therefore, omit any further reference to its use for feeding milking stock, for indeed it is not for such animals that the question of a famine fodder arises. But the following details given by the Superintendent of Farms, Bombay, are worth carefully reading:—

I have the honour to report that the experiment directed by you to test the value of prickly-pear as a cattle food, has been completed. I am glad to be able to report favourably as to its undoubted value as an *auxiliary* cattle food in famine times.

An experiment was begun on the 19th February at the Poona Farm which did not prove satisfactory. An attempt was made to feed a cow and buffalo, both in milk, on it. These cattle, although not yielding much milk at the time, were previously liberally rationed, and naturally did not take kindly to the change. They had iterally to be starved before either the one or the other would taste the pear. The pear was chopped very fine, mixed with dàl husk, bran, and a little salt. The buffalo took the food first, but only after 30 hours' stinting. Neither the cow nor buffalo ate it greedily. The experiment was continued four days. Meantime, the cow gave milk regularly, but only about one-fourth of her usual quantity. The buffalo got irritable, then savage, and refused to give any milk at all. The cow when allowed her ordinary food soon gave her usual quantity of milk. The buffalo has since given less than her normal yield, and is now nearly dry. However, it is proved that milch cattle in high condition can, by severe stinting be made to eat prickly-pear.

On the 26th February an experiment was begun at the old Botanical Gardens, Ganesh Khind, with three cattle ranging in age from 18 months to 2 years. The condition and feeding of these cattle did not differ from ordinary rayats' stock. They had previously been allowed a fair allowance of hay at night, and were grazed on rather bare pasture during the day. They were all in fair thriving condition. Two were buffalo heifers, the third was a young bull out of a small Deccani cow. Their aggregate weights were 942 lbs. The experiment was continued 32 days.

The implements used, in preparing the pear, were identical with those sold in Bellary at 2 annas per set. The set consists of a rude hoop iron knife, a hoop iron tongs, and a pair of pincers fashioned like a sugar tong. Each limb

of the latter terminates in a spoon. This implement is the most serviceable of the three. The two spoons, when closed over a bunch of prickles, readily remove the bunch along with a small portion of the pulpy part of the leaf. It requires very little practice to get into the kreck of removing the prickles quickly. It is waste of time to attempt to pull the prickles. The best way is to scoop out sufficient of the leaf to remove with it one bunch of prickles at a time. I question whether women, however active, can prepare 125 lbs. in a day (as in the recent Madras experiment) of the pear which grows on the poor land of the Deccan. Three prepared leaves average about one pound in weight. I offered 2 annas per 50 lbs., but there is no great want of other work here, and although several women of the Dàpodi village attempted the work, none would continue it. The thorns stick in their cloths, and until the worker gets expert, the work is disagreeable.

A garden hand at Rs. 8 per month removed the prickles from forty-five lbs. of pear per day, chopped up the prepared leaf fine, and gave it to the three cattle at two meals—the first meal at 7 o'clock in the morning, second at 5 o'clock in the evening—7½ lbs. to each animal each time. A pinch of salt, and during the first part of the experiment, 1½ lbs. of mixed dàl husk and bran was allowed daily to each animal. This was mixed well through the pear. When the pear prepared in this manner was all eaten the cattle were each allowed 4 lbs. of hay, given at about 7 o'clock in the evening. They were kept tied up out of sight of the other cattle. Water was offered in a bucket three times a day. One buffalo took to the food at once. All ate it greedily after two days, and thereafter up to the end of the experiment. During the first four days no hay was given. Afterwards 4 lbs. per day was allowed to each animal. Not a scrap of hay or prepared food was wasted. Everything was eaten up clean. Every second day the cattle were taken out for a little exercise. During the last fortnight they drank a good deal of water owing to the heat of the weather.

The attendant had to walk about a mile to get the pear. He prepared it where it grew, taking from 6 to 7 hours to get the 45 lbs.

During the last week of the experiment the allowance of bran and chuni was discontinued, only a pinch of salt being added to the prepared pear; the cattle still continued to eat it greedily. On the 28th March the cattle were weighed. There was an aggregate increase of 41 lbs., two increasing little in weight, while the third had thriven considerably. I do not attach much importance to the increase in weight, because the cattle were drinking a good deal more water latterly than they did to begin with; but as one intimately acquainted with the appearance of farm stock, I can without any hesitation say that the three animals had the appearance of thriving throughout the experiment.

Regarding the rate at which prickly-pear can be prepared as cattle food, I have made careful experiment, and with leaves weighing 3 to 1 the lb., 1 lb. in 7½ minutes is good practice, and 70 lbs. per day very good work.

During the first few days of the experiment, while the cattle were fed on prickly-pear without hay, it was noticeable that all three animals were inclined to scour. The inference is that prickly-pear alone is a too laxative food.

Two days after the experiment was completed, the same cattle were offered a feed each of prickly-pear at the same time as the evening allowance of hay was given. They ate the pear but preferred the hay.

POULTRY PICKINGS.

(From Various Sources.)

Mr. VanDresser, the well-known poultry expert, is reported to have made a discovery of the greatest interest to the poultry business, namely, how to make hens moult out of season. Shortly explained the process is as follows:—For two weeks the hens are shut up in their pens and fed only one quarter of a full ration. This reduces their flesh. Then they are let out into the sunshine and open air, and fed with a rush on the best possible food, all they can eat, peas, corn, &c., but particularly sunflower seed. This soon loosens up the old feathers, and they drop off so fast as to leave the hens almost bare. Under this heavy feeding the birds soon take on new plumage and the reddening of the comb which gives promise of fruitfulness.

If your fowls or chickens look mopy or are not doing well give them an occassional dose of Epsom salts. This is good for bowel trouble in young chicks, for hens that have had too much grain and not enough green stuff and meat food, and for over-fat hens. A tea spoonfull makes a full dose for two hens, six half-grown chicks, ten chicks from one to two months old, or twenty chicks a week or two old. The best way to give the salts is to dissolve it in the water you mix the soft food with. It cools the blood, soothes the irritated coat of the stomach where the bowel trouble is presented, and gives tone to the system.

Two troublesome intestinal poultry worms are the white worms scientifically known as *Heterakis papillosa* and *inflexa.* This tiny white or creamy creatures chiefly occur in the duodenum in groups of 10 or 15, sometimes forming a plug which blocks up the alimentary canal. Affected birds have usually raveuous appetites and yet keep losing condition. In length the worms vary from ⅓ to ⅔ in. in the case of *H. papillosa* and from 1 to 4 in. in *H. inflexa.* The eggs or embryos are probaby taken in with dirty water but also off the ground. Diseased birds should be isolated and the worms expelled by a dose of thymol, one grain made up in a dough pill and given morning and night. Sometimes 3 grains santonine are used for expelling the worms.

Nothing can completely take the place of meat or milk in feeding poultry. Milk when given liberally, is a good substitute for meat, but no combination of grains or meals will take the place of either. All table scraps, offal, &c., are quickly

converted into a cash bringing commodity in the shape of eggs.

Keep chickens moderately hungry all day, but late in the evening give then all the grain they will eatup clean, and a little more will not hurt, for what they leave at night they will eat next morning for an early breakfast, which will keep them quiet until they are allowed out.

Some recognise the importance of supplying grit to fowls, while others do not know that such a thing is necessary for the fowls' health and profit. Without grit the birds will have poor digestion, and a yard of hens with poor digestion is an unprofitable possession.

EDIBLE CONVOLVULACEAE.

The edible character of many *Convolvulaceae* is noticeable, though they do not constitute a very important item of diet. Among the Ipomoeas we have *I. muricata*, the native Alanga which has very characteristic pseudo-prickles on its twining stem. Alanga is a wholesome vegetable with a pleasant nutty flavour, and when taken very young forms an excellent ingredient in pickles. The vine is a very prolific bearer. We may here mention that the larger fruits of *I. bonanox* (producing the beautiful white moon flower) are also eaten, though to a less extent.

Perhaps we should have first mentioned another Ipomoea as the chief among edible Convolvulaceæ, viz., *I. batatas* (*Batatas edulis*) which is so largely cultivated in all the warmer parts of the globe and used as food for man and horses.

A third Ipomoea is *I. aquatica*, a favourite as a native spinach, and known locally as "kaukun" supposed to be its Malay name.

While in the Ratnapura district we heard of, but did not see, a plant called "Màdu" said to be a good standby fodder, and even eaten boiled by people.

Mr. W. A. de Silva informs us that the leaves probably contain a good deal of starch and have a pleasant taste; and refers us to three species, viz., *I. cymosa* (Maha-madu or Kiri-madu), *I. tridentata* (Hawari-madu), and *I. angustifolia* (Hin-madu). Mr. Silva is good enough to write with reference to this subject: *I. uniflora* (Potupala) is used for curry, and so are *I. chryseides* (Kaha tel-kola) and *I. sepiaria* (Rasa tel-kola). The two latter as their names imply are of an oily or fatty character.

NATURE STUDY LESSONS.

SECOND COURSE IN THE STUDY OF PLANT LIFE.

3. THE LEAVES.

The surface of leaves, above and below, is covered with a very thin skin which, in some cases, can be peeled off, as in American aloe (gonigas). This skin may be looked upon as a waterproof covering, protecting the leaf in the same way as the outer bark protects the stem.

Scattered throughout this outer skin or epidermis are—especially on the underside—numerous minute openings through which gases from the air can pass in and out. The interior of the leaf consists of soft and spongy tissue, in the cells of which certain important changes are brought about. Running through the soft tissue are the veins (best seen when a leaf is held up to the light) forming a sort of ground-work or skeleton. You will sometimes find, lying under a tree, leaves that have been reduced to skeletons by the decay of the softer tissues. The veins themselves are tough, being continuations of the woody tissue of the stem, and serve to carry the liquid food (ascending sap) to the leaves.

In a large class of plants the leaves show a netted arrangement of the veins, which are irregularly spread over the blade. In another large class the veins run parallel to one another. Compare the leaf of the mango or orange with that of the plantain.

You will now be thinking that there must be some important work going on within the leaf, seeing that the liquid food, absorbed through the roots as well as the gases that enter through the leaves, ultimately find their way there. So there is; and, in fact, the leaf is sometimes spoken of as the laboratory (or workshop) of the plant, because it is there that crude plant food is prepared, or brought into a fit condition to serve as nutriment to the plant, just as our food requires to undergo various changes before it can be assimulated. The elements of plant food derived from the soil, and those derived from the atmosphere combine to form compounds c pable of nourishing the plant.

You now know something of the important functions performed by leaves in connection with plant nutrition, but it is also through the agency of leaves that the process of respiration is carried on. Plants, you must know, breathe just in the same way as animals. That is to say, they take up the life-giving oxygen from the air, and give out poisonous carbonic acid gas. This goes on through those minute openings we have already referred to (known as stomata) which may be looked upon as the leaf-mouths of the plant.

You will recollect that, in speaking of the upward flow of the crude sap through the wood tissue of the stem, we made reference to the large quantity of water that passes out of the plant, through the leaves, in the form of vapour. This process, called transpiration, is also carried on through the stomata.

So that the leaves, as you see, have very important functions to perform in connection with nutrition, respiration, and transpiration, about which I shall have more to tell you later.

Many species of leaves serve as human food such as cabbage (gowa) and lettuce (salada), but, besides such well-known vegetables, there are a large number of uncultivated plants, the leaves of which are used in this country, such as *Ærua* (polkudu-pala) and other wild forms of vegetation which come in very handy for village diet.

As instances of medicinal leaves, I may mention the species of Cassia which yield the English drug

called senna, and Herpestis (lunuwila) so well known in native medicine. Examples of dye producing leaves are Indigo (nil-awari) and Memecylon (weli-kaha), which respectively yield blue and yellow dyes.

Tea leaves deserve to be specially mentioned owing to the extensive use of the prepared leaf as a standard beverage.

Oil is got from certain leaves such as those of the Cinnamon tree (kurundu) and Citronella grass (pangiri-mana).

The value of the leaves of many grasses as cattle food needs only to be mentioned to you. Of cultivated fodders we have in Ceylon only two, viz., Mauritius or watergrass (diya-tanakola) and Guinea-grass (rata-tana).

Of leaf fibres you have a very good instance in bowstring hemp (niyanda), while the coconut and palmyrah palm furnish examples of the special uses which leaves are put to in the tropics, such as for thatching, for mats, baskets, fans, brooms, and so on.

There is a peculiar class of plants (in which am sure you will be greatly interested) that have leaves of a special structure with special functions to perform. These are the plants which are able to capture, and, so to speak, devour insects. For the present I just wish to introduce two rather common plants of this class to you. One is the pitcher plant (bandura wel), in which the so-called pitcher is nothing more than a transformed leaf. Get a specimen, examine it carefully, and prove this for yourself. Some people fancy that the fluid in the pitcher is rain water. This is not so, as you will find pitchers with the lids still unopened, containing fluid, which is thus clearly supplied by the plant itself. Look for insects that have been drowned by falling into open pitchers. The lid is not, as some think, part of a trap for capturing, and the insects die through drowning in the irritating fluid into which they fall in their search for food. The peculiar structure of the leaf aids in their destruction.

Another of these plants, found also in damp sandy places, is the Drosera (wattaessa). The structure of the leaf is not so peculiar, but you will find the surface covered with stiffish red hairs which close on insects like so many fingers, and retain a hold on them till they are killed. Look for insects on the leaves of the Drosera. I am sure you will think these leaves very beautiful, with little drops of fluid at the ends of the red hairs, glistening like dew in the sun. Thus it is that the plant gets its name 'Sun-Dew."

DISEASES INCIDENTAL TO PREGNANCY—AND PARTURITION IN THE COW.

[H. M. Crichton, M.R.C.S.V.]

Parturient Eclampsia.

Definition.—An epileptic and convulsive affection, affecting the cerebro-spinal nervous system accompanied by tonic and clonic spasms of the muscles of various regions of the body. It occurs in cows both before and after parturition.

Causes.—Opinions differ in regard to the cause; by some it is supposed to be due to the retention of urinary elements in the blood, by others to hyperæmia of the brain, and by others still to reflex irritation of nervous system, which bring about renal insufficiency and albuminuria, and exposure to cold winds and wet may bring on the disease.

Symptoms.—The cow takes suddenly ill by foaming at the mouth, champing the jaws, full wild staring eyes, excited expression of countenance, head turned to the side, sometimes pulling back on the chain, licking at fore leg, edge of feeding trough, or anywhere convenient; some cows bellow, others don't; twitching of the muscles of body and limbs, sometimes difficulty of respiration, sometimes cow becomes comatose. Most cases occur after calving, those which occur before are generally about mid-term, and in heifers. The attacks after calving generally occur from eight to sixteen days afterwards. The disease occurs in cows of all ages, and generally in cows of lean condition. The reverse to this happens in parturient apoplexy, as it is a fat cow and a good milker that goes down with it. The most of cases do not get off their feet, although I have had them that did, and lay for a night before getting up again. It might be possible to confound this disease with parturient apoplexy, but if we are careful to note the symptoms it should not happen. I will endeavour to point out the essential differences between the symptoms of the one and the other. There are about eight prominent symptoms that we should bear in mind when we are called in to see cases of this description. I will enumerate them as follows:—

Parturient Apoplexy.

It mostly occurs in cows at third calving and afterwards.

It never occurs before calving, and generally within forty-eight hours thereof.

One attack predisposes to another one.

Most common in fat cows.

Patient fails to keep standing.

Rapidly followed by coma.

Earliest period of recovery is generally eight to sixteen hours.

Prognosis generally very unfavourable till Schmidt treatment found out; now more favourable.

Parturient Eclampsia.

Occurs in cows of all ages, but mostly at first and second calving.

Occurs in cows before calving; if after calving hardly ever before the eighth to sixteenth days.

One attack not necessarily succeeded by another at next calving.

Most common in lean cows.

Patient mostly can stand through attack.

The cow only occasionally becomes comatose.

Recovery takes place in a few hours generally.

Prognosis favourable and the treatment successful.

Now, gentlemen, these are the principal features in contrasting these two diseases, and I will now give you the most successful treatment that I

have found for this disease after trying several remedies.

Treatment.—First get the cow made comfortable in a good warm box or byre free from draughts, and as the morbid condition of the nervous system may be brought about by cold winds, wet, or draught, it is necessary to do this most needful part of the treatment. Then if the bowels are correct I give no laxative, but prescribe from ℥iss. to ℥ii. ext. belladonna every three hours as long as necessary; bleeding may be resorted to if the foregoing treatment fails, but this is not usually the case. If kidneys don't act promptly and sufficiently I prescribe ℥ii. spt. ether nit. in a little cold water, or along with the ext. belladonna; give about two quarts of linseed tea every few hours if the animal will have it, and this is usually all that is necessary for the treatment.—*Veterinary Journal.*

(*To be continued.*)

THE JACK (*ARTOCARPUS INTEGRIFOLIA*).

The acting Director of the Royal Botanic Gardens (Mr. J. B. Carruthers, F.L.S.), lately delivered a lecture entitled "The Story of the Jak Tree." The tree known in Sinhalese as *Kos* and in Tamil as *Pila*—was, however, taken to serve as a tropical specimen to illustrate a lesson on plant life. The account we give below is on the other hand a very complete account of the Jak and its uses. It is taken from the *Queensland Agricutural Gazette* and was written by the Manager of the State Nursery, Kamerunga, Cairns. As dealing with one of our commonest trees it should be of local interest, while our readers will find that there is something new in the article :—

The Jackfruit (*Artocarpus integrifolia*, Linn,) is of the same family and the nearest known relative of the famous Breadfruit (*A incsa*). The name *Artocarpus* is derived from two Greek words literally translated, viz., *Artos*, bread; and *Carpos*, fruit, and its second name is purely botanical, *integrifolia* meaning entire leaved to distinguish it from *A. incisa,* the cut or incised leaved Breadfruit.

The Jack fruit, being of a much darker green, and having very much smaller leaves, and often being quite a different shape and size, the similarity of the two trees will often not be commonly apparent.

There are several allied species, as *A. Lakoochia, A. Chaplasha, A. Hirsuta,** about which very little would seem to be known, and which do not appear to have an econcmic value proportionate to the two species mentioned. The Jack is a native of East India and the South Seas, inhabiting countries with a hot and moist climate, and is essentially a tropical tree. It will not generally thrive in a locality subject to strong winds, as it is somewhat brittle, and will not stand severe frost, though much hardier in this respect than the Breadfruit.

*And in Ceylon *A. nobilis* which gives us a useful timber, and the seeds of which are roasted and eaten.—ED. *A.M.*

It is an umbrageous or thick foliaged tree and an evergreen. One tree exists in this Nursery which is thriving particularly well, having readily adapted itself to the climatic conditions obtaining here. An illustration accompanies this article. The tree shown is about ten years old, and 35 to 40 feeet in height; it has been in bearing four years or so. During the last season it bore a heavy crop of fifty or sixty fruit, averaging in weight from 5 to 10 or 12 lb.

I have observed a few trees here and there in North Queensland, mostly in old gardens where presumably it was grown more as a curiosity than for use; in any case very little advantage would seem to be taken of its useful properties. Several varieties of the tree exist, and some were probably introduced into Queensland at one time, though I have not yet met with more than one variety, which is by no means the best. The better varieties are known as the "Honey Jack" in India and Java, from the sweet syrup that is to be found within the pulp round the seed, and the "Root-bearing Jack," which produces its fruit entirely or partially underground. This latter is a specially fine fruit, and much valued in the Orient. Some writers seem to be of opinion that old trees of the ordinary or "Honey Jack" variety will bear fruit upon their roots in this way, but this is not authenticated. The root-cropping tree is generally considered a separate variety, and though I have seen, sown and cultivated thousands of these trees, have never yet seen an ordinary Jack that will do this from mere age. This root-bearing may, however, be brought about by artifical treatment occasionallly, which methods I will describe later.

Another variety of the species is the "Wild Jack," which is a much larger tree than the cultivated or sweet one. The fruit is smaller, and though sweet, not so pleasant; the tree itself, however, is more spreading, contains more timber, and as a fodder tree is the more useful of the two.

The fruit of the Jack tree is oval or oblong, is muricated on the rind, and of a bright green colour, turning slightly darker or duller when approaching ripeness, but never becoming quite yellow. When opened it is white inside; the inner pulp or edible parts are separately attached to the centre core, and surrounded by or packed in viscid fibres. Each piece of pulp is about the size of an egg plum, pale yellow in colour, and contains one seed.

The tree, like the cocoa, bears its fruit upon the stem and thicker branches. The fruit has a somewhat strong scent, which is intensified if allowed to become over-ripe. The smell is disliked by some, but on becoming accustomed to it or on tasting the fruit, it ceases to be offensive or even noticeable.

The tree is very prolific, and the fruit often attains tremendous size and weight—fruit of 80 lb. have occasionally been met with. In Southern India I have obtained fifty to seventy fruit from one tree, and myself cut a specimen weighing 70 lb.

In Queensland, however, I have not met with any large specimens—the average would seem to be from 5 to 10 lb., although one fruit of 23 lb. is on record.

The tree comes into bearing here in three to four years, and while large fruit will contain as many as 200 seeds, ten to twelve seeds per fruit is more common. The croping season is also very short in this State, usually lasting less than two months between January and March.

The fruit is distinctly palatable and is wholesome and nutritious. The smell, however, is apt to prejudice one against it on tasting it for the first time, and if, in ignorance, an over-ripe fruit is opened, not only is the smell intensified and rendered disagreeable, but the fruit is not so nice flavoured, for, like the Durian, to which it is sometimes likened, it must be taken at the right degree of ripeness to be appreciated.

If these over-ripe fruit are removed or buried, the smell is really no stronger than that of the mango, and not as disagreeable. To judge a ripe Jackfruit, however, needs a little practice, for one cannot judge by colour. The usual method is to tap the fruit or flip it with the finger, when the hollowness of the sound denotes the degree of ripeness.

The white milky juice, which is very sticky, renders an unripe fruit uneatable, and in an over-ripe one, the stringyness as well as strong smell makes it equally unpalatable. An ideal fruit should have the pulp firm but neither soft nor hard, and a pale yellow colour, when it will be found sweet and of a most agreeable flavour.

In its native countries the fruit is considered a delicacy; natives will pay 1s. to 1s. 4d. each for them, and Europeans become exceedingly fond of them. The pulp may also be cooked in various ways; I have had it boiled in milk, cooked in custards, fried in butter, and preserved in honey. In the latter form it is an excellent dessert. Bernays, in his "Cultural Industries," gives a receipt for boiling in milk, from which, however, the pulp would subsequently seem to be strained off.

In opening a fruit, the rind, which is about half-an-inch thick, should be cut through and the fruit then broken open. The pulp sacs containing the seed may then be picked out from the surrounding fibres. These should at once be cut open, the seed taken out, and put into a basin of water. The addition of a very little salt to the water improves them, and, it is said, eliminates what little smell may remain. If strained and served up promptly with icing sugar sifted over, they are not only palatable but excellent eating and quite odourless.

However, although it cannot be said that in this case "all love Jack," still all concur in attesting to the excellence of the nuts when roasted. These may be roasted like English chestnuts, which they much resemble, or boiled and used in curries or stews. After being boiled they are sometimes dried and ground, and cakes and nutritious farinaceous foods made from the flour.

(To be Concluded.)

GENERAL ITEMS.

The Station, Farm and Dairy referring to the value of manures and the conservatism of some cultivators who are prejudiced against them, says:—If Agriculturists continue to refuse the teaching of their fellowman, the least they should do is to give up farming, for unquestionably such men do not deserve the name of agriculturists, and by keeping to it they merely drag the name in the mud.

The same paper referring to Sunflower cultivation in Russia, says:—The industry which is stated to be very remunerative is rapidly increasing in proportions, and promises to still further develope before long. It is claimed that the sale of the oil-cake produced, in itself more than covers all the working expenditure of the mills. The stalks of the plant are used as fuel for driving the machinery, and the ash that remains gives from 25 to 30 per cent of potash. Briefly speaking, it would appear that the sunflower seed, when properly crushed, gives 23 per cent oil, 40 per cent cake, and 37 per cent stalk.

"Sunlight Oil Cake," advertised as the best food for stock and poultry, is nothing more than "Coconut poonac," the residual cake after the express from copra of the oil used in the manufacture of sunlight soap. The wonder is that there is no local firm manufacturing soap. Messrs. Freudenberg & Co. did a business in coconut oil soap some years ago, but we believe they have given up the manufacture now.

Have any of our readers come across plantain trees bearing bunches of fruit about a yard from the ground? This is said to be as common in lower Bengal, especially in the variety known as "Beejee-kela."

The German Emperor has determined to help the agriculture of his own country by opening a new career for the potato. With this object he is doing all he can to extend the use of potato alcohol as fuel. He has already induced a number of firms, including that of Herr Krupp, to adopt potato alcohol for their motors.

To keep fruit trees clean of pests a correspondent to the *Queensland Agricultural Journal* recommends the following treatment:—"The soil about the roots of the trees was removed as far as the roots went, so that they were laid bare. Woodhouses dry and well preserved were strewn over the exposed roots and kerosine spinkled over afterwards. The soil was then returned to its place. The trunks were tarred to the height of one foot, and beyond that washed with kerosine and warm water. At the same time the upper trunk and the limbs as far as convenient were whitewashed. All this need only be done when the trees have started budding." With a few valuable fruit trees this may be possible, and will be compensated for the fine yield of good fruit; but for large areas some modification of the above elaborate plan would have to be adopted, and may still be found beneficial.

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JOTTINGS FROM A PLANTER'S NOTE BOOK.*

A TEA planter without a pocket notebook would almost cease to be a planter, so consistent is the practice of carrying one. Verily, was the man who invented them sensible, for many interesting items find space therein which would otherwise escape from a fleeting memory.

After a few years' absence from the country one of the most striking features noticeable is the damage done by WASH, more especially in the older and steeper districts. Though the harm done so far has scarcely been felt, I feel the gravity of it is worthy of more consideration than is given it. On every hand one sees the roots of grevilleas and tea exposed in a way that ought to cause alarm. The feeding roots of the bush are often to be seen, whereas they ought to be hidden just under the surface soil. This is not due to the growth of the trees, because the general tendency of roots is to keep under the soil. Then again we see the wash instanced on what were once good smooth roads. The earth around stones has been gradually carried away and roots have become exposed which are now traps for unwary pedestrians. As each year goes by more earth is swept away, so little that residents scarcely notice it and pay no heed. But this in the sum of years amounts to a very great deal, for it is in this manner that the physical features of a country are changed, through the slow process of countless years which are unnumbered by eternity.

The working expenses and profits of most tea estates will not admit of TERRACING, which was resorted to in the old coffee days. Something might be done in the way of coppicing with *mana* grass, but this is not always feasible. Trees have been very generally planted through the tea, not so much with the idea of preventing wash, but they do so to no small extent. For this purpose grevilleas appear to be the most suitable, when other important matters, such as nutrition taken out of the soil, are considered. They provide a more plentiful, but not so fine a litter as *toonas* or *albizzias*.

In clearing out drains a little help can be given by throwing the silt upwards into the tea, instead of downwards as the general custom is. I feel safe in prognosticating that in a decade or two the question will become very acute in some places. Capital will be required that the difficulty may be met by re-planting—as is found necessary in most tea countries, or by terracing or other expensive methods that may be advanced for alleviating the situation. Where new land is available the point will arise, whether it is not better to open it up and to abandon the old.

On many estates too little attention is given to PRUNING and there is a general tendency to reduce the cost below a figure at which good pruning can be done. In fruit-growing countries the importance of this item is fully realized, it having been found that if the work is not well done, the trees cease to fruit proportionately. It is the same with tea. Where knots and old unproductive branches are not taken out of the bush, the sap has not a free course and is hindered if not stayed. This inevitably results in a smaller yield than would have otherwise been obtained. Non-paying estates would do well not to reduce the cost of pruning indiscriminately, for it stands to reason that if crop cannot be secured, profits will be all the more hardly obtained.

MANURING seems to me to be being carried too far. In a few years the present forcing manures will cease to affect tea as they do now and still more invigorating stimulants will be required. When these are no longer forthcoming a reaction must set in and a serious crisis will arrive on all highly manured properties. Then will come the turn of those, who, without injuring the industry by inordinate yields, apply a mild manure and are content with reasonable results It will probably be futile to sound a word of warning to the owners of estates of medium elevation as well as to those who are extensively planting up the low country with rubber. Still it is well to draw their attention to the fact that rubber will be obtainable, as soon as it is

* Specially written for the *Tropical Agriculturist.*

available in Ceylon, in enormous quantities from Burma. The Straits, Borneo, the vast regions of the Congo and the, as yet, unexplored basins of huge Amazonian tributaries to which the rubber tree will undoubtedly be found endemic. They will probably prefer to believe the pessimistic rumours that the present supplies are nearly exhausted in S. America and that the demand for the commodity must ever be insatiable.

VANILLA is an article which should not be dealt in extensively. There must always necessarily be but a small demand, so that if it were largely planted up, it would very soon share the same fate as cinchona. Planters who take interest in new products might do well in an attempt to naturalize trees producing cork and paper. If they were found suitable to the country, our cheapness of labor should make them very profitable products. An interesting experiment would be for planters at different elevations to ascertain the length of time taken by a tea shoot to develop according to the Fish, Half and Full leaf systems of packing and to compare results. I should be happy to give a basis to work on and data.

It may be useful to mention here that at a medium elevation PARA RUBBER seeds take about 20 days from the time of planting, to appear above ground.

Also, that it is ill-advised to grow vanilla vines on grevilleas as the suckers cling to the bark, which cracks and splits them. In Tahiti they are grown very successfully on guava trees, which growing wild, are very handy for the purpose.

A. T. FARMER.

VANILLA CULTIVATION.

The following are the remainder of Mr. Galbraith's miscellaneous notes on Vanilla cultivation in the Seychelles, and are in continuation of those given on page 375 :—

SUN CURING.

During early crop gathering, before ripe pods are numerous enough to make it worth while using the hot room they are cured under blankets in the sun, but have to be taken in at the hottest part of the day if sunshine is continuous. This used to be the sole method of curing here and when used now gives excellent results in favourable weather; but dependence upon the sun is risky, and upon the whole the process is cumbersome and costly. Hand trays that can be piled up on top of each other and carried between two men, are used to spread the blankets on, a fold being below as well as above the pods, and these are supported on low double rails to keep them clear of the ground. In unsettled weather showers have to be watched for, and the trays carried under shelter till the weather again becomes fair.

If there is a pinch for space in the curing house, pods in the hot room may be spread two or three or more deep on the shelves and tumbled up daily, that is such of them as are not taken off and re-sorted.

MULCHING AND SHADE.

In mulching vanilla roots, and especially at crop time, the plants are much more benefited if the mulch be of two sorts, well-rotted leaf mould being put on first for immediate action, and above it a layer of withered fern or the like, which decays more slowly. When heavy top dressings of quick-decaying manure, grass, etc , have rotted down, they get beaten away by rain, the net-work of roots becomes exposed, and may with advantage be lightly covered with a thin sprinkling of good soil. Obviously it is better to apply this before the roots become bare or visible. The vanilla roots delight in twisting among stones, large and small, and flattening against their lower surface when not embedded in the soil. When these are of a convenient size and handy in a plantation, the root circuit allowed to each vine may be ringed with them. Vanilla may be grown on trees of thick foliage if there are of a sort that will stand being well pruned annually. Wild cinnamon, which gives dense shade, is sometimes used for this purpose, the branches being nearly all cut off each year about pod-ripening time, which also lets the sun get at the vines for flowering. The contrast between the former somewhat dense shade, which has grown since last branch trimming, and the strong light let in by the pruning seems to help toward blossoming.

Under large, high trees, wide apart, where to plant vines on other small-growing wood between them would make the shade too close, vanilla may be fixed on tripods of durable wood, the three stakes being tied with wire crosswise some little way from their top ends, so as to furnish forks over which the vine creepers may climb. High up in the hills here the plants may be grown in this way without any shade at all, but the plan is only suitable for level grounds or moderate slopes.

SUMMARY.

The foregoing account of vanilla cultivation, being the outcome of experience gained in the Seychelles alone, and there chiefly in the hills, may need many modifications to adapt it to different circumstances pertaining to other lands, and, indeed, possibly may be of little use for such. For instance, in a drier climate irrigation might be needful, and it would not be necessary with a reliable, sufficient annual dry period to prepare vines for flowering by checking their sap flow in certain branches, as it is in this colony. This is not found necessary in certain districts where the rainfall is not such as to keep plants growing continuously, for they stop growing of themselves and come into flower without coaxing.

Again, under less favourable growing conditions the vines would need more nutriment and attention to stimulate growth.

These and similar considerations which will suggest themselves to the reader may serve to save a brief summary from appearing too dogmatic.

The following conditions of climate, method of growing, etc., appear to the writer to be most favourable to the successful cultivation and handling of the vanilla crop.

Climate.—With shade temperature ranging about 80° F., never much above or below it, and a humid, still atmosphere; a rainfall of 80 to 100 inches or more, evenly distributed through ten months in the year, the remaining two months being dry, with occasional short and very light showers—the ten wet months for continous luxuriant growth, the two dry ones to check it and bring vines into flower.

Soil.—A skin of rich vegetable mould resting on a porous substratum. Failing that, with the above climate, vanilla should do well on any soil if the roots are kept covered with decaying vegetation.

Situation.—Moderate slopes.

Shades.—Small-leafed trees to let checkered sunlight through.

Plants.—Cuttings 10 to 12 feet long of growing shoots, which should not cease growing if planted after the dry season, but go straight on and flower fully in two years.

Planting.—Either in line on posts and bars, or on shrubs of suitable size and leafage, at the risk of whole sale destruction from disease; or plants well kept apart, each on its own support, so that any vine showing signs of sickness may be removed before infecting its neighbours.

Culture.—Plantations to be gone through bi-monthly shoots on the ground looped up ; climbing branches brought down; decayed leaves, etc., laid on roots for manure, when needed. Preparations for flowering according to climate

Cropping.—Flowers to be pollinated in forenoon, preferably such as will hang clear and grow straight pods, quantity regulated according to mass and vigour

of each vine, but not such as to hinder the start of new growth for more than two or three months Pods should be gathered every other day.

Curing.—The slower, the better, beginning in a heated room at about 113° F. for some days, then in a cooler one, 90° to 100° F., finishing at ordinary temperature; humidity of air kept down if need be by charcoal braizers.

Marketing.—Qualities and lengths kept distinct, made up in packets of 50 pods, and neatly packed in tins holding about 12 pounds each,

Labour.—Cheapness and intelligence are of the greatest importance in vanilla production. The cultivator must himself have his eyes everywhere; the best of labour known here deteriorates quickly if left by itself.—*West Indies Agricultural News.*

CEYLON TEA IN AMERICA.

IMPORTANT ALLEGATION REGARDING RE-COLOURED CEYLON TEAS.

(By T. Gossupp, of New York.)

It may be of interest to many of the planters of India and Ceylon to know a certain amount of actual facts about the American tea trade without being puzzled by a lot of figures.

In the first place, Ceylon teas are coming rapidly into favour here, and without doubt Ceylon green teas are slowly replacing Japan teas. Unfortunately, however, the Ceylon green teas are offering at rather higher prices than the buyers of sun-dried Japan are accustomed to pay, except for Japan sun-dried teas of rea ly fine liquors.

Your writers may not be aware that there are three classes of Japan teas sold here, the "sun-dried" being similar to our uncoloured Ceylon greens but of much better make, having a darker colour and of rather more delicate flavour in the cup. Then there is the "pan-fired" Japan which is similar to a coloured Ceylon green, but the basket-fired Japan, to my mind as a tea expert. is far superior to anything I have seen with the exception of perhaps one invoice of Ceylon greens which came, I believe, from Bloomfield estate, but which was only a very small parcel.

I advocated some time ago that the Ceylon planters, in order to cope with the over-production of tea (from which they have been suffering) should endeavour to make an "Oolong" tea similar in flavour and style to the Formosa Oolongs which are in general use here. It would be very easy for any of your planters to write to Formosa or to Japan and get samples from these two countries in order that they may see from an actual sample the kind of tea which is wanted in America. The price of Oolongs to-day is 10d. per lb. c-i-f. N. Y.

To take the United States first, it is necessary to remember that it is about 73 times as large as Great Britain and has a population of 76,000,000 people as against Great Britain's 40,000,000, so that you see if we can once induce the Americans to become tea-drinkers on the same scale as the British people generally, or even. say, they take three lbs. of tea per head, in a very few years to come we shall have no fear of over-production as America alone will be able to take nearly all the output of Indian and Ceylon. It is, therefore, a field we have to consider and during the last few months (when Japan teas have been very high), we had a chance of getting Ceylon green teas into favour, but the price held out for by the planter or merchant in Colombo, has prevented them from being more readily taken.

The grades wanted here are Hyson No. 1 and Hyson No. 2, and for these people are willing to pay from 6½d. to 7d. for the Hyson No. 1, and about 5¼ to 6d. for the Hyson No. 2. The Young Hyson grade is generally coloured in New York, which can be done for ½d., per lb. and it is then sold as China green tea,

A great many of the Ceylon greens sold in the States are coloured, repacked, and either sold as coloured Japans or as China green teas, being packed in China packages and faced with the usual paper, *exactly*, to represent them as or China Japan teas.

With regard to Canada: this country is different, as there is a large population who have now become accustomed to Ceylon uncoloured greens, and the loyalty that exists in Canada prompts the consumer to support British tea in preference to Japan tea. Here again the question of price comes in, and the only way that Ceylon greens can oust China and Japan is by selling them at reasonable prices, as the grocer will always push the teas that show him the largest profit,

The labour in Ceylon and India is cheaper than in Japan, so one would think that the planters would have a great deal in their favour. The duty of 10 cents per lb, which was a war tax, is to be repealed on the 1st January, 1903, and it is anticipated that a much larger trade will be done,

Some of the favourite grades here are the Norwood, Labukellie, Condegalla, Meeriabeddie, Warwick, and similar liquoring teas so this will guide many of the planters (who are in these districts where this class of tea can be made), to get samples and follow them very carefully and closely, as there is regular demand for the light liquoring, flavoury. good quality (so called lemon-flavoured) Ceylon teas.

If a few of the estates shipping desirable and suitable teas for the American market were to create a demand here by shipping direct they would find that in a very short time the venture, would pay as the writer has seen tea sold here 2d. and 3d. per lb. above the price that they sold for in the London auction.

There are other matters I could write about in connection with the tea planters of Ceylon and India, the tea cess, the packages that are required for this market, the question of shipment, and several other matters which I will touch upon in my next letter.—Local "Times."

JOURNEY TO A RUBBER PLANTATION ON THE ISTHMUS OF COLUMBIA.

By C. O. WEBER, Ph. D.*

(*Concluded from page 371.*)

THE LATEX I have already stated that the latex obtained from Castilloa elastica at Las Cascadas does not flow like milk, but issues from the cuts in the form of a thick cream containing a very high percentage of india-rubber. This is certainly curious in view of the fact that the same tree in other districts produces a fairly thin milk although I have been told that the Castilloa trees in certain districts of Guatemala and Venezuela exhibit the same peculiarity. I have not been able to discover any reason for this difference. It cannot be due to a difference of species, nor to the elevation at which the trees are growing, nor to the temperature limits of the respective districts, as in other districts, at both higher and lower elevations, and higher and lower temperature limits, *e.g.*, Mexico on the one part, and Ecuador on the other, the Castilloa trees produce a perfectly fluid latex. It is not impossible that the condition of the soil, and the annual rainfall may have some influence upon this point, but in the absence of any positive proof I prefer to leave this matter for the present undecided

The latex of castilloa at the moment of issuing from the cuts forms an almost pure white, thick creamy mass, which, however, almost immediately begins to discolour, assuming at first a pale drab colouration, which, in the course of a very short

* From the *India Rubber and Gutta-Percha Trades' Journal*, Sept. 29, 1902.

time darkens into a brownish black. This phenomenon, which is at least one of the causes of the very bad colour of all the Central American rubbers of the present day, in fact, of all the rubbers obtained from Castilloa elastica, I found to be due to the presence in the latex of an oxidising ferment (oxydase and it is, therefore obvious that in attempting to) produce a high-class, pure rubber from Castilloa latex the presence of this ferment has to be taken into consideration.

The taste of the Castilloa latex is intensely bitter. This appears to be due to the presence in it of a substance of the class of bodies chemically described as glucosides. It is this same body which is the cause of the intense dark green colouration produced by the addition to the latex, or better to its aqueous vehicle, of a few drops of a solution of ferric chloride. I presume that this reaction has been observed before, and led the observers to the altogether erroneous assumption that the Castilloa latex contains tannic acid, which latter as is well known, produces much the same colouration with ferric-chloride. As a matter of fact, there is not the slightest trace of taunic acid to be found in this latex, and I doubt whether it occurs in the latex of any other rubber tree. It is really only necessary to state that the latex of Castilloa elastica, beside the bodies already named, contains a very large proportion of albumen, and to remind the reader that albumen may be quantitatively precipitated with tannic acid, in order to prove that the presence of tannic acid in the latex is an impossibility. Indeed, on adding to a solution of the aqueous vehicle of the the latex of Castilloa a few drops of a dilute solution of tannic acid, a most copious precipitate of albumen tannate is at once obtained. Considering that all the different specimens of rubber latex I have so far as an opportunity of examining contain albumen in varying quantities, though none as much as the latex of Castilloa elastica, is at the same time sufficient proof of the absence of tannic acid in every case.

A quantitative determination of the amount of albumen and albuminous matters in general in the latex yielded the rather surprising result that there is as much as 11 per cent. of these bodies present. This, I believe, is the cause of the extreme ease with which the latex of Castilloa elastica can be coagulated. I am quite aware that this has been attributed to the comparatively large size of the rubber globules in the Castilloa latex, but for reasons, based upon evidence, I shall produce in another paper on this important suject, I believe this assumption to be erroneous.

In my communication I showed that the latex of an 11 year old Castilloa tree contains 31 per cent. of pure rubber, and it will, therefore, be seen from the above statement regarding the amount of albuminous matter) in the latex that if we coagulate the latter without first removing from it this albuminous matter we obtain a rubber containing over 25 per cent. of albuminous matter. The native rubber collectors prepare the rubber from the latex in such a way that at least part of the aqueous vehicle of the latex is drained away before coagulation takes place, and consequently we never find a Central American rubber (crude) which contains as much as the above stated quantity (25 per cent. of albuminous matter), but lots containing from 9 to 13 per cent. are quite common. It is, indeed, the presence of such a large amount of albuminous matter in the Central American and some other Castilloa rubbers which is largely responsible for their frequently reaching American and European ports in a state of pronounced putrid fermentation, of the atrocious smell they emit on washing, and of their often very unsatisfactory behaviour in the process of vulcanisation. When such rubber in a state of advanced putrid fermentation is subjected to the washing process a very considerable proportion of the coagulated albuminous matter, rendered soluble by the fermentation, is removed, but the rubber, although not taking itself an active part in this fermentation, is, nevertheless, found to have suffered more or less severely from it, to possess little strength, and, after vulcanisation, only very moderate distensibility (elasticity). If, on the other hand, the rubber reaches the factory in fair condition, it contains practically the whole of the albuminous matter in an insoluble condition and so intimately intermixed with the rubber that the washing altogether fails to remove more than a mere trace of it. We obtain than a washed rubber, which contains a very large proportion of albuminous matter, the presence of which in the washed and dried rubber is scarcely noticeable, but which is the cause of such rubber forming invariably a peculiarly "short" and none-resilient vulcanisation product. It will thus be seen that whatever happens to such rubber during transit it is always a very inferior product from what it might be if the albuminous matter were kept out of it. In fact, I scarcely think I want any further justification for the statement that the Castilloa rubber of the present day owing to the above discussed defect, occupies a much lower position than it would hold considering the intrinsic quality of the pure rubber it contains. I am, indeed, of the opinion that properly prepared Castilloa rubber is superior to most of the present day Para grades.

Incidentally I may remark here that the presence of substantial quantities of albuminous matter not only in Castilloa rubber, but also in some other (African) brands, and the odour they produce owing to fermentation has given rise to the now almost ineradicable nursery tale that in certain districts the rubber is coagulated by means of one of the by-products in the economy of the human body, the use of which would be far more commendable on account of its inexpensive character than for its attractiveness. This fable has never been substantiated, and I believe that its origin is simply to to be found in the offensive urinal smell developed on the fermentation of the albuminous matter in crude rubber.

The methods followed by the native collectors for the coagulation of the Castilloa latex vary considerably:

1. The latex is washed with water, but just as often this is neglected, and then treated with a decoction of the crushed stem of the moon-plant, Calonyction speciosum. This, according to Dr. Morris, is the process practised in British Honduras.

2. The latex is treated with the juice expressed from Ipomœa bona nox which is stated to be highly alkaline. (?)

3. The latex is collected in shallow holes dug in the ground and mixed with a boiling solution of soap in water. This process is extensively practised in the Isthmus of Panama.

5. The latex is treated with a solution of alum.

These various methods call for the following remarks:—All of them effect the so-called coagulation by adding to the latex substances—acids, or alkalies —capable of coagulating the albumen. In other words there is no such thing as the coagulation of the *indiarubber itself*. What takes place is that through the addition to the latex of either an acid, or faintly alkaline solution the albumen, of which I have shown there is such a large amount in the Castilloa latex, is coagulated and carries down with it the rubber globules suspended in the latex. If the latex is entirely freed from all albuminous matter by a carefully conducted series of washings it may still be diluted with water, and then forms a liquid milky liquid of a somewhat lighter colour than the original latex, but otherwise indistinguishable from it. But if we now try to coagulate this albumin-free liquid with any of the above named coagulants we find that the rubber remains quite uneffected, no coagulation taking place. Therefore, whenever we coagulate the rubber, we can only do

so by coagulating it in conjunction with the albumen present, and we have at once a product possessing all the irremediable drawbacks which above we discussed at some length.

On the plantation at Las Cascadas, Calonyction speciosum is very common, and I ascertained that decoctions prepared from it have a strongly acid reaction. Therefore, coagulation with such a decoction is simply the wellknown coagulation of solutions of albumen with acids. I have not been able to discover at Las Cascadas Ipomoea bona nox, but I very much doubt the highly alkaline character of its juice which it is almost certain to possess likewise a distinctly acid reaction. The treatment with alum, a process due to H. A. Strauss, and purchased from him by the local government of the province of Pernambuco, owes its coagulating action entirely to the strongly acid reaction of that salt. This process is a bad one from every point of view. The removal of the alum solution from the coagulated rubber is physical impossibility, and the pernicious action of an alum solution upon the drying rubber is quite sufficient to render its continued employment most deplorable. The coagulation with soap as practised in the Isthmus of Panama is barbarous in the extreme, and it is not surprising that it yields a product of very bad quality indeed.

Amongst the above-named processes I have not enumerated a process said to be practised in Mexico, and simply consisting in the boiling of the latex in earthen vessels (jacaras). If this process is actually used, it can certainly not be carried out with the fresh latex for the simple reason that over and over again have I satisfied myself that even on very prolonged boiling of the slightly diluted latex furnished by the tree at Las Cascadas no coagulation can be obtained. The cause of this is to be found in the fact that the aqueous vehicle of this latex, although it certainly contains a large amount of albuminous matter when rapidly separated from the latex immediately after this has been obtained, is of a very light olive green colour and even on very prolonged boiling does not coagulate, nor even become turbid. On standing exposed to the air this aqueous vehicle very rapidly assumes a darker colour, and eventually forms an almost inky liquid. This, on boiling, undergoes immediate coagulation, and a most copious deposit of insoluble albumen is obtained. In entire agreement with this observation is the fact that if the Castilloa latex be allowed to stand for sometime until it has assumed a very dark colour it will now be found that on short boiling rapid and complete coagulation takes place. I have not yet succeeded in ascertaining the cause of this curious phenomenon, but it is obvious that unless the Castilloa latex obtained in Mexico differs very considerably from the latex yielded by the same trees in the Isthmus coagulation by boiling in Mexico, must be preceded by an ageing of the latex as otherwise no coagulation would take place.

It is not very easy to see that the chief point in attempting to prepare a pure rubber from the latex of Castilloa elastica, and as a matter of fact, from the latex of any other rubber tree, must consist in the elimination from the rubber, prior to its "agglutination," of all albuminous matter, The first step in this direction is the diluting of the crude latex with water, of which at least five times the volume of the latex treated should be used. In the case of the thick, curdy latex yielded by the trees at Las Cascadas it is preferable to use actually boiling water, but in how far this applies to the latex obtained in other districts or from different trees is a matter for experiment. Boiling water at once converts this latex into a thin, very fluid milk which through a common cotton gauze is strained in order to remove from it any insoluble impurites such as earth, wood, bark, and the like. This milk is best strained into thoroughly well-washed petroleum barrels. As soon as the barrel is completely filled, about 8 ozs. of formaldehyde are added, the whole well stirred, and allowed to stand for 24 hours. The action of the formaldehyde appears to be twofold. In the first instance, it effectually prevents any tendency of the albumen to coagulate in the hot solution, and thereby to cause mischief. But, as comparative experiments showed beyond any doubt, it also has a most distinct effect upon the india-rubber, which collects on the top of the washwater in the form of a snow-white cake of rubber of such strength and toughness that it can in one mass be lifted out from the barrel, On cutting this cake open, it will be found that it is rather spongy, being full of little holes which are still filled with some of the albuminous, though very dilute, mother liquor. If, therefore, the rubber were dried in this state it is obvious that it would still contain a small quantity of the objectionable albuminous matter. For this reason the rubber contained should at once be taken, cut into strips, and subjected to a thorough washing upon an ordinary rubber washing machine. As all albuminous matter present is still in a state of perfect solubility there is no difficulty whatever of completely removing every trace of it by carrying out the washing with a plentiful supply of water on the washing rollers.

The ruber thus obtained is a product of a degree of purity in which no rubber, not even the finest brands of Para, has ever been offered to the manufacturer. It is absolutely free from solid impurities of any description, it contains no trace of either solube or insoluble organic or inorganic impurities. Of course it contains a small amount of resinous matter combined with only a trace of the constituents known as "ash." The amount of these resinous matters is extremely small, and they are of an entirely innocuous nature, so that any attempts to remove them, which would call for a somewhat energetic chemical treatment, would be altogether out of place. In a further communication I intend to give the analytical data of this pure Castilloa rubber.

When dry, the condition in which the owners of the Las Cascadas, plantations intend to ship this rubber, it forms a product which requires no preparatory operation on the part of the rubber manufacturer, but which may at once be taken into operation for the manufacture of rubber goods of every description. Nor need any fear be entertained that rubber of this description is in the least liable to suffer such detrimental changes during transit in the ships' holds, which are at present so common owing to the "heating" (fermentation) of the rubber during transit. Indeed, a considerable lot of this which was purposely packed and shipped in the excessively wet condition in which it came off the rubber washer, had not undergone the least change, still less any deterioration on reaching this country.

An analysis of a sample taken of one of these dry sheets of rubber gave the following results:—

Resinous Matter	2·61 p.c.
Ash	0·44 p.c.
Nitrogenous Constituents ..	Nil.
Insoluble Constituents	Nil.

The sheets themselves are extremely light in colour, semi-transparent, and when dissolved in the usual rubber solvents form almost glass clear solutions. The characteristic rubber smell is almost entirely lacking, certainly much less noticeable than in even the finest Para rubber. The strength of these sheets is distinctly superior to that of washed and dried sheets of Para rubber. How this Castilloa rubber after vulcanisation compares with Para rubber, and how in general it behaves in the vulcanising process as compared with Castilloa rubber in its present day crude and impure form, I have not been able yet to ascertain. This work is, however, in progress, and in due course I will report the results obtained.

The amount of resin in Castilloa rubber shown above is absolutely unobjectionable, and does not in the least affect the quality of the rubber. I am quite aware that now and then all sorts of sinister actions are ascribed to the presence of resins in india-rubber, but there is not the least particle of evidence to show that they are intrinsically detrimental. As a matter of fact, in the manufacture of quite a number of rubber goods resins are deliberately added to the mixings.

It is highly interesting to observe that the amount of resin increases in the trees from the root upwards, as the following table will show :—

RESINS IN RUBBER DRAWN FROM

	Per cent.
Trunk	2 61
Largest branches	3·77
Medium „	4·88
Young „	5·86
Leaves „	7·50

A similar increase is observed the younger the trees from which the rubber is drawn :—

RESINS IN RUBBER FROM TREES.

	Per cent.
2 years old	42·33
3 „	35·02
4 „	26·47
5 „	18·18
7 „	11·59
8 „	7·21

It will therefore be seen that my advice not to tap the treess until they are at least 8 years old is not only justified in the interest of the life and development of the trees, but also in the amount of resin which may safely be admitted in rubber of high quality.

There are very few such observations on the amount of resin in rubber trees at different periods of their life, and in different parts of the tree, but it can scarcely be doubted that other kinds of rubber trees will exhibit similar conditions, although the amount of resin accompanying the rubber in different trees appears to vary not inconsiderable. But they never are entirely absent, and I am inclined to think that the usual view of them as oxidation products of the india-rubber is altogether erroneous.

PURITY.—As far as can at the present moment be seen, the fact is amply demonstrated that it is possible to prepare from the latex of Castilloa elastica a rubber which for purity is absolutely without a rival, and the physical properties of which place it at least on the level with the finest grades of Para rubber. And this result is obtainable in working upon the milk of a tree, which so far has only been conspicuous for yielding the worst of all American rubbers. This is all the more gratifying, as these results are obtained at quite a trifling addition to the cost of production, which addition, on the other hand, is compensated for by an increased value of the final product by at least 40 per cent.

COST OF RUBBER.—From what I have shown in an earlier section of this article it will be seen that the Castilloa tree should not be tapped until it is 8 years of age. The cost of clearing the land for planting, transplanting the seedlings, and keeping the planted plots for seven years clear from undergrowth, is astonishingly small, and does not exceed, at the utmost, £25 per 1,000 trees for the whole period until they are 8 years old. If, therefore, at the end of the seventh year the trees are tapped for the first time, and only half a pound of rubber taken per tree, we obtain from these 1,000 trees 500 lb. of rubber, which at the very lowest estimate would be worth at least 3s. per lb. in Liverpool. Deducting, therefore, the cost of collection, preparation, and shipment of the rubber, a return of about 100 per cent. would be obtained in the eighth year. This, with careful management, would steadily increase for a number of years.

COST OF LAND.—Of course, the cost of the land will play a not unimportant part in such a calculation. I do not know under what conditions and at what price land suitable for rubber cultivation may be obtained in the various Central American States. In Colombia, at any rate in the territories adjoining the Isthmus, land is obtained on the old Roman principle, "res nullius cedit prius occupanti," or, in elementary English, "first come, first served." That is to say, any land not in private occupation may be taken legal possession of by "denouncing" it before a land commissioner, a very simple procedure involving merely payment of a nominal registration fee. For the maintenance of the title it is sufficient to prove the working of the grant. Labour to any amount is easily obtainable from Jamaica, and if the steady influx from this island should not suffice, the authorities of Barbados would be only too glad to grant facilities for the drafting of labour into Colombia from their enormous coloured surplus population, for whom no work can be found in Barbados. Wages for plantation workers (machete men) range at about $ 1.20 per day (Colombian money), equal to $0.50 gold, say, 2s., the men finding their own food.

PLANTING.—In planting Castilloa, it would appear that great care is required to make quite sure that the seeds used, or the seedlings obtained, are really those of the best variety of Castilloa elastica. It appears that there are at least three varieties of this Castilloa, which are respectively distinguished as Castilloa alba, Castilloa negra, and Castilloa rubra. There is not the slighest difference between these three varieties as regards the general form of the tree and its branches, and also the flowers and seeds are in all three apparently identical. The above descriptions refer to the colour of the bark. The difference even there is, however, so small that it requires a practised eye to recognise the different varieties. These, differ nevertheless, very greatly in their value to the rubber planter.

ALBA.—Castilloa elastica alba produces a thick creamy milk. It is the hardiest of all Castilloa trees, and suffers very little from the tapping operation. It also yields the largest quantity of rubber. The bark of this variety is white, with a distinct yellowish or pinkish cast.

NEGRA.—Castilloa elastica negra is characterised by a very rough dark bark. It yields very readily a thin milk producing a good rubber, but the tree in tapping easily bleeds to death.

RUBRA.—Castilloa elastica-rubra has a reddish bark which is very smooth, thin, and brittle ; nor does it show the longitudinal furrows which are noticeable in the two first-named trees. This variety yields a very small quantity of milk, but the rubber obtained, from it is good. The tree is very common all over Central America, and I am afraid that in a number of instances it was this tree which was planted instead of the white Castilloa. Indeed, Koschny is inclined to think that it is this variety with which the experiments in the botanical gardens of Ceylon and Java were made which gave such discouraging results.

SHADE OR OPEN.—The question whether Castilloa should be planted in the shade, or in open land has been answered both ways. It is possible that the climatic conditions of the district in which the plantation is situated may have some influence upon this point. However, all the reliable evidence seems to show that the trees grow badly in dense forests, and produce a poor yield of rubber when grown on open ground. They appear to prosper best when growing up together with other trees, so that the trunk is always shaded, whilst the top of the tree at least, for a certain time during the day, receives the direct rays of the sun. From what I have seen at Las Cascadas I entertain no doubt whatever the the last named condition is the most favourable for the growth of the trees.

CLEARING.—This being admitted, it is obvious that in planting Castilloa in open land it is necessary to plant at the same time trees to protect and partly shade it. As this adds very greatly to the cost of planting, it stands to reason that in selecting land for the cultivation of Castilloa, preference should be given to forest land. The larger trees are cut out—there are generally plenty of uses for them on the plantation—only the smaller trees being left standing between which the rubber trees are planted.

SOIL.—As regards the configuration of the land, and the best quality of the soil, some little discrimination is also required. Regarding the soil, it may be said that Castilloa is very modest indeed, but, of course, this does not mean that just any soil is good enough. The best results are undoubtedly obtained on a deep, loamy, only moderately sandy soil. Whether Castilloa should be planted on level or on hanging ground is a rather more important question. In Mexico, I believe, rather large level tracts have been planted, but then the rainfall in Mexico is considerably less than what it is in Colombia. It is quite certain that the trees require well-drained land, and this with a rainfall of 130 inches, the figure for the Isthmus, means hanging land. There are immense traces of unappropriated land of this description north and south of the Isthmus.

CLIMATE.—The climate of Colombia more particularly the districts north and south of the Isthmus, is a very great deal better than its reputation. I am inclined to think that the villainous climate of the stretch of land between Colon and Panama, and the frightful death-rate amongst the canal workers, has been taken to apply without distinction to the high-lying land adjoining the district. But it must not be forgotten that the susceptibility of the negro, at any rate those hailing from the West Indies, for zymotic diseases, is nothing short of extraordinary, the death rate amongst them even from measles being simply appalling. The white races under the same conditions enjoy comparative immunity. Moreover, the higher-lying districts adjoining the Isthmus are incomparably healthier. There is, therefore, no reason why in the next 10 or 20 years rubber cultivation in Colombia should not attain to huge dimensions. Land is to be had practically for the asking, the establishing of even a large rubber plantation is incredibly cheap, and the returns are large, certain, and permanent.

AMERICAN SWEET POTATOES FOR INDIA.

TO THE EDITOR, "INDIAN GARDENING AND PLANTING."

DEAR SIR,—I imported three American varieties of sweet potatoes last year, *viz.*, Nansemond, New Jersey, and Virginia. These were first tried on the Bombay Farms. The first Bombay crop was propagated from imported tubers, the second crop was propagated in the usual way from cuttings. It was planted on the 8th of April and was lifted at the end of July. A large number of cuttings were distributed from the first crop to various parts of India, therefore only about ¼ acre was planted for the second crop. The area was too small for very reliable outturn figures. I give however, the results as under:—

		lbs. per acre.
Nansemond	... ...	14,470
New Jersey	... ...	16,782
Virginia	... ...	21,113

The land was not directly manured, but was in good condition. The produce from the whole plot (21·80 acre) was sold for R 90, or R 330 per acre.

The crop also yielded a very large number of cuttings which have been used for distribution and for planting an extended area at the Bombay Farms. I have now seen these varieties growing on various descriptions of soil in the Punjab, Bengal, Central Provinces and Bombay. The plants everywhere show great vigour of growth. I believe the introduction of these varieties to be an undoubted success. It is important, therefore, to have these American varieties tried in all districts where the crop is important. Cuttings can be supplied during October for experimental trials if applications are made to my office at Nagpur.

The crop does best on deep alluvial soil of a sandy or loamy character, but will also do well on any free working naturally dry soil of fair depth. The best crops are grown under irrigation in the *rabi* season, but in districts where the cold of winter is severe and the total rainfall is not excessive, the crop will probably do best if planted in June-July. The American varieties are not likely to thrive on deep black soil.

The results reported from Poona show that the tubers were all sound and of good shape and size. They were proved to cook well and have good flavour. The Virgina variety produced four or five tubers from each plant. These tubers were larger than those usually obtained from indigenous varieties The Nansemond and New Jersey varieties produced, 16 to 18 tubers from one plant. These tubers were smaller than those from ordinary indigenous varieties but were all of good marketable size. Tubers of each variety grew not far from the surface in clusters and were much easier to dig than those of ordinary Indian varieties.

The cultivator of sweet potatoes is put to no particular expense for seed. He simply uses as cuttings the haulms of a previous crop. These cuttings may have to be planted in a nursery. A small nursery planted in March when the *rabi* crop is harvested will provide cuttings for planting a *kharif* crop in July, and this crop will, in its turn, provide cuttings for the next *rabi* crop, which should be planted in October-November.

Full details regarding methods of cultivating this crop are given in Vol. III of my Agricultural Text-Book, but for easy reference I may refer to important points here.

The soil should be of suitable class and be well worked by repeated ploughings and harrowings. Beds should be formed if irrigation is required. The crop can be propagated from tubers, but more economically from cuttings or pieces of mature stem having four nodes to each cutting. The best cuttings are got from the middle portion of the stems. The date of planting the main crop will depend upon the usual custom in any particular district. The main crop is sometimes planted in flat beds and sometimes in ridges made about 18 inches apart. The latter method is preferable. The cuttings if planted in ridges should be buried halfway between the base and the apex and on each side of each ridge, each cutting should be planted with two nodes buried and two ends above ground. A vigorous growth of long trailing stems is soon produced if the crop is healthy, and very little hand weeding is required. No irrigation is given in the rains, but if planted in the *rabi* season, irrigation is necessary every 8 to 15 days according to the character of the soil.

The stems when in contact with wet soil after rain or irrigation become attached to the soil by rooting at the nodes. This must be prevented, otherwise small thin tubers of no marketable value form at each point of attachment. The tubers which form at the main root, moreover, will not grow so large as when the stems are kept quite free. The stems during growth must be repeatedly lifted clear from the ground and turned over to prevent the formation of these roots. These operations must be done often if the crop is good and the foliage luxuriant, and always with care so that the stems and leaves are damaged as little as possible.

In a luxuriant crop the growing points of the long trailing stems may be pruned off without damaging

the crop in any way. These prunings provide a delicate vegetable.

The crop should be lifted when the stems near the growing point get hard and fibrous and the leaves turn yellow. The vines should be reaped close to the ground and cuttings selected for a nursery, such of the vines or portions thereof as are green and succulent can be used as cattle fodder. Irrigation water should be withheld as the crop approaches maturity. When the tubers are ripe, they should be lifted at once, otherwise much damage will be done by rats and white-ants, etc.

Yours faithfully,
JAS. MOLLISON,

Inspector-General of Agriculture in India NAGPUR, *13th October* 1902.—*Indian Gardening and Planting.*

PAPAYA CUTIVATION.

It is, of course, well known that natives pluck the fruit in a green state and ripen it artificially. This system is responsible for the absence of flavour and quality so common in the fruit sold in the bazaars. If readers will observe tho following directions, every one may grow and gather his or her own papayas, of really good quality.

Firstly, obtain seed of a good variety from the Superintendent of the State Gardens, Bangalore. Sow the seeds in pots or pans in common garden soil, say in July. As soon as the young plants are about six inches high transplant them simply into 12-inch pots, filled with a fairly rich soil. When these pots are filled with roots, transfer the plants bodily to ordinary tubs, or the largest sized pots obtainable, filled with good, rich soil. Water them in dry weather, and let them grow. If you have sufficient ground, put out the young plants into the open, in rich soil, and water in dry weather. In the following April and May you may gather your fruit and enjoy a really good Papaya. The tree fruits well when grown in tubs or large pots. In order to get fruits of large size, it is necessary to thin them out, and so give them a chance of swelling and developing.

The reason why I have recomended the procuring of seed from Bangalore is that is it the best variety of Papaya I have yet seen.

There is one point, however, which the grower must make himself acquainted with. The Papaya tree carries the male and female on separate trees. The male tree bears its flowers in large, loose bunches which hang down, and the stems on which the flowers are borne are from one to three feet long. The female tree bears stemless flowers, attached close to the main stem or trunk of the tree. Therefore, as soon as the trees show flowers, all the male trees except one, should be uprooted and thrown away. Some trees bear what botanists call "hermaphrodite" flowers, that is, they carry the two sexes in the same flower. These are no good as fruit bearers, and should be treated as males and thrown away, unless you wish to grow a plant or two as a curiosity. It is important to bear the foregoing in mind and thus avoid much disappointment. I have often heard my friends say that their Papaya trees never bear fruit, though they are covered with flowers. On looking at them, I have always found the trees to belong to the "male persuasion."

If you like the Papaya fruit and wish to get it of good quality, follow the foregoing hints. There is no reason why everyone should not have his or her own Papaya trees in pots and tubs, if there is no garden or grounds to grow the tree in. The tree fruits in one year from the time of sowing the seed, so it is easy enough.—Local "Times."

RUBBER IN CEYLON.

Mr. J. B. Tennant, of Berredewelle, Matale, went down to Kalutara in September to inspect the Para rubber cultivation on Culloden Estate Neboda. A "Standard" representative, who wa in Kalutara on Saturday, in a brief conversation with Mr. R. W. Harrison, the manager of the estate, learnt that the prospects of Para rubber in the low country were very bright. Recent sales in London fetched exceedingly good prices. All the trees have been tapped, and are yielding very freely. Trees have been planted in all parts of the estate. (Culloden), which belongs to the Rosehaugh Tea Company of Ceylon, and is the best estate in the low country where Para Rubber has been fully planted, Arrapolakande (also in Neboda) coming next. Mr. Harrison informed our representative that he expects an output of nearly ten thousand pounds this year, which is considered a splendid record. Large quatities of seed have been sent to Southern India, and several local estates have also been supplied. Mr. Harrison used to do a tremendous business all over Java, Sumatra, the Cape, North Borneo, Thursday Island and Queensland. Small quantities have also been shipped to London and Paris, but the foreign is now practically over.—*Indiarubber and Guttapercha Trades' Journal*

THE MOSQUITO BLIGHT OF TEA.

Mr. H. H. Mann's important note to the Indian Tea association has the following summary and appendix.—

SUMMARY.

In summary, therefore, I think we may say with regard to methods of dealing with mosquito-blight in serious cases, that the greatest promise is held out by the method of spraying the bushes with a solution of Chiswick Compound, or kerosene Emulsion in the spring within three or four weeks of pruning—save at the end of February, as described in the Appendix. The crux of the whole question lies not in the material used so much as in the time selected for spraying the bushes. The method is one of prevention not one of cure. It will be advisable to experiment in the coming year on a far larger scale with this method, and by the end of next season data enough ougbt to be in existence, to show whether indeed the blight can satisfactorily be dealt with by the system in question.

APPENDIX.

Kerosene Emulsion is prepared as follows:—

From one to two pounds of ordinary country soap are boiled with one gallon of water till thoroughly dissolved*. To this while still almost boiling, two gallons of low quality Kerosene are added slowly, the whole being thoroughly mixed with a syringe during the mixing. It then forms a creamy, almost butterry mass. The mixture is then allowed to cool, and when cool is made up with water to thirty gallons, and after thorough mixing can then be applied.

Cheswick Compound.—With this substance. which we understand is prepared from sulpher and soap, the spraying liquid is merely obtained by dissolving 30 lbs. in 200 gallons of water.

If either case 150 gallons per acre will be required if properly sprayed on the plants. It is no use to syringe the bushes with a garden syringe, the fine cloud-like form of the spray is far more effective and less wasteful, The best prayer for the purpose at present on the Indian market is one made by the Gould's Manufacturing Co , of Seneca Falls, New York, and sold by Messrs. Jessop and Co., Calcutta. It is made to be fitted to a barrel, and should be furnished with much longer hose than has been the case hitherto, and the specification should include Vermorel nozzles. No other nozzlo is as good as the Vermorel for the present purpose. The Chiswick Compound is apt to injure the rubber ann metal of the sprayer, and it should hence be very carefully used every time of using.. The Kerosene Emulsion will not injure, the sprayer at all.—Local "Times."

* The quantity of soap needed depends on the hardness of the water. The softest water available should be used.

REDUCED OUTPUT OF TEA IN CEYLON AND INDIA: UNANIMITY AMONG PLANTERS AT LAST: NATURE'S DOING?

For a long time now, the air of Ceylon has been filled with the advice to "reduce the output of tea," if the situation was to be saved at all; but the plans, which were proposed to effect this, were more numerous than practical. There was a number of ingenious brains at work both here and at home on the subject, and when a happy idea flashed across one of them, there arose the cry of "Eureka"; but in spite of the enthusiasm nothing was done. Now and again the idea formulated was taken up by the minds of the many, turned over, talked about, discussed, even voted on; but while some men swore by it as a sure remedy for the plague of over-plenty, others swore at it as certain to make matters worse, and aggravate the already intolerable situation. So we have seen the proposal to have a certain acreage of each estate lie fallow, grow in distinctness and favour till it all but touched the point when it should pass into an embodied fact, and then betake itself to the limbo of the might-have-been; the bold policy of closing down the factories of the island for a month, which savoured more of the practice in a cotton manufacturing district than the usual methods which obtain in tropical agriculture, rose for a short time to the surface, but soon sank again; and even "finer plucking" which caused least disturbance to every-day rules and methods was by no means universally supported, although it had the suffrages of very many and left its mark on the year's figures of the total output of tea. It seemed impossible to attain unanimity, or to devise a plan which would be universally adopted, or even approved. Every planter is so much accustomed to think and act for himself that it is hard for him to take a broad general view of any line of policy; and when he is called on for the sake of the many to march to the music of others' selection, and which has no echo of the lilt with which he has hitherto kept step, he is apt to decline, and so weaken the force of the desired general demonstration. All are, however, agreed that less tea would result in better prices and the re-appearing of the gilt on the ginger-bread. Only the question as to *whose* tea is to be lessened has never been settled! What, however, planters have been unable to do for themselves, nature is now doing for them, and the wet sponge whose persistent drip has been in such evidence for the last two months or more, is bringing about a *nolens volens* unanimity of short crops all over the country. This sponge has wiped out many fair figures in estate estimates—has done more to reduce the tea outturn, than could ever have been attained by any scheme that appealed to the willing suffrages of the planters of Ceylon, and it has alike affected all manner of estates under whatever classification they may elect to be ranked. The figures for recent local sales are telling this story eloquently enough, while the total sum of the tea shipped fully corroborates. Planters tell us that the diminished returns do not mean that the tea bush is in a less healthy condition than formerly; for estates look well. But, even manured fields which they were wont to assert were independent of weather, and could be reckoned on as certain, have this season been niggardly in their response to the liberal treatment they have received, though they look equal to anything. As to tea which is far from pruning, it amounts to almost a despair, there being a struggle even to produce "banji," and a poor tale at the end of the day.

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From what we can learn we do not think that this going back means that if the conditions had been favourable the results would have been the same, and that the shortage represents—what some have asserted—that high water is past and that the ebb has set in. It is simply the effect of the weather, and given less cloud and more sunshine the tea bush would have asserted its right to grow, and the coolies instead of easily keeping up with its march would have been at the "double" long ere this, and considerably pressed to keep up the pace.

With the better reports from home of stocks and prospects, the probability that the island's tea estimates will be short, added to the early closing of the Indian gardens, has begun to have a hardening effect on the course of prices, and so we anticipate to some extent the incoming of those better times, which are so sadly needed, and whose advent has been heralded alike by those immediately interested, as well as by the observant on-looker. London private advices have for some time now spoken of a general existing feeling anticipatory of a rise in the near future, which will tend to consolidate itself in time and replenish the empty coffers of the much-tried tea planter; and His Excellency in his opening Address to Council agrees with this: "I hope," he said, "that I am not over-sanguine when I seem to see a silver lining in the dark cloud which has hovered so long over the tea industry, and in believing that in a year hence this brighter era will have fully dawned." Ceylon planters are often so very energetic, that what their hands find to do, is too frequently overdone, and when their zeal has turned out to their disadvantage and undoing, they are unable to agree among themselves as to a remedial plan of action.

To successfully lay down the lines for a general reduction of the tea-crop has been proved impossible. Nature, however, has this season taken up this work for them; and by means of cloudy days and weeks of constant rain has solved the problem of how to bring about a generally reduced output.

PROGRESS OF GOLD COAST COLONY: INCREASING EXPORTS OF CACAO AND OF COCONUT PRODUCTS.

Until our perusal of the Report of the Botanical Department of this Colony for 1901, received by a recent mail, we had no idea of the importance which the Gold Coast has suddenly assumed as a producer and exporter of Cacao. The development of the trade in this product since 1891 and especially within the last four years, as may be seen from the following figures, is phenomenal :—

Quality and value of Cocoa exports from Gold Coast Colony :—

Year.	Quality. lb.	Value. £	s.	d.
1891 ...	80	4	0	0
1892 ...	240	4	5	0
1893 ...	3,460	93	17	10
1894 ...	20,312	546	17	4
1895 ...	28,906	470	11	7
1896 ...	86,854	2,275	13	3
1897 ...	156,672	3,195	14	7
1898 ...	414,201	9,616	4	0
1899 ...	714 929	16,063	19	5
1900 ...	1,200,794	27,280	9	7
1901 ...	2,195,571	42,837	0	0
	Lb. 4,821,919	£102,388	12	7

The export for last year in the above list is about equal to what Ceylon produced in 1891; but if the Gold Coast goes on advancing, it will soon overtake our 50,000 cwt. (5,600,000 lb.). Evidently cultivation is extending on the African Coast, for 16,000 pods of cacao were sold for planting from the Gardens last year and the rest of the crop was distributed free. Twelve plants of the new species *Theobroma pentagona* had been received from the Kew and were growing satisfactorily. Here is an interesting fact :—

The Native planters have discovered another use for the Cocoa plants, other than the fruit; the young leaves are boiled and administered as a remedy for dysentery and diarrhœa, and, they state, with very beneficial results.

A good deal is being done with different kinds of coffee, cardamoms, fibres and tobacco; but it is still the day of small things with these. A new native fibre like jute had been valued in Liverpool at £12 to £13 per ton. The great advantage all the West African Colonies have is proximity to the Liverpool and London markets, and a trade in fruit is likely to be successfully established. But next to Cacao, the really important industries are for the present to be in Coconuts and Rubber. With reference to the former we are told :—

The coconut industry is in every respect adapted to the West African native, and the soil and climate along the Coast line are excellently suited to the successful cultivation of the tree, which is amply exemplified by the numbers of trees which already abound in a semi-cultivated state on the littoral lands of the Colony. Its most important product is the copra-oil, which is expressed by machinery from the dry, edible portion of the nut, known in commerce as copra, and which requires no other preparation for market than simply drying in the sun; the demand for this oil far exceeds the supply. Another valuable product of the coconut palm is the fibre prepared from the husk of the fruit, commonly called Coir, and for which there is likewise a great demand. It is estimated that civilized, temperate countries would consume all the produce of the coconut palm that tropical countries are likely to produce. The tree does not commence to bear fruit until about the eighth year, but after that, with proper attention, the tree will continue productive for sixty or seventy years. Notwithstanding the rude methods of cultivation adopted by the natives in this country, the trees are reputed to yield from 75 to 100 nuts per year; while in countries where the tree is cultivated in a systematic manner, the reported annual average yield is 120 nuts, but has been known to reach 200. About twenty nuts yield one pound of copra; so that if we estimate the average yield at 75 nuts per year, the trees in the Christiansborg plantation may be expected to produce half a ton of copra per year per acre, value £15 per ton; or, if the oil is expressed locally, 66 gallons of oil, value £14, as 60 nuts yield about 1 gallon of oil, value 4s. 2d.; but this would, however, necessitate the employment of machinery.

A yield of 75 nuts per tree is very high for an average over any considerable area, especially as we see trees in the experimental Christiansborg plantations along the sea coast, are being planted ten yards apart, or about 45 trees only to the acre, against 50 to 70 the usual number in Ceylon.

In respect of Rubber, we are not told anything of a trade in the product of indigenous trees, but rather of the growth of plots of Para (200 trees), Castilloa (from seeds in 1898 now 9 feet high, 10 inches circumference, 3 feet from ground), Assam Ficus, and finally West Africa "Funtumia elastica," of which we read :—

One of these trees planted out in the Gardens in 1897 was tapped this year as an experiment to test the amount of rubber it was capable of producing at this age. The tree operated on had grown 25 feet high with a trunk of 1 foot 7 inches in circumference at 3 feet from the ground, and was about 2 years old when planted. After the moisture from the latex obtained by this experiment had been evaporated off, the dry rubber weighed ¾ lb. The result of this experiment is rather important from a financial point of view, as it has been pretty generally stated that no return from plantations of these trees could be expected until about the eighth or ninth year; whereas it is quite evident they are ready for tapping at the seventh year, and that trees planted at 15 feet apart, *i.e.*, 193 to the acre, wolnld yield 48 lb of rubber per acre, value about £6 at the seventh year. Information with regard to the amount of rubber yielded, and the proper age to commence tapping *Funtumia elastica*, is much needed by persons interested in rubber plantations; and this experiment is the first of a series which it is proposed to conduct in order to determine these problems.

Mr. Biffen's patent rubber-separating machine is spoken of highly for its good work :—

The machine in question is made in a convenient size for transport, and only weighs about 40 lb. The latex to be operated on is poured into a receiver, which is capable of performing 10 to 15,000 revolutions per minute; the rubber globules being separated by centrifugal force. The machine can be manipulated by hand, and a man, or even a boy, could with ease separate 48 lb. of rubber per hour by this means; and all that would be then necessary to prepare this rubber for market would be to press and dry it in the sun; the resulting product being an exact reproduction of what is asked for by manufacturers *i.e.*, clean, dry, and free from decomposition.

One of the latest uses for rubber is said to be in the manufacture of waterproof paper in which to pack goods for export!

IN WEST AFRICA.

Here is a true picture by an old student of the Colonial College who, after six months, found himself and another, the only Europeans left of a party of ten who had arrived on the Gold Coast half-a-year before. Writing from Axim, he says:—

The first thing is the *climate*, which take it as you will is bad for a European, and 99 out of every 100 that land must have fever whether they like it or not; live as they may, they cannot escape the toll demanded by the coast. Of course fever does not necessarily mean death, but it is very unpleasant while it lasts. Most of our party had it within three weeks, and out of ten only two are left; one dead and the rest are back in England. I held out for four months in splendid health, and then went down with a crash that made up for lost time. The climate also affects the memory, and the term "coast memory" is not the sarcasm I took it to be, but a fact.

Next he gives an interesting account of the country and products:—

As the country was hundreds of years ago so it is at the present day, a dense jungle, so luxuriant that vines, trees, and undergrowth are so entwined that it is impossible to leave the bridle-paths (called roads) unless you cut your way with a matchet, and the ground proper is covered with a leafy soil of ages, and is many feet deep. Almost any tropical fruits will grow here, but I have never been to any part of the world where fruit has been so scarce; occassionally I have had oranges, but they have a bitter taste; limes are indifferent; pine-apples are excellent, but scarce; Pau Pau, a native only of here, is more plentiful. Principal products are:—palm oil, palm kernels, rubber, ground nuts, kolo nuts, and mahogany. All these grow naturally, or I am afraid they do not figure in the exports. Mahogany perhaps is difficult to work, and is generally floated down in the rainy season from up-country. A log of wood is often paid for by the trader two years before he sees it at the coast, and some times he never gets it. I have myself seen good logs in the bush that have been cut down and squared, and probably paid for, and then the natives could or would not get them to the stream.

Coffee, rice, and cocoanuts will grow here, but at present no trouble is taken with them: a good trade could be made here with copra, as well as from the South Seas. The soil of the forest is very rich, in fact too strong for ordinary English vegetables. Lettuce grows from seed so quickly and runs to waste, radish grows right out of the ground, onions the same; these I have tried myself, but no doubt if the soil was worked and turned it would in time grow anything. In my work I had tracks cut through the bush for miles, and I noticed that nearly every shrub or bush, tree or creeper that was cut bled some kind of liquid; some indeed gave forth a very unpleasant odour, and to that, combined with the soil (which had lain for ages) being disturbed, and the smell of the fetid swamps, I attribute all the fever that fell to my share. The smell in the forest is what is known as the "West coast smell" of decayed vegetation and wood, and is at times almost overpowering to the senses.

Finally we find two more passages of some interest:—

The whole length of the Gold Coast is most inhospitable to shipping, not a single harbour; the steamers have to lie off a considerable distance from the shore, and everything is landed in surf-boats. Some places, such as Accra and Cape Coast Castle, are very dangerous at times owing to the heavy surf that breaks on the beach, and occassionally some one is killed by the capsizing of a boat in the surf. Secondi and Axim are more favourable for landing, but even here merchandise is often spoiled by sea water. The great questions on the coast at present are transport and labour. I have read many ideas on the subject, but I think myself that railways are the only thing for *transport*, but of course that is impossible at present, and the next then is elephants; these animals can climb the hills, cross swamps and rivers, and probably could find food in the vegetation of the country. In the matter of labour some propose Chinese, Indian coolies, or Malays, but the climate will affect all nationalities that are brought here, for even the natives themselves find the country hard on them in the wet seasons; small-pox and fever carry off hundreds at a time; whole villages are swept away by the dread disease. The native of the country himself in time will provide all the labour that is required by his own free will; in the coast towns it is noticeable that the native is aping the white man, and to do this he must work.

There is practically speaking, no game in the Gold Coast Colony: leopards there are certainly, but so timid, prowling at night and keeping to the jungle, that they are never seen; there is also a small deer, and the same can be said for that; making a rifle a useless article for anyone to carry.

TEA-PLANTING IN TEXAS AND ON THE CAUCASUS.

On page 463 will be found an extract from a Texas paper showing that the American Secretary to the Department of Agriculture is ready to encourage an experiment in tea culture in that State and to offer very liberal terms. This paper is sent to us by an ex-Ceylon planter who, writing from Beaumont, Texas, under date 29th October, says:—"As I happen to be here for a few days on business, I read with some interest the enclosed which I think will form interesting news for your many readers. From what I can learn I believe were a few Ceylon tea planters to come to this locality they would soon make an immense fortune." We cannot understand how any one acquainted with the labour conditions in Ceylon and India, and again with those prevalent in the States can speak of a "fortune" from growing tea with negro or any labour available in America. We believe our correspondent had no experience in "tea" before leaving Ceylon, and so does not understand how much of the work —plucking especially — depends on cheap labour.

The same remark very much applies to "tea-growing on the Caucasus": the Russian Government is not likely to throw away much money in trying to grow a product which can be bought of a better quality for a fraction of the price it will cost to produce.

SOIL SURVEYS.

Field Operations of the Division Soils, 1900. By Milton Whitney, Chief (U.S. Department of Agriculture). Pp. 474+a case containing 24 maps. (Washington, 1901.)

Perhaps one of the greatest services which the scientific man can render to the agricultural community in any country is the classification of the soils into certain types, defined by their chemical or physical properties, and the allocation of these types to their appropriate areas, so as to obtain a soil map of the district in question.

Despite disturbing factors, certain types of soil persist over wide stretches of country and are characterised by a general physical and chemical resemblance and also by a corresponding similarity in natural flora, appropriateness to particular crops and responsiveness to certain kinds of manure. The constancy of these soil types is the result of a common origin from the same kind of rock, and the difficulty lies less in recognising the type than in tracing its boundary line

As a fundamental basis comes the geological survey, particularly the "drift" maps showing the superficial deposits due to running water, ice, &c., which, though of no great geological importance, are the origin of soil survey of the soil proper. But for the purposes of a soil survey a little more than even a "drift" map is wanted; further subdivisions must be introduced to show changes in soils on the same formation due to variations in the lithological character of the formation, or those due to the sorting action of water in the case of soils of transport.

These variations, in fact soil classification generally must be based upon physical structure, must amplify and give exactitude to the practical man's division into clays, loams and sands; the chemical properties of the soil may very concurrently, but are too much subject to casual change to serve as prime means of distinction. As an instance, the upper beds of the Lower Green sand in east and mid Kent give rise to rich loams, on which many fine hop and fruit plantations are situated; further west the formation gradually changes, until in west Surrey and Hampshire it is barren heath land the soil of which is alike wanting in the finer "clay" particles, carbonate of lime and the soluble salts which go to feed the plant. Again, in the book under notice many examples will be found of two or more distant soils of the same origin, *e.g.* the maricopa soils (p. 302), described as consisting of "collnvial materials . . . largely granite : . . divided into four soils, depending upon the degree of comminution of the rock."

The volume before us represents a year's work of the Division of Soils of the United States Department of Agriculture in this particular direction of constructing a series of soil maps; twenty-four of the maps are given on a scale of 1 inch to the mile, and show, by a system of colouring similar to that of a geological map, the type to which the soil belongs. The accompanying text gives a mechanical analysis of the type soil *i.e* its division into fractions each consisting of particles of a certain size, and in some cases a chemical analysis, also such information collected on the spot as the distance to ground water, climatic features, characteristic crops or natural flora and other local economic conditions.

It was found, according to Mr. Whitney's preliminary review, that it was quite possible to map these soil areas, independently of the geology of the area, or the exact chemical or physical character of the soil; that the proper course was to construct maps in the field showing the area and distribution of the

SOIL TYPES;

to explain as fully as possible from geological considerations the origin of the soil and to leave the soil chemist and physicist study the differences. The fact is recognised that these chemical and physical properties of soils are so complex and difficult that it may take many years to explain them through laboratory investigation; but, pending this complete investigation, the maps themselves will be of the utmost value to agriculturists in indicating the areas over which certain soil conditions are found to prevail. . . . The recent successful growing of Sumatra tobacco on a certain soil in the Connecticut Valley is a very striking instance of the possibilities growing out of the detailed soil survey in any given locality.

The whole work is an excellent example of the thoroughness with which America carries out her State services; the maps themselves are clear and distinct; some of them, like the Saint Ana (California) sheet, represent a very complex distribution of soils, the survey of which must have involved no light amount of field work, while the accompanying text is most liberally illustrated with analyses, sketch maps and sections, and photographs illustrative of scenery, crops or vegetation, the ease with which photographic illustrations are now produced being perhaps responsible for the trivial nature of one or two of the objects selected.

Several of the sections of the survey deal with that interesting factor in all arid or semi-arid areas, the existence of alkali soils and their extension under irrigation, which is, unfortunately, almost the only method of farming possible.

Alkali is used in a generalised sense as indicating any predominance of soluble salts, generally sulphates and chlorides of sodium, magnesium and calcium, in the ground water, so that vegetation is destroyed or restricted to certain "salt" plants, and on occasion the salts effloresce in a white powder on the surface. Sometimes carbonates of the alkalis are also present, which by their injurious action upon the texture of the soil and their solution of the humic acids give rise to "black alkali" spots, more dreaded even than the white. These "alkalis" probably represent nothing more than the normal products of the weathering of the fundamental rock minerals, but owing to the limited rainfall there is no percolation through soil and subsoil, to wash everything soluble into the rivers. Instead the salts remain in the subsoil, and irrigation, by raising the level of the ground water, may easily bring the salts so near the surface that they rise in the capillary water to the surface and there are crystallised out. An instance of the damage due to careless irrigation and the rise of the subsoil water is given in the report before us in the account of the Salt River Valley, Arizona.

The phenomena of

ALKALI SOILS

and their increase through irrigation are neither new nor confined to the United States; any arid climate where the products of weathering are not removed in the "country drainage" shows the same problem. Our irrigation engineers in India and Egypt are regularly confronted with the problem, for which there is only one solution, under-drainage so that the cultivated soil may be washed from time to time, and careful cultivation to minimise all evaporation from the soil except through the leaves of the crop. But though the 'alkali" problems are common in the old world, it has not been until the time of Hilgard, Whitney and the present Division of Soils in the U S Department of Agriculture that we have had any real knowledge of their composition, or any study of the physical and chemical principles underlying the movement of the injurious material in the soil.

The character of the information provided by a soil survey must largely depend upon the nature of the country; in many parts of the United States agriculture is so recent that there is no accumulation of experience as to suitable crops, hence the survey, by comparison of the texture of the soil, the climatic features, depth to ground water, &c., with the conditions prevailing in known areas, can directly advise the settler with what crops he is most likely to succeed.

But in a country like our own, the land has been under cultivation so long that a great mass of local information, based upon experience, exists as to the character even of individual fields. Hints as to methods of cultivation or cropping based upon analysis are likely to be too general to be of any service; the chief application is rather the information that can be afforded as to the use of manures, for enormous economies could still be effected in the manurebill of nearly every farmer who buys artificial manures, if they were properly adapted to his soils and crops.

In Britain, the great initial want is the publication of drift maps of the Geological Survey on the six-inch-to-the-mile scale; were this in existence, it could be rapidly supplemented by the work of the local agricultural colleges until every farmer could be put in possession of that exact knowledge of his soil which is fundamental for all farming operations. A. D. H. —*Nature*, Nov. 6.

THE GUANO DEPOSITS OF THE SEYCHELLES.

In the report on the Seychelles for 1901 recently issued by the Colonial Office, the Curator of the Botanic Station states that, with regard to the manuring of the soil, it is very fortunate that, in a granitic country like Seychelles, guano deposits are found in many of its islands. This guano constitutes at the same time a mineral wealth of the Colony. The deposits are almost invariably ancient, and guano beds are in process of formation only in the distant islands where immense flocks of birds are still to be found. On many islands the guano is found in dusty layers on the surface of the soil. This surface guano is dark in colour, especially when it is moist. There are numerous tints, which vary between yellowish brown and reddish black. The lighter-coloured guanos are richer in phosphoric acid, and the dark ones are full of organic matters which increase the percentage of nitrogen. All this surface guano is now more or less mixed with vegetable decay.—*Board of Trade Journal*, Oct. 30.

LEASE OF GOVERNMENT LAND FOR CARDAMOM CULTIVATION.

The following appears in yesterday's *Gazette*:—Application having been made by Major Gordon Reeves, C M I, of Ratnatenna estate, Madulkele, to the Government Agent, Central Province, for the lease of land lots 13,683, 13,684, and 13,685 in preliminary plan No. 5,128, containing in extent 45A 1R 21P, situated in the village Kaludella in Palis pattu west of Pata Dumbara, for the purpose of cultivating cardamoms, it is hereby notified under regulation No 52 of Land Regulations, published in *Gazette* dated January 17, 1902, that the said lands will be leased to the said applicant under the following conditions:—

1. The rent to be R2 per acre, per annum.
2. The lease to be for ten years with the option of renewal at expiry.
3. No timber above 2 ft. in circumference to be felled, and any valuable timber under that size felled to be paid for at Government rates.
4. Cardamoms only to be planted on the land leased.
5. That the land shall be forfeited to and vested in the Crown if at any time such land or any building thereon be applied, without the written consent of the Governor, to other purposes than those specified in the grant or lease, or if within a reasonable time the necessary steps have not been taken to apply the land to the purpose for which it was granted.
6. No permanent building to be erected on the land without the written consent of the Government Agent.

POPULAR SCIENTIFIC LECTURES.

DR. CHALMERS ON "HOW ANIMALS CAUSE AND SPREAD DISEASE."

The lecture was most interesting and the learned lecturer (who was cordially received) with the aid of beautifully clear lantern illustrations, placed before his audience the deepest medical truths and theories in the most lucid and simple manner.

The Synopsis of the Lecture furnished to those present was more comprehensive than usual. It stated:—

In this Lecture I propose to consider the *role* of animals as a means of causing and spreading disease, and, therefore, it will be instructive first of all to know what is meant by disease. Disease may be defined as that deviation from the normal in the structure, the chemical composition, or the functions of a part or the whole of the body which exceeds physiological variation. This deviation may be brought about by the agency of—(1) Physical causes; (2) Chemical causes; (3) Biological causes. The biological causes may be either alteration in functions in the body itself, such as over-use or disuse of a part, or may be parasitic. The parasites are classified into—(1) The vegetal; (2) The animal. Disease once started in a human being or an animal may be spread by various agencies, such as air, food, water, &c., and among these by animals. We shall see how mosquitoes spread malaria, yellow fever, and filarial diseases; rats, mice, &c., spread plague; flies spread typhoid fever, &c.

The animal kingdom may be divided into two great sub-kingdoms:—A.—Protozoa: unicellular animals. B.—Metazoa: multicellular animals. The Protozoa are the lowest known animals, and among them we must look for the first beginnings of disease. The Protozoa: The unicellular animals may be arranged in four classes—Class 1.—Sarcodina. with movable changeable processes; Class 2.—Mastigophora, Motile organs, flagella (whips); Class 3.—Infusoria, Motile organs, cilia; Class 4.—Sporozoa, Parasites without motile organs.

CLASS I.—As an example of this class may be taken Ambœba Coli, one of the causes of dysentery, which is probably introduced into the body by water, and which would not enter the body if the water was filtered, and which would be killed if the water was boiled.

CLASS II.—Mastigophora.—The Mastigophora which interest us are two:—A.—Trypanosoma Brucii. B.—Trypanosama Gambiense. A.—Trypanosoma Brucii.—This is the cause of Surra or Nagana in the horses, mules and camels of

India. It is spread by a fly rather like the common house fly, called the Tse-tse fly (Glossina Morsitans). B.—Trypanosoma Gambiense.—Only discovered last year in the blood of man, on the Gambia, West Africa, by Dr. Dutton. Since the discovery it has been seen several times, and is associated with disease characterised by puffiness of the face, especially of the lower eyelids, enlarged spleen, irregular fever and congested areas of skins. How it enters the human body is not known,

CLASS III.—Infusoria.—There are some parasites of not much importance in this class, which may be passed over.

CLASS IV.—Sporozoa.—All these animals are parasitic, and are most important, including among them the malarial fever micro-organisms. Two orders of the Sporozoa will concern us to-night :—A.—The Coccididæ. B.—The Hæmosporidæ. A.—Coccididæ.—The Coccididæ, as Coccidium oviforme, may be found in the cells of the alimentary canal and liver of man, rabbits and other animals. The life history of a typical Coccidium is divided into two different cycles :-(1) The asexual, called Schizogony ; (2) The sexual, called Sporogony.

Proceeding the lecturer showed on the screen and explained the asexual cycle and the sexual cycle, and went on to deal with the Hæmosporidæ.—The Hæmosporidæ are Sporozoa which live in the red blood cells of vertebrate animals. They may have evolved, in the struggle for existence, from the Coccididæ. The Hæmosporidæ include many animals which cause disease in frogs, birds, cattle, bats and man.

The Hæmosporidæ of Man.—These are the organisms which cause malarial fever, and are classified into :—Genus 1.—Hœmamœbidœ.—The Gametocytes are similar to the Schizonts. Species A.—Hœmamœba Malaria.—The parasite of quartan malarial fever. Species B.—Hœmamœba Vivax.—The parasite of tertian malarial fever.

GENUS 2.—HÆMOMENAS.—The Gamaetocytes are dissimilar to the Schizonts.—Species.—Hæmomenas Præcox.—The parasite of Aestivoautumnal, or tropical fever.

LIFE HISTORY OF THE MALARIAL PARASITE.

The chief interest in the lecture centred under this head and after explaining A.—Schizogony, assexual reproduction, or cycle of Golgi; B.—Sporogony, sexual reproduction, or cycle of Ross, he showed how the Anopheles hit the man and sent the Sporozoites into his blood. Proceeding he said :—The mosquitoes in which the malarial germs develop are called Anopheles (hurtful). These Anopheles can be distinguished from the more common Culex by—(1) Their pose while resting —They stand on their heads on a horizontal surface and horizontally out from a vertical surface. (2) Their palpi are long in both sexes. (3) The second and third long veins of their wings project into the basal cells of those organs.

LIFE HISTORY OF AN ANOPHELES.

The Anopheles starts its life as an egg, which is laid in the early hours of the morning by its mother in water, which may be brackish or fresh, still or running (but not too swiftly), which contains green algæ for the future larvæ to feed upon, and which is exposed to sunlight. In three to four days the egg hatches and out comes a curious little object called a larva, with a most healthy appetite. This larva differs from the Culex larva by swimming on the surface of the water while breathing, and not hanging down from it. In about three weeks the larva turns into an extraordinary shaped object called a pupa. In about four days the pupa gives birth to the imago or insect which starts on its nuptial flight, after which it enters some house, and by means of its stilette, two knives and two saws, makes a hole in the tough skin of a human being, and through its long tube or proboscis sucks the blood by means of a little pump into the stomach. While it is making the holes its saliva is being injected into the human being, and along with the saliva the malarial germ. The blood which it sucks may contain the malarial germ, which thus gains an entry into the mosquito. The female mosquito alone sucks blood, but the reason, why it does this, is not clear. In the daytime the mosquito retires into some dark recess in the house, or into some shady retreat out of doors. The best time for mosquoesy is after the heavy rains are over, hence December and January are the great months for them in Ceylon. In the very dry weather they hibernate in shady nooks. Anopheles are very common in Ceylon, being found in Colombo, Kurunegala and its district, from Dambulla to Jaffna, in fact everywhere where I have looked for them I found Anopheles. Therefore one would expect that malaria would be fairly common in Ceylon. Luckily, however, the malarial germ is not very common in the Anopheles in Colombo.

MALARIA IN CEYLON.—Malariá is one of the commonest diseases of Ceylon. When the curve to total disease in Ceylon is compared with that of malaria, a great similarity is seen, especially in the region of the north-east monsoon.

CURVES OF MALARIA.—The curves illustrating malaria in Ceylon are divided into two charts, one representing the disease in the part of the Island affected by north east and south-west monsoons, and another representing the part affected by the north east monsoon only. It will at once be seen that malarial fevers are most numerous in January, which is also the most unhealthy month in Ceylon. People ought not to visit places like Anurdhapura in December or January, as they are the worst months of the year, Yet unfortunately those are the months during which they are advised to go there,

RELATIONSHIP TO THE RAINFALL.—It will be noticed that the rains are always before the great increase of malaria.

The rise of the malarial curve is at first slow, due no doubt to the persons already infected getting chills and fever, for chill is a great predisposing cause of disease. During the rains the mosquito can only get about in the intervals, but when the rains cease and the ground is everywhere water-logged many pools exist : then is the time for the mosquito, and out they come ; hence December and January are the great months for mosquitoes. Now the mosquitoes find the old cases of malarial fever ready for them with germs fresh from the chills of the rains. They swallow these germs and propagate them to new cases, hence the rapid rise in December and January.

PRACTICAL APPLICATION.—If we pay no heed to the spread of malaria by Anopheles, then the work of Manson, Ross, &c., might never have been done. Precautions should be taken to avoid malaria, for prevention is better than cure.

THE PREVENTION OF MALARIAL FEVERS.—Protect yourself as much as you can by mosquito curtains. If you are compelled to live in malarial districts in the worst times of the year, render your house gnat-proof. If this is too expensive, take quinine about twice a week, and an occasional purgative during the worst season. See that no water in little pools is allowed to remain in your compound, especially in December and January.

HÆMOSPORIDIUM IN CATTLE.—Pyroplasma Bigeminum is one of the Hæmosporidæ which causes Hæmoglobinuric or Texas fever in cattle, and is spread by a tick called Rhipicephalus Annulatus, which, sucking the blood of the animal, transfers the parasite to its eggs, and by the larvæ the parasite is injected into the cattle.

THE METAZOA.—These are multicellular animals, and can be divided into two groups:—A.—The Invertebrata, without bones; B.—The Vertebrata, with bones.

A—THE INVERTEBRATA.—Those invertebrata animals which mainly interest us with regard to disease belong to the groups of—I.—Vermes; II.—Arachnidæ; III.—Insectæ; IV.—Mollusca.

I.—VERMES.—A great many worms are parasitic and cause more or less disease in man, but of these I only wish to consider two:—Anchylostoma Duodenale; Filaria Bancrofti.

ANCHYLOSTOMA DUODENALE.—This is the cause of a great deal of disease and death in Ceylon among various classes, but especially among coolies. Its life history is most complicated, and unfortunately the way in which it gains access to man is at present quite unknown.

FILARIA BANCROFTI.—You must all have noticed the numbers of people who go about the streets of Colombo with an enormously enlarged foot and leg. This disease, which is common in Galle, is called Elephantiasis, and is due in the first instance to a worm called Filaria Bancrofti, which lives in the lymphatics, and the young of which enter the blood stream at night, being called the Filaria Nocturna. Very many people have filariæ in their systems, and they suffer no inconvenience from them till they injure a part, say the leg; then comes fever, and an attack like erysipelas, and when the attack is over the leg is found to be a little larger than it originally was. This is repeated till the large legs you know so well are produced. The embryos of Filaria Bancrofti are very small, and though none of them are to be found in the blood in the day time, yet many are found about midnight. Night is the time when the female mosquito is on the war path, but now it is the Culex (*Culex ciliaris*) which sucks the blood, and with it the young filariæ, into its own stomach. In the stomach they cast off their sheaths and pierce their way into the thoracic muscles of the mosquito, and then gradually, in about sixteen to twenty days, they undergo a metamorphosis. Then they pierce their way into the proboscis, and lie there among the stilette, knives and saws until they get the chance of entering a suitable subject. In this way the filarial worm is spread from man to man by the agency of a Culex.

II.—THE ARACHNIDAE.—This is the class to which scorpions, spiders, mites and ticks belong and among them there are many parasites, some at present but little known. The ticks are interesting, as they are said to cause 'Tick fever' in Central Africa, a disease characterised by symptoms somewhat like dysentery associated with fever.

III.—THE INSECTA.—Of insects, the Diptera or flies are the most important in causing diseases. The common house fly is now proved to be one of the means of spreading typhoid fever. In Ceylon it often has filarial worms in its mouth parts, as was pointed out to me by Mr Green of Peradeniya, but only in the so-called Mad flies; but I am afraid all the wickedness of the common house fly is not yet known. The mosquitoes belong to the Diptera and of these, Anopheles is the spreader of malaria, Culex of filaria and another, called Stegomyia fascita, has been proved to be the means of spreading yellow fever. A wingless Dipteron, called the Chigœ, started on its travels from South America in 1850, and having crossed Africa from west to east has arrived in India and causes much trouble by penetrating the feet. Another group called the Hymanoptera includes the ant which has been accused of spreading a plague in India.

IV.—THE MOLLUSCA.—Among molluscs, oysters, mussels and cockles have been convicted of spreading typhoid fever.

B.—THE VERTEBRATA.—Among the vertebrata, rats, cats, mice, squirrels and monkeys may spread the plague; horses may infect men with a disease called glanders; parasites may be introduced from fish, dogs, pigs and oxen; and man himself may spread disease to other men.

The Lecturer was loudly applauded on resuming his seat.

Dr. GRIFFIN, in proposing a vote of thanks to the lecturer, said:—Your Excellency, Ladies and Gentlemen,—I have the honour and pleasure of proposing a vote of thanks to Dr Chalmers for the very interesting lecture he has given us tonight. My only justification, or rather excuse, for taking this duty upon myself is that, perhaps, I am better aware than most of you what great interest and considerable labour Dr Chalmers has undertaken to inaugurate this series of lectures and more particlarly to give us an interesting and instructive lecture tonight. Dr Chalmers has travelled in many lands and has well availed himself of the opportunity of studying the habits of these animals which spread disease; and I think not the least important of these lectures is this one tonight which gives us an outline of how many diseases are spread, and it will, I hope, be the means of interesting you and the rest of the public of Ceylon in measures to stop the spread of these disease.s (Applause.)

INDIAN PATENTS: TEA.

The 27th June 1902.—applications in respect of the undermentioned inventions have been filed. No 249 of 1902.—David Reid, Tea Planter, and John Dale, Engineer, both of Baraoora, South Sylhet, Assam. *A tea-drying and glazing machine, called "Reid and Dale's tea-drying and glazing machine."* No 253 of 1902.—Horace Drummond Deane, Tea Planter, of Stagbrook Tea Estate, Peermaad, Travancore, and Charles George Landseer Judge, Journalist, of 47, Free School Street, and No 5-1, Council House Street, in the Town of Calcutta, both in British India *An improved method and apparatus for manufacturing green tea.—Indian Engineer*, Nov. 29,

TEA, COFFEE AND CACAO.

It requires either a philosopher or a cynic to extract humour out of a serious situation, and perhaps our correspondent, "A simpleton," who writes to us on the subject of a communication we published last week claims to be either one or the other. We admit that the suggestion for

IMPROVING THE POSITION OF TEA

growers put forward in our last week's issue reads like a fairy tale or a jest, but we believe it was sent to us as a serious contribution, and we printed it. So many theories have been offered for the consideration of members of that tea industry of late that it would have been unfair to deprive our correspondent of publicity and the chance of competing with his neighbours. The idea that tea garden proprietors and their friends would, or could, subscribe the sum mentioned by our correspondent for the purpose indicated is, we allow, indicative of a sanguine temperament, but there is something refreshing about pure, unalloyed optimism, and as a sample of the real thing in that line our contributor's communication deserved publicity. We therefore leave to others the task of criticising a project which is bold, if nothing else, in its conception, and on that score deserves in recognition in some form.

COFFEE PLANTERS

will not, we imagine, drop a tributary tear over the woes of chicory growers, who are memorialising the Government about their troubles, but they may be interested in some particulars of this product which frequently masquerades as coffee. The memorial sets forth that between the year of its introduction in 1840 and the year 1860 and growth and cultivation of chicory root in Yorkshire and neighbouring counties was not only an important item of agriculture, but was a source of considerable profit to the former. The quantity grown in England was then about equal to the quantity imported from abroad. In the year 1860, however, a Customs duty of 6s per cwt was placed on imported chicory, and an excise duty of 3s per cwt on home-grown chicory; and in the year 1863 these duties were increased to 26s 6d and 21s 9d per cwt respectively; and in the year 1864 the excise duty on English chicory was further increased to 24s 3d, but no increase was made on foreign-grown chicory. The memorial states that as a result of such duties, during the period from 1860 to 1872 the importation of foreign chicory largely increased and the growth of English chicory diminished, and stood in the relation of four tons of the former to one ton of the latter. The memorial further points out that chicory is the only dutiable article grown in this country (the registration of wheat being confined to imports only), and that in the year 1901 the whole of the quantity of English chicory on which duty was paid was 89 tons, and that the revenue obtained therefrom is small and costly to collect. It is further urged that the reduction of the home excise duty of ½d per lb on present returns shows a loss of £412 only. This, it is argued, would do much to revive the industry and help to restore the prosperity formerly enjoyed.

On the subject of the import of chocolate and cocoa into Egypt, the "Moniteur Officiel du Commerce," says: "The import of

CHOCOLATE AND COCOA

into Egypt is relatively restricted for a country which numbers nearly ten millions of inhabitants; it amounts in fact only to 104,000 kg., which is an insignificant quantity per head. Egypt possesses no chocolate factories, although sugar is very cheap there. This is, no doubt, due to the small consumption. It is clear that the Arab does not patronise either cocoa or chocolate, consequently the buyers are only Europeans. Among the importing countries France occupies the first place with 50,000 kg, next comes Italy with 22,000 kg., and then England with 19,000 kg. Whence arises this abstention, this repugnance, to an article which is a favourite with everybody generally? We have tried to find out, and the statement is that chocolate is only 'damaged coffee." We do not think that all Arabs are of the same opinion, but rather think that their aversion arises from the circumstance that their confectionery is specially prepared to please their taste, containing almonds, nuts, &c.; they have also 'loukoums,' a kind of delicate pastry made with starch and perfumed with sundry essences. These sweets, which are sold very cheap, are more within reach of their means than the chocolates, the qualities of which, even the most inferior, are by far dearer than their best productions."—*H and C Mail*, Nov. 21.

The cost of producing them is not a heavy one, so that there is every reason to anticipate that the new discovery will lead to a sensible diminution in, the price of the formerly precious stones. The rubies are obtained by a new process, in which the, blow-pipe plays an important part, and the stones are both beautiful and of a goodly size. The specimen shown at the meeting of the Academy was much admired by the savants.—*Daily Mail*, Nov. 12.

RUBBER AT MANAOS.

New rubber fields have been discovered on Jurua, but the tree does not appear to be the *Hevea*, answering more nearly to the description which the India Rubber World has given of the Mexican *Castilloa.* The rubber obtained is said to be weak—*i e* to break easily on tension, but the captain of one of the river steamers informs me that the *sernamby* (coarse) is excellent and even better than that obtained from the *Hevea.* I hope to visit the new rubber fields in October and to send you a fuller description of the same.

Some of last year's product of Upriver rubber was of rather poor quality, which, in the opinion of some, was due perhaps to the fact that the floods last season were less extensive than usual and rapidly subsided. It is held here that the longer the rubber fields are under water in any year, the better will be the quality of the rubber and the greater the amount obtained. If there is anything in his theory it may be that the irrigation of plantations may prove desirable where the same species of rubber is cultivated.—*India Rubber World*, Nov. 1.

COTTON-GROWING IN EGYPT.

The Egyptian cotton crop this season is expected to be a very large one, and it is estimated that it will be about 6,500,000 cantars, one cantar equalling about 99 lb., but the quality has been greatly damaged by fogs and rain. There has been a noticeable falling-off during the last few years in the quality of Mount Affifa cotton, but some of the cultivators are giving great attention to the improvement of the cotton and to a more careful selection of sowing seed. The total exports of cotton seed for the year ending December 31, 1901, were 393,804 tons, as against 378,702 in 1900 and 379,285 tons in 1899. Seed-crushing in Egypt continues active, and a new mill of thirty-two presses has, according to the annual report of the British Chamber of Commerce of Egypt, been erected at Kafr Zayat.—Zanzibar *Gazette*.

CRUDE RUBBER.

ANGOLA.—The most important African Colony belonging to Portngal, and the one in which the large t fortunes have been made within the last thirty years' is Angola. The Colony of Angola comprises 517,000 square miles, and has a sea line of 870 miles. The climate, if tropical along the coast, has proved healthy enough for Europeans nearly everywhere in the interior. I speak from practical experience. There is no soil on the snrface of the globe more fertile than that of Angola, and only a few years ago this colony was practically the second largest producer of rubber in the world. In 1899 it exported rubber, in the face of grave difficulties, to the value of 4,500,000 dols, besides large quantitics of coffee and other products. The climate, topography, and soil of Angola would render comparatively easy the cultivation on a very large scale, of such crops as tobacco, coffee, rnbber, and certain cereals. Native labour is ridiculously cheap, and, when intelligently directed, is most excellent. A man who for twelve years was at the head of a mercantile house, which at the time did the largest business with the African Colonies of Portugal, writes as follows:—

"The question of labour about which you ask, is not difficnlt to solve. The nergoes are good workmen and the Portuguese colonists are hard-working, sensible men. The great prodnct of these colonies for the present moment is rubher. There are apparently inexhaustible snpplies of it. You ask me, then, if this is so, why Portuguese Africa has not prospered like the Congo country, which is administered by the Belgian Government. I will tell you. The whole difficulty is one of administration. The rubber in the Portuguese Colonies is brought down from the remots interior districts by bearers, who have sometimes a journey of two months to the coast to exchange their produce for money or goods.

"As soon as one gets into the interior, there is an absence of roads and a great paucity of Government military stations or trading posts. The conntry is slightly policed. The consequence is that the negro bearer who carries his rubber has a long, dangerous difficult jonrney, and is robbed of a portion of his stock from time to time. . . . . Notwithstanding all these grave difficulties and disadvantages of a practical nature, the trade in the Portuguese Colonies thrived enormously until the Congo State appeared. Then system, order, and far-seeing patience began to tell, as they always do. With admirable foresight, the Government of the Congo State developed a vast notwork of trading stations in the interior of its territory, and built flat launches to bring the produce to the tide water *via* the water ways and rivers of the country. This sort of navigation costs very little. In short, the Congo Government brought the market close to producer; and as a consequence of this system and organisation, it is able to underbid in the rubber trade the very country where rubber most abounds. The rubber is purchased on the spot, and the native is spared the danger and toil of a long journey to the coast.

"In this connection it should be observed that both the Congo and Angola only export rubber produced by wild-growing plants, and though the field is still an enormous one, and may be exploited in the present manuar for thirty or forty years louger, the nltimate system will be to cultivate the rubber plant systematically. Already, a good beginning in the way, of setting out rubber plantations has been made in the Congo, bnt I think nothing of this sort has been done in Angola.

"With the highly-organised and scientific methods of the Congo State, the Portuguese merchants and dealers have found themselves unable to cope profitably. The negroes refuse to come to the coast with rubber; they prefer to sell on the spot, as it were, in the Congo.

"The rubber trade in Angola could readily be revived by proper combination and management. The various existing interests would have to be consolidated in some well-working way, and this would be a comparatively easy matter."

The main difficulties which foreign investors in the African Colonies of Portugal are likely to enconnter will arise from the variety of constructions put upon the law governing the creation and management of corporations formed for the purpose of transacting business in the Colonial possessions of that Kingdom. This law is not at present thought to be wholly favourable to the investment of foreign capital in the Colonies.—*India-Rubber and Gutta-Percha Trades' Journal*, Nov. 10.

THE TRADE IN COTTON SEED.

A few months ago we drew attention to the growing development of the Indian trade in Cotton seed with Europe. As food for cattle, the seed had long been popular in India; and both Sinhalese and Tamil cattle-owners here believe in it for its nutritious qualities, and specially as increasing the yield of milch cows. The popularity of cotton seed is greatly enhanced by the fondness of cattle for it. Draught cattle, which have toiled all the week and have been fed with poonac-water, often poured down their throats with a bamboo, and not unfrequently of an age which makes itself felt to the olfactories, are allowed by some owners a feed of cotton seed on Sundays; and the rush they make to the weekly dainty is a sight to be seen. But it is the export trade in the article and its growing appreciation in Europe, which is now attracting special attention. The European importer, as we said when we last touched on the subject, is more concerned with the potentialities of cotton seed, as food for man, rather than for cattle; and as we are ourselves pressing for cotton cultivation in the Northern Districts of the Island, as one means of rescuing the Northern Railway from persistent financial failure, the information which is to hand in an Indian paper is of special interest.

Mr. Sly, the Director of Agriculture in the Central Provinces of India, is reported to be working hard to restore the agriculturists of that sorely tried region to a condition of normal prosperity, and at the same time to promote its economic welfare. One of the means which he has adopted, and with which we have become familiar since the appointment of our own energetic Director to the Botanic Gardens, is the issue of "bulletins," brimful of information, valuable to the agriculturist and the statistician. The latest bulletin deals with the prospects of the cotton seed industry in the Central Provinces—the exports having risen from 46,000 cwt. in 1896 to 225,000 in 1900, and to 2,036,000 cwt. last year. It is not the least satisfactory feature of this increase that practically the whole quantity was shipped to the United Kingdom, which had previously long drawn its supplies from Egypt To what extent it is still supplied from tha source we are not told, but America use up all its own seed, and has none to spar for export. That is probably one of th causes of the phenomenal demand—another

being that the high price to which linseed has risen, has driven dealers to look out for a substitute. That India has been able to meet the heavy demand is due, in a great measure, alas ! to the recent famines which have materially reduced the number of cattle which remain to be fed; but the urgency of the demand may be gathered from the fact that Egyptian seed continued to rise, despite the quantities which Indi. was able to throw into the London markea The appreciation of the seed in Americs seems to have been as recent as it haa been ancient in India. In Texas there was a law making it penal to dump cotton seed into streams—a provision which would scarcely have been called for, had Yankee cuteness discovered the value of the seed earlier. Now, at least 500 mills are said to be crushing the seed, and the estimate of the annual value of the product is over £10,000,000!

The extent to which cotton seed is used in feeding cattle in India will militate against its rivalling America in the erection of mills, or in the export of the raw material to anything like that value ; but, given the demand, it might utilise the seed in manufactures to an appreciable extent. We read that the seed "is used in Europe in the manufacture of innumerable products, such as lard, butter, candles, dyes, paints and general oils," and if there is no present demand for all these products in India, the crude oil might be exported with greater profit than the seed ; but the local demand, especially for the oil, as food, is sure to grow. The present average price of cotton seed is given at R7 per candy of 658 lb., and the calculation is that a profit of 17·14 per cent is to be made on its conversion into oil which is now selling at £20 per ton in England. If America can no longer supply the London market, the price of oil is scarcely likely to fall, and India may find it profitable to retain the residuary products and ship the oil to Europe. Can the continuance of high prices for Ceylon Coconut Oil be connected with the active demand for Cotton Seed Oil which must be coming into competition with it in some directions?

THE POSITION IN THE TEA TRADE.

BY. J. INNES ROGERS.

[SPECIAL FOR THE "INDIAN DAILY NEWS."]

London, Nov 7.

For several months past there has been a dispute in the tea trade upon a point which is of vast importance to the growers of tea in India and Ceylon. It has to do with what is known as the Clearing House, and institution where the home tea trade lodge their papers for the purpose of obtaining deliveries, instead of taking them round to the various wharves where the goods themselves are stored. A central office of this sort is, of course, a considerable convenience, and to its principle there can be no objection whatever. It was created some 14 years ago in consequence of the then existing difficulties, and at that time the whole of the home trade and of the wharves and docks storing tea joined it. A condition of membership was inserted, among others of an ordinary character, which passed without much notice at the time, and was in fact then of no importance because the whole of those interested formed part of the Clearing House. It was to the effect that the home tea trade agreed only to buy teas lying at wharves and docks, the owners of which were members of the Clearing House. As was stated above, no particular importance was attached to this condition and up till quite recently the whole ef the wharves storing, tea were members of the

CLEARING HOUSE.

In the early part of last year, however, a wharf called Gun Wharf, obtained a bond from the Customs which enabled it to store tea. This was entirely a new departure, for the Customs had for some years past, in accordance with an agreement with the Clearing House, declined to issue fresh bonds for the warehousing of tea, thus giving the wharfiingers a monopoly. This monopoly has recently been worked to create a pool or trust, among the warehouse keepers for a certain number of years of which the members agree to maintain the existing charges and to divide the profits or losses among themselves in certain proportions. The customs naturally resented this attempt to use Government facilities as a means of boycotting, and representations were made to them by some members of the home trade that they were desirous to no longer oppose the issue of bonds to fresh warehouses, and in fact that they desired competition because of the existing high charges on tea which had become increasingly burdensome as the price fell. The result of this was the issue of a bond to

GUN WHARF.

The proprietors of that place were refused admission to the Tea Warehouse pool or to the Clearing House, and they thereupon elected to fight on their own account, and to receive and distribute tea at prices some 30 per cent below those charged by the pool.

The appearance of Gun Wharf upon the scene placed the home trade in a position of some difficulty, for they were not as a whole directly interested in cheapening the import rates on tea, because, generally speaking, they buy in London after the parcels are landed. It was felt, however, that although this was the case, the crushing weight of the import charges, and of rent and sampling on tea, indirectly interested the home trade very much. They were, in fact, part of the excessive cost of distributing tea which has rendered the home trade so unprosperous. They were anxious also to come into touch more than hitherto, with the growers of tea and the large Indian and Ceylon importers in this market, and they felt that as the wharf charges formed so important a question for India and Ceylon, it was desirable to take up the question in the interests of our fellow countrymen abroad as well as indirectly in their own. The first step that was taken by

THE HOME TRADE

in this matter was to approach an Indian and Ceylon Association in London, and to hold private conferences with a number of leading importers. These, however, led to no results whatever. The trade were desirous of opening up the whole question of the cost of distributing tea in connection with the wharf charges, but no progress was made. Several large distributors of tea, after

some months of discussion, decided that they would cut the Gordian knot by giving the Clearing House notice that they intended to deal with tea lying at Gun Wharf. The reply of the Clearing House was to expel the members in question from their body, and to charge them increased rates for sampling and other matters besides withdrawing the facilities of monthly accounts for charges, and compelling the boy messengers of the firms n question to carry abou t a small amount in cash to pay each 2d or 3d in charges as it was inurred. Several leading brokers who had been entrusted with the sale of teas by a leading Indian emporter who had placed his goods at Gun Wharf were also expelled from the Clearing House, deprived of its facilities and exposed to higher charges amounting in the case of some of the firms mentioned to a good many hundred pounds a year. In this position the

ANNUAL MEETING

took place at the London Tea Buyers' Association, a body which contains four-fifths of the buying power of the trade in this market. At this meeting after full discussion, a request was unanimously forwarded to the Clearing House to strike out the boycotting clause in its rules, and to enable buyers to purchase tea where they thought it desirable to do so. In reply to this the Clearing House refused point blank to do anything of the sort, This refusal was followed up by more notices to the Clearing House that buyers intended to purchase teas at Gun Wharf, and also by the appearance of two or three fresh wharves upon the scene who had not previously stored tea and who are now prepared to do so. The last stage of the controversy is that the Clearing House have asked the Tea Buyers' Association to meet them in conference to discuss the questions at issue. The Committee of the Tea Buyers' Association were to meet on Wednesday to agree upon their reply, which will probably be to the effect that they will be pleased to discuss the whole situation with the Clearing House, but the boycotting clause must first be removed as requested by the trade. The general feeling is that the trade are quite prepared to pay any reasonable sum for the facilities of the Clearing House, but that that institution in itself should have absolutely nothing to do with any pool arrangement. A considerable section of the home trade, however, think that the Clearing House might very reasonably form a central place of meeting for the use of tea growers, importers, brokers, dealers, blenders and other market buyers. If some meeting-place, of this sort could be arranged, the whole question of the organisation of the tea trade, which sadly requires improving, could be discussed at leisure and in a friendly way. At presens there is no communication whatever between the importers of tea and its distributors in this market, and the result has been most disastrous. The importers do not know even the names of their chief buyers, and the distributors in the same way are ignorant of whom they are buying. It is true that the brokers who sell from the importers to the distributors know these facts, but this is an entirely different matter to direct communications between the parties interested, especially as the brokers are completely satisfied with the existing position of things, and are unwilling to come forward as reformers with the risk of embroiling themselves with either one side or the other.

As is well known, tea in common with other

EASTERN PRODUCE,

was for many years a monopoly on the East Indian Company; that Company drew up a very complete and a most able system of dealig with the different articles of produce under its control. By degrees all other Eastern trade has shaken off the clever but antiquated and monopolist system imposed upon buyers three or four generations ago by the East Indian Company. Tea however, remains under the old rules, which have, become absolutely useless in many respects, while they entail prodigious and unnecessary cost upon all who have to deal in it. The prompt (or time within which payment has to be made) is kept up on the old East India terms of three months, whereas all the similiar articles of produce have now to be settled for within one month. To provide against the risk of what may happen to the market in so long a period as three months the buyers pay on purchase a deposit of £1 per package, which now amounts in some cases to more than half the value of the tea. To carry out this system, and to get security for the deposits, a document called the Weight Note is employed which is a contract, an invoice, a security for deposit, a delivery note, and other things besides. In other trades a single invoice is made out for the whole parcel, and if necessary the landing account is supplied by which it may be checked. In tea, however, (at an enormous aggregate cost which is perfectly useless), an invoice is made out for every six or nine packages, and its contents also bear all sorts of fribbling particulars of a useless character which simply add to cost without giving any corresponding advantage. The whole of this complicated system requires to be swept away, and to be replaced by a reasonable and modern way of doing business. Again, the conditions of public sale require revision and to be brought up to date. Considerable reforms were, some time ago, actually agreed to by a committe, of importers and the home trade but they were blocked by the action of the brokers who do not desire any changes to be made, and there was not sufficient cohesion between the importers and the buyers to insist upon the alterations. If, however, the Tea trade is to be modernised these conditions of sale will have to be dealt with. At the same time the unnecessary cost of catalogues might be seen to. This suggests a point which may be interesting to the planters, especially in India and that is the enormous

COST OF SAMPLING

and dealing with the small parcels, or breaks. which they send to this market. In the old China days a chop might represent from six to seven hundred packages, the cost of dealing with the details of which was precisely the same as the 30, 40 and 60 chest lots which are now sent us from India and Ceylon.

Closely allied with this question of small breaks is that of bulking on the gardens. At present nearly all Indian Tea has to be rebulked in London at an enormous cost to the planters, and to the great injury of the tea. In Ceylon this cost and damage is commonly avoided, and there is no question at all that the same steps ought to be taken in India. Even careful and complete bulking in the gardens, so that the quality of a parcel should be uniform, would be insufficient, however, unless the different chests or empty packages

themselves have an even tare, that is, unless their weight is approximately regular. Unless this is the ease, every chest of tea has to be turned out here in order that the Customs may ascertain the tare. In China Tea, with the much inferior appliances of the Chinese, this was never necessary, and the Customs simply had to tare a few packages out of hundreds to ascertain the actual weight of the chest. In further connection with the question of

BULKING,

it may be suggested to the tea-growers to consider whether the separation of their produce into so many different sized leaves pays them, and whether it would not be much better and more economical for all parties to obtain larger breaks, whether it would save not to sort out the tea at all. As a matter of fact all the tea elaborately separated out into different sized leaves in India has again to be rebulked here in the same small breaks at a tea warehouse, and then the different qualities after delivery are all mixed together in one blend, either by the wholesale or the retail blenders. This as a whole constitutes an immense addition to the cost of tea. The great fall in value of late years has not been distributed proportionately over the different qualities, but the fall has been greatest in the best teas, so that whereas the margin between the highest and lowest price in former years used to be very great indeed, the difference between the best and the commonest qualities is now very small. To a large degree this is due to the system of unrestricted public sales, the results of which with the cost of each lot are sent out broadcast to all the chief small, wholesale, and retail distributors throughout the Kingdom. One reason for this extreme publicity was that the planters were under the impression that what they called "Mincing Lane," that is the old established wholesale dealers in tea, were thought to obtain too heavy a profit at the cost of the planters. This was a very great delusion. The result of the present system of unregulated and enormous

TEA SALES,

has been practically to abolish the class of dealers whom the Planters had in mind. With their disappearance or retirement millions of capital have been withdrawn from the wholesale tea trade, which money was formerly employed in better prices being paid at a time when supplies were large, and keeping them up later in the season. The capitalists who conducted such operations naturally expected a fair return for their money, but with the present system this is impossible, and it pays no one to buy and hold the better classes of tea, because, in the first place, all their important customers are acquainted with the cost of each particular parcel, and secondly, because there is no security that at any moment similar tea may not be forced off without reserve upon the market, without the slightest consideration for the interests of previous holders. With the partial or entire departure of the old style of merchants dealing in tea, fresh classes of wholesale distributors have grown up. The first is that of wholesale blenders, who do not, as the old dealers did, sell a particular parcel on its merits, but mix a number of teas together, so that their identity is lost, and they can obtain, therefore, such prices as the merits their mixture enable them to get without being limited, as in original teas, to a certain small proportion on a cost which their customers know. Several important blending houses are public Companies, and their returns are published. Further than this, it is a matter of common knowledge that their gross and net profits infinitely exceed those of the old fashioned tea dealers whom the planters ignorantly put under the name of "Mincing Lane." Another great departure from the tea trade has been the introduction of

PACKET TEA

by wholesale firms who advertise largely. Here again the profits are very heavy indeed, and together with the cost of advertising, have largely to come out of the pockets of the tea planters. This is the price which the latter are paying for the abolition of what they call "Mincing Lane," and if it goes far enough, tea will fall or rise to the position of cocoa, where half the cost of a cup represents the expense of advertisements. Some efforts were made a short time ago to stop this condition of things by obtaining some privacy in the published prices of individual parcels at public sales. The question was entirely misrepresented to the planters, and it was held to be an attempt to help Mincing Lane to get back its old monopoly. Thereupon the proposal fell through, to whose detriment it has yet to be seen. The final result of the present system is that the average retail price of Tea throughout the country and the chief sale there of is at 1s 4d. per lb. If 6d. be taken off this for duty, and 3d. for the retailer's profit, it leaves 7d. per lb. for the cost of blending, and in the case of packet tea of packing and advertisement, without allowing in either case for the wholesale profits. It will be seen that if this state of things continues, the average price of tea, supposing the present duty is maintained must fall to something like 5d. per lb., and every day the finer teas will become relatively cheaper than the common ones, so that this disastrous tendency is progressive. The interest of the tea growers in this question is a vital one, but whether they, on full consideration, favour or do not favour any alteration in the system of distributing tea through dealers, blenders, or packers, they are every one of them most vitally interested in reducing the cost of importing and distributing tea to the wholesale buyers of and whatever class. It is to be hoped, therefore, that their support will be secured for the system by which economies will be effected in the warehousing and other import charges on tea. One way another some £250,000 a year in the aggregate might be saved in these respects by careful reforms. —*Indian Daily News*, Nov. 25.

GIFTS OF THE TROPICS.

Chief O P Austin of the U. S, Treasury Bureau of Statistics contributes to the June *Forum* an article on the growing importance of tropical imports, from which we abstract as follows:—

Tropical products which earlier generations considered luxuries are now necessaries of life everywhere. The average consumption of sugar has risen from thirty-three pounds per capita in 1870 to sixty-eight pounds in 1901; coffee from six to nearly twelve pounds per capita; cocoa has increased six times; despite these gains of its rivals, consumption of tea is still as great; silks and satins are no longer luxuries; and rubber, a generation ago almost unknown, is now used everywhere.

The great railways have turned right angles and are facing towards the equator, bringing tropical products more into reach. The effect is

readily observed in the temperate zones in greater comfort, more variety of food, better health and longer life.

This is especially the case in the United States, which now imports over 1,000,000 dol of tropical products every day. This is more than for most other countries, since most of our sugar comes from the tropics, the others depending on beet. Our recent consumption is near one-half the cane sugar and more than one-half the coffee of the world. In 1901 our imports of tropical goods were over 400,000,000 dol, against 143,000 000 dol thirty years ago.

These figures fail to show the real growth because of the reduction in value per unit of quantity. The cost of sugar in the country exporting has since 1870 fallen from 5 to 2·3 cents; that of coffee from twelve to eighteen cents to seven cents; tea from twenty-four to thirty-seven cents to 12·3 cents; raw silk from over five dol to a little more than three dol a pound.

There are four ways to measure this growth, all bringing identical results. The first is to consider imports by grand divisions. Imports from Asia, Africa, Oceanica, and America south of the United States were in 1870, 157,000,000 dol; 1875 224,000,000 dol; 1880, 265,000,000 dol; 1890, 298,000,000 dol; 1895, 310,000,000 dol; 1901, 414,000,000 dol. Total imports meanwhile were: 1870, 436,000,000 dollars; 1875, 533,000,000 dollars; 1880, 668,000,000 dollars; 1890, 789,000,000 dollars; 1895, 740,000 000 dol; 1901, 880,000,000 dol. The share of tropical imports thus rose from 36 per cent in 1870 to 47 per cent in 1901. Further, the population of the United States has increased meanwhile from 38,000,0 0 to 76,000,000, exactly doubling, while tropical imports increased from 167,000,000 dol to 414,000,000 dol, or 165 per cent. Meanwhile non-tropical imports increased 55 per cent.

Taking tropical products by articles, we find that the most important are: Sugar, coffee, raw silk, Indian rubber, cocoa, fibres, fruits and nuts, tobacco, cotton and tea. In 1901 these aggregated 340,954,707 dol or 84 per cent of total tropical imports of 414,000,000 dol. Since 1870, sugar rose from 70,000,000 dol to 114 000,000 dol; coffee from 24,000,000 dol to 70,000,000 dol; rubber from 3,500,000 dol to 28,000,000 dol; raw silk, from 3,000,000 to 40,000,000 dol; fibres, from 6,000,000 dol to 25,000,000 dol; fruits and nuts, from 7,500,000 dol to 20,000,000 dol; cotton, from 500,000 dol to 8,500,0000 dol; tea has fallen from near 14,000,000 dol to 9,000,000 dol.

The total value of all tropical imports was in 1870, 144,000,000 dol; 1875, 207,000,000 dol; 1880, 246,000,000 dol; 1890, 333,000,000 dol; 1895, 325,000,000 dol; 1901, 405,000,000 dol, corresponding closely to the figures by grand divisions.

A study by articles shows a great variation in increase measured by values. Sugar increased only sixty-six per cent in value, while population increased one hundred per cent, yet consumption is twice as great as in 1870; coffee, however, increased nearly two hundred per cent and cocoa over one thousand per cent, tea decreased thirty-three per cent, though per capita the consumption was the same as in 1870.

Considering manufacturing articles, fibres and tobacco show nearly four times the value in 1870, rubber seven times, silk over twelve times, and cotton over twenty-five times, though the United States is now the greatest cotton-producing country.

It is only by quantities that one can realize the real growth much more rapid than indicated by values. Since 1870 sugar increased from 1,196,000,000 to 4,569,000,000 pounds, about three hundred per cent, against an increase in value of sixty-six per cent; coffee from 235,000,000 to 1,074,000,000 pounds, or ever three hundred per cent, against an increase in value of two hundred per cent; silk from 500,000 to over 12,000 000 pounds; rubber from less than 10,000,000 to over 55,000,000 pound; tobacco from 6,250,000 to nearly 29,000,000 pounds; cotton from less 2,000,000 to over 68,000,000 pounds; dye goods from 43,533 tons to 255,771 tons; cocoa from less than 4,000,000 to over 50,000,000 pounds; tea decreased in value thirty-three per cent, but increased in quantity fifty per cent.

The largest increase is thus in materials for manufacturing Foods increased two hundred to three hundred per cent, materials for manufacturing three hundred to three thousand per cent, while population was increasing one hundred per cent.

In the fourth method of measurement we may make three groups—foods, raw material for manufacturing and manufactures and luxuries. Foods show a growth in value of ten per cent, which inclusion of Hawaii and Porto Rico for 1901 would raise to twety-five per cent, manufactures and luxuries of thirty-three per cent, and manufacurers' materials of ninety per cent.

The chief growth in our imports is tropical products, and there must be a growing demand for these, since we lack the necessary climate, while manufactures and luxuries our own producers will supply in increasing quantities.

In the light of these figures is it not possible we have builded better than we know in our recent unsought tropical acquisitions? The products of Hawaii have increased over twenty fold since the reciprocity treaty of 1876, and exports to the United States twenty-five times. Porto Rico shows over three times the average before the new relationship. Our exports to Hawaii have multiplied twenty times, and to Porto Rico five times. In 1901 the Philippines supplied over twice the total of 1899; their nearest neighbours, the Dutch Indies supply us with more sugar than any other country save Cuba, with the Philippines twenty times as large as Hawaii and fifty times as populous, their possibilities are worthy of consideration.—*American Cultivator.*

POPULAR SCIENTIFIC LECTURES.

MR. J. B. CARRUTHERS, F.L.S., ON SEA-WEEDS.

The second of the series of popular scientific lectures inaugurated by the Hon. Mr. Cooper some weeks ago was delivered in the Ceylon Medical College Hall on December 6th by Mr. J B Carruthers, F.L.S. The attendance was comparatively small, but when regarded in the light of the fact that those present made their way to the Hall in a downpour of rain was decidedly satisfactory. The lecture was on "Sea-weeds," and the lecturer treated his subject in a masterly and interesting manner which, indeed, at times, de-

veloped into raciness. Each subject, which he referred to was beautifully illustrated by a powerful lantern, and the revelations of the wonders of the deep, thus afforded the audience-repaired for their presence.

The lecturer was briefly introduced by Dr the Hon. A J Chalmers to the audience, among whom were the Hon Mr G M Fowler, Mr and Mrs. E E Green, Mr and Mrs Wackrill, Mr and Mrs. F Lewis, Mr. J Ferguson, Mr. and Mrs. F C Roles, Mr Cottle, the Hon. Mr. and Mrs. F A Cooper, Mr. C D Vigors, Dr. and Mrs. W H de Silva and Mr. W H Davies.

The synopsis of the lecturer provided to those present and which gives a fair idea of the lines taken by Mr. Carruthers was as follows:—

SEAWEEDS, or, to use their Latin and scientific name, Algæ, are of interest from many points of view. They are, in nearly all cases, things of beauty both in form and colour; they are of great economic importance as the basis of the nutrition of marine animal life; and they are in their structure and life-history among the most interesting of organisms that science investigates.

Colour, which is not available as a character for grouping other large classes of plants, coincides in the case of algæ with the natural classification—

Red seaweeds, or Rhodophyceæ.
Brown seaweeds, or Phœophyceæ.
Green seaweeds, or Chlorophyceæ.
Blue-green seaweeds, or Cyanophyceæ.

These primary divisions of algæ show also the distribution of the plants they include with regard to the depth of the sea where they are found. The green algæ are seen, as a rule, near to shore and at no distance from the surface; lower down we find the brown forms, and the red seaweeds occur at the greatest depths.

Light is essential to the life of algæ. At a depth of about three-quarters of a mile there is total darkness, and consequently no living seaweeds; but at a much less depth, not one-quarter of a mile, the light is of such a kind that the plants cannot grow. The most numerous algæ are those which from their size and habit are the most difficult to observe, *i.e*, the free-floating or pelagic forms. These are not anchored to rocks, stones, ships' bottoms, &c., like the better known and larger seaweeds, but live in great quantities in the upper layers of water away from land, in some cases giving a green or red colour to lakes. They are of microscopic dimensions, and are usually captured by pumping sea water through fine silk gauze, when they remain as a scum, and can be placed for examination under the microscope. Many have hard, siliceous shells, the Diatoms, of which some 10,000 species are known, having in past ages formed the immense chalk beds. The continuous rain of dead shells which falls down to the bottom of the sea as these small organisms die, make the diatomaceous ooze, or deposit, which in the course of time becomes a hard stratum.

Algæ are perhaps easier to identify than other groups of plants; they are dried and preserved with very little trouble. The collection and study of seaweeds is therefore attractive and easy for the amateur, and in Ceylon will be sure to repay any time spent on them.

The lecturer concluded by remarking—I only hope these few remarks I have made may induce some people to find out for themselves a good deal more than I am capable of telling you about sea-weeds, and I can assure anyone at all who has been about the subject that it would repay them, were they to take up this subject. I should be very glad to see any such up at Peradeniya where we have quite a respectable collection of sea-weeds—many of which, I regret to say, are still unnamed. I can only add that I shall be quite satisfied if from this lecture every one is bitten with the love for sea-weeds. (Applause.)

The Hon. Mr G M FOWLER—in proposing a vote of thanks to the lecturer said, I was quite unprepared to be called on to propose a vote of thanks to the lecturer for his most interesting lecture, but have now the greatest pleasure in doing so. I am sorry to say I arrived so late that I did not hear his introductory remarks, but the remainder—I really forget now at what stage I entered—(laughter)—was most interesting. I am sure all of you are most interested in what you have heard and I hope there are a good many here who will profit by what we have heard and extend their research in that direction. I was rather startled by recognising a certain sea-weed on the screen which I thought had not been yet discovered. I came across it many years ago in Mannar and I treasured it. Tonight I heard it described as one of the many common sea-weeds. (Laughter), Excuse this personal reminiscence, but it is only one instance. I am sure I am expressing the sentiments of all present in thanking Mr Carruthers most heartily for his interesting lecture. (Applause).

INDIAN AND CEYLON TEA SHARE VALUES.

From the following figures, compiled, as usual, by Mr George Seton, of the Indian Tea Share Exchange, 120, Bishopsgate-street, E.C., it will be seen that the market value of the shares of 45 representative companies, registered in this country, has again risen slightly during October, and now shows an advance of £175,000 from the lowest point touched on 1st Sept. The rise is pretty well distributed all along the line.

Face value of 45 Companies		...	£9,500,000
Market value	1st July, 1897	(highest point)	£12,000,000
Do	1st Jan., 1902		£7,000 000
Do	1st July 1902	(corrected	£6,225,000
Do	1st Aug., 1902		£6,125,000
Do	1st Sept., 1902	(lowest point)	£6,050,000
Do	1st Oct., 1902		£6,150,000
Do	1st Nov., 1902		£6,225,000

As the total share and debenture capital of about 170 of such Companies, registered in the United Kingdom, with sterling capital, amounts to nearly £19,000,000, the fluctuation of the whole, based on the above figures, may be estimated as follows:—

Face value of about 170 sterling Cos.		£19,000,000
Highest value, 1st July, 1897	...	£24,000 000
Lowest value, 1st Sept., 1902	..	£12,100,000
Present market value	...	£12,450,000

or still a depreciation of £11,550,000; or about 48 per cent. from the highest point.

Even these augmented figures, it may be observed, take no account of either the privately-owned estates nor of the Calcutta, Madras and Colombo Companies, with rupee capital, in which the depreciation has frequently been still greater. Mr Seton adds, as a rider

to his figures, that the tendency to recovery shown during the previous month has been further accentuated during the month just closed, and there are not wanting signs of further material improvement. —*Financial News*.

MICA IN GERMAN EAST AFRICA.

Mica has hitherto only been produced in German East Africa by persons possessed of very limited plant, and the supply has, in consequence, been restricted. A German firm in Mannheim dealing in mica, who had purchased the five mica mines in the Alugaru Mountains, have now formed a company for the further working of the same, under the name of the "Deutsch-Ostafraka Glimmerund Minen Werke," with a preliminary capital of 200,000 marks. Under the management of the former owner the production was 1,200 kilos, monthly; the new company reckon a production of at least 60,000 kilos, yearly, a quantity which, according to specialists, can easily be obtained by proper working. The import of mica into Germany last year through Hamburg was about 120,000 kilos., valued at 500,000 marks, and the demand for mica in the electrical industry is continually increasing. Mining is now going on uninterruptedly under the supervision of two engineers, with thirty natives, and it is probably that even in the first year the expected production of 60,000 kilos. will be achieved. By means of proper instruction to the natives, and the opening of new workings, the firm hope to reach an output of 100,000 kilos. per annum. Investigations conducted by the Government in 1897 showed that the existing mines in the Inbakana district were rich enough to warrant moderate working, whilst a cursory survey of the land disclosed numerous rich lodes, an indication that the deposits were richer than generally supposed.—London *Chamber of Commerce Journal*, November.

PROFITS FROM A RUBBER PLANTATION.

Mention has been made more than once in the "India Rubber World" of a rubber plantation in the state of Chiapas, Mexico, from which shipments of rubber have actually been made. About thirteen years ago a Mexican planter set out a number of rubber trees (*Castilloa elastica*) as a shade for cacao, which grew so rapidly that in time the cacao was practically starved out and of these trees some 5,000 are now standing, in a various condition. A few years ago Mr O H Harrison, engaged in coffee planting in Chiapas, bought this property including adjacent lands containing wild rubber trees, for $12,000, Mexican. Within eight months he had sold in London enough rubber from the wild and cultivated trees to pay the purchase price for the property. This formed the basis for La Zacualpa rubber plantation. A like amount of rubber has been sold from the property each year since, and more land has been purchased, the cost of the whole having been met by the proceeds of the rubber sold. During this time there has been no outlay for labour in caring for the cultivated trees, beyond the collection of rubber. The land having been paid for, the proceeds of rubber sales will be devoted to dividends on La Zacualpa shares. Mr Harrison reports that these trees yield an average of at least 2 pounds of rubber a year—tapped once—and is convinced that a good profit could be made with a yield of half as much, which would give from 2 0 to 300 pounds of rubber per acre, according to the number of trees. The new planting on la Zacualpa plantation has been done with seeds from the productive trees referred to so that no doubt can exist as to the variety that is being planted.

PLANTING "CEARA RUBBER" IN NICARAGUA.

La Victoria Rubber Plantation has been formed at La Paz, Nicaragua, for the cultivation on a considerable scale of the Ceara rubber tree (*Manihot Glaziovii*). The location is on the Pacific slope where the rainfall is slight as compared with that in Eastern Nicaragua, and in other respects the conditions resemble those of the Brazilian state of Ceara, the native *habitat* of this species of rubber. La Paz is on the railway extending from Grenada, on lake Nicaragua through the city of Managua to the Pacific coast, and is favourably situated for trade and transporation. This is a private enterprise, owned by George Adler, who for a number of years has given close study to the different species of rubber. Mr Adler is now in Nicaragua. The plantation manager is Fredrico Wagner. Alfred C Adler, of Waltham, Massachusetts, is also interested in the plantation. About 300 acres have been planted to date, and with such results in the growth of the trees that the work is to be extended.—*India Rubber World*, Nov. 1.

RUBBER IN AFRICA AND SOUTH AMERICA.

The following extracts are taken from an article by Emile Bonnechaux, explorer, published in "Le Vieux Corsaire":—

With the extending use of rubber and its thousand and one applications, a serious question presents itself. Will the forests producing rubber and bind weed become exhausted? Several trips to Madagascar and two voyages to Brazil for the purpose of exploring the forests may permit me to express an opinion on this subject. I believe that certain species will disappear in Africa, Madagascar and Brazil—in fact, in all the regions producing rubber now exploited.

Landolphias will disappear both in Madagascar and on the continent of Africa, by reason of the barbarous methods of extraction employed by the natives, which consist in tapping the bind weed close to the place where it issues from the ground, dividing it afterwards into sections about 20 inches in length, from which the milk is drained by placing the sections upright in a gutter of split bamboo supported above the receiving pail by two wooden forks. The *Euphortiacée intisy* will also be exterminated in the southern part of Madagascar. The *intisy* yields a milky juice, as rich as that furnished by the *Hévea brasiliensia*, but it is impossible to obtain it pure, as the natives allow the juice to flow to the ground, where it at once makes an amalgam elastic only in name. Besides, in their greed to obtain the maximum yield, the natives do not hesitate to tap even the tubercles of the roots, thus killing in one moment what nature has taken a century to produce.

Other varieties will also disappear. But there is one not indigenous to either Africa or Madagascar, which will not. It lives in the forests which are included between 8° north latitude and 8° south latitude. It is a native of Brazil, Peru, Bolivia, Ecuador, Colombia and Venezuela. The species is called Seringa in the Brazilian tongue. The botanical name is *Hévea*, one of the large family of the *Euphortiacées* which comprises a dozen varieties. The product of these trees is known on the markets of Europe by the name of Para fin, from the town of Para, near the mouth of the Amazon, through which all the gum passes. The denomination Para fin is, however, incorrect. The State of Para produces some rubber, but the greater part comes from the district of Amazonas, from Peru, etc.

In these countries, the *Hévea* has fortunately been protected. The extractors have every incentive to preserve the trees from injury, in order to insure an annual yield, which I estimate at from $290 to $347 for one hundred days of actual labour. Some affirm that the gatherers average from $8 to $10 per day. This estimate is exaggerated. The exploitation of the *Heveas* and other rubber trees of South America supports some 100,000 people. One can judge from this of the importance of this industry. The rubber tree is carefully treated here. Already the two States of

Brazil, Para and Amazonas, have regulations for the distribution of lands. Both have taken measures to protect their natural resources, in order to preserve the immense revenues obtained from them. Manaos, the capital of the State of Amazonas, a town of 60,000 inhabitants, alone receives 48,000,000 francs ($9,264,000) revenue from the export duty.

I can affirm with certainty tbat tbe States of South America included within these latitudes have inexhaustible riches, if they continue to protect them. Brazil and Peru in particular wonld alone be able to satisfy the consumption of the entire world in rubber. The time is not come for the exhaustion of these immense treasures. Although we penetrate now to the very sources of the large rivers, only the great arteries easily accessible have been explored; the small affluents, which, in my opinion, are even richer in rubber, are yet unknown. Yet it must be acknowledged that Brazil is less known in France today than Central Africa. The whole world has had its eyes turned toward the Dark Continent. The boundless forests on the other side of the Atlantic contain forests accessible to anyone desiring to go there. Marseilles is the port plainly indicated to become the headquarters of this trade and an important market for rubber.

Why should we not go to Brazil, to Peru, and bring gums of the first quality, so necessary for our new industry—motocycles and automobiles? The English and the Germans do this and are making fortunes. I know of one German house in Manaos which has realised from commissions alone more than $20,000 profit. There is also an opening for a French line of navigation. One English house—Singlehurst Broklurst, of Liverpool—had, twenty-five years ago, a few sailing vessels coasting along the eastern shore of South America, which touched at Para. Today, under the name of the Red Cross Line, this house has made a fortune. Within the year, the Germans of Hamburg have successfully established a line touching at Havre; the Italians have inaugurated a line from Genoa, louching at Marseilles. The French should learn the tesson.—*India Rubber Trades' Journal*, Nov. 10.

THE TRADE OF CEYLON.

A MADRAS REVIEW AND CRITICISM.

A LECTURE PROPOSED.

The present financial condition of Ceylon is attributable to a large extent to the centrical position that the island occupies at the southern extremity of Hindustan, with China to the East, Africa to the West, and Australasia to the South of it, but it is mainly due to the world's demand for the varied products of its fertile soil. Its prosperity depends, therefore, not so much on the large revenue that it earns as a port of call and coaling station, as on its trade. The success of that trade hinged during the latter half of the late century on two great staples, not simultaneously, but in succession. The first of these was coffee, in the production of fine descriptions of which Ceylon for some time distanced all competitors for the world's favour. For a considerable period, therefore, "coffee was king" in the island, and there seemed every prospect of its reign being extended for many a decade. But, at first little by little, and ere long by leaps and bounds, the production of other lands disturbed the status of Ceylon coffee, while diseases of the tree itself added to the downfall; and then, almost with a rush, coffee was deposed from its pre-eminence in the island. It looked at that crisis as though the beautiful island, with its unexhausted soil, and its variety of climates, would be, for most intents and purposes ruined. There was a limit to the world's requirement of cinnamon, cocoanut products, cacao, cardamoms, camphor, rubber, citronella oil, and other articles that Ceylon was in a position to grow to a large extent, and for a while, therefore, the outlook was grave indeed.

But eventually the prospect brightened, for it was perceived that salvation might be found in tea. The tentative efforts to grow tea from both China and Indian seed were so successful that estate owners and planters, who but recently had been almost on the brink of despair, not only pulled themselves together, but also pulled up the coffee bushes, and planted tea instead. Here a little, there a little, was the drastic experiment tried, and the more it was tried the more did the conviction gain ground that tea would yet pay "hand over fist." Thus it was that energies, numbed by unlooked-for failure in one direction, revived; and that Banks which had been compelled by the instinct of self-preservation to put the screw on planters in their distress, not only relaxed their severity, but gaily offered "facilities." So it came to pass that tea was escorted with all honour to the throne vacated by coffee, and was

PROCLAIMED KING.

As years glided by, tea increased and coffee decreased, until in 1900 the export of the former reached the great total of 149¼ million lb, while the export of coffee dwindled to 10,777 cwt. In other directions Ceylon did well, but it was chiefly owing to tea that the Colonial Secretary was able to conclude his Report or 1900 with the signififant paragraph :—"The last year of the century was the most prosperosd in the history of the Island, and was markeu by affluence and progress."

Ceylon is still affluent and progressive, but a change has come over its commercial position which it is easier to deplore than to repair; and one is irresistibly reminded of the cruel fate of its former fine trade in coffee, and therewith of the instability of human affairs. The Colonial Secretary, when reporting last; August on the year 1901, stated :—"Though the past year showed no such pronounced increase of revenue as the phenomenal year 1900, the general prosperity of the Colony is unimpaired." This can hardly be the opinion of shareholders in Ceylon Tea Companies. For example, on the 29th ultimo, at the Annual Meeting in London of the Associated Tea Estates of Ceylon (Limited), the adoption of the Report was moved by Sir Alexander Wilson, the Chairman, and Mr Bethune, in seconding the motion, said that "it was evident that little could be done in the way of dividends with present level of prices." Tea is illustrating the truth of the maxim that one can have too much of a good thing. There is a limit to all mundane things, and the limit has been reached, for the present at least, of the capability of markets to absorb teas at prices that cover the cost of production. In a word, supply has more than overtaken consumption, and the planter pays the piper.

It can hardly, therefore, be the case that the general prosperity of Ceylon is "unimpaired." It would be more consistent with regrettable fact to say that it has been not a little impaired by the Colony's disregard, in common with India, of the immutable laws of supply and demand. Ceylon is suffering from the very defects of its virtue, its energy, its enterprise. It cut in bravely for a share in a great trade, and by sheer merit it won

all but the most prominent position in that trade. It assisted India to oust China from her indigenous trade, and it then vied with India in a race that could have but one issue. The more the two countries grew of the staple the more were markets at a distance depressed, and prices drooped and fell, while tho mischief of over-production increased as new estates or new "extensions" came into bearing. The pace was fast; the cry of "the De'il tak' the hindmost" was in the air; and the inevitable came to pass.

The Colonial Secretary was not as optimistic on the 1st September, 1902, as he was on the 8th August last, though there might have been some excuse for his being so, since he then had to relate how the last year of the century had crowned the edifice. He was put on his guard by the knowledge that while the year had witnessed an increase in the export of 20 million lbs., "the price realised in London fell 10 per cent. to 7·20*d.* per pound." He then proceeded to say:—"Cultivation is extending in Southern India, Java, and elsewhere, and it is feared that the full effect of over-production has not yet been felt, and that the tea industry has a trying period before it. The remedy would appear to be in selecting specially-trained managers, plucking for quality rather than quantity, improvement of the *jat* of tea planted, careful protection against disease, and improved methods of manufacture." The Colonial Secretary's forecast was borne out in 1901, and, notwithstanding his remark about the "unimpaired" prosperity of the Colony in that year, he had to report that, though the export of tea had fallen eight million lb. in the year, and that consequently the stock of Ceylon tea in England had been considerably reduced "the average price is the lowest as yet recorded, 6·86*d* against 7·20 in 1900." He could not disguise from himself that the new century had opened unsatisfactorily, or with a "year of depression, but he entertained the hope that "prospects are more favourable," as "towards the end of the year prices were considerably improved." But tea prospects are still calculated to cause much anxiety. It is well to put a good ace on matters, to hope for the best, yet it is still undeniably true that "the tea industry has a trying period before it."

If tea should fail Ceylon she cannot fall back upon coffee, or, so far as can be seen, on any other great product. What then will she, what can she do in such a cruel dilemma? The Colonial Secretary remarks blandly, with special reference to 1901, that "there has been a slight revival in plumbago and no improvement in the prospects of tea, but coconuts continue to do well, and the many minor products in the Island are not unremunerative." It is true, he admits, that "the value of the trade of the Colony has fallen somewhat in the year under review, but later statistics show that there has been no further decline, and the prospects of trade are good." As it would be interesting to have his views in some detail of the paying possibilities of coconut oil, coir yarn, coir fibre, and minor products, he should prepare a lecture on the subject, and deliver it in the Colombo Chamber of Commerce, with open doors, and invite discussion thereon. He will deserve well of the Colony if he succeeds in showing how the best string in its bow can be replaced should the dread necessity arise.—*Madras Mail*, Nov. 19.

TEA CULTURE IN TEXAS: U.S. DEPARTMENT OF AGRICULTURE SUBMITS PROPOSITION TO MAKE EXPERIMENTS; WANTS THE LAND DONATED.

WILLING TO BEAR CONSIDERABLY MORE THAN HALF THE EXPENSES AND DONATE THE CROP.

Some time ago Beaumont was visited by two representatives of the Unted States Department of Agriculture for the purpose of making a superficial investigation of this section with a view of finding a suitable location for making an experiment with growing tea in Texas. It is believed that the gentlemen were very favourably impressed with the country about Beaumont and a study of the soil and climate requirements leads further to the opinion that Jefferson county will prove suitable for making the tea experiments and further, that it will result successfully. When Congressman Cooper visited Washington recently he unproved the opportunity to call upon the chief of the bureau to plant industries and inquire the progress of this matter. He did not receive a definite reply at the time but was informed that the department would furnish him all information as soon as possible. In this connection Congressman Cooper has received the following very full report on the matter. Contained in the letter is a very explicit proposal which the Government will make and the matter is in some respects up to the people of this section to take hold of and further push the plan:

Washington, D. C., Oct. 4.—Hon. S B Cooper, Beaumont, Texas. Sir, Referring to your personal inquiry, made a short time ago, in regard to plans for work on tea in Texas, I have to say that we have been carefully considering various plans in connection with this work, and have been waiting to be in a position to give you some definite facts before writing you.

I may say that it is the desire of the honorable secretary of agriculture to make a commercial test of the possibilities of growing tea in Texas. It is recognized that there are large tracts of land in many parts of the southern states adapted to this kind of work, but the important question of labor has always been more or less of a drawback to the successful production of the crop in question. The work at Summerville, South Carolina, has demonstrated, we think, the possibility of growing tea commercially, but there is still much to be done before capital can be interested in the project on any extensive scale. Our idea is, that to achieve the best results the department should secure the co-operation of the people of Texas, an effort being made to establish a well equipped tea farm and factory; and, after the work is on its feet, to allow private parties to continue it, providing it is found profitable. The Government is precluded from making any improvments on land that it does not own, or lease for a period of years. The Secretary does not think it advisable for the Government to purchase land for this sort of work; he thinks that land sufficient for the the purpose ought to be donated by interested parties, as this will keep up an interest in the work which could not be maintained in any other way. The plan is to start with about fifty acres with opportunities for increasing this to

one hundred acres if it is thought desirable to do so. A one hundred acre tea plantation, properly managed and in the right locality, should yield in from six to eight years, ten to fifteen thousand pounds of tea annually. Of course the first two or three years there will be little in the way of yield, as it takes about three years for the plants to reach sufficient size for first plucking.

Briefly, the following outline of a plan has been prepared for this work :

1. Land to be furnished to the department free of charge, under a guaranteed tenure of not less than ten years.

2. Such labor as may be necessary in clearing the land and putting it into condition for planting to be furnished to the department free of charge.

3. Teams and ordinary farm implements such as plows, harrows, etc., to be furnished to the department free of charge.

4. One-half the cost of all ordinary labor necessary in establishing and maintaining fifty acres of tea plants to be furnished to the department free of charge.

5. All buildings necessary for the work to be furnished to the department free of charge.

6 The department will furnish an expert superintendent who has had experience in growing and manufacturing tea.

7. The department will furnish all necessary machinery used in the manufacture of tea.

8. The department will furnish all seeds and plants.

9. The department will pay one-half the cost of ordinary labor necessary for the growing of plants and the handling of the product.

10. The product from the gardens will become the property of the donors of the land, but will be handled and sold subject to conditions which may be mutually agreed upon.

EXPLANATIONS.

The tea gardens should be located with due respect to soil, climate, rainfall and labor, particularly colored labor. The plans should be so made as to begin with not less than fifty acres with possibilities of extending to 100 acres within a few years, if it is thought best. The buildings required for the first two or three years will be small. After that, when the tea begins to come in in quantity, a suitable factory building will have to be erected. Such a building for a 100 acre plantation probably will not cost more than $1,500. The full equipment of such a building with machinery, etc., for the handling of the yield of 100 acres will probably cost from $4,500 to $5,000. This portion of the expense will be borne by the government.

In a few days we shall have two of the department's agents visit Texas, with a view to looking over the territory and deciding on the best point to locate. We want, of course, to make this work a success, and to do so the best location should be secured. As already indicated, labour plays an important part in the work. Proper soil and sufficient rainfall are also important considerations. Rainfall, however, we consider less important than the other features mention, if it is practicable to secure irrigation. The ideal location would be where there is plenty of cheap labour, where the soil is sufficiently rich to grow good crops of cotton or corn and where the rainfall exceeds fifty or sixty inches annually, or in lieu of this where irrigation water can be obtained in plentiful supply.

Thanking you for the great interest you have shown in this work, I remain, Very respectfully,

B T GALLOWAY, Chief of Bureau.

—*Beamount Journal*, Texas, U.S.A., Oct. 25.

BRITISH AND GERMAN EAST AFRICA:

FUTURE PLANTING DEVELOPMENT.

From the letter of a recent visitor to East Africa, we are permitted to quote as folows :—

"There is a great future for this East coast belt which, almost throughout, is splendid land for coconut cultivation combined with tobacco, castor oil, sem sem ground nuts, etc., whilst flooded intervals and flooded river banks,—*e.g.*, the Nori Tana districts—are ideal countries for the cultivation of rice and the date palm. No development of this sort can ever be done by the local natives, neither could it be effected in the same way in which Ceylon was first opened up by the European planter backed with a modest capital and his invaluable Tamil cooly ; for he naturally looked for a return in his third or fourth year. In my opinion it can only be done by Companies. Imperial Companies subsidised by a strong Government in some shape or form and by the introduction of tens of thousands of the surplus starving population of the agricultural districts of India. The Germans are far ahead of us: 10 or 12 years ahead of us in the development of their East African possessions. They have now plantations—both Government estates and those belonging to Imperial subsidised Companies—with roughly speaking 50,0000 (half in bearing) of coconut trees and thousands of acres of sisal hemp, yielding hundreds of tons of fibre. The cultivation is splendid and *thorough*, and they are now being repaid by enormous returns after patiently waiting *10* and *12* years to get something in lieu of gigantic expenditure."

BLACK *V.* GREEN TEA.

To the Editor of the *Home and Colonial Mail.*

SIR,—I hope you will allow me, as a shareholder in the Lanka Plantation Company and as one with an extensive knowledge of tea planting, to take exception to some of the statements made at the meeting of the company, a full report of which appeared in your last issue. I think it is a pity at the present time, when both India and Ceylon are suffering from an over-production of black or fermented tea, which has had effect of curtailing profits and producing a crisis, that the chairman of a well-known Ceylon company should deem it politic to discourage the efforts that are being made to relieve the pressure by manufacturing wholesome green tea for which there is a large demand. It should be quite immaterial to the planting interests whether the tea leaf is manufactured as black or green tea. They are both equally well-known articles of com-

merce, and it would be absurd for anyone to set up as an arbiter of taste to decide which should or should not be drunk. In America, at all restaurants and hotels it is usual to offer both black and green tea. It is a delusion to suppose that green tea, as manufactured in India and Ceylon, contains anything in the slightest degree resembling poisonous ingredients, and it is somewhat astounding to hear such an idea mooted.

I regret to see that one of the shareholders at the meeting (Mr Ford North) gave countenance to this idea by remarking that "unquestionably green tea is less wholesome than black."

It is unfortunate that meeting of shareholders interested in the production of tea should vote against a cess that has been, and is likely to still further be, an instrument in extending the knowledge of tea and opening up new markets in foreign countries.

I quite endorse all that was said by Mr Pettit on the subject. He was right in expressing his opinion that the whole of the cess should be used to encourage the manufacture of green tea, which, as he said, was not all unwholesome, and no one need drink it unless they liked it.

I trust in a year or two we shall obtain as considerable a share of the demand for green tea as we already have for black tea.—Yours faithfully, SHAREHOLDER.

London, November 18th, 1902.

—*H. and C. Mail*, Nov. 21.

THE CEYLON POULTRY CLUB MAGAZINE

has now (in its second number) fully developed and apart from the interesting and profitable matter taken over from the allied Indian journal, there is a practical Ceylon article on "buying and selling"—eggs, chickens, full-grown birds—well worth reading. This is followed by local notes and comments and some short "fowl" ads. Mr. M J Cary is acting for Mr. S P Jeffery, as Hony. Secretary and Treasurer. All who have poultry should get and study this little journal.

THE INDIAN TEA CESS.

Indian Tea Association, Calcutta, 8th Dec., 1902.

To all proprietors and agents of tea estates. The proposed Tea Cess. The subjoined letter upon this question is published for information. W. PARSONS, Secretary.

No. 1001-O., dated Calcutta, 28th Nov. 1902.

From the Secretary, Indian Tea Association.

To the Secretary to the Government of India, Finance and Commerce Department.

I am directed by the General Committee of the Indian Tea Association to address you, in continuation of previous correspondence, upon the question of the proposed imposition of a compulsory Cess upon Indian tea.

2. This question was raised in March last by the representation to His Excellency the Governor-General in Council of a Memorial praying for the imposition of the Cess. The Memorial was signed by tea proprietors representing 416,140 acres of tea-bearing land. It received the favourable consideration of Government; and a resolution upon it was published by your Department on the 1st August last. In this resolution it was stated that the request of the memorialists would be acceded to if the tea industry were of substantially one mind on the subject. It was added that the necessary legislation would be undertaken, during the forthcoming Calcutta session of the Imperial Legislative Council, provided that no weighty or widely entertained objections were raised in the meantime.

3. I am now to express to His Excellency the Governor-General in Council the respectful acknowledgments of the memorialists for the sympathetic manner in which His Excellency thus consented to meet their request. They are fully sensible of the fact that legislation of the character in question cannot be undertaken without that practical unanimity to which reference is made in the Resolution. But the General Committee, speaking on behalf of the memorialists, are convinced that they are entitled to claim that the Cess has received the consent of practically the whole of the Indian tea industry. The acreage represented by the memorialists is equal to about 80 per cent. of the whole area under tea cultivation in India. But in the principal producing districts, taking them separately, the percentage is higher. In Southern India it reaches 100 per cent.; in the Bengal-Dooars 86 per cent; in the Brahmaputra Valley—the most extensive tea district in India—85 per cent; and in the Surma Valley 84 per cent. And even in those districts where the percentage is lower the movement is, nevertheless, strongly supported. Nor would it be right to assume that those proprietors who have not signed the Memorial are in even covert opposition. Indeed, the General Committee have good reasons for believing that an additional ten per cent. of the whole area may be safely regarded as, if not favourable, at least as neutral. The remainder would seem to be land which is chiefly in the occupation of small proprietors, both European and Native, who have expressed no opinion. The Committee regret that they are unable to furnish Government with statistics of the weight of tea annually produced by the supporters of the Cess. But, seeing that a majority of the best estates in the large districts are represented by the memorialists, it may be rightly inferred that, measured by this standard, the support given to the Cess reaches a higher percentage than when measured by the standard of area.

4. To summarise the position then it may, the Committee think, be said with confidence that practically the whole industry is in favour of the Cess being tried. Some proprietors may still be doubtful as to whether it will be, in the result, as successful as others anticipate; but the general opinion seems to be that the experiment should be made. Indeed, so far as the Committee can learn, no objections are entertained by any considerable, or in fact by any, section of tea producers. It is true that, in the course of the long discussion that the movement has provoked, something has been written on the opposite side. But it has been written anonymously for the most part, presumably by those who, not being themselves tea producers, are in the fortunate position of being able safely to give advice upon matters with which they are but imperfectly acquainted.

5. Believing, therefore, as the General Committee do, that the conditions laid down by Government in the August resolution are substantially fulfilled, they will now take the liberty of briefly ex-

plaining the proposals which have been formulated for constituting an executive body by whom the proceeds of the Cess may be administered. The ideal executive for such a purpose would undoubtedly be a small Committee of four or five experienced and capable business men, possessing the confidence of tea-producers. But the peculiar circumstances and conditions of the industry preclude the possibility of such a body being called into existence. For it is natural and right that all those who pay the Cess should expect to exercise direct control of the expending of its proceeds; and in the following proposals this expectation has been kept steadily in view.

6. It is proposed to form an Administrative Committee, consisting of members representing (*a*) tea-growers; and (*b*) the general commercial community. This is the principle underlying the constitution of the so-called "Thirty" Committee, by whom the Ceylon Cess Funds are administered; and it appears to be so sound that it has commended itself to the Indian industry. In the appointment of the members representing tea-growers it is advisable that both large and small tea companies, and private proprietors also, should, if possible, have a voice. After most careful consideration it has been agreed that this can be best ensured by permitting every tea district in India to appoint a representative, or more than one; and also by allowing the Indian Tea Association of London, and Calcutta, each to make appointments. The question of the representation of the general commercial community has been solved by inviting the Bengal Chamber of Commerce to agree to nominate three of its members. These nominations the Chamber has consented to make; and it is understood that, of the three members, one will be the President of the Chamber for the time being, and another a prominent banker.

7. There still remain the following points: (*a*) the number of members; (*b*) the precise method by which they will be appointed; and (*c*) their duties. Regarding (*a*) it is recognised that to provide for the equitable representation of the different districts is a matter of some difficulty. A proportionate representation, based on acreage or outturn, would be in theory the most desirable. But in practice it would give so great a preponderance to Assam and Bengal as to be unacceptable to the smaller districts. The most feasible plan will be, it seems, to allot two members to the Brahmaputra Valley, and one member to each of the other districts. These latter are Cachar, Sylhet, Darjeeling including the Terai, Jalpaiguri (the Dooars), the United Provinces (Dehra Dun and Kumaon), the Punjab (Kangra), Madras, and Travancore. There will thus be ten representatives of the various tea districts. The Indian Tea Association (Calcutta) might appoint five members; and the Indian Tea Association (London) two members. The Bengal Chamber of Commerce will, as has been stated, appoint three members. The new organisation will, therefore, consist of twenty members.

8. Taking now the second point (*b*) it is proposed that the district members should be appointed by the local Associations in such manner as may seem to them to be desirable. These local Associations are very representative of each district; and are the only existing machinery by which the appointments could be made. The nominees of the Indian Tea Association will be elected at ordinary or special general meetings of the Association. And it is left to the Committee of the Bengal Chamber of Commerce to decide upon the mode of appointing the three representatives of that institution.

9. To discuss the duties of the new Committee is no easy task at this stage. But judging from its composition there can be little doubt that not more than one meeting at which all the members could be present, could be held in the course of the year. Early in December would probably be the most convenient time for this meeting; and at it a programme of work for the ensuing year could be drawn up and decided upon. So far as can be seen at present the work of carrying out the programme would, of necessity, devolve largely on those members who would remain in Calcutta throughout the year. But, of course, every member, whether a Calcutta resident or not, would have to be kept fully informed of all business transacted. Seeing that many details of the work will have to be carried out in London, it will probably be found necessary to appoint a small London Committee to work in conjunction with the governing body in Calcutta.

10. Such is in outline the scheme of administration which has been submitted by the General Committee to every district Association in India. Speaking broadly it has been approved, although, as is but natural, some districts have thought that the number of members allotted to them is insufficient. But the necessity for keeping the total number within workable limits is now, the General Committee think, fully understood; and they are persuaded that the scheme is accepted, as an initial measure, by all concerned. Time and experience will no doubt suggest many alterations and improvements; but it may, at any rate, be fairly claimed that the executive which will be created under the scheme will accurately reflect the views of practically the whole industry as it at present exists.

11. In conclusion I am to express the earnest hope of the Committee that it may be possible, as is anticipated in the Resolution, to pass the Cess into law during the coming session of the Legislative Council. It is in view of this that the present letter has been written; and it is almost needless to add that, should any further information be required, the General Committee will gladly and readily furnish it.

12. A statement of the statistics upon which the percentages quoted in para 3 are based is annexed:

STATEMENT.

	Area under cultivation. (a)	Area in favour of Cess. (b)	Percentage. (c)
Brahmaputra Valley ..	204,985	174,426	85
Surma Valley ...	132,342	111,512	84
Darjeeling ..	50,769	24,388	48
Dooars ..	76,278	65,527	86
Chittagong & Hill Tracts	4,241	1,733	41
Chota-Nagpur ..	3,284	448	14
Kangra Valley ...	9,745	4,501	46
Dehra Dun & Kumaon ..	8,055	2,029	25
Southern India ..	31,309	31,576	100
Total ..	521,008	416,140	79.87

Note.—The area under tea in Chittagong, Chota-Nagpur, the Kangra Valley, Dehra Dun and Kumaon is chiefly divided among a large number

of small proprietors, many of whom sell much of their produc ion in India, and are, consequently, more or less indifferent to the Cess.

The figures of area are taken from the Director-General of Statistics' Report published on the 28th June 1901, which was the most recent issue when the Memorial was sign.

THE LABOUR QUESTION IN CEYLON: RECRUITING IMPERATIVE.

Short crops, low prices, and a poor labour-supply are a trinity of evils which dog the planter and help at times to take much of the brightness out of his life. Met singly, either of these evils are worrying enough; while a combined attack would be hard to put up with for any length of time. Although evils are said to be social in their disposition, and dearly love companionship, never appearing singly—as we are proverbially told—yet it is not often that the planters' dreaded trinity, are found in each other's company, or that he is called on to entrench himself against their combined advance. Short crops and low prices do not run as a pair at all, their natures are antagonistic, it is only the third item in the trinity, a short labour supply, which can work its evil way in the companionship of either of the others. A short crop and a short labour supply are possible, indeed, the latter, if in much evidence, may be the creator of the former and low prices and a restricted labour market have been, alas! common enough during these late lean years through which the planting industry has passed. Now, however, that the tea prospects are brightening, the danger immediately ahead of the planting industry is emphatically the labour question, and if that could be satisfactorily solved, it would lift a burden which, at present, oppresses the mind of many a man; while it would be conducive to the easy-running of estate work, and productive of the best results. Not that a superabundance of coolies is at all a blessing; for to have too many, we are told, is even worse than to have too few, leading as it does to slackness, short time, and poor check-roll balances, paid for later on when the inevitable reaction sets in, whereas the short out-turn, and the clamorous demands of fields claiming attention, whet the planter's wits, and often results in much cheaper working than was possible when the ranks of the morning parade were crowded. That the present labour force in the island has proved adequate on the whole during the last few months, is the result of the abnormal weather which lately held back flush, and fought on the side of the small battalions; for if the conditions had been otherwise—nature beneficent and the measure pressed down and over flowing there would certainly have been weedy fields, a weary pursuit of a runaway flush and a worried planter who hardly knew what end of him was up. The ease with which the busy season has this year been got through, ought not, however, to deceive nor create a fool's paradise. Coolies at the end of the busy months always get restless; "tundus" are in demand, and the labour of the country gets shuffled for the new deal. Early as it is, we are informed, that already the flight of the "tundu" has begun, and those desiring immediate reinforcements to their labour force, are staggered at the amounts demanded to effect a transfer of the scant and ragged following by those who possess them. If the debts of the cooly generally were at all in proportion to what appears as the face-value of these early movers, things would be in a very bad way indeed; but most estates, which have heavily indebted gangs, are willing to be inconvenienced for a time by their transfer to others, with the hope that later on, the same outlay will replenish their now repleted force to double the present outgoing. But this shifting does nothing for the country as a whole—though individual estates may benefit—nay, it but locks up more of the planter's money in his advance account, which is the most unprofitable item in his finance; demanding a wary watchfulness, a bit and bridle to keep in any kind of order, and liable to sudden upheavals and depressions which end at times in the gall and worm wood of "writing off." The bidding up of advances is, without doubt, brought about by the desire to possess a trained force, and the unwillingness of kanganies to recruit. It goes without saying that the expert field-hand is a desirable possession as compared to the raw arrival who must make sad havoc when turned loose on the tea flush; but the planting districts are unanimous that without new blood the labour-supply will fall far short of the demand, and soon the cooly will rule. To recruit is, therefore, an imperative necessity on all employers of labour, and if the old supply-fields are worked out, new ones must be found to save the situation. If estates are to have a competitive labour era, even of a short duration—when planter will vie with planter in bidding for coolies—the prospective profits from increased prices, will, to some extent, vanish. Ramasamy will play the increased advance game for any length of time. He has an unstable estimate of his own work which ranges from next to nothing up to his full weight in silver, and as he is much influenced by his "durai's" action and opinion he reflects accurately the planter's mind, settling quietly down when the tide runs in favour of restricted advances, or he becomes a restless insatiable nuisance—a daily demander of "tundus—when he sees and hears of lavish out-goings. At the back of the cooly there are those too who press him when they think that more coin will be forthcoming if trouble be taken to make estate-labour unsatisfactory and restless:—chetties, kaddie-keepers and such like. The planter is himself the barometer of the labour market to a great extent, which is read by all men, and especially visible to the keen gaze of the needy kangany. When the planter gets excited and thinks that his force is going to be hopelessly short, he reflects this in his manner, and up goes the advances. If he suffered alone it would be nothing, but his whole neigh-

bourhood is more or less affected, and has to rise with him, to some extent, however, unwilling it may be.

In the old coffee days it was in the early months of the year that coast advances were given out, and it might be well for the planters to make a united effort *now*, and by pressure and persuasion try to re-open old labour channels, or exploit new ones. Ceylon has ever been a favourite place with the Tamil labourer, and the experience of the past has been that when recruiting has been energetically taken in hand, the Tamil has responded. Kanganies, we are told, are disinclined to recruit—the field is worked out they say—but it may be that the kangany, in many cases dislikes the trouble, finds new coast coolies unsatisfactory at first, and would rather trust to a new labour struggle and higher stakes. What the planters have got to do is to make their backs stiff, insist upon an infusion of fresh blood, and although there may be disappointment to some, the result will, on the whole, we believe, prove satisfactory. Anyhow the bidding of planters against each other for the resident cooly is simply suicidal:—through that way there lies no avenue of hope.

TEA IN THE CAUCASUS.

INDIGENOUS TEA IN SIAM.

(TRANSLATED FROM FRENCH AGRICULTURAL MAGAZINES FOR 'CEYLON OBSERVER.")

We have before us three such magazines: the *Journal d' Agriculture Tropicale*, published by M J Vilbouchevitch; the *Revue des Cultures Coloniales*, by M A Milhe-Poutingon, also published in Paris; and the *Bulletin Economique*, issued by the Government of Indo-China at Hanoi. One is impressed by the earnest attention devoted to tropical cultivation and the scientific study now given at head-quarters, Take the last of the three named magazines, the September number for this year opens with an article on Tobacco in Indo-China, its Botanical Name and Characteristics, Native Methods of Culture, Harvesting, Yield, Preparation and Treatment of the Dried Leaf, Markets' Values and its Distribution throughout Indo-China. Then follows a Paper on a Practical Experiment in the Cultivation of Ramie Fibre in Bengal, founded on a letter from M Karpelès about his experiences in the north of Behar. These articles are both full of the information that an intending planter requires.

The *Journal d' Agriculture Tropicale* is very carefully edited and contains numerous brief articles upon Recent Inventions in Machinery as well as Agricultural Processes or Experiments. In the commercial portion, a notice of Tea in the Caucasus is of interest:—"The Report of the British Consul of Batoum of November, 1901, shows that the success of Tea in Caucasus has been much exaggerated. In the district of Batoum receipts of Tea did not exceed 13½ tons. (29,240lb) It is only 10 years since the first tea was planted. The only two important producers are, until now, the Domaines Impériales at Chackva and the firm of Messrs. Popoff, well-known in the tea trade. In the former 164 hectares (390 acres are opened, but only 42 (105 acres) in bearing, having given 9,784 kilos (21,524lb) tea. The plantation of Messrs. Popoff, only three years old, is of about 125 hectares (312 acres about) with 32 (80 acres) in bearing, having yielded 4,000 kilos (8,800 lb.) of tea, 9 francs the kilo (3s 5d per lb.) was the price of the best quality. Seed is being distributed to the peasants, but the figures quoted are nothing to cause alarm to Ceylon or India. In a favourable year four harvests may be made, beginning in the end of May and the others at three weeks' interval." Another chapter on "Kapok or Vegetable Ivory," the various sources of supply; trees used in Java and the value of Kapok as an industry.

"*Tea in Xien Mai* (Siamese Laos), regarded as a European enterprise," is the summary of information derived from the Report of the Vice-Consul of France at Nan. Tea trees grow spontaneously and on large areas in most of the higher valleys of the chain that divides the waters of the Mèping and the Mé-Lao and Woung, as well as between these rivers and the Mé-Ing and the Mékong. These forests of tea-trees, known as "Va-Mieng" are cropped principally between the Mé-Ing and the Mé-Lao. But everywhere the natives, generally Khamons from the left bank of the river, crop only a small quantity, for which they pay a slight due by no means legal, to the village chiefs, or even to the first occupant who discovered this forest. The croppers content themselves with taking off the leaf stalks without any cultivation or attempt at multiplication. Four times a year they harvest the leaves, the first being the best; the green leaves piled up in small packets and first of all boiled with steam, are left aside during two months and, after this maceration, sold under name of "Mieng" for chewing, at about R12 the 60 kilos (135 lb.) The natives do not know that this same "Mieng," sold at this low price, is nothing else than tea. Even were they told this, they would not know how to prepare it But it is certain the rational cultivation of these large groups of trees by an experienced colonist and with the help of head coolies imported from China or Ceylon, would give excellent results in a region so highly favoured by nature. This should be quite as remunerative as the cultivation of teak forests now so largely carried on there with European capital. It would have the advantage of requiring smaller capital and of being carried on for long periods, whereas the reserves of teak are being exhausted. Nothing would prevent a forester from carrying on the two cultivations. Besides, the working with teak presents this peculiarity that although a large staff of workmen must be hired by the year, yet they are often inactive, while waiting for a temporary rise that shall enable them to float some logs in the small streams, and there may be a further idle time while waiting for the next storm. Such enforced leisure might be well utilised.

The *Revue des Cultures Coloniales* seems especially valuable for its notices of recent Literature bearing on tropical cultivation whether English, French or German, though it also has long articles on planting subjects.

CARDAMOM CULTIVATION AND CONSUMPTION

The letter from Major Gordon Reeves affords a clear and straightforward explanation of the circumstances under which he has taken a lease of 45 acres of Crown land; and we cannot see any ground for

complaint, unless it be that such leases should be put up for competition, quite as much as land sold on freehold terms? It may be argued, of course, that Government should discourage the alienation, under any terms, of land avowedly intended for the cultivation of cardamoms, just as much as land for tea, under present circumstances; but 45 acres more or less cannot make much difference, and the transaction having been put through, we should say leave it alone, although it will be observed that Major Reeves is quite willing to give up his bargain, on being refunded his actual outlay.

There can be no doubt that Mr. J. A. Hunter's letter about increased crops in Travancore has created a scare among Ceylon cardamom planters. One of them (in a letter intended to reach us a week ago, but which through misdirection, only arrived yesterday) says:—"The question is whether old Cardamom growers in Ceylon, have India or the Ceylon Government to dread most? In India the planters have no doubt as to holding their own in the struggle with their compact estates and cheap gathering. Locally we have the possibility of more leases on nominal terms and free grant holders of land equally well adapted for the growth of this soon-to-be-over-produced *new product*, competing with lands originally bought from the Crown. I think it hardly fair of Government to look upon an industry which has helped Ceylon for the past 25 years as an 'experimental product,' and it, we are told will in a year or two be wiped out of Ceylon by its more formidable rival India. *Poor Ceylon*—is there nothing she can try which will not be over-produced?"

Now cardamoms are in large demand all over India. No spice is a greater favourite with the people of all grades and castes who can afford to purchase it. If it be expedient to exploit Indian markets, bazaars and towns with tea, how much more, we should say, with cardamoms! We recall one of the largest producers of cardamoms in Mysore informing us that he sold every lb. of his crop in Calcutta or Madras and shipped none to Europe. Cannot Mr. J. A. Hunter urge the Travancore planters to do something of this kind? to join forces with the South of India tea exploiting Syndicate, and get their cardamoms introduced into all likely quarters. Of course, there is a certain local market in Travancore itself, just as there is in Ceylon, for a portion of the crop, and we should fain hope as the prosperity of the natives locally extended, so will the market for cardamoms extend. But exploiting is, no doubt, very necessary: cardamoms are not a necessary, a food product, like rice, or coconuts, or even tea; but if they were brought before the people in every town and bazaar, at a moderate price, we should expect a much greater local consumption than is at present reported. Cannot our correspondent, "An Interested Planter," test some of the markets within his reach, for himself? A trustworthy agent might sell small parcels to the bazaar-keepers at a distance from the cardamom-producing districts, and we should like to know how the markets of Batticaloa, Trincomalee, Jaffna, as well as Galle, Matara, Hambantota, etc. are served with cardamoms? If not readily procurable, very probably the boutique-keepers and the people make up their minds to do without the spice, when if made readily available, they would as readily make purchases The strong objection we have to the open sale of opium in our villages,—that people who never used or saw the insidious, as well as dangerous, drug before, are tempted to become customers,—involves the principle which would tell favourably in the case of a wholesome condiment like cardamoms, and a food-product like tea: make them freely and cheaply available in town and village where they may be at present known a permanent demand is sure to spring up.

EXPERIMENTAL CULTIVATION OF TOBACCO IN BURMA.

Two important attempts at experimental cultivation were made in Burma last year with, as far as can be gathered from the Land Records Administration Report, imperfect results in one case and practical failure in the other. In one case 12 pounds each of Havana and Virginia tobacco seed were distributed among the cultivators—the Havana seed, chiefly in Lower Burma and the Virginia seed in Upper Burma. The results, however, were very chequered. The experiments with ground-nut seeds imported from Pondicherry were on the other hand a failure in the great majority of cases.—*M. Mail*, Dec. 12.

SERICULTURE IN BENGAL.

The Government of Bengal, reviewing the report of the agricultural branch of the Department of Land Records and Agriculture for 1991-02 remarks that the efforts of the Bengal Silk Committee to assist production of healthy silkworms were attended, except in the district of Birbhum, with successful results. Enquiry is being made into the causes of the failure of the operations in that district. To enable the Committee to further expand the scope of their operations and to meet additional expenditure in connection with the erection of new model nurseries in the centres of important silk districts, the annual grant of R3,000, hitherto made by Government, was raised to R6,000 for the year 1902-03, with the prospect of its being continued at this increased rate for two years more. The course of sericultural instruction imparted at the Rampur Boalia Industrial School was remodelled on a more popular basis, the main object of the school being the training of cocoon rearers' sons. In their case the course of training was reduced to six months, and no educational qualifications are required. The one-year rearers' class has been retained for educated students to be trained for the posts of sub-overseers and inspectors in the villages. To encourage the training of rearers' sons in the elementary course, the majority of the District Board scholarships are to be assigned to them.

From the report we gather that Malda is a long way ahead of other silk districts in the number of intelligent rearers, who have learnt modern

ideas. The Committee are planning some interesting experiments with ruby and ultra-violet coloured glasses. Ruby colour is beneficial to insect-life, and it is expected that worms grown in a ruby light will grow to a large size. On the other hand, it is said that microbes cannot exist under ultra-violet rays. Experiments were also tried with worms grown from European seed. Moderate success was achieved, but the Committee have decided not to continue these experiments. They are more hopeful of the results to be obtained by using hybrid seed, bred from the male European, and the female Indian moth. The hybrid seed is multivoltive. Some very fine cocoons have been produced from hybrid worms in the Chandpur nursery.—*Planting Opinion*, Nov. 22,

CONCESSIONS FROM MEXICO.

CONCESSION FOR PEARL FISHING.—A despatch dated 5th November has been received at the Foreign Office, from H. M. Consul at Mexico City, forwarding a copy of the Mexican "Diario Official" of 30th ult., containing the text of a concession, in the form of a contract, granted by the Mexican Government to Messrs. Santa Cruz and Oliver for the purpose of exploiting for ten years the mother-of-pearl to be found from the mouth of the Rio Colorado South to the Port of Manzanillo and on the shores of the islands in the Gulf of California known as Tiburon, San Esteban, San Pedro Martir, and San Pedro Nolasco. The concessionaires are also allowed, during the same period, to exploit the sheep and goats, phosphates and sulphates which exist on the islands of the Revillagigedo Archipelago in the Pacific Ocean, and also within a zone extending ten kilometres (six miles) round the coast of the last mentioned islands to exploit the fish, shell fish, and whales, the islands referred to being: Socorro, San Benedicto, Roca Partida and Clarion, as well as the oysters to be found on the last mentioned. The concessionaires are obliged to respect previously established fishing rights, especially those of small fishermen. By Article 4 the concessionaires will pay in rent as follows:—1 dol. for every ton of fish or shell-fish, 10 dols. for every ton of mother-of-pearl, 3 dols. for every ton of whale oil, 2 dols. for every ton of ordinary turtle, and 50 dols. for every ton of the Eretmochelys Imbricata producing tortoise-shell, 10 cents annually for each head of cattle given pasture on national lands within the zone, 50 cents annually for every hectare (2·471 acres) of national lands cultivated, 20 cents per ton of oyster shell, and 50 cents per ton of phosphates and sulphates which they will work, 50 cents for each sheep or goat utilised, besides an annual fixed sum of 400 dols. They must construct within three years a factory or packing house to tin, or otherwise preserve, the produce of their fisheries. They may build the same free of any charge on any national land within the zone of their concession. They will have to begin work within one year from the date of the present contract, and must contribute 12,000 dols. annually towards the expenses of Government inspection. It is interesting to note that among other reasons the contract will become void by paragraph 7 of Article 17 "for having given over the concession or having admitted into partnership any foreign Government or agent of such Government," but by Article 20 the concessionaires and the company which they may form shall always be considered as Mexican even if one or all of its members were foreigners, and will in all cases be subject to the Courts of Law of Mexico. They cannot ever claim under the contract any rights in International Law, neither will they be allowed to make any appeal to any foreign Diplomatic Agent. The same number of the "Diario" contains another concession of a similar nature granted to Mr. R Gilbert for prawn, lobster and sponge fishing off the coast of Yucatan, between Cape Cangrejo and Punta Flor.—*Board of Trade Journal*, Nov. 27.

PLANTING NOTES.

ARTIFICIAL CAMPHOR.—According to an American patent article camphor (identical with natural camphor) may be prepared by treating water-free turpentine with oxalic acid, whereby pinyl formate is produced. This is distilled with lime, and bornoal and camphor result, which may be distilled off.—*Pharm. Central*, 1902, 566.

CACAO FOR GERMANY—SAMOA.—A Decree issued by the Governor of Samoa, prohibits the importation of cocoa seed and cocoa plants into that island from Ceylon and the Dutch East Indies, and only permits such importation from other countries subject to previous permission of the Government. The decree was to have come into force on the 6th September last.

PEPPER AND OTHER PLANT DISEASES.—The Annual Report of the Government Botanist, Madras, has just reached us, and we extract the following:—

A disease in the Wynaad pepper plantations received a certain amount of attention. After a careful examination of the specimens received it was decided that study at a distance was useless. Several pests were found, and it is always a matter of difficulty to determine which of these has attacked plants weakened from some other cause and which has made an onslaught on originally healthy plants.

The following were dealt with:—Rust in wheat from the Palnis; minute insects (Aptera) among Cinchona seedlings, determined to be harmless because of the character of their mouthparts; smutted Sorghum, remedies suggested and a scheme of experiments with recent methods drawn up for the Saidapet farm; turnip fleas (Bagrada picta) in the Ootacamund gardens; plant bugs (Nezara viridula var.) in the gardens and notably in the Cinchona plantations; difference in colour of coffee beans; a destructive outbreak of green scale (Aspidiotus Camelliae) in the Kanan Devan Tea plantations; a coffee-root fungus in Coorg; a disease of the prickly-pear, unfortunately received in bad condition; Striga enphrasioides, etc., as pests in badly cultivated lands; sand-binding plants as protection on the East Coast; salt bushes as fodder plants; the requirements of the Durian tree as regards climate and elevation; fibre machines suitable for "Aloe fibre"; and questions on Hydnocarpus, mosquitoes, Balsamodendron Berryi as a hedge plant, various species of Cassia as "senna," Tephrosia or "wild indigo" for green dressing, and many other references of minor importance.

Correspondence.

To the Editor.

MR. R. V. WEBSTER AND PURE CEYLON TEA: "THE MAN FOR ST. LOUIS?"

Cullen, N.B., 4th Nov., 1902.

DEAR SIR,—I enclose a booklet that came to hand last night, sent by Mr. Webster and, I think, you will admit there is food for reflection in its contents:—

(1) Mr. Webster has for twelve years sold only pure Ceylon teas.

(2) He has hitherto sold them all in "foreign countries" and till now has sold none in Great Britain.

These I take it, are the essence of the aims of the "Thirty Committee's" efforts and yet what recognition or assistance has he received at their hands*? I recollect advocating his cause on the Planters' Association Committee or "Thirty Committee" some years ago, about the time he was complaining that not only had his teas sent to Chicago Exhibition been improperly exhibited, but that the very copies of his illustrations in his booklet has been pirated by an opposing firm; but my efforts bore little fruit. Years have passed since then, and while the business of almost every Ceylon planter, who started tea-vending, has become bankrupt or sunk into insignificance, Mr. Webster's business has increased all over the world, till it is now of considerable magnitude, and he is this year spending about *£5,000 in advertisements alone*, and hopes to bring his sales up to three to four million pounds.

He mentioned in conversation that he seriously contemplated making a new departure and selling blends with teas of other countries in them, as he could purchase Indians at better values than Ceylons, and as although he had consistently sold pure Ceylon teas hitherto his efforts had hardly been recognised, while he saw others subsidised with Ceylon planters' moneys, selling blends containing Indian and China teas.

Till this booklet came to hand I was unaware that he had carried his ideas into execution and in losing him as a vendor of exclusively pure Ceylon teas we have lost the most enterprising and successful man who handled them. Under the circumstances he is quite right to handle the teas which will give him best returns, but whether the "Thirty Committee" would not do well to try and induce him to again handle purely Ceylon teas is another matter. I believe it would pay them well to do so.—Yours faithfully,

L. DAVIDSON.

P.S.—Mr. Webster told me that a shopkeeper in one of the ports, where the Boer prisoners landed, secured 100 boxes imported, duty free, cheap, from the prisoners "with the compliments of the Planters' Association" on them.

L. D.

[*How long ago is it since Mr. Webster drew £500 from the Cess Fund—and was he not favored at the Paris Exhibition?—ED. *T.A.*]

THE COCONUT—AND QUESTIONS FROM AUSTRALIA.

Wahroonga, New South Wales, Nov. 17.

Sir,—Will you kindly inform me if coconut oil suitable for use as a substitute for dairy butter, mutton, beef and hog's fat is produced in Ceylon? If so is the oil made from the fresh nuts or from copra? What other articles are produced from the coconut that are suitable for use in connection with human food?

About how many tons of copra are shipped from Ceylon per annum, and how much coconut oil and how much of other coconut products? I would like to see a copy of your paper with reply to above questions.—Yours,

M. G. KELLOGG, M.D.

[Dr. Kellogg will find a good deal of the information he wants in our "Manual of the Coconut Palm" and the needful statistics in the copy of our "T.A." we send him. No doubt his enquiries are prompted by the fact that owing to the drought in Australia almost extinguishing the export of lard, coconut oil, "butter" and other products of the palm are in special demand.—ED. *T.A.*]

BEANS—AND BEANS.

Boer Camp, Nov. 20.

DEAR SIR,—Can you give me any particulars concerning the *Tongan Bean* advertised in your columns:—whether a heavy cropper or otherwise and if usable as a good cooking bean. I am forwarding you another *bean pod* which is strange to me, and the name of which I would like to have and also any other particulars concerning same. I have no doubt the information may be interesting to others besides—Yours etc.,

VISITOR.

[The Tonga, Tonka or Tonquin bean is the *Dipterix odorata* of botanists and this is what we are told about it:—

"*D. odorata* yields the fragrant seed called Tonquin, Tonka, or Tonga bean, used for scenting snuff. Perfumers also obtain an extract from it, which forms an ingredient in some bouquets, and the pulverised seed is employed in the preparation of sachet powders. The odour resembles that of new-mown hay, and is due to the presence of *coumarine*. The tree producing these seeds grows sixty or eighty feet high, and is a native of Cayenne. The fruit bears some resemblance to that of the almond tree, and the seed or bean is shaped like an almond, but much longer, and is covered with a shining black skin."

The bean pods sent by our correspondent are surely of the ordinary broad-bean species—a little varied by climate and mode of cultivation? To settle the matter, "Visitor" should send a pod and leaves to Mr. Nock of the Hakgala Gardens.—ED. *T.A.*]

THE COCONUT OIL PUZZLE.

Nov. 22.

DEAR SIR,—You drew attention last week to the sudden drop in the value of coconut oil by 25s in the London Market; but you did not note the rise by 20s just before—I believe the day before. I have heard the remark, which I saw in print, confirmed by business-men who ought to know, that no one seems to understand the course of the Oil and Copra Market. Is not the price of copra much below what it ought to be, having regard to the price of oil, even after the drop? We have drifted into the season of small crops, and yet the price of nuts seems to have receded, instead of advancing; and notwithstanding the very heavy crops reported from all districts, the exports scarcely show any advance. Oil is ahead of the last four years, but copra and nuts in the shell are lagging behind.—Yours, PUZZLED.

COCONUT CULTIVATION IN CEYLON.

DEAR SIR,—I do not intend appearing before the public as a teacher but as an earnest learner, and as one who has made a study of practical agriculture since he engaged in planting, twenty-eight years ago.

It is an axiom in Agriculture, to conform as nearly as possible with the natural conditions under which a product grows, when its cultivation is engaged in.

Now what are the natural conditions under which the coconut-palm grows? Its original habitat was the sea-shore on which the nuts were thrown by the action of currents and waves.

The conditions, under which the tree grew and flourished, were on a free, sandy soil highly impregnated with salt and in an atmosphere that was salt-laden.

The extent of land that answers these conditions is limited, and as the cocoanut industry is a sure and certain one, and does not partake of the nature of gambling as some other industries do, the cultivation of the palm is carried farther and farther away inland, and it is removed farther and farther away from the natural condition under which it grows.

According to my thinking, the first and foremost aim of the coconut planter should be under these altered conditions to conform as nearly as possible with the natural conditions under which the palm grows. Here he will find scope for the exercise of intelligence and ingenuity. If he has a stiff, clayey or gravelly soil to deal with, he cannot make it sandy; but it is possible for him to make the soil sufficiently free, to allow of the free passage of roots through it. The first operation should be deep draining. The free passage or water and air through a stiff soil, will help to gradually alter its mechanical condition. An estate scored with drains, will have its transport arrangements interfered with. The drains should gradually be filled up with coconut branches and bushes, first along the line of a road The drainage of the soil will not be interfered with, by packing it with branches, till such time as the bushes are thoroughly decayed and forms, a compact mass. This will take many years, by which time, the roots of the palm will through the soil of of water saturated with decaying bushes cannot but add to its fertility.

Another operation, as for more necessary than draining, is to keep the soil round the trees in a thorough state of cultivation. If this can be undertaken when the plants are young, the benefit to the resulting trees will be very great. The large foraging roots will be helped to leave the surface of the ground and to obtain water for the use of the tree from the soil where it is permanently damp. Rain water will percolate through the soil, and there will always be moisture for the roots to draw upon in a season of drought. The feeding rootlets will have unrestricted liberty and manuring operations in later years will not be costly. If the tilling of the soil should take place when an estate is young the circle tilled should be enlarged annually till 8 or 10 feet radius be reached. I am inclined to the opinion that with this surface round a tree kept in thorough cultivation by tilling and manuring, ploughing will not become a necessity.

Where tilling of the ground round trees is undertaken in later years, I would suggest a complete turning over of the soil, so that the rank growth of grass, always to be found on a heavy soil, be turned into the soil. The benefits of green manuring will be attained by this. This will of necessity result in the cutting of the roots of the tree. Some people object to this, and think it will be harmful to the tree to injure the roots. The harm will be temporary, the gain from the operation of tillng will be enduring. I do not feel any squeamishness in injuring the roots of the coconut palm. Observation will show that the bole of the tree is constantly putting out new roots to replace those that are injured, which generally die.

I am of opinion that the roots of the coco-palm have no functions to perform on the surface of the soil, and that they are there by reason of the mechanical condition of the soil not permitting them to be where they should be, deep down below the surface of the ground performing the function of pumps. A coco-palm has no tap-root, and the main roots, I am inclined to think, perform all the functions of the tap-root. Observation induced this belief in me. The lateral or main roots of trees, generally spread out parallel with the surface of the soil and horizontally. The main-roots of the coconut tree have a downward direction, and in a sandy soil, as in its natural *habitat*, they generally go deep down into th ground. They are found on the surface, only when the condition of the soil does not permit them to go where nature intended they should be. I think it is for this reason—want of sufficient moisture—that the branches and fronds of young trees growing on stiff soil, hang down as a rule, while the exception is to find it in a sandy soil, where when it does occur, it is in a differeut degree. When roots are to be found on the surface of the soil, I think it is evidence that that soil has not been regularly cultivated and is crying out to be.

Observation shews us, that the butt-end of the mid-ribs of the fronds of the coco-palm is shaped like a spout. During a shower of rain, these catch the rain-water, and a stream runs down the stem or near it. I look upon this as a provision of nature to supply the tree with the large quantity of water it requires. The aim of the intelligent cultivator is to store up what nature provides. This is done by thoroughly tilling the ground round the coconut tree and where the ground slopes, levelling the surface. The necessity

for thus conserving the water nature provides, will be realised during a period of scanty rainfall. The fronds of a coco-palm are so arranged as to thoroughly protect the surface of the ground round the tree, where the rootlets abound, from the direct rays of the mid-day sun. The arrangement of the fronds also prevent rain-water reaching the shaded portion of the ground. Hence the wise provision of nature to counteract this, by the spout-like shape of the butt-ends of the fronds. As I said before, the aim of the planter should be to prevent the water provided by nature going to waste, by tilling the surface of the soil round the trees. B.

A LEECH IN A DOG'S NOSE: WANTED ITS EVICTION.

Nonpareil, Ohiya, Nov. 23.

DEAR SIR,—Can any of your many readers tell me how to get rid of a leech which has got into the nose of one of my dogs?—It has been there four days now and all my efforts to get it out have been unsuccessful.—The Tamil name for this particular kind of leech is "neere-utta," but of the English name I am ignorant. With apologies for troubling you,—Yours faithfully.

A. D. A.

[We first heard of the trouble Ceylon leeches give by creepings into the nose of cattle and dogs when they stoop to drink at a stream, by a still more peculiar experience: the little child (3 or 4 years) of a Haputale planter—the late Mr. Mitchell of Kelburne—in playing beside a small stream got a leech into its nose; but for some time the parents did not know what was the cause of the bleeding, the high fever and crying of the little one. Fortunately, Mr. W. H. Wright, who was then pioneering in East Haputale, came the way and soon discovered the cause and he proved it by taking the child into a dark corner when the leech popped out enough for Mr. Wright to seize and wrench it away. This is as we recall the story told us at Kelburne, alas, so long ago as March 1865; but if we are wrong the veteran planter now on his Mirigama coconut property, will correct us. Let "A. D. A." then throw a cloth over his dog's head and watch if the leech does not obtrude sufficiently to enable it to be pulled away. There are no doubt other remedies which may be mentioned by correspondents, but the efficacy of the above plan has been repeatedly proved.—ED. *T.A.*]

No. II.

Colombo, Dec 3.

SIR,—A successful way to extract a leech from a dog's nose, even on a rainy day, is to introduce a strong solution of common salt into the nostril occupied by the cruel intruder. The dog will sneeze him off,

"USUS."

No. III.

Colombo, 28th Nov.

DEAR SIR,—Might I suggest a good pinch of snuff, sufficient to make the dog sneeze.—Yours faithfully. C. H.

No. IV.

Kotahena, 29th Nov.

SIR—In reply to the inquiry by "A D A" of Nonpareil, Ohiya, in your yesterday's issue for evicting a leech from his dog's nose, I would recommend him to use an injection of vinegar or a solution of salt as prescribed by Dr. E J Waring, M.D. P. C. O.

No. V.

Nov. 30.

DEAR SIR,—In answer to "A.D.A.'s" query in your issue of 28th November as to how to extract a leech from a dog's nose:—

Keep the dog in the hot sun a short time. Then bring him into a cool room and dip his nose in a vessel of cold water, and with a handkerchief adjusted between the fore-finger and thumb, you will be able to sprag the leech firmly and he's got to come.—Yours, &c., PLANTER.

GREEN TEA AND BLACK: THE TURN IN THE TIDE.

Nov. 26.

DEAR SIR,—I really don't think the prospects of Ceylon Tea—I will not go so far as to say British-grown Teas—were ever brighter. I say so with recollection of the time when the average price was double what it now is. Then, there was the apprehension of a rush into the enterprise, since sadly fulfilled; and then we had not learnt the teachings of adversity, so helpful to thoroughness and economy. And the change has been brought about, within a few months, by a process as simple as that which has immortalised Columbus' egg! It was just like the Britisher. He knew there were Green Teas and Black; and he knew the Yankees (like some others!) were wedded to Greens; but they must be conquered not coaxed; the Black must be poured down their throats. But Jonathan is as tough a customer as his cousin John Bull; and we have had to give up the idea of force. And how many markets have not the British lost in manufactures by not consulting the wishes and needs of the buyer, as the Americans and the Germans do!

Take my word for it, in the next year or two our Green Teas will play such a part in the markets of the world, as to lay the ghost of over-production at least for a decade—may be for ever. Thanks to Rutherford's keenness, we have been spared an increase in the Cess; and in 1904 Greens will need no crutch, and it isn't from Mr. Black they will ask a helping hand. *Exit tributum*! And when that happy day dawns, let us think kindly of a Firm which has had more hard things said of it than any in the Tea business. For is it not Finlay, Muir & Co., who gave the fillip to Greens by their improved process which has enlisted an army of inventors—who laid, in fact, Colombo's egg at Ambewatte!—Yours,

P. D.

TONGA BEAN—I.

Nov. 29.

DEAR SIR,—In your issue of 25th inst., I see a letter from "Visitor" enquiring about the "Tongan" bean. The jat, I advertised, is a *vegetable*, a very heavy cropper and when cooked is of a more delicate flavour than the "French" bean.—I am, Sir, yours faithfully, "SEEDS" MADULKELE.

NO. II.

The Central Seed Stores, Kandy, Nov. 28.

SIR,—Your correspondent "Visitor," wishes to know the merits of the Tongan Bean, and I trust the following will be of some use.—Yours truly,

E. SPEARMAN HUGHES.

The wonderful Tongan Bean is a strong evergreen perennial climber, producing immense quantities of large flat beans of excellent quality, which are used like French Beans. It is estimated that, in a moderately warm situation and good soil, two plants of this bean will supply a small family with this delicious and wholesome vegetable for nine months in the year. The plant is also very ornamental, and may be utilised for covering unsightly objects. It requires to be sown rather late. The bean should be picked very young and boiled whole. Although it is a perennial, it is advisable to sow one or two beans every year, for though the old plants come into bearing much earlier than the young ones, still they do not bear such heavy crops nor the best beans. As the seeds are very slow to germinate, they should be soaked one or two hours in warm water before sowing.

CULTIVATION OF BEET, SWISS CHARD, &c.

Himalaya Seed Stores, Mussoorie, N.W.P., Nov. 29.

DEAR SIR,—I am enclosing a copy of a special Circular which I have just published on the "Cultivation of Sugar Beets, &c." and shall be glad if you will give a notice of it in one of the issues of your valuable paper.

I think that the articles treated of in the Circular would be found useful by District officials, &c. as famine crops, for feeding the millions who are, from time to time, thrown on the hands of Government at Relief Works, &c., and would be infinitely more valuable than the Carrot seed, which, a few years ago, was bought at great expense in Europe and ultimately thrown away, as the Natives would not make use of it.—Yours faithfully,

W. W. JOHNSTONE,

General Manager.

NOTES ON THE CULTIVATION OF SUGAR BEET, GIANT SEAKALE BEET AND SWISS CHARD.

Some four years ago experiments were commenced at the Central Jail, Coimbatore, with a view of introducing some new kinds of vegetables to supplement those ordinarily grown in the Madras Presidency. A small consignment of Sugar Beet seed was obtained from Australia through a gentleman at Ootacamund. The seed was received in October and planted at once, and the result was sufficiently satisfactory to encourage further trials. The following year, seed was obtained from the Himalaya Seed Stores, Mussoorie, and the result was highly satisfactory. The roots have since been grown year by year in several Jail gardens of this Presidency, and have proved a valuable addition to the Jail dietary.

SUGAR BEET.

The method of cultivation adopted at Coimbatore is as follows. The plot which is intended to grow the Beet is dug to a depth of about 18 inches and heavily manured with ordinary farm yard manure, about 2 months before the time for sowing the seed. When the June rains commence, the plot is laid out in beds for irrigation, and the seed sown in drills 1 foot apart, the young plants are subsequently thinned out to 1 foot between each, and during dry weather are irrigated once a week. The Beet is said to absorb a large amount of nitrogen and in some places it may be advisable to use nitrate of soda and superphosphate of lime as a manure, but here it has not been found necessary, owing to the large amount of lime in the soil. The practice on the Continent is to have the roots nine inches apart each way. This keeps them small and uniform in size, a matter of much importance where the roots are grown for sugar. When grown as vegetable for prisoners, uniformity of size is of no importance, whilst the larger they are, the greater the weight of vegetable produced. The roots grown by Mr. Prondlock in the Nilghiris, varied from 4 lb. 12 oz. to 5 lb. whilst those grown on the Continent vary from 1½ to 3 lb.* No particular attention has been paid to the weight of the roots grown here, and they have varied very much in size, owing to the fact that seedlings thinned out from the beds are planted in other beds. These do not as a rule form large or well shaped roots. It is a common thing here to find roots weighing from 10 to 12 lb., and the average weight of a well grown plot would certainly exceed 6 lb. It seems likely that the large size of the roots grown here is due to regular irrigation, and to free working up of the soil between the roots, added to the fact that the soil here seems particularly suited to all plants of the Beetroot family.

The crop takes about 6 months to mature, but for the purpose for which they are grown here, the roots can of course be utilised before they attain full maturity. It is difficult to store roots satisfactorily in this country but they have been kept for upwards of three months, by being heaped in a store room and after a few days, when the heat has escaped, being covered with dry sand. The kind of Sugar Beet ordinarily grown here is Vilmorin's Improved, but there are several other kinds, equally good, all of which can be obtained from the Himalaya Seed Stores.

MANGEL WURZEL.

Mangel Wurzel has also been grown here successfully under the same conditions as the Sugar Beet, some roots having attained a weight of close upon 20 lb.

If used for feeding cattle, Sugar Beet and Mangel Wurzel, should be well boiled and mixed with other food.

GIANT SEAKALE BEET.

This vegetable was first tried in the Jail garden in 1898. It is a large, comparatively new variety of the Spinach Beet, distinguished by an abnormally large white mid rib. This vegetable has been grown here with great success. It is easy of cultivation and gives a heavy crop in a short time. The seeds are sown in sheltered seed beds, and the young plants bedded to 15 inches each way, when large enough to handle. The plant will grow in any good garden soil and if in rich soil attains a very large size. The practice here is to allow the plants to attain such a size that they completely cover the ground. The leaves are then carefully removed, with the exception of a few of the tender ones in the centre. The soil is then dug up round the plants, which in a short time give a second crop. This plant, like all the Beetroot family, requires lime with manure, unless the soil itself contains a large percentage of lime.

* Mr. Poulter's reports on Sugar Beet grown on the Nilghiris.

SWISS CHARD.

Seeing that a considerable amount of the Giant Seakale Beet seed was being ordered for this Jail, the Manager of the Himalaya Seed Stores suggested that Swiss Chard might be tried here, as being very similar to the Seakale Beet and much less expensive. On his suggestion four varieties of this vegetable have been cultivated here with great success. The Swiss Chards, like the Seakale Beet, are all varieties of Spinach Beet. The seed is sown in seed beds and the plants put out about 1 foot apart. They require the same soil and treatment as the plants previously described. They are particularly handsome and give a good return in a short time. The outer leaves should be cut when the plants cover the gronnd completely, and a second crop will be obtained in abont 6 weeks time. These plants when nnder irrigation, withstand the heat well, and can be grown here nearly all the year round. Of the varieties tried here, the White Silver Curled, and the Large Ribbed Scarlet are preferred.

It has been argned that these vegetables and the Giant Seakale Beet contain a very large percentage of water. No donbt they do contain a very large percentage when compared with the majority of English vegetables, but they compare favonrably with most country vegetables. The great thing in their favour is that they are easy to cultivate, give good returns and are thoroughly wholesome. The prisoners also appear to like them, as no complaints of these vegetables are ever made.

Central Jail, Coimbatore, E GADSDEN,
20th July 1902. *Superintendent.*

We can supply any of the seeds referred to above at the following prices:—

Beet, Giant Seakale	per ounce R1; per lb.	R7-8
Swiss Chards of sorts ..	.. per lb.	R2-0
Sugar Beets of sorts ..	.. per lb.	R2-0

When very large qnantities are required, orders shonld be registered not later than the end of Jannary and supplies will then be sent on receipt of stock from Enrope.

Apply to:—
The General Manager,
The Himalaya Seed Stores,
Mnssoorie, U. P. A. & O.

THE CARDAMOM POSITION, AND PROSPECTS.

Paniyar Estate, Devicolam, Dec. 1.

DEAR SIR,—Considerable anxiety regarding above has been expressed lately, by those interested, and a good deal of speculation indulged in as to over-production. As most reference has been made about Ceylon, it may be of interest to publish the following figures regarding India, and the Cardamom Hills of Travancore, the latter, probably the largest, and most prolific cardamom producing district of the present time. With the abolition of the Government Monopoly, and the advent of the Land Tax system into the Cardamom Hills, a great stimulus has been given to cardamom cultivation, and the acreage has been increased from 10,000 acres under old system to 15,650 acres in 1900 (Government Survey) and probably 1,500 more during 1901-02. There will therefore be abont 17,000 acres under cardamom cultivation in these hills at date. The principal featnre, however, is not exactly in the increased number of acres, but in the system of planting, and subsequent treatment, carried out on these later extensions, especially since the European Planter stepped in, (about 1899.) I venture to make the following definition, and estimate, of crop from the 17,000 acres, when in bearing, (this is derived from personal observation and is more a guess than an estimate):—10,000 acres original monopoly gardens, never properly planted, or cultivated, and in a very bad condition, at 35 lb. per acre per annum, 350,000 lb.; 4,000 acres land taken up after 1896 on Land Tax system rather better planted, and cultivated, and comparatively fresh soil, at 60 lb. per acre, 240,000 lb.; 3,000 acres inclnding European holdings (about 2,000 acres) mostly planted 1900-1, systematically planted, at 150 lb per acre 450,000. These figures aggregate 1,040,000 lb. and work out about 60 lb. per acre on the average. Last year the output entirely from native gardens was a little over 300,000 lb, this year the crop is not yet all gathered; but, the output from same sonrce will not be less than 600,000 lb. This increase is partly due to a favourable season, but mostly due to extensions. The badly tended gardens are naturally very erratic in cropping, and will give little in an unfavourable season, and I would not put the annual output over 500,000 lb, on an average, but the later systematically planted acreage (3,000) will crop regularly, and we may expect the output from the Cardamom Hills to be not less than a million pounds in 1903-4. Without considering increased production from extensions in Mysore, Annamalais and other districts in South India, where is a market to be found for Ceylon's increase (over 100,000 lb as compared with same date last year) and the extra 300,000 from Cardamom Hills this year, with every liklihood of a similar further increase next year? It looks as if the cardamom market at present taking about a million-and-a half pounds altogether, will be called upon to increase its capacity another half, or three-quarters of a million in the short space of two years, how is it likely to respond? The cardamom industry scattered over South India, and Ceylon, as it is, with a good many native participants, is not likely to unite in any scheme to open up new markets, so it will undoubtedly be the "survival of the fittest." European planters on the Cardamom Hills have compact estates, from 300 to 600 acres, of good fresh land, the home of the cardamom, with a distinct crop season making picking very cheap, and being close to lowcountry where curing can be carried out to best advantage, have little to fear in the coming struggle.—Yours faithfully. J. A. HUNTER,

NEW COFFEE-HYBRIDS IN TRINIDAD.

Botanical Department, Trinidad, Oct. 30.

DEAR SIR,—I thank you for the notice of my annual report in your *Tropical Agriculturist.* You remark in reference to "coffee-hybrids" that "nothing is said as to their being proof against the fungus *Hemileia vastatrix.*" I am glad to inform you that I was quite unable to do so, as *Hemileia* is as yet an unknown quantity, and I don't think we shall try to import it for the purpose. I hope, however, to put your Gardens in possession of seed, that may be tested as to immunity shortly.—I am, yours faithfully,

J. H. HART.

SNAKES ALIVE! A REMARKABLE MEAL FOR A COBRA.

Dangkande, Rattota, Dec. 13.

DEAR SIR,—The following is a sight not often seen:—

This morning as I was walking along my watercourse, a cobra, which was running by

itself on the edge, plumped into the water on seeing me and swam in the direction of the current.

On following up I noticed something hanging out of its mouth, which turned out to be a small portion of the tail of a snake. I thought I was to solve the knotty problem as to whether a snake swallows its young. Gradually, however, instead of one of its progeny, the cobra disgorged quite three-fourths of a rat-snake before I killed it. I hauled the remaining fourth of the rat-snake out of the cobra ond on measuring the snakes, found that the cobra was 4ft. 8in. and the ratsnake 5ft. 2in. It would have taken the cobra a good long time to have digested such a meal—a snake 6in. longer than itself !—Yours faithfully,

H. L. BLACKLAW.

CARDAMOMS: CANNOT INDIA AND CEYLON MARKETS BE SPECIALLY EXPLOITED.

Dec. 13.

DEAR SIR,—I am afraid there is a good deal of truth in what Mr. Hunter says; but with the enormous number of natives in India who daily use cardamoms, I think India has a market within itself for all she is likely to produce, if planters and merchants there will take the trouble to meet, and encourage the demand for their produce. While Ceylon planters, with their facilities for conquering other foreign markets, should lose no opportunity of sending exhibits of their produce to every exhibition open to them. It is only be making known to the world the excellence of our products that we can expect to increase the demand for cardamoms which, as yet, are but little known. Yours truly,

AN INTERESTED PLANTER.

COCONUTS AND COPRA.

Dec. 16.

SIR,--Can you tell me what is the relation between a ton weight of Coconuts and a ton of Copra? How many nuts, in fact, are required for the latter; but at the same time, how do they compare in regard to bullock-cart loads.—Yours truly,

INEXPERIENCED.

["Inexperienced," as a coconut planter, should provide himself with our "Manual" and "Directory," in both of which are much useful information in daily request on coconut plantations. It requires from 170 to 200 nuts to make a cwt. of copra—say 3,700 nuts to the ton; and generally speaking, 6 cart loads of coconuts, if converted into copra, would make only one cart-load. We need not point out the advantage of retaining the husks on a plantation for manurial purposes—the veteran, Mr. W. H. Wright makes splendid use of them—but on the other hand, a good deal of labour and special care are needed in preparing copra properly.—ED. *T.A.*]

THE PRESSING NECESSITIES OF THE TEA INDUSTRY."

Dikoya, Dec. 14.

SIR,—Your correspondent, G. N. T., in your issue of 4th instant, has done public service by formulating these into 3. His No. 3., "*The improved cultivation of estates,*" I think should be left out, because it is a matter for the individual capitalist, not the public Planting body to attend to. I would substitute for this necessity "The successful launching of the Green Tea Industry."

We should then have the following necessities formulated :—

No. 1. The reduction and ultimate abolition of the Duty at home.

No. 2. The prevention of tea under a certain standard being shipped from Ceylon.

No. 3. The launching of the Green Tea Industry.

Of these 3 necessities No. 1 may be left to the British consumer; for we, planters, can do little more than support his protest whenever we see him agitating.*

No. 3 is being taken care of to the full by the Cessites, and the majority in favor of the Cess—as a temporary measure at any rate—will ensure it being carried.

No. 2 alone, while not lacking in moral support, has no practical scheme yet suggested for enforcing it.

In my opinion it is the most vital necessity of the 3, because it deals with a defect inherent to tea, and to no other product, viz., that it can be over-produced in inferior quality at a few weeks' notice, to flood the markets, shake the financial position of the Tea Share Market, and prejudice the consumption. No industry can expect to be stable that is exposed to such a risk, and, just as locks were invented against thieves, so must a safeguard be adopted against "spoilt" teas. The following is the scheme which I have to propose for the Press, and the planters to knock into shape :—

Let a qualified Expert be appointed to act with the "Thirty Committee" as Expert Adviser and Office Manager of a permanent Planters' Association Tea Industry Office in Colombo, which would be in touch equally with the Planters' Association and the Chamber of Commerce.

Let the duties of this official be to advise planters on manufacture for fixed fees, and to be the "smeller out" of bad—that is to say rotten—tea leaf in course of export whether on arrival for public sale or shipment otherwise.

In the event of the discovery of a parcel of "spoilt" tea, let it be the duty of the Censor to refer the sample to a Board of Tea Brokers' experts, associated with himself, and, if the tea is only verging on the line of condemnation, let that Board, as a preliminary step, issue a warning to the exporter, which warning could be published if necessary.

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* Not so: we maintain that producers as feeling the pinch most should lead the way in agitation; for it is undoubted, that the 2d. extra duty to a great extent came off the prices.—ED. *T.A.*

Where the sample is proved to be flagrantly bad, let the Board issue a certificate to the Government for its condemnation, and let the latter on the same principle that it has ont the Cess Tax into effect at the instance of the planter, enforce this. It must be remembered that such "spoilt" tea has still a market for its full value through Messrs. Böhringer. I am of opinion that this scheme will be found perfectly practicable in principle, and would do more to give stability to the Industry and Share Market than any form of Combine that can possibly be invented.

Its success in Ceylon would also, doubtless, lead to the adoption of a similar scheme in London in course of a little time.—Yours faithfully, PROPRIETOR.

DR. SHERIDAN LEA ON "WITHANIA COAGULANS."

Galagedara, Nov. 27.

SIR,—Many of the natives of India refuse to have anything to do with cheese prepared by means of animal rennet, and there is consequently there a large field for the employment of this plant. Some years ago Surgeon-Major Aitchison sent home an account of the peculiar property of the "Withania." The shrub grows freely in Afghanistan and Northern India and the natives there have for a long time employed an aqueous extract of the capsules to curdle their milk. Some dried material sent from thence to Kew was used by Dr. Lea in his investigations. Withania is a genus of the order Sobanaceæ and has a capsula fruit containing a large number of small seeds In the dried material these seeds were enveloped in a coating of a peculiar resinous matter, which was probably the dried juice of the capsules in which they had ripened. The ferment was found to exist to a very slight amount in the stalks of the fruits, and to be extremely abundant in the seeds. From the ground seeds it could be extracted easily by maceration with solution of common salt, and by treatment with glycerine, so extracted, it was found to be destroyed on boiling, but to be able to withstand moderately prolonged exposure to alcohol. Its activity in a fairly strong extract was quite equal to that of most commercial samples of rennet prepared from the stomach. It could, moreover, be kept with as great security as the latter, by the aid of common salt and a little alcohol. Its commercial value is somewhat interfered with by the presence in the seeds, and in their extracts, of a peculiar yellowish-brown colouring matter which cannot be separated without dêstroying the rennet

These seeds were obtained from Mr. E Spearman Hughes, Florist, Kandy, some months ago and sent to the United States, and I am glad to state the recent glowing accounts of its great success will open a large field in our Colony for its cultivat on.—Yours truly,

J. J: McK.

MATALE PARA RUBBER SELLING HIGH.

Kepitigalla, Matale, Dec. 5.

DEAR SIR,—As promised in my letter of October 1st last, which appeared in your daily issue, to let you know the results of the sale of the 13 cases Para Rubber dispatched, I now have the pleasure in stating that the 13 cases sold for the handsome average price of 3s 11d per lb.—an average price second to none in the world, as very best Paras were selling at same sale at 3s 5½d.

Valuation and sales of 13 cases, Kepitigalla, Matale, Ceylon, Para Rubber :—

London, Nov. 14.

To 4 cases 200 B. A1. valued at 3s 11d sold at 4s.

To 8 cases 400 B. A. valued at 3s 11d sold at 4s.

To 1 case 42 B. rough scrap valued at 2s 8d sold at 2s 10d.

I enclose London Agent's sales memo to verify above figures.—I am, Sir, yours faithfully, FRANCIS J. HOLLOWAY.

THE CARDAMOMS' POSITION AND PROSPECTS.

Gammaduwa, Dec. 7.

DEAR SIR,—Mr. Hunter's letter of the 1st inst. appears most opportunely. It was only the other week your readers were informed of an application to Government for 40 acres of land on 12 years' lease for the purpose of experimental cardamom cultivation, and about a year ago of a grant of 200 acre for a similar purpose. Old cardamom growers have reason to feel alarmed. With 8,000 odd acres of this product and an export, for eleven months, of 551,659 lb, with a probable 750,000 lb, next year, they think their cultivation is beyond the experimental stage. They are now warned they will have a big struggle for existence with their formidable rival India, and our Governor should note this while considering applications for grants and leases for cardamom cultivation. Perhaps, the experience of the older growers may help *them* in the fight.—Yours faithfully,

JAMES WESTLAND.

COCONUT CULTIVATION : SALT.—No. 2.

THE CASE FOR FREE SALT FOR AGRICULTURAL PURPOSES.

DEAR SIR,—In my last communication (in which by the way "husks' was made to read "bushes"), I pointed out how one of the natural conditions under which the coco-palm grew—a free soil—could be imitated by draining and tilling. In this communication I intend to dwell on the necessity of salt for coconut cultivation.

The history of the agitation to induce Government to issue salt for agricultural purposes at reduced rates goes back into the past. The agitation was started by the Coffee Planters headed by Mr R B Tytler, if I mistake not. Government met the agitation with the reply that salt could not be so de-naturalised as not to make it possible for it to be purified and made fit for culinary purposes. A practical Government would have dealt with probabilities rather than with possibilities. Was it probable that the ordinary cooly had a sufficient knowledge of practical chemistry to purify the salt that had been denaturalised, and was it by any means probable, that if he had that knowledge, he would utilise it and expend much valuable time to save a cent

or two on salt per diem? A praotical Government would have answered tbese questions witb a decided and emphatic negative. Besides, tbose wbo applied for the salt were ready to pay for a watcber, to be supplied by tbe Government, to see that the salt was used for no other purpose than agricultural.

The Government is sufficiently practical and enligbtened to carry manures in their railways at reduced rates and to levy no tolls on manures, on tbe prinoiple that bread cast upon the waters will return to it after many days, in the shape of increased produce. But it is not prepared to apply the same principle to the issues of salt at special rates for agricultural purposes.

As I am very strongly of opinion that salt is an absolute necessity in coconut cultivation, especially in inland districts having a heavy soil, I started an agitation for its issue at special rates, about fifteen years ago. It was met by the stereotyped reply. Of the benefits of its use in coconut cultivation, one reads occasionally in the papers of the experiments being carried out by Dr. Dias at Henaratgoda.

It was argued by Dr. Trimen at the time of my agitation, that as analyses showed tbat the coco-palm yielded but a small quantity of salt, and as this small quantity was very likely deposited during the monsoons, salt was not so great a necessity for coconut cultivation as I wanted to make out. I think bis reasoning was fallacious. The quantity of any inorganic matter in any product, should not determine its necessity or otberwise. Besides, salt bas other properties tban manurial. It acts chemically and mechanically on a soil. It keeps the soil moist by absorbing the moisture of the atmosphere. It acts as a solvent and renders available the insoluble plant-food in a soil. Lime does not occur largely in vegetation, yet soils are limited to improve their chemical and mechanioal condition. Dr. thhimen was evidently misled by Lepine's analytical rtbles. Cocbran, a few years ago, showed that they were wrong as regards tbe quantity of salt in the husks of the coconut. He was also surprised to find that the husks of a coconut grown on an estate at Kurunegala yielded more salt tban in one grown on the sea shore at Kollupitiya.

Of all coconut planters, the late Mr. Davidson was, perhaps, the most intelligent and the one best versed in Agricultural Chemistry. His pupil, Mr. Jardine, is a worthy successor of his. He wrote in 1861:—"A tree requires annually 1·34 lb. salt and 9·79 lb. potasb (according to Lepine's analyses), yet the larger amount may be less essential its welfare than the smaller quantity, because this possesses properties which the other has not, and for the want of wbich nothing else will compensate. Tbe weight of salt required, compared with the otber in organic matter, does not exhibit fairly its relative value as a manure. Here (Jaffna) day after day may be seen strings of carts, creeping from the beach to tbe estates, laden with sea weed. For tbe sake of the salt it contains, we drive a cart-load of matter, which we could obtain much nearer home and at a little of the cost, because our Rulers persistently refuse to allow us, at the price they sell it for exportation, to purchase that salt for our estates, wbich it, sometimes, *costs hundreds of pounds to destroy*. The following offer was made to Government Parties to get salt at export price, would adulterate it with matter best adapted to render it unfit for culinary purposes, in the Government stores. They would enter into a penalty bond to tbe full value of the salt, at the market price, that it should be used solely as a manure for coconut trees and they would pay for a Government employee, who should certify to its application as specified. We deserve, perhaps, that our wants should be disregarded, for I do not remember that coconut planters have ever combined to have them fairly represented. With more of unity and combination in our efforts, we should doubtless command success."

Possibly at the time Mr. Davidson wrote tbe above, coconut estates regularly cultivated existed only in the Northern and Eastern Provinces. Though the cultivation of the palm and the opening of estates have increased by leaps and bounds since then, the deplorable want of unity and combination which he then bewailed, still exists. If so shrewd and intelligent a planter as Mr. Davidson tbought salt a necessity in coconut oultivation, and placed so higb a value on it, even on tbe sea-borde, surely I was right when I, ignorant of his opinion, advocated the use of salt for coconut cultivation, especially in inland districts.

To those who are ignorant of the fact, it will cause much surprise to bo told that contractors supply the Government with salt at 25-35 cents the cwt. They re-sell it wholesale for local consnmption at R2·36 the cwt., and for export for a little above oost price. Why strangers sbould be treated better than ber own childreu. I bave never been able to find out? Nor why the Government should prefer to export salt and even to wickedly destroy so useful a product, rather than to sell it at export rates to agriculturists, wben it will result in increased crops, increased circulation of money, and increased revenue to Government, by the increased consumption of dutiable articles, increased traffic on railways, roads and canals, and increased dnty on exports. Will not some member of Council again take tbe matter up? It appeals specially to the Planting and Ceylonese members.

Salt can be denaturalised at any one of our manure works by the addition of incinerator ashes, and some offensive smelling manure suoh as guano. Ceylonese know tbat only tbe lowest caste of natives can be induced to work at conservancy (with apologies to Mr. Hemming). If once it be known tbat salt used for manurial purposes is mixed witb matter from latrines, not only will no one be so depraved as to attempt to use it for culinary purposes, but it will be difficult to get any one but pariah caste coolies to handle it. I feel certain tbat if Revenue Officers with a knowledge of the people and their prejudices be appealed to, they will unanimously give it as their opinion that the probabilities of salt denaturalised as I suggest, being used for culinary purposes are extremely remote. If salt be available at cheap rates, its use will gradually extend, till it assnmes very large proportions. When one's neighbours see the benefits arising from its use, tbey will gradually follow suit. If nursery plants, before being put out, are steeped in brine, tbey beoome immune from tbe attack of white ants, and turn out healthier and stronger plants. If a small quantity of salt be sprinkled in coconut holes, insects are destroyed. If a sufficiency of salt be used to impregnate tbe soil, the plants will be able to resist droughts, as tbe impregnated soil will absorb moisture from the atmosphere. If salt be applied to coconut plants of larger growtb and to trees, the soil is kept moist and free. If mulched simultaneously, the capillarity of the soil is increased and evaporation lessened, so tbat droughts will not seriously affect them. Salt, as stated before, is a solvent. When the soil is moist and the plant-food is rendered soluble, rootlets will be performing tbeir functions of feeding, continuously. B.

PLANTING NOTES.

CACAO ENEMIES.—We learn that owing, probably, to the prolonged wet weather, there has been a recrudescence of disease—canker, fungus, etc.—among the cacao trees on several estates, North and South of Kandy. We trust the trouble will shortly disappear as the dry weather sets in.

CHINESE TEA.

The once important and lucrative tea industry has, says Acting Consul-General J Scott, of Canton, been almost ruined by Chinese apathy and neglect. Growers in the interior pay little or no attention to their plants, and do not trouble to renew the old bushes as they become decayed. The leaf is picked anyhow and at any time, as prices appear favourable, with the result that, carelessly handled and fired, the tea on reaching the London market is frequently found affected or deficient in strength, body, and colour. Thirty years ago Canton exported to Europe some 13,000,000 lb. of black tea and nearly 2,000,000 lb. of green, whereas now it amounts to less than 1,000,000 lb., chiefly Congou. The well-known

SCENTED CAPERS,

for which Canton was famous, and of which some 7,000,000 lb. were exported in 1872, figure for 1901 at an export of 5,790 lb., only. These figures do not, however, give an accurate return of the entire export, as many shipments are arranged in Hong Kong, to which port the tea is conveyed by junk, and does not, therefore, pass through the hands of the Imperial Maritime Customs. The following figures, obtained from an actual dealer, provide a comparison in the trade in scented capers during the past three years:—in 1899, 4,900,000 lb.; in 1900, 3,700,000 lb.; and in 1901, 3,000,000 lb. A further depressing feature is that the monthly returns of deliveries in London also mark a decline which would lead one to suppose that Canton scented capers are rapidly going out of consumption. The season now under review cannot be said to have been a favourable one as regards quality, nor was it remunerative either to foreign buyers or native sellers. Taken all round the various crops during the season were of a fair average quality, but there was a considerable quantity of leaf left on the hands of natives from the previous season. This they had to work off by mixing it with the new season's leaf—a practice that no doubt had a detrimental effect, and which would have been accentuated had not scenting flower been abnormally cheap and abundant, whereby it was possible for the teas to be scented above the average. The recent decision of the Chinese Government to lower the export duty on tea to 5 per cent. *ad valorem* may have some beneficial effect upon the trade, and had this measure been adopted some ten years ago, the tea trade of Canton and China generally would not have fallen to its present low level. This considerable abatement in the export duty will enable low-priced Chinese teas to compete more favourably with those of India and Ceylon.—London *Chamber of Commerce Journal*, Nov.

A GOVERNMENT REPORT ON RUBBER.

In a report on "Agriculture in the Tropical Islands of United States," by Mr O F Cook, botanist in charge of investigations in tropical agriculture, less than two pages, under the heading "Rubber and Gutta-percha," form the single reference to the matter under discussion. The spirit in which Mr Cook writes is decidedly unfavourable to the formation of rubber plantations. He says, for example: "Notwithstanding widespread interest and the investment of millions of dollars, it cannot be said that rubber culture has passed the experimental stage, if indeed that period has been fairly reached." But there is no reference to any experiment made in any country, or to the results, in such detail as will enable the reader to look into the subject further with a view to satisfying himself as to the present status of rubber cultivation, or to investigate the reasons for "the investment of millions of dollars" which is still going on.

Mr Cook says again; "Moreover, it is known that many rubber plantations established with the most lively expectations have been abandoned because the anticipation, of a profitable yield of rubber from cultivated trees proved to be fallacious." This report would have been more complete and more convincing had it been followed by a list of such plantations and of their locations. As a matter of fact, there has not been time, since the systematic planting of rubber on a commercial scale began actively, for very many of the plantations to become productive, and, so far as we can learn, the results attained have been such as to encourage very many others to engage in this branch of planting. There is reason to believe that more rubber trees have been planted in Ceylon, the Malay peninsula, Burma, Mexico, Central America, and the West Indies during the last twelve months than in any previous year, and in the list of plantations on record in the *India Rubber World* office—which includes all that we have been able to gain any of knowledge of during the past ten years—there has been no case of abandonment of trees once planted. Mr Cook admits, however, that "similar disappointments, misapprehensions, and misrepresentations"—referring to the prospectuses of certain companies formed to plant rubber in Mexico and Central Africa—have, of course, marked the early history of many finally successful and important industries."

INTERNATIONAL COFFEE CONGRESS.

According to *Dun's Review* of October 11th, the International Coffee Congress, then being held in New York, for the purpose of considering what measures should be adopted by the leading coffee-producing countries to improve the position of coffee in the world's markets, had held several sessions, and some progress had been made in the direction of giving definite expression to the views of its members on the important questions forming the subject of their deliberations. The Committee on Consumption reported the three following resolutions:—(1) Recommending to all the Governments and producing and consuming countries the compulsory use of pure coffee in the armies and navies. (2) Recommending to the Governments and countries which produce coffee that they establish, as soon as possible, in countries in which coffee is not now consumed, places for the demonstration of pure coffee. (3) That coffee-producing and consuming countries may prohibit the sale of adulterated coffee, and of substitutes bearing the name of coffee; and, in case this prohibition cannot be enforced, that a heavy duty be imposed on such articles. The Committee on the Causes of the Crises submitted a report of which the following is the resolution recommended:—"The International Conference for the Protection of the Coffee Industry recommends to the producing countries the adoption of differential tariffs for the collection of import duties, applicable to manufactured articles and staples of the consuming nations, proportionately to the tax charged upon imported coffee.—London *Chamber of Commerce Journal*, Nov.

PLUMBAGO REPORT.

There has been a distinct decline since our last We have lately visited all the users of Ceylon plumbago on the Continent and find them in no pleasant frame of mind. Nine-tenths of the ship-

ments to the Continent go to crucible manufacturers who complain of the infinitesimal margin of profit now obtainable on crucibles, largely owing to the comparatively high prices prevailing for the better qualities of plumbago. Trade generally in Germany is we all know, in a had way and this holds good to no small extent in the iron and steel trades. When one sees firms like Krupp of Essen working only half time, matters cannot be in a very prosperous state. One of the oldest and at one time the largest firm of crucible manufacturers in Germany has just thrown up the sponge and closed its works for all time. The manager informed us that they could no longer manufacture crucibles at a profit, and they would not go on working for the fun of the thing. Several others are working on the narrowest of margins. They do not care to shut down temporarily, as it would disorganize their labour, so they carry on hoping for hetter times. In America things are far from brisk, and we now hear of an American mine capable of producing 5,000 tons good crucible plumbago per annum. It is true that we have once or twice before heard of American plumhago, hut that was the extent of it. When we asked for shipments there was ever some excuse; but the matter has been placed before us now in a much more definite way, and there may be something in it. We still have our doubts, but shall be hetter able to report on the subject in a few weeks' time. On spot, London, the following sales have been made during the week. Common lump, £18 to £12; good chippy dust, £7 10s.; medium chippy dust, £6 15s. For shipment finest O. L. has heen sold at £36 to the Continent. Good quality at £32., medium at £25, and finest chips at £20. Several transactions have been made in plumbago from Southern India. The quality is poor, but it analyses well and gives an excellent polish. If this can he produced in any quantity it will interfere with the trade in Ceylon dust and flying dust. Common qualities of the latter are unsaleable hut there is still a good demand both for England and the U.S.. for medium chippy dust at ahout £7.—Messrs Chapman, Anthony & Co.'s Report to Local "Times."

TRAVANCORE FORESTS.

We have received a copy of "The Mine of Wealth" in the State Forests of Travancore : and what young Travancore can do to create industries—being a lecture delivered under the auspices of the Travancore Government Lecture Committee, by T Ponambalam Pillai, Acting Conservator of Forests, Travavcore. The lecture was a long as well as interesting one and wound up as follows :—"I shall now conclude the paper. I have told you how beautiful are the Forests of this State and how their fame has reached other countries. I have also told you how they have made you independent of other countries by sending you eternal rain and by givng a sufficient supply of timber, firewood and other produce. I have in a way tried to demonstrate that few species of trees in the Forests are worth 25 years' revenue of the State, and the remaining species of timber are worth another 25 years' revenue. In fire-wood alone you have a third 25 years' revenue. From the minor products of which I have spoken, you can obtain a fourth 25 years' revenue. Thus your Forests of which you have every reason to be proud, contain wealth to the extent of one hundred years' revenue of the State or more. Speaking of industries I spoke of fire-wood, of paper materials, of extraction of teak and sandal wood oil, of tar, varnish, gums, resins, dyeing and tanning materials, fibres, arrowroot, gutta percha and other products of tubers, leaves, flowers, fruits and seeds of various trees both as edible and medicinal substances, and the preparation of Botanical specimens. Leaving the vegetable kingdom I spoke of the combination of the vegetable and mineral kingdom such as soap and saltpetre and referred to the various metals that can be worked. Lastly I spoke of the vegetable-animal products such as honey and silk. I also indicated how rare and useful trees and shrubs can be planted with advantage and how the water power can be used."

QUARTERLY CINNAMON SALES.

London, Nov. 25.

CINNAMON.—The last quarterly anctions of the year were held yesterday with a total offeriug of 234 bales "worked" quill, 944 hales "unworked," 101 bags chips and quillings, and 273 hales wild hark, compared with 825 hales in August, and 1,690 hales at this period, last year.

There was a good attendance of the trade, and with satisfactory competition throughout, the bulk was cleared.

The 234 hales "worked," fine and superior, met good competition and all sold. Firsts and seconds at fully 1d per lh, average advance. Thirds at fully last sales rates, and fourths on the whole rather easier. Firsts realised 1s 6d to 1s 9d, Seconds, 1s 4d to 1s 8d; Thirds, 1s 2d to 1s 5d; and Fourths, 7d to 11$\frac{1}{2}$d per lb.

Of 944 bales "unworked," 803 bales were cleared, a few small lots of Firsts at 1d advance, Seconds to Fourths, irregular hut fairly steady on average. Firsts at 7d to 1s, Seconds, 6d to 10d; Thirds, 5$\frac{1}{2}$d to 9$\frac{1}{2}$; and Fourths, 5d to 8$\frac{1}{4}$d per lh.

101 hags chips sold at 3$\frac{5}{8}$d for hright, and 2$\frac{3}{4}$d for oommon, and up to 9$\frac{1}{2}$d per lh for quillings, &c

WILD BARK.—273 hags offered but met no offers. The limit was 1d per lb. 304 packages of this ruhbish was sold on 19th inst. "without reserve"—quills at $\frac{3}{8}$d to $\frac{1}{2}$d, broken quills at $\frac{3}{4}$d, and coarse hark at $\frac{3}{4}$d per lh.

STOCKS :—

Plantation	2,689 hales,	against	2,291 bales	in 1901.
Chips ..	730 bags	„	3,154 hags	„ „
Wild ..	1,829 hales	„	2,408 bales	„ „
Wild Bark & Chips ..	6,426 bales	„	7,891 „	„ „

The next auctions are fixed for 23rd February, 1903.

FORBES, FORBES & Co., LTD.

THE PRICE OF COCONUT OIL.—*Apropos* the information published by us from an out-station correspondent regarding the price of coconut oil, a European merchant writes: —"Your informant is quite wrong as to a rise of 10s in coconut oil just now. I had a wire from home yesterday. The prices offering in London are lower than they have been for at least this year."

INDIAN TEA AREA AND TEA CESS.—The long letter addressed by the Secretary of the Indian Tea Association to the Finance Secretary of the Government of India, contains a good deal of interesting reading; but the statistics it affords are disappointingly old, the area in cultivation being given as at the end of June 1901. We suppose that with fields abandoned the total area in tea in India does not much exceed 500,000 acres against 380,000 to 390,000 acres in Ceylon.

NEW FOOD PLANTS IN YUCATAN.

The gardens and fields of Yucatan are filled with succulent vegetables and sweet smelling herbs unknown to the outer world. In the cultivated fields at the proper season are grown Indian corn, beans, and tubers for which we have no name, for the reason that they have been neither seen nor heard of outside Yucatan. The forests and jungles contain fruits that, excellent even in their wild state, could be made delicious by scientific care and cultivation. There are many wild fruits that offer more promising results than did the bitter wild almond, the progenitor of the peach.

The most important of the large cereals is the

MAIZE OF THE MEXICANS,

the Indian corn of the Americans, and the *xim* of the Mayas of Yucatan. Like several other vegetable products, its origin as a cultivated plant is enveloped in obscurity, the wild plant from whichit was evolved not yet having been identified. Many believe that the cultivated plant had its origin somewhere between Yucatan and the tableland of Mexico. The mother plant was probably a grass and the new grain spread to all parts, each one giving it certain characteristics until the varieties grown in the north hardly seem related to those of the southern lands. The United States Consul at Progres says that Yucatan has six varieties of this grain, and the Maya Indian reverently speaks of it as the "grace of God." The long stalked, large grained class known to the natives as *xnuc nal*, is the most prominent, and has by far the greatest acreage devoted to its cultivation in Yucatan. It is planted in May, is fully matured in January, and then is left to harden and season until gathered as needed. This class most nearly resembles the Indian corn of the United States. It has both the white and yellow grains. Under the haphazard methods of the native Indians, the corn produces in the limestone soil of Yucatan from 20 to 30 bushels to the acre. Under favourable conditions this yield is often doubled. The *xmehenal* is a small, quick growing variety, and the plants are rarely 4 feet high. The natives have a saying "that the cock can pick the flowers of the true xmehenal without stepping off the ground." One variety matures within sixty days of its planting, and the second needs fifteen days more. The *xmehenal xtup*, planted in May, can be gathered in July, and while the production per acre does not quite reach the figures of the *xnuc nal*, it has a greater capacity of resisting the extremes of heat and dryness. The plant or rather the running vine, known as the *macal box*, produces a tuberous root of great nutritive value. Entire families have lived upon this root for weeks at a time and were healthy and apparently well nourished. This plant is very productive. About the middle of May the green shoots first appear above the earth, they grow rapidly, and in November are ready to be dug. The tuber is about the size of a large potato, and is of a purplish colour, like a certain class of sweet potato, and it can be cooked in the same way as a sweet potato. The plant is hardy. A long drought may cause the vine to wither, but with the lightest rain it springs up anew. The roots left in the ground as too small for food propagate the plant, and each year the yield increases. It seems to be a kind of native yam: it grows in almost any kind of moderate rich soil, and when cultivated intelligently should be of some value as a food plant. The *xmakin macal*, like the *macal box*, appears in May and is gathered in November, but it yields only one or two tubers to the plant. These however, are of large size, resembling enormous potatoes. The interior is white and seems to be nearly pure starch. The plants grow close together and the yield per acre is said to be phenomenal. *Xmchenchi-can* seems to be a kind of artichoke, weighing when mature about a pound. The plants are running vines, rarely more than a yard long. An acre will yield an immense crop under favourable conditions. The plant sown August, can be gathered in November. *Xnucchi-can* is a larger root, weighing when mature about three pounds. It is a hardy plant and produces well. Both of these roots are eaten, roasted or boiled, and many like them raw.—*Journal of the Society of Arts*, Sept. 26.

TRADE OF SIERRA LEONE.

RUBBER.

The following comparative statement shows the quantity and value of rubber exported from the Colony to the under-mentioned countries during 1,900 and 1901 :—

	Quantity.		Value.	
	1900.	1901.	1900..	1901
	lb.	lb.	£	£
United Kingdom...	244,316	105,360	22,335	7,174
Germany	30,330	26,295	3,406	2,029
Other Countries ..	274,646	131,655	25,741	9,203

The trade in rubber has declined owing to the article getting gradually less, and higher prices being offered in the adjoining Colony of French Guinea, as well as to the wasteful method by which it was gathered. In French Guinea the price is 2*s*. per lb., and only the best rubber is allowed to be exported, *i.e.* rubber containing not more than 1 per cent of dirty matter mixed with it, whereas in Sierra Leone good quality rubber and dirty adulterated rubber are both bought by merchants at prices varying from 1s to 1s 8d. per lb.

PALM KERNELS AND PALM OIL.

In palm kernels there was a slight decrease in 1901, over 1900, although the market value remained the same. The figures were as follows :—

	Palm Kernels.		Palm Oil.	
	Tons.	£	Gallons	£
1900 ..	...21,517	171,774	128,608	7,436
1901 ..	161,749	131,655	116,340	9,816

There is great scope for the extension of the palm oil and kernel trade ; it is the difficulty of transport which has to be overcome. Unlike rubber, which can be more easily handled, and, owing to its greater value, can better bear the disproportionate expense of the carriage by head—which is the only land transport obtainable in the greater part of the Protectorate—the palm kernel or palm oil cannot reach a shipping port from any distance in the interior before the cost of transport exceeds its value. The completion of the railway will revolutionize the trade in this product, and be the means of bringing to the port the thousands of tons of kernels that at present are allowed to rot.—London *Chamber of Commerce Journal*, Nov.

CINNAMON IN LONDON.

The last quarterly cinnamon sale for the year, held in London on 24th Nvo., may be reckoned as one of the most satisfactory sales of recent times. The quantity of quilled bark offered was 1,178 bales, which, though in excess of the offerings in August last, amounting to 825 bales, was only about two-thirds of the quantity catalogued in November, 1901. Both the limited supply and the season—for the Christmas auctions generally go off with spirit—contributed to good prices. The attendance being good and the competition lively, the higher qualities, which are "worked" in London, sold at prices which recall old times—Firsts running up to 1s 9d and Seconds to 1s 8d, while Fourths fetched as high as 11½d. The whole quantity offered was disposed of under the hammer, at an advance generally of a penny on the previous sales' rates. The best marks have their cinnamon unbaled and rebaled in London, according to traditional custom, and at a cost which ordinary kinds object to, and are honoured with the distinction "worked"! The "unworked" cinnamon constitutes the bulk of our exports, from estates which do not turn out "smarts," or finely quilled spice, and the 944 bales of "unworked" seem to have been worked off as satisfactorily as the more attractive sorts. We do not read that any of the "unworked" spice, which amounted to four-fifths of the total, was bought in; and the prices named show that it shared in the advance which the best sorts secured. The rates at which chips were sold were higher than they had reached for a long time; while 9½d, the top price for quillings, has been touched but seldom.

The absence of any demand for "Wild" Cinnamon, so called, does not seem to have extinguished the trade; but nothing can long survive sales at a penny a lb! How that average can possibly cover all the charges which have to be provided for, from harvesting and transport to warehousing and sale, is more than we can guess; but, pending the total extinction of the trade, we can only hope that the article does not in any way go into human consumption. No doubt it rather forms part of the condiments which are said to be used in preparing "Thorley's food for cattle."

The prospects of genuine spice are bright, as the submersion of low lands, on which cinnamon is mostly grown, has arrested harvesting for weeks, if not months; and with the dry and windy months in prospect, there cannot be much crop taken in till after the Sinhalese New Year in April next.

On page 480 will be found the Report from the leading London firm which we usually quote once a-quarter.

THE FORESTS OF UGANDA.

A Government report just issued furnishes information with regard to the Mau Forest, which extends for about 33 miles along the line of the Uganda Railway. The forest contains an abundance of hardwood timbers—"too hard" is the complaint of those who have tried to work them. The Commissioner who is reporting, nevertheless, regards the forest as a splendid property, which will not, however, be realisable for many years. One of the conditions of a successful industry are big rivers, it appears, in the Mau: Under these circumstances, residents in the chief town find it cheaper to line their houses with Norwegian timber than to use that of the local forest. The report refers to the rapidity with which eucalyptus trees grow in Uganda, specimens of eucalyptus globulus three years old having reached a height of 30 ft.—*Timber Trades Journal*

TEA IN THE UNITED STATES.

Mr Wm. Sanders, the late eminent Superintendent of Public Grounds in Washington, was sent down to Sumterville, S C, where Commissioner LeDuc was then engaged in making an experiment with tea culture which has since had such a gratifying success under Dr Shepard. Mr Sanders gave it as his opinion that if any more Government or private attempts were made to raise tea, they should be made in a locality farther South; and furthermore he expressed the belief that Florida offers the best opportunities and conditions for success.

We do not agree with Mr Sanders in this opinion Tea has been grown in dozens of localities in the South; from the strong rolling clay uplands of Georgia to the moist sandy low lands of Louisiana, Mississippi and Florida; and there can be no question with men of wide observation that the rolling piedmont, clay uplands of Georgia produce much the most rapid and vigorous growth; thriftier finer and better developed plants, than could be found anywhere in the low country further south and nearer the seaboard.

Mr Sanders seems to have forgotten that most of Japan and the principal tea districts of China are farther north than Florida and have a lower mean annual temperature. Tea will grow and do moderately well anywhere in Florida; but if we had to establish a tea growing plantation in this State we should select the undulating clay uplands near Tallahassee and further west and north toward Quincy.

We do not think tea culture can be made generally profitable commercially under the present existing conditions, with the present price of labour and with our very imperfect knowledge of growing and manipulation. It is only fair to state, however, that Commissioner LeDuc's superintendent Jackson, who claimed to be an expert in tea growing and preparation, stated to a newspaper visitor, that he could make an excellent article of tea in Georgia or Florida for 15 cents a pound. We are under the impression that Dr Shepard has publicly stated that under his present system of child labour, he can produce a marketable article for about the same figure. And it is well known to our readers, doubtless, that Dr Shepard's tea has repeatedly sold up to seventy cents a pound, averaging for round lots, forty-five cents, or better.

The tea plant belonging to the Camellia family and requires about the same treatment as outdoor japonicas. It should have a good strong soil, enriched with a compost of dried muck or peat, bone dust, and ashes. The land must be all drained

and clearly cultivated. The seed should be planted as soon as ripe in mellow drills, like peas, and the plants may be transplanted from the seed beds when about a year old.

They do not withstand the hottest suns very well, and it is a good practice to place them in a partly shaded situation for another year before finally setting them out in the plantation. Use plenty of the compost above indicated for the young plants and continue the same regularly in the field, especially after you begin to gather the leaves, as that operation is exhausting to the bushes.—*Florida Agriculturist*, Oct. 22.

THE TEA CESS.

Memo :—The subjoined letter on this question is published for general information. W. Parsons, Secretary.

No. 6652 S.-R.—Calcutta, 13th December, 1902. From—The Government of India, Finance and Commerce Department. To—The Secretary, Indian Tea Association, Calcutta.

SIR,—I am directed to acknowledge the receipt of your letter No. 1001-O, dated the 28th November, 1902, communicating the views of the Indian Tea Association, Calcutta, in connection with the proposed levy of a cess upon Indian tea.

2. In the Resolution in this Department No. 4178 S.R. dated the 1st August, 1902, it was stated that the necessary legislation for the imposition of the cess would be undertaken during the present Calcutta session of the Legislative Council of the Governor-General, provided that no weighty or widely entertained objections were received in the interval. The objections received by Government have been only three in number, and cannot be considered to be either weighty or widely entertained. The Government of India have accordingly decided to proceed with the necessary legislation somewhat on the following lines :

1 From and after the 1st April, 1903, a cess at the rate of ¼ of a pie per lb. (or such lower rate as the Governor-General in Council may, from time to time, on the recommendation of the Committee hereinafter referred to prescribe) shall be levied on all tea, the produce of India, when exported by sea to any foreign port, or when exported by land to any territory to which the provisions of section 5 of the Indian Tariff Act 1894 (VIII of 1894), have been declared to apply.

2 The proceeds of the cess, after deduction of the cost of collection, if any, shall be paid over to a Committee of twenty, which shall include (*a*) 3 members nominated by the Bengal Chamber of Commerce: (*b*) 7 members nominated by the Indian Tea Association; and (*c*) 10 members nominated by such local bodies or Associations interested in tea as the Government of India may, from time to time, direct.

3 The fund placed at the disposal of the Commitee of twenty shall be applied by them towards pushing the sale and increasing the consumption of Indian tea in India as well as in foreign countries.

4 The accounts of the Committee shall be subject to annual audit by officers to be appointed by Government, and the auditiors shall be empowered to surcharge any item which, in their opinion, has been improperly expended.

5 The cess shall be in force for five years, and may be extended for a further term if the Government, on the recommendation of the Committee, shall so direct.

6 Government shall have power to make rules for the administration of the Act.

3. With reference to the suggestion in para 7 of your letter that the Indian Tea Association Calcutta, might nominate five members to serve on the proposed Committee, and the Indian Tea Association, London, two members, I am to say that it is not clear how an Association which is not domiciled or represented in this country can nominate representatives, or how it can claim direct representation. It is understood that the London and Calcutta Indian Tea Associations are branches of one body, and that the former has no office nor recognised representative in India. In these circumstances, the Government propose to increase the number of members to be nominated by the Indian Tea Association, Calcutta, from five to seven, so as to enable the latter to nominate members on behalf of the London Association if they so desire.

4. I am to add that it is proposed that the Bill shall be introduced by an unofficial member of the Legislative Council of the Governor-General. I have the honour to be, Sir, your most obedient servant.

E N BAKER, Offg. Secy. to the Govt. of India.

AMERICAN CAPITAL AND ENTERPRISE.

THE FORMATION OF A RUBBER COMPANY TO EXPLOIT NORTH BORNEO.

Before leaving British North Borneo, H. E. the Governor entered into an agreement with Mr Alleyne Ireland for the formation of an American Company to work gutta and rubber in this country.

The Lessee will prospect for and select with as little delay as possible such tracts of land as he shall require ; and the Lessee shall enjoy for the space of two years from the date of this agreement the sole right to select and acquire tracts of rubber and gutta forest or land for the purpose of planting and cultivating rubber or gutta within the State of British North Borneo.—*British North Borneo Herald*, Nov. 17.

THE MADRAS PLANTERS' LABOUR BILL.

The Planters' Labour Bill has been the occasion of a long discussion in the Madras Legislative Council. Three native members were in opposition.

The Hon. Mr G Stokes, in introducing the Bill, said :—Here in S. India many of us, even though we are not employers of organised labour, are familiar with the demand for advances on many occasions, but we do not realise perhaps how universal that demand is. Whenever labour on a large scale has to be organised it can only be done successfully under the system of advances. We need not, therefore, be surprised at finding that the labour on plantations is universally organised on this system. It is undoubtedly a bad system, but it is so universal and so deeply seated in the habits of the labourers that it is impossible either to ignore or overthrow it. Even in the great famine of 1876-1878 I remember when it was attempted to organise and move the people from the inland Districts to the Buckingham Canal, it was necessary to make advances and the case largely illustrated the inherent evil of the system ; for not much above half the labourers to whom advances were made ever turned up on the works. Special officers were sent to accompany the gangs, but notwithstanding all watchfulness they melted at every stage of

the journey. It may be taken, I think, as undoubted that the planter must make large advances and that he must and does lose much money in consequence of the fraudulent disappearance of the labourers. * * * When we remember that the labourers employed in the coffee industry were reliably estimated a few years ago at over 300,000 persons of whom two-thirds were imported labourers, *i.e.*, labourers under advances, and that a considerable number of the labourers to whom advances were made never join the estate and that many more desert, it will I think be conceded that the fraudulent disappearance of the cooly or maistry with the advance made him is an evil of great magnitude, demoralising to the labourer and crippling to the planter and one which it is the duty of the State to correct. In para. 122 and Appendix VII. of their Report, the Planters Enquiry Committee gives statistics of planters' losses which it is unnecessary to quote here in detail, but the returns show that the losses from the desertion of labourers vary from two-thirds of a rupee per acre cultivated in Madras and Coorg to R25 an acre in North Mysore. These figures do not include the losses suffered by maistries or planters outside the Associations making the returns, and are, therefore, much below the mark. * * * It is not the punishment of the cooly nor the repayment of the advance that the planter wants. What is essential in the case of that industry is to get the work done for which the advance is made, whether that work be the supply of coolies by the maistry or whether it be the agricultural work of the estate. This position has been expressed by the phrase that what is wanted is specific performance. In the Bill this is to be attained in the two following ways. Following the principle of the Penal Code and Act V of 1866, the breach of contract is itself made punishable, but power is given to the Magistrate to release and make over the maistry or cooly sentenced to imprisonment to his employer with an order to complete his contract. This is a provision taken from the Labour and Emigration Act of 1901. Specific performance is also recognised in the Bill in Sections 31, 32 and 33 under which conviction and imprisonment is not to operate as a release, the labourer being compelled to return to service after his term of imprisonment, the period not only of his absence from service but also of his imprisonment being added to the term for which he has contracted to serve. The whole term which can so be added is, however, limited to nine months.

The Hon. Mr. ACWORTH in seconding the motion said:—Your Excellency,—I rise to second the motion that the Bill be read in Council. I do not propose to say much at the present moment. As this Hon'ble Council is aware, this Bill has been very long under consideration and had been referred backwards and forwards to the Government of India and the Secretary of State several times. I should, were it not for Section 3, consider the Bill on the whole a good one, but Section 3 has been received with little less than consternation in some of the planting districts. From Wynaad the Government has already received a formal protest against the Section, and from the Nilgiris and Mysore protests against this Section have reached me, and I have been urged to do all in my power either, to get this Section expunged, or so modified as to meet the requirements of those who deal largely in local labour. Government in the notes on the clauses says:—"The object of this clause is to prevent the concurrent application of Act XIII. of 1859 and the proposed labour law to contracts for work of any kind between employers and labourers as defined in the Bill. It is, however, intended that the power which planters have of resorting to the provisions of Act XIII. of 1859 in their dealings with persons, artisans or others, who fall entirely outside the scope of the proposed law, should be preserved." Now it is obvious that under the Bill as at present constructed, the planter will have no hold on the local labourer. * * * *

The Hon. Sir GEORGE ARBUTHNOT said that he was unable to follow very accurately the statistics given by the Hon. Member who had just spoken (the Hon. Mr. K PERRAZU), but he gathered that they were to the effect generally, that the planting industry in South India was an eminently prosperous and progressive one. He could only assure him from a position of authority and from his sad experience that it was not by any means the case, and that unless every possible help was given to the planting industry, there was no doubt that there would be soon no coolies, no pruners and no planters, and that the last of the industry would be seen. * * * *

The Hon. Mr. G SIRINIVASA RAO proposed to point out what he considered defects in the various provisions of the Bill, illustrating his remarks by reference to the particular sections. He remarked in particular that the penal provisions were harsher and severer not only as against the cooly but also against the planter and maistry, than they were in Act VI. of 1901. He concluded by observing that he had pointed out the manner in which the provisions of the Bill, if passed into law as it was, would work hardship not only on the coolies but maistries and planters also. If the defects pointed out by him were not taken note of and reminded, as he had no doubt they would be in the Select-Committee, the employers who welcomed the measure now would find it affecting them immensely worse than now.

The Hon'ble Mr. ACWORTH said that he desired to make a correction in Mr. Perrazu's speech where he said that planters made coolies work for seven days in the week; but, so far from this being the case, Sunday was always a recognised holiday. The difficulty planters had was to make coolies work six days in the week. The coolies always and habitually took one day in the week extra as a holiday. This would not appear in the planters' check roll, because the coolies did not always take the extra holiday on the same day. But to say that planters made coolies work for seven days was absolutely false. He could not help thinking that Mr. Perrazu had spoken without the slightest knowledge of planters, their estates, or the conditions of the labour that planters employed on their estates.

THE PRESIDENT'S ADDRESS.

His Excellency the President said:—The origin of the Planters' Labour Bill has been fully explained, and it has been drafted after protracted consultation with the Planters' Associations, the District Officers concerned, the Judges of the High Court, the Law Officers of Government, the Governments of Mysore and Coorg and the Government of India. The object of the Bill is twofold;

to ensure good and fair treatment to the labourer, in sickness and in health, and to protect the employer from the serious losses to which he has hitherto been exposed through the dishonesty, extortion or caprice of the labourer. It has been amply demonstrated that the ordinary civil law is inadequate in the peculiar circumstances of the planting industry and that the importance of the planting industry is sufficient to justify special legislation. The Province of Assam, where the planting industry is not more important than that of Southern India, has for many years past had its own special labour laws and there are stronger reasons for similar legislation in Southern India, in that the labour here is more migratory. The total labour force in the Assam plantations is not much greater than those of Southern India, but whereas in Assam, at any rate six years ago when the Committee reported, the annual immigration only amounted to one-tenth of the numbers employed, in Southern India it amounted to no less than fourfifths. The speeches of the Hon'ble Members opposite have destroyed my hope that there would be an unanimous assent to the introduction of the Bill, but I trust that the further deliberations for which there will be ample opportunity, will prove that the provisions which have been drafted after so much consultation fully and fairly carry out the objects of the proposed legislation.

The following Select Committee was then appointed :—The Hon'ble Mr Acworth, the Hon'ble Sir George Arbuthnot, the Hon'ble Mr G Srinivasa Rao, the Hon'ble Mr J N Atkinson, the Hon'ble the Advocate-General and the Hon'ble Mr Stokes. —*M Mail*, Dec. 16.

THE PITCHER PLANT AS A PLANT PROTECTOR.

One of the greatest enemies to orchid plants in the West Indies is *Balatta americana*—the Amerioan cockroach. Nnmerous are the traps devised and the poisons componnded for the destrnction of this insect and yet it does not appear to decrease in numbers, and regular plans of trapping and poisoning must be adopted by the cnltivator if he is to keep his orchids free from these—almost ubiquitous—cnemies. There are, however, natural checks which deserve attention. First among these comes a large spider, commonly though erroneously known in Trinidad as the "Tarantula." This spider with other large species, are very bitter enemies of the cockroach and assist not a little in preserving the balance of nature. Wheu it is mentioned that one of these creatnres is large enough to capture and kill a full grown mouse —an occurrence once witnessed in the Herbarinm and recorded in Bulletin, January, 1895—it is easily understood how the cockroach falls an easy prey to it. Poultry and the larger lizards also feed upon the cockroach. To the barn-yard fowl, it appears to be a specially delicate morsel, as is recognised by the negro proverb "When cockroach gib' dance, him no ax fowl."

We have recently observed the help given to the cultivator in the destrnction of these depredators by tthe various species of Nepenthes or Pitcher plants. As ohey assume fall development, the pitchers developed in the end of the leaves, become filled with liquid, into which the cockroach is apparently attracted and eventnally drowned. The liquid (contained in the pitchers) is of a similar character to the gastric fluids of the human stomach and renders any animal matter fit for absorption by the plant, so that the cockroach is ultimately digested as plant food. The Nepenthes have been found to be so useful for this purpose that they have been deemed advisable to largely increase the number of these plants among orchids, as the damage done by the cockroach has been largely decreased by their aid. The various species of Nepenthes thrive well in the climate of Trinidad and are grown in suspended baskets made of cedar wood in a similar manner to orchids.—*Trinidad Bulletin*, October.

PRIZE ORANGES.

We have to acknowledge the receipt of some splendidly large oranges from Mr. Holloway, Wattegama. They measure up to 12 inches in circumference and 15½ ounces in weight, each. Have larger oranges been grown in Ceylon?

BRITISH CENTRAL AFRICA.
THE NEW RAILWAY-TO BE.

In a recent *Illustrated London News* a plan of the Railway route to Lake Nyassa and some pictures are given. The Railway is to begin in May as soon as the rains are over. Things are looking up in Blantyre and I think there is a great future before that region. The African Lakes Co. is a great success, and Lord Overton, one of the leading men in that concern, has taken an interest in Blantyre and East Africa too. —*Cor.*

TEA CULTURE IN SOUTH CAROLINA, UNITED STATES.

We are indebted to Mr. Charles R. Shepard, of Pinehurst, South Carolina, the pioneer of tea cultivation in North America, for a very interesting, good-humoured and even amusing letter which will be found elsewhere. We can assure Mr. Shepard of our utmost good wishes for his success in all departments of his venture, and we hope to look in upon him and his fields of tea some time during 1904 if he will permit us. We were as much astonished as interested when the Secretary to the U.S. Agricultural Department showed us his fine tea bush growing in the open air at Washington, in March 1884. No one in Ceylon we feel sure, will grudge Mr. Shepard his attainment of a maximum crop of 17,000 lb. of tea from Pinehurst at the earliest possible date. All such tea grown on American soil might well be sold at a fancy price—so many dollars a lb.—to patriotic millionaires. The yield per acre is very good—for South Carolina; but from small areas of one or two acres by careful cultivation, ordinary yields everywhere can easily be doubled. Nevertheless, there is probably no more interesting tea-growing experiment in the world at the present moment than that of Mr. Shephard at Pinehurst, South Carolina, which is now brought under the auspices of the U.S. Department of Agriculture. Ceylon planters can never wish to see such teafields extinguished, even if their maximum crop rose to 170,000 lb. or to ten times the maximum to which, apparently Mr. Shephard aspires!

AMERICAN CAPITAL IN RUBBER EXPLOITATION.

PARA RUBBER PLANTATION COY.

The Para Rubber Plantation Company has been formed for the purpose of trading in crude rubber on a large scale in Venezuela, on lines somewhat different from those any large company previonsly organised. The company begins with the ownership of a tract of land about eight miles wide, lying on both sides of the Casiquiare river for its whole length of 175 miles, comprising about 1400 square miles, of territory, or nearly one million acres. The Casiquiare is a stream navigable at all seasons, connecting the Orinoco with the Rio Negero, the latter which empties into the Amazon a few miles below the city of Manaos. The Negro is navigable np to the Casiquiare as also is the Orinoco, with the exception of about thirty miles obstructed by cataracts above San Fernando, in Venezuela. For the present the company's property will be reached by way of Manaos, and that city will be the basis of the company's operations, It has been suggested by that means of a narrow guage railway around the falls shipments could be made on the Orinoco more economically than in the other direction but such railway has not yet been projected. In spite of its name, the new company is in no sense a rubber planting enterprise.

Reports made on this territory, which have led to the organization of the company, are that it contain rubber trees in abundance of more than one species of *Hevea*, and that these trees, for the most part, have not been worked. The Casiquiare river does not overflow at any time, and the region is declared to be more healthful, for this and some other reasons, than much of the country that has been explored for rubber in the Amazon valley. The population is mainly of Indians, who are more docile than in some other regions of Venezuela and in portions of Columbia where rubber workers have been attacked by the natives.

The natives of this region have developed some degree of civilization, cultivating crops for their own use, and in places have engaged in a small way in gathering rubber. There are also some Brazilian settlers who are familiar with working in rubber, and the company pruposes inducing more Brazilians, particularly Ceareneses experienced in working rubber to enter its employ. The Casiquiare district is less remote than some of the upper Amazon rubber fields to which the Cearenses go annually, besides which it is adapted for permanent residence, which is not true of districts which are overflowed every year.

It is the idea of the company that, having a rich and unworked rubber district of large extent, with many resident natives who are capable of being trained to work rubber, and with advantages attractive to Brazilian rubber workers, together with a large amount of capital and facilities for maintaining company stores, it will be able during the next crop season to begin operations extensively and to ship considerable rubber at a cost which will insure profits. One advantage that the company expects to have over some that have operated in the upper Amazon districts is that piracy of rubber will be practically impossible. The Para company will be able to so control the approaches to the Casiquiare that neither goods can be entered nor rubber sent out without the knowledge of the company's agents, and there is no other means of communication with the outside world. The Para Rubber Plantation Company was incorporated August 11th 1902, under the laws of Arizona with five million dollars capital.

Venezuela is divided into thirteen states and two territories. The Casiquiare district lies in the extreme southwestern part of the republic and bounded on the west by Columbia and on the south by Brazil. The population of the territory is estimated at about 46,000, of whom 12,000 are civilized Indians.

RUBBER FROM MOLLENDO.

Rubber from this port on the Pacific has begun to reach the New York market direct, being the product of Bolivia, and particularly of certain concessions worked by capital from the United States. There are now two such companies working on a considerable scale—the Chicago-Bollivian Rubber Co., with its headquarters in Boston, and the Andes Rubber Company, with the headquarters in Baltimore. During the past month rubber has been received at New York, shipped by each of the two companies named.—*The India Rubber World* Nov. 1.

PLANTING NOTES.

RAINFALL FOR NOVEMBER.—The rainfall for November as registered at the School of Agriculture totalled 15·66 in. as compared with 20·10, the total for the same period according to the Surveyor-General's return This shows that nearly 4½ inches more rain fell over the Fort, than over Cinnamon Gardens about 2½ miles inland, during November.

COFFEE INDUSTRY IN MYSORE.—A Conference of planters to consider the state of the coffee industry in the Mysore Province was held at Saklaspur and Mudgere, the particular problems considered being finance, labour and certain inconveniences which they experience in the present decadent state of the industry. By the desire of the planters and by command of the Maharajah, Mr Madhava Row, Revenue Commissioner, attended the meeting, and will report on the position of the industry and the best means of its amelioration.—*Pioneer*, Dec. 19.

ANOTHER "CURE" FOR SNAKEBITES.—I reference to the cure of scorpion stings by the use of malt vinegar, a correspondent states that it very strong acetic acid is gathered from the place of the Bengal grain, which is generally and large ly cultivated in the black cotton soils of the Bellarey, Anantapur, Cuddapah, and Kistna Districts. The acid is collected by means of large clean sheets being spread over the plants, and the acidulous dew formed on the plants is shaken into the sheet and absorbed. The sheet is moved over the field till sufficiently wet. It is then squeezed out in a vessel and bottled. This is carefully preserved and highly prized by the ryot as very medicinal, and is successfully administered in ases of colic, cholera, and all stings. It is much tronger then malt vinegar. It is believed that his acid, which is very clean, forms part or is wholly the mantram or holy water usually employed by the so-called mantram-people in the yure of snakebite.—*Pioneer*, Oct, 13.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1902, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900 :—" I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for August-September delivery 1902, immediate booking necessary; large quantities on special terms ; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901 :—" We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900 :—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castiloa does not thrive."

Ficus Elastica.—Seeds available in May-June ; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica, Liberian Hybrid and **Maragogopie Hybrid.**—New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—" Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products :—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in large quantities.

" SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says :— " An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London ;—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Agent in British Central Africa :—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address : WILLIAM, HENARATGODA, CEYLON.
Liber's, A.I. and A.B.C. Cdes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

THE CALEDONIAN (CEYLON) TEA ESTATES, LIMITED.

REPORT OF THE DIRECTORS

to be snbmitted at the fifth annnal general meeting of shareholders on Thursday, 27th November, at noon.

The Directors beg to submit the balance sheet and profit and loss account for the year ended 30th June, 1902, duly audited.

The working account, after providing for London charges, shows a profit of £4,134 12s 5d, and the Profit and Loss Account, including the balance brought forward from the previous year, and after payment of Interest on debentures, &c., leaves an available balance of £1,998 8s 5d.

From this sum the Directors now recommended the payment of a dividend of 6 per cent on the preference shares for the year to 30th June last, amounting to £1,920, leaving to be carried forward to the next year the balance of £78 8s 5d, =£1,998 8s 5d.

The Directors regret that they are again unable to declare any dividend on the ordinary shares.

The yield of tea from the Company's estates for the past and two previous seasons was as follows :—

	1901.2.	1900-01.	1899-900.
	lb.	lb.	lb.
Lawrence and Venture	410,120	399,087	402,535
Selegama ...	165,379	167,378	111,415
Wavina ..	112,695	94,979	40,763
	688,194	661,444	554,713

The gross average prices obtained in London were :—

	1901-2.	1900-01.	1899 900.
Lawrence ..	6·62d	6·84d	7·40d
Venture ..	6·78d	7·13d	7·59d
Selegama ..	5·70d	5·79d	6·52d
Wavina ..	7·78d	5·64d	6·39d

167 cwt. of cocoa were secured from Kahawatte and 18 cwt. from Wavina, and this realised a net average of about 50s per cwt. : 4,200 seed pods were also disposed of. The previous year's crop of cocoa was only 70 cwt.

The above figures show that the total quantity of tea produced was 26,750 lb. more than the previous season's crop, and 13,194 lb. over the estimates. The improvement in the market for Ceylon tea, notified at this time last year, was not maintained, and for a large portion of the crop lower prices had to be accepted ; the result of the year's working, owing to the increase in the quantity of tea and cocoa gathered, is however, practically the same as that of the previous season.

The estimates for the current season are given by the managers in Ceylon, as follows :—

	lb.		
Lawrence and Venture	400,000 Tea		
Selegama ..	175,000 do		
Wavina ...	110,000 do	and 20 cwt.	Cocoa
Kahawatte ..	—	175 do	do
	685,000 do	195 do	do

The coconnts on Kahawatte and Wavina are coming on well and promise to be a success ; the para rubber trees on the latter estate are also progressing favourably.

The amount charged to capital in the accounts now rendered, inclndes the cost of a new bungalow on Wavina estate, and a new set of coolie lines on Selegama.

Further capital expenditure will be necessary to provide a faotory for Wavina estate, as well as additional machinery and appliances on other estates, in order to keep pace with the new and improved methods of manufacture.

In accordance with the Articles of Association, S Alfred Dent retires from the Board, and being eligib offers himself for re-electiou.

The Auditors, Messrs. Singleton, Fabin & Co., also offer themselves for re-election.

THE HORNSEY TEA ESTATES COMPANY, LIMITED.

THE SIXTH ANNUAL REPORT, 1901-1902.

DIRECTORS.—Charles A Reiss (Chairman); Hamilton A Hancock; Walter S Sichel and W S T Saunders (Managing Director in Ceylou).

SECRETARY.—Albin B Tomkins.

The Directors beg to submit to the Shareholders the Report and Audited Accounts for the year closing 30th June last.

The Crop of Tea has weighed ont 168,749 lb. against last year's 176,885 lb, or a decrease of 8,136 lb of made Tea.

The cost of production has been 26·62 cents; against last year 30 84 cents, or in sterling 4¼d per lb, Colombo against 5d per lb Colombo, last year.

The Loudon sales have totalled 31,130 lb of Tea, selling at an average 7·15d per lb gross, and the balance of the crop has been sold in Colombo, and realized an average of 39 74 cents per lb. The average sale price for the whole crop has been equivalent to a London price of 7·203 per lb gross, against last year's 7·47d per lb, or a farthiug per lb less.

Although the crop has been smaller than last year's, the advantages of having a Factory are very marked. The cost of production has been ¾d per lb lower and the profit on the working of the estate shows an increase over last year of £236 17s 3d.

The average selling price is again lower than the previous year. This is not due to a falling off in the quality or make of the Tea, which have beeu qnite as good as usual, but to a low and adverse market, which has kept prices down duriug the period under review. Prospects for the cnrrent year are hopeful; the crop showing an increase of 7,800 lb since the first of July.

The Audited Accounts herewith show that after paying fixed charges and Preference Dividend for the twelve months, there is a credit balance of £21 14s 11d, to Profit and Loss, and this amount has been written off Preliminary Expenses Account.

The Directors have decided that in futnre the Preference Dividends shall not be paid before the end of March and the end of September. This change is deemed advisable as the crop is not entirely sold until the later date.

The Directors desire to express their thanks to Mr W S T Saunders, and to Messrs E Benham & Co, the Colombo agents, for the attention given to the Company's business during the year.

In accordance with the Articles of Association, Mr Hamilton A Hancock retires from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs Singleton, Fabian & Co, offer themselves for re-election.

CHARLES A REISS and WALTER S SICHEL, Directors.

ALBIN B TOMKINS, Secretary.

51, Lime Street, E C, London, Nov. 14.

DIGALLA CEYLON TEA ESTATE COMPANY, LIMITED.

Report of the Directors to be snbmitted at the Sixth Annnal Ordinary General Meeting of Shareholders to be held at 20th, Eastcheap, E.C., on Tuesday, 16th December. 1902.

The Directors are pleased to say that the working of estate during the past season has given considerably better resnlts than the previous year, and the profits have made it possible to wipe out the loss of last year, and to pay Preference Dividends to 30th June, 1902,

The crop for the year was 250,781 lb, as against 229,217 lb, for the previous year, and the price realised was 5·88d against 5·01d in 1901-02.

The yield per acre was 415 lb, as against 382 lb the previous year.

The rate of exchange was 1/4 11-32 compared with 1/4 7-16 the previous year.

Under clause No. 24 of the Articles of Association, Mr H K Rutherford retires on this occasion from the Board, and being eligible offers himself for reelection.

The Auditors, Messrs Harper Brothers, Chartered Accountants, also retire from office, and offer themseleves for re-election.

By order of the Board,
London, 6th Dec., 1902. WM. JOHNSTON, Secy.

CEYLON AND INDIAN PLANTERS' ASSOCIATION, LIMITED.

DIRECTORS.—Charles Arthur Reiss, (Chairman) Thomas North Christie, Charles Frederick Dickinson' and John Humphery.

SECRETARY.—Albin B. Tomkins.

FIFTH ANNUAL REPORT, 1901-1902.

The Directors beg to submit their Report and the Audited Accounts for the year ending 30th June last.

TEA.—The total yield has been 855,816 lb, against last year's 799,739 lb of made Tea, an increase of 56,077 lb.

The average selling price has been generally lower, but cost of production has been also less, and has more than compensated for the drop in the selling price, so that profits on Tea are £722 4s more than the previous year. It is satisfactory to note that St Andrew's and the Maha Eliya Estates have both done better, and made fair profits, considering the bad time through which the industry is still passing.

The accounts show that after paying Debenture Interest, Preference Dividend, and all fixed charges, there is a balance at credit of Profit and Loss Account of £599 10s 5d. The Directors recommended that £500 be written off machinery account and the balance account of £99 10s 5d be carried forward to next year.

PLUMBAGO.—It is with some satisfaction that the Directors can report fair progress; 206 tons of the mineral have been mined and sold during the twelve months. The average sale price has been R248 or £16 11s 4d net per ton. The market for Plumbago has been more favourable, and the net profit is £1,520 18s 6d, against £1,003 6s 8d last year.

ANALYSIS OF YEAR'S WORKING.

	Laxapana.	Maha Eliya.	St. Andrew's	Kandaloya.	Total.
Total Acreage ..	1,021	305	760	1,006	3,092
Product ..	Tea	Tea	Tea	Tea Cdms	
Acreage in bearing and partial ...	806	264	597	T 586 Cdms 4	2,257
Acreage planted not in bearing ..	21	35	30	T 4 Cdms156	246
Cost per lb in cents and sterling (Manure included) ..	25.21 Col	27.23 Col	27.60 Col	30.88 Col	27.17 Col
Gross average	4.12*d*	4.46*d*	4.51*d*	5.06*d*	4.41*d*
Sale price per lb ...	6.43*d*	40.95*c*	6,46*d*	33.31*c*	
Net Average Sale price per lb ..	5.50*d*	39.93*c*	5.52*d*	32.29*c*	
Profit por Acre in bearing ...	£ s d 2 9 0	£ s d 3 10 3	£ s d 1 10 4	£ s d 0 2 7	£ s d 1 14 6
Average Yield per Acre made Tea ...	410lb	459lb	343lb	299lb	380lb
Crop made lb ...	354837	121107	204827	175045	855816
Original Estimate 1901-1902, lb ..	342000	134000	225000	185000	886000
Estimated Crop 1902-1903, lb ..	346650	130000	215000	185000	876650
Estimated Cost per lb Colombo 1902-1903, cents ..	25.93	30.02	27.25	30.99	

ACCOUNTS.—The Directors have decided that in future the Preference dividends shall not be paid before the end of March, and the end of September. This change is deemed advisable as the crop is not entirely sold until the later date.

ANALYSIS OF COST F.O.B. COLOMBO.

	Laxapana.	Maha Eliya.	St. Andrew's.	Kandaloya.
Superintendent ..	2·61	3·10	3·03	3·74
Visiting Fees ...	—	·83	—	·28
House Coolies ..	·30	·27	·24	·41
Bungalows ..	·06	·03	·11	·16
Lines ...	·18	·08	·23	·33
Factories, etc. ...	·22	·44	·36	·29
Contingencies ...	·36	·38	·41	·75
Fire Insurance ...	·20	·27	·19	·33
Water Course ..	·04	·16	·01	—
Supplying ..	—	—	·10	·18
Roads, Drains, etc. ..	·39	·37	·44	·64
Weeding ..	2·71	2 35	3·30	4·87
Pruning ...	·77	·90	·81	1·36
Forking ...	·33	·16	·20	·13
Cost of Manure ...	1·29	·50	1·85	—
Application of Manure ..	·39	·25	·32	·03
Tools ...	·09	·10	·13	·07
Stock ..	·09	—	—	—
Plucking and Baskets ..	9·91	11·17	9·72	10·06
Manufacture, Packages, etc.	3·20	3·86	3·28	5·05
Transport to Colombo ...	1·25	1·25	1·51	1·83
Shipping Charges ...	·70	·19	·69	·05
Machinery ..	·12	·39	·62	·25
Sundry ..	—	·18	·05	·02
Cost in Cents per lb ...	25·21	27·23	27·60	30·88

The Directors regret that the funds available are insufficient for the payment of a dividend on the Ordinary Shares. Regarding the future it seems probable that the limits of production in Indian and Ceylon Tea have been nearly reached, and with consumption slowly but ever increasing, it is possible that prices have reached the lowest level, and that some recovery may be established before the next report is issued. Prospects also for Plumbago for the current year are not unfavourable, and the mineral is being steadily mined and sent to market.

The Directors desire to record their thanks to Mr George Greig and staff in Ceylon, and also to Messrs. Skrine & Co., and the Colombo Agents for the attention given to the Company's business during the year.

By the Articles of Association, Mr Charles A Reiss retires from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs. Singleton, Fabian & Co., also offer themselves for re-election.

Directors.—Charles A Reiss and Charles F Dickinson. *Secretary.*—Albin B Tomkins, 51, Lime Street.

London, Nov. 21st.

ANNUAL GENERAL MEETING OF THE CEYLON FISHING CLUB.

At the annual general meeting of the Ceylon Fishing Club held at the Hill Club on Dec. 20, 1902, at 3 p.m., Mr. E M de Coucy Short presided, when there were also present Messrs G G Ross Clarke, F Dew, John Fraser, A W A Plâte, C H Bagot, and J Wickwar.

Notice calling the meeting having been read, the Chairman called on Mr. H D Elhart to read the following

ANNUAL REPORT FOR THE YEAR 1902.

The last annual report for this Club was read at the general meeting held on the 21st December, 1901, after which date one general meeting was held on the 4th February, 1902; and in accordance with a resolution to the effect that a managing Committee meeting shall be held on the last Saturday of each month. The meeting Committee met for the transaction of business nearly every month.

FINANCES.—The amount standing to the balance of the Club at the close of the year is R411·30. The outstanding debts of the Club are as follows:—£43 5s 11d. to the Earl of Denbigh's fish hatcheries and £6 13s 3d. to the Otago Acclimatisation Society for Ova supplied.

OVA.—A consignment of 20,000 brown trout ova was received from the Wyresdale Fishery early in the year, in splendid condition yielding about 12,000 fry.—Attempt was made to rear them in rearing troughs, but owing probably to over-crowding heavy mortality set in, the fry were, therefore, put out into the streams as quickly as possible, being distributed as follows:—Mr Ross Clarke's Stewpond at Nanuoya 250, Mr J Fraser's Stewpond at Nannoya 250, Mr F H Turner's Stewpond at Nanuoya 250, Mr R Jackson's Stewpond at Sita Eliya 250, Hawa Eliya Stream 300, Batuhela 300, Hon E Rosling's Stewpond at Nanuoya 200, Horton Plains 3,750, Nuwara Eliya Stream 1,882, Maskeliya Stream 500 and Nuwara Eliya Stewponds 535.—Total, 8,467.

Two consignments each 20,000 Rainbow ova were received from the Earl of Denbigh's fish Hatcheries—both in bad condition—from the first consignment 1,548 fry were distributed as follows:—Mr Ross Clarke's Stewpond at Nanuoya 300, Buluhela Stream 100, Kandapola Stream 100, Mr J Fraser's Stewpond at Nannoya 250, Sita Eliya Stream 200, Maskeliya Stream 500, Mr Turner for Hewaheta Stream 74 and Mr Cotton for experimental purposes 24.—Total, 1,548.

The second Rainbow consignment yielded nothing. Both consignments arrived in dried condition, and and looked hopeless form the first. The trial shipment of 5,000 Rainbow ova received from the Otago Acclimatisation Society, also arrived perfectly dry and useless. It has now been definitely ascertained that Rainbow Trout are breeding in large numbers both in the Horton Plains and Nuwara Eliya streams, and the Committee has arranged for locally-bred Rainbow fry to be put out into the tributaries of the main stream in Nuwara Eliya during the year.

OTTERS.—Twelve otters were killed during the year for which tke sum of R90 was paid as reward.

CLOSE SEASON.—The close season for the year 1902-1903 was fixed as follows:—For the Central and Sabaragamuwa Provinces from 1st October, 1902, to 28th, February, 1903.—Signed. E M de Coucy Short, J Wickwar, Hon. Secy., C.F.C.

Mr. J. WICKWAR thought that the number of fish taken during the year may be added to the report submitted so as to give members an idea of what the year's fishing had been like.

Mr. JOHN FRASER, said he felt sanguine that a good many residents were not aware that the annual subscription was only R10, and as he was anxious to see the number of members of the Ceylon fishing Club largely increased, he thought that the annual subscription of the Club could be quoted with advantage on the year's report.

The CHAIRMAN remarked that the report before the meeting was hurriedly got together. He had just returned from furlough, and had not the time to do better. The report, as submitted, was adopted and it was also resolved that the suggestions of Messrs. Fraser and Wickwar be included prior to passing for print—and circulation.

ELECTION OF GENERAL AND MANAGING COMMITTEES.

On the suggestion of the CHAIRMAN the meeting resolved that the following members of last year's General Committee be re-elected, viz.:—Messrs. C H Bagot, H G Cuff, A H Dunsmure, Thomas Farr, W F Dew, G G Ross-Clarke, W Maitland, G M Fowler, S Payne Gallway, C P Hayes, G B de Mowbray, C A Hartley, R MacLure, C Bayley, F H Turner, H V Masefield, J Fraser, R Jackson, J Wickwar and the Hon. E Rosling. Messrs. J M Purdon and Cecil de Winton having left the island on long furlough, it was unanimously thought prudent to substitute their names by electing two new members in their stead.

On the proposal of Mr. JOHN FRASER, seconded by Mr. G G ROSS-CLARKE, Mr. W F Dew was elected vice Mr. J M Purdon.

On the proposal of Mr. G G ROSS-CLARKE, seconded by Mr. JOHN FRASER, Mr. F H Turner was elected vice Mr. Cecil de Winton.

On the suggestion of Mr. C H BAGOT it was resolved that the following members of the last year's Committee be re-elected, viz.:—Messrs. J Fraser, Thomas Farr, H V Masefield, R Jackson, G H Bagot, C J Bayley, G G Ross-Clarke and the Hon. E Rosling. In this instance, too, the meeting thought it advisable to elect members in place of Messrs. Cecil de Winton and J M Purdon, whereon it was resolved that Messrs. D Lyall and North C Davidson be elected to serve on the Managing Committee in their stead.

ACCOUNTS TABLED.

The statement of the year's accounts was tabled and shewed a receipt during the year of a

sum of	R3,546 45
To this was added	1,266 55
which was the amount brought forward last year, thus giving a total of	R4,813 00
Of this sum	4,401 70
had been expended during the year which left a balance of	411 30

The CHAIRMAN said that the liabilities of the Club was £49 19s 2d which was owing by the Club for ova imported from the Earl of Denbigh's and the Otago Acclimatisation Society hatcheries. But he did think that the Club was going to pay that debt in full owing to the bad condition in which the ova had been received.

Mr J FRASER said he thought not, but as that was a matter for the Managing Committee to decide, he thought that it may be safely left in their hands—as they could depend on the Managing Committee to their utmost to make the best possible terms as would be possible, for the mutual interests of all parties.

MR. J. FRASER'S MOTION.

"That all members of the Club desirous of stocking ponds or streams with rainbow trout, considered by the Managing Committee as suitable for the purpose, be presented by the Club with 50 country-bred fish was next put by the Chairman to the meeting." Mr Fraser, in support of his motion, said

that he brought forward this resolution to encourage those distant from Nuwara Eliya and the Horton Plains to take an interest in fishing, if sub-sections were formed throughout other districts to further this scheme where there was decent water for trout. He thought it would be a sure way of inducing members to join the Club. It was now beyond doubt that rainbow trout was breeding in and about the Nuwara Eliya streams and that the bigger fish have been proved to be, swarming in the lake. He thought that rather than overcrowd streams and lake, the fish may be thinned out with advantage and distributed. He would however make no proposals as to how the fish were to be caught. He would leave that to the Managing Committee to decide.

Mr C H BAGOT said that he had had a letter from Mr Thomas Farr, dated the 16th December, bearing on this resolution, which was in a way an amendment on Mr Fraser's motion, but the substance of it was the same. He would, with the permission of the Chairman, read an extract from Mr Faar's letter. The Chairman having given his consent Mr Bagot read, an extract from letter as follows :—

"Should you be at the meeting of the C F C on the 20th instant would you mind reading this letter. Just now I am too busy to attend myself.

"With regard to Mr Fraser's motion I think 50 fish to *every* applicant too much; but I would give 100 where conditions were especially favourable to the well being and propagation of rainbow trout. Besides what is to prevent a man joining the Club getting his 50 fish and then ceasing to be a member. I would propose as an amendment :—" That the Ceylon Fishing Club being desirous of stocking all suitable water in the island with Rainbow Trout is prepared to receive applications through the Honorary Secretary for country-bred fish, all applicants to be members of the C F C."

Mr Fraser said that he was content to withdraw his resolution in favor of Mr Farr's amendment, as it met his views on the subject. All he was anxious about was to see the distribution of country-bred fish where they would be cared for. To interest non-fishing Club members, joining in the movement, and advancing the Fishing Club to a larger organisation than it is at present was what he wanted to see done.

The CHAIRMAN—said that as the meeting was in favour of Mr Farr's amendment, and as Mr Fraser had withdrawn his original resolution—the amendment would have to be seconded before it could be adopted.

Mr C H BAGOT—thereon seconded the amendment—which was carried. Mr C H Bagot wanted to know from the Chairman, if there had been any prosecutions and convictions during the year for poaching trout.

The CHAIRMAN said:—He thought not.

Mr C H BAGOT—and yet I know of cases in which trout have been caught and eaten by poachers.

Mr J FRASER:—Why did you not prosecute?

Mr C H BAGOT:—Oh ! I came to know it a week or ten days after the fish had been eaten.

Mr D LYALL—enquired of the Chairman what the penalty fine would be if a cooly or anybody else was caught poaching trout.

The CHAIRMAN:—It will depend : if it be a cooly R5, if an European, perhaps, very much more. It would all depend on circumstances to a cooly R5 would mean his half month's pay ; to an European any sum would not be too much, as he would be able to afford it.

Mr. J FRASER:—I am afraid, Mr. Chairman, your idea of what Europeans are paid up this way is rather an exaggerated one. (Laughter.)

Mr. C H BAGOT—thought R100 should be the maximum fine for anybody caught poaching.

THE CHAIRMAN :—A cooly would not be able to afford that sum, a fine of R5 as I said before would mean to him his half month's pay, to an European a sum of R100 would be nothing.

Mr. G G ROSS CLARKE:—A cooly may have his friends who would get together and subscribe towards the R5 fine.

Mr. F W DEW—thought a fine of R5 inadequate as a poacher, who caught a lot of trout, would sell them for much more than R5. So small a fine would be no terror to him, and he very probably may not desist from continuing to poach trout.

THE CHAIRMAN:—The fine will depend on what is proved against poacher, and he will be dealt with accordingly.

Mr. C H BAGOT.—said he had on behalf of Mr. Farr to move for the adoption of the following motion:—I would propose that a local Committee be formed for the Horton Plains consisting of members from Maskeliya, Dikoya, Dimbula, and West Haputale.

Mr. FARR supported his motion with the remarks "My reason for this is that the members I have in my mind are regular visitors to the Horton Plains, that they fish no where else, that they are too far from Nuwara Eliya to attend meetings. That in view of the different conditions with regard to the Rainbow Trout as compared with this fish in Nuwara Eliya, such as its remarkable productiveness in some places and its tendency to work up stream as well as down—what would be advisable in Nuwara Eliya might not be thought so on the Horton Plains." I would also in view of the supposed tendency of the Rainbow trout to drop down stream when they become catching—reduce the limit of takeable fish to the same as the Brown Trout.

It was resolved that in view of sufficient notice in connection with Mr Farr's proposal *re* Sub-Committee for Horton Plains not having been given that the motion be postponed for consideration at next meeting when, it is hoped, Mr Farr may be present. It was also resolved in accordance with Mr Farr's suggestion *re* amendment of Rule 11 that the required notice be given and that the matter be brought up at the next meeting.

AMENDMENT OF RULE 4.

Resolved that rule four be amended and read as follows :—

4. Fly fishing is allowed in all Club waters, but fishing with artificial spinning bait is restricted to the lakes within the notice board. Fishing with live or dead bait (worms included) or with hooks larger than No. 6 of the Redditch scale in the rivers and streams is prohibited. No restrictions are placed upon the bait to be used in the lakes.

The original rule has been added to by the insertion of the words *within the* notice *boards.*

The meeting adjourned at 4 p.m. after the usual vote of thanks to the Chair, proposed by Mr G G ROSS CLARKE, seconded by Mr D LYALL, had been recorded.

TEA PRODUCERS' COMBINATION.

(To the Editor of the *Home and Colonial Mail.*)

SIR,—Mr Seton is right, and this matter ought not to be brushed aside. Tea producers, though individually estimable, collectively are fools! The language may seem strong, but look at the facts.

The present price of Indian tea is even now lower than it was this time last year, notwithstanding a better statistical position and prospects far better than we have seen for years.

But for our folly we might easily be getting 2d per lb more for our produce. Think of it, £1,250,000 per annum lost!

The reasons are not far to seek, and are these:—

(a) Buyers combine and sellers do not.

(b) Buyers are few, and sellers are many.

(c) A few sellers are even now making fair profits.

(d) Sellers are jealous of each other.

The number of sellers is the main difficulty, but should not be insuperable if the fact that 2d per lb could easily be added to the present price were brought home to proprietors, shareholders and agents.

The same argument applies to the few who are still making profits, for a rise of 2d per lb. would more than double these profits.

Jealousy must always continue, but its existence need not necessarily be obstructive.

Want of concerted action and want of money are the pressing evils of the industry.

Never was there a better time to bring about concerted action, never can the effects of the want of it be better demonstrated.

Now, how can the difficulties be met? I suggest the following:—

1. Establish an Indian Tea Producers' Combination, which to be effective, must be representative of at least 75 per cent of the industry. (Ceylon should be invited to join, but Ceylon's aloofness would not necessarily hurt us, because Ceylon's supplies to U K are not nearly sufficient to satisfy the requirements of buyers, because Ceylon teas arrive all the year round and because Ceylon teas won't keep, and therefore, must be sold as they arrive.)

2. Establish type standards of all grades of each district, and appoint a valuing committee of brokers to value all the teas of the combination against these standards (each merchant's broker would watch and protect his respective interests).

3. A committee of the Producers' Combination would fix the selling price of each standard rapidly raising against the price by 2d per lb., and no teas should be sold under the fixed price after allowing for variation from the standard.

4. All teas in the Combination should be sold through one representative of the brokers, whether privately or publicly.

5. The auctions should be held in a room under our own control. (This alone would probably suffice to bring in a large proportion of those who might wish to be outside the combination.) The present system is enough to sicken one by the disorderly way the auctions are at times conducted.

6. Calcutta sales should be made on exactly the sames bases.

7. All account sales of garden teas, Calcutta and London, should be charged, say, 1-12 of a penny per lb, which charge would be paid to the Combination funds for its benefit. Estimating the Indian crop at 150 million lb, and deducting 25 per cent. for abstentions, a fund of upwards of £40,000 per annum would thus be raised, and be sufficient to make the combination strong enough financially to be respected. In years of over-production it could be utilised for compensating growers for holding back a portion of their crops, and at other times for the general benefit of the industry.

9. No extensions should be made by members of the Combination beyond, say, 5 per cent. of their existing acreage to make up for deteriorating areas.

Surely something on these lines is practicable? If not, why not? Who will move in the matter? The Tea Associations seem helpless. Will proprietors, agents and shareholders, approving generally, notify their willingness to meet and discuss it?

If sufficient support is forthcoming a meeting shall be called under the auspices of a chairman of repute.

TEA PRODUCER.

[If tea producers willing to meet to discuss the above will signify the same to us we will notify the writer (with or without disclosure of name as may be desired), and if support seems likely to be forthcoming, arrange for the meeting to be called.—ED. *Home and Colonial Mail.*]—*H and C Mail*, Dec. 5.

MOSQUITOES AND MALARIA.

THE GREAT MALARIA PROBLEM AND ITS SOLUTION.

(*From "Old Colonist."*)

Recently I went to hear a lecture delivered by Major Ross of the Tropical School of Medicine, Liverpool, on Mosquitoes and Malaria, thereby gathering a few "wrinkles" which, I think, is worthy of being recorded for the *Observer*. The subject is not altogether new here; for it was in Aberdeen that the final link was supplied which binds together the insect and the disease. Dr. Manson went to the Roman Campagna, got some mosquitoes to bite a malarial patient, and then despatched them to Aberdeen, where his son let them loose upon himself in his own bedroom, was bitten, and in due course developed malarial fever, discovering in his own blood the unmistakable organisms brought from Italy. Thanks to quinine, he got better of the bite—the mosquito it was that died.

Major Ross is a clever scientist, for some years a well-paid doctor in the Indian Government Service. He confesses, that as such, his duties were extremely light, and that he was glad to devote his leisure to the study of so important a problem. By means of a good map, coloured to show the chief malarial districts of the world—amongst which I note certain spots on Ceylon indicated—the lecturer proceeded to show the extent of the ravages by this dire malady, which keeps the richest portions of the world in a state of barbarism. In India, alone, he said, 5,000,000 of the people are returned as dying from the fever every year. Every year 18,000 whites and 82,000 natives were admitted to hospital, suffering from the disease, and many came in over and over again. He could not give figures for Africa. He did not even know the population; but

this be knew, that nearly all the children on the West Coast of Africa were more or less infected by fever. This he could tell by catching them wild, and examining their blood; as a matter of fact they came in hundreds, offering their blood at 1 penny per drop! and in that of nearly all the children the parasites of malaria were found. A year or two ago anything more wretched than the condition of these children could not be conceived, but already a striking improvement has been effected, and the death-rate marvellously lowered, by simply draining and filling up stagnant pools, and applying kerosine to the margins of lagoons. This chiefly in Freetown which, he sees no reason to doubt, can be made as healthy as any other tropical city, Major Ross is very severe; and justly so, I think, on Colonial Governments for their apathy and meanness in this matter of sanitation. Ever ready to subscribe liberally to imperial displays; in a matter which affects the life of many thousands of helpless subjects, they take not the remotest interest. At Lagos and Freetown there are now employed at the above-mentioned work, from 60 to 80 men with two European Superintendents, but not a sixpence has yet been obtained from Government, the whole cost being defrayed by a wealthy and generous Scotsman. Yes, my critical friend; you like to cackle about the "close-fisted Scot"; but we would like to see a little more of such generosity from the predominant partners! Major Ross now proceeded to describe his initial work undertaken in order to prove to himself the truth of Dr. Manson's theories,

THE DISSECTING OF MOSQUITOES

he, found to be a very difficult and tedious task, but he persevered for month after month, amidst many discouragements. The object was to ascertain if the parasites really existed in the blood of these insects. He continued his experiments for 2½ years examining hundreds of mosquitoes under the microscope. At length, at the close of a hard day's work, he discovered malaria germs in a new species of mosquito brought to him by an assistant. This is the *anopheles*, the female of which—as far as known, is the only species of the mosquito conveying malaria. The malaria germs pass into the stomach of the mosquito, where they develop and make their way into the blood and where they disseminate in minute thread-like forms, collecting in the glands, thence projected through the proboscis into the unlucky victims.

The Major nursed up a family of a few dozen Anophele and immediately set to work to experiment—not only on human beings, but the feathered tribe was equally susceptible from a bite of the jàt female insect. Sparrows by the score, and even crows died of malaria, after a single bite! Now an insect-bite that would kill, say, a Colombo crow would, I imagine, kill any living creature. But how is it, if crows be really so susceptible of fever, they do not get exterminated? Herein lies a 'wrinkle,' the crows sleep in trees or on the top of houses, and the anopheles only rise a few feet above the water in which they breed. The ancient Incas must have had an inkling of this, when they raised mounds 100 feet high on which to build their dwellings, and the Colombo-wallah who built an upper storey to his bungalow was wise in his generation, though what became of the poor prophet in the chamber below?

Major Ross experimented in other directions, for instance, he had freshly dug virgin soil from malarial localities placed under his bed, and there he slept without any evil ever befalling him.

Now, in days of old—indeed, up till 1894—we were taught by sage professors that the disturbing of the earth in malarial districts set free certain gases which frequently proved fatal. I was told so on arriving in Ceylon; I was told so more pointedly in crossing Panama. Now, it seems that, like the fable of the Upas tree, this superstition is for ever exploded, and for the future we must keep our eye on the mosquito. Hitherto I had been disposed to look upon it as a sort of God-send—sent to warn man that there was decaying vegetation or dangerous stagnant water near. Now the vile thing has been found out!

On one point I could not quite follow the Major. He said that malaria was always at its worst, in *wet* districts and during the *wet* monsoon—instancing Lagos with 200 inches—but the reverse is our experience in Ceylon, and in Peru. In localities where it *never* rains, the same fever is very rife. Another matter on which we require more light is: Why certain districts are worse than others? Why Kurunegala is worse than Ratnapura? Why Dumbara is worse than Gampola?

It would, I fear, be hopeless to expect the Ceylon Government to spend anything on such an investigation; but surely the Colombo Council might do a little towards purifying the unsavoury margin of your lake; while even the impecunious Municipality of Kandy might afford a few gallons of kerosine to apply to the puddles around Bogambra.

CACAO AND ITS ENEMIES.

(*From a planter.*)

Thanks many for the Hamel-Smith circular *re* Cacao-tree scrubbing brushes. I will certainly give them a trial and order a dozen to start with, but it is a pity he has not sent you out a sample. [We have one brush to show in *Observer* Office.—ED. *T.A.*] I believe in keeping bark as clean as possible though it is just possible some insects may be our *friends* in destroying other pests, etc?

Cacao has had a soaking this year, but this glorious sunshine will do a world of good to trees, beast and man. Mosquitoes are holding high revels and growing to the size of winged leeches, luckily they don't carry lanterns like glow-flies.

COCOA BUTTER.

SOME AMERICAN REPORTS FROM THE NETHERLANDS AND FRANCE.

So many of our readers are interested in cocoa butter that we reproduce in part two American Consular Reports on the subject, made at the instance of a New York firm.

U S Consul-General S Listoe, of Rotterdam, says:—

Cocoa butter is a by-product of the manufacture of cocoa powder. It is derived from cocoa beans by the following process of manufacture: The beans are roasted, separated from the husks and ground; the fluid cocoa, obtained by grinding, is placed in steam-heated hydraulic presses, which brings it under a pressure of 60,000 kilograms (about 132,000 pounds) by 75 atmospheres, and about 30 kilograms (66 pounds) of butter is pressed out of 100 kilograms (220 pounds)

of fluid cocoa. The butter flows off in liquid form, and is caught in moulds, where it is given time to cool and harden.

There are no firms engaged exclusively in the manufacture of cocoa butter; the manufacturers producing the largest quantities of cocoa powder are also the largest producers of cocoa butter.

In 1901, of 1,081 tons of Dutch cocoa butter were sold in the auction sales at Amsterdam.

On January 1 last the average market price of cocoa butter was 0·69 florin (27·6 cents) per one-half kilogram (1·1 pounds), and on July 1 last the articles were sold at 0·74½ florin (29·7 cents) per one-half kilogram.

Cocoa butter is used principally by confectioners, but also to a limited extent by pharmacists and in the manufacture of fine fancy soaps.

Mr F D Hill, U S Consul at Amsterdam, says:—

The bulk of the cocoa butter is disposed of at monthly public sales held at Amsterdam. The sales are made on customary "fall-of-the-hammer" conditions, and without commission to the second highest bidder. The cocoa butter is packed in bales of eight cakes, each cake being separately wrapped in strong paper.

COPRA PRODUCTS AT MARSEILLES,

The U S Consul-General at Marseilles says:—

The manufacture of copra oil is nowhere so extensively carried on as at Marseilles. From 55,000 to 65,000 tons are made annually by the following concerns, principally:

Rocca, Tassy and de Roux, 22 rue Montgrand.
Magnan Freres, 14 Allees de Meilhan.
Charles Diemer et Cie, 1 rue Picpus.
Fritsch et Cie, 7 Place Estrangin Pastre.

The effort to extract an edible grease from an oil produced upon so vast a scale and formerly available only for the manufacture of soap, gave promise of valuable returns if successful; and that this promise was not delusive may be judged from the circumstance that the factory of Rocca, Tassy and de Roux, which produced 25 tons of butter per month in 1900, now turns out 600 tons per month. I imagine that the success of Messrs. Magnan Freres has also been considerable.

The butter of Messrs Rocca, Tassy and de Roux is styled "vegetaline" and "cocoaline," the greater demand being for the former. The first-named melts at 26° C, and the latter at 31° C, being by that fact better suited for warm climates. Messrs Magnan Freres sell their product as "cocose." The best export markets at present seem to be Holland, England, Norway and Sweden, and Denmark. It is offered for sale in tins, and is almost tasteless.

Just how these imitation butters are made is a matter of violent curiosity in Marseilles, where the story goes that

£12,000 HAS BEEN OFFERED FOR THE SECRET.

I have not been able to obtain it upon demand. It appears that expensive machinery is required.

The oil having by nature much the consistency of genuine butter, the main problem has been to bleach it, to remove the principles which cause rancidity; and to increase the point of fusion. The bleaching operation is doubtless accomplished by the free use of fuller's earth, which, being beaten in the oil, absorbs the colouring matter and is then precipitated and removed. What next occurs is difficult to say; certainly, a chemical process is employed. English manufacturers have lately learned something of the bleaching method as in use here, and are employing it.

Present prices of copra products f o b Marseilles, per 100 kilograms (220 pounds), are now quoted:—

			Francs.
Vegetaline	..	..	89·00
Cocose	..	..	87·00
Cochin neutre	..	..	77·00
Cochin neige	..	..	74·00
Ceylon quality	..	..	71·50
Ordinary soap	..	..	70·00

The above prices for oil in barrels, of Marseilles make, are for September and October delivery. —*Commercial Intelligence.*

PADDY CULTIVATION IN THE STRAITS.

USE OF MACHINERY ADVOCATED.

(To the Editor *S. F. Press.*)

DEAR SIR,—I see that upon two or three occasions you have drawn attention to the advisability of cultivating paddy more extensively in the Peninsula and am therefore induced to make a few remarks upon the subject. In a country where the natural conditions are favourable for the cultivation of rice and where the amount produced is only an infinitesimal portion of that which is consumed, it is a matter of surprise that the subject has not been taken up more energetically. I see a suggestion has been made that Malays should be compelled to plant, which no doubt will be an excellent thing for the Malays, but a measure that will not make the country less dependent (or hardly so upon outside sources of supply) as long as they employ the primitive methods that have hitherto been in use. I have cultivated 'dry' or 'upland' paddy now for two years as a 'catchcrops' and have had to make use of their primitive methods, my land being planted up with permanent crops such as rubber and coconuts. By using this system and employing day labourers in opening up land for paddy solely, I feel convinced that there would be no margin for profit. This being the case there is little inducement for capitalists to take the matter up without which nothing very much can be accomplished. I venture to suggest that the solution lies in the employment of machinery from the ploughing of the land and through the various stages until the rice is graded and bagged. It is being done in America and in Queensland to a limited extent, and surely the same methods could be applied here. A study of the American system would undoubtedly be of great benefit to those interested in pushing the culture of rice here. Unless some such measures are taken in hand this country will never be anything like self-supporting in this respect such as you, Sir, have suggested would be advisable. —I remain, Dear Sir, yours faithfully,

FRANCIS PEARS.

Lanadrow Estate, Muar, Dec. 13.

—*Singapore Free Press*, Dec. 17.

"SOLUBLE TEA."

We direct attention to Mr. John Rogers' notes (see page 495) on this subject—one that he has made peculiarly his own by a long course of study and experiment. The result has been talked of for some time, and has met with the approval of experts, as a thoroughly sound, wholesome and pure tea. All Ceylon producers are therefore specially interested in the success of the article, more especially when it is in demand for countries which have as yet taken little of our ordinary product in chest; and for purposes—such as for the use of travellers explorers, navigators—where bulk is a consideration. We certainly think thepromoters of "Soluble Tea' deserve countenance and aid (if required) from the "Thirty Committee"; while they should make a special exhibit of their development at the St. Louis Exposition for the benefit of the American people.

ON "SOLUBLE" TEA.

SOME IRRESPONSIBLE NOTES.

The "Soluble" tea is the very latest and most successful development in the art of producing a thoroughly sound and wholesome, and absolutely pure tea. But, although, the "Soluble" tea is still in its infancy, and will not for some weeks yet be introduced to the public, the idea is very old indeed, and probably has been entertained by many clever people, ever since tea began to be the popular beverage it now is, and an article of daily use. Much ingenuity and large sums of money have been wasted on in-numerable attempts to produce a pure extract of tea, which would retain the aroma, flavour, and invigorating properties of the cup that cheers. These attempts mostly failed from their being made with the prepared leaf, or ordinary made tea, and from the fact that the aromatic and finer principles of tea are largely due to an essential oil which, immediately heat is applied, becomes more volatile than steam, and is, therefore, most liable to be lost in any of the well-known ordinary processes of producing extracts. Tea is naturally of so delicate a character that it will not stand such treatment as many of the so-called essences undergo. Some ten years ago, it occurred to the writer that it would be an easy thing to extract the juice from the tea leaf in its green state, and evaporate it down to dryness, and so produce a pure soluble tea. But all such attempts completely failed, and the writer not being a chemist, or at all a scientific person, could not make out why these simple attempts did not succeed, and why it would not come out right. He consulted scientific folk and chemists of standing, but was invariably told, that though it would of course be quite possible for them to produce a pure extract of tea, securing all the fine aroma and flavour of the popular cup at its best (I never yet met a scientist who would admit anything as quite impossible to him) yet it could not be so done as to pay the cost of production. It was not until the writer met with the book by

MR. KELWAY BAMBER,

the well-known authority on the Chemistry of Tea, that he began to think that he was on the right tack at last. When Mr Kelway Bamber was induced to take up the idea, and to advise, and help to work out experiments in London and afterwards, when the writer came to Ceylon for the purpose, then progress became apparent. But it was years before the present very successful results were arrived at and not till after many most disheartening disappointments and failures with chemicals or chemical processes had been experienced. A truly lovely cup of tea was soon produced in "Soluble" tea form, but alas! the extract never would "keep" for any time. Chemicals were at last entirely discarded, much to the delight of the non-scientific operator in these experiments, and the present purely mechanical or automatic process was ultimately arrived at. Referring to our note-book, I find the first entirely successful experiment, on the present lines, was made on 31st May, 1900, and there is a marginal note saying that news had just come of Mr Kruger's flight, and of the immediate entry into Pretoria of the British troops—and a hope is expressed that this may prove a lucky day all round, and for us in particular in our work. It was indeed. The process of that day has never been materially altered since, and the samples of "Soluble" tea then made, after being kept over two years, have been pronounced excellent by all sorts and conditions including even such experts as old ladies and professional tea-tasters, and in many different countries of the world. Of course there have been exceptions. The writer heard of one competent tea-taster some time ago, who pronounced against "Soluble" tea, being under the very erroneous impression that it was made from tea dust and factory sweepings, or (as he said) "rubbish." When he was informed that it was and could only be made from the

BEST GREEN TEA LEAVES,

freshly plucked from the bush, he tasted the tea and altered his opinion entirely. Again the other day, the writer had been tasting some samples of "Soluble" tea in a Colombo office, with some well-known tea-tasters, and it was found very good.

The advantages we claim for our invention will many of them be at once apparent, but, perhaps, some of the most important may not be so soon or so easily recognised. The portability and convenience in use of the "Soluble" tea will naturally be recognised by all and will commend it for use by Armies and Navies, and for expeditions of all kinds, and to Colonists, and all people who live in out-of-the way places, or where transport is difficult, to travellers, and to the man in a hurry. It is not anticipated that "Soluble" tea will at all displace ordinary leaf tea in general use—but where leaf tea cannot be conveniently obtained, or easily infused, then "Soluble" tea, which requires no infusion, but only the mere addition of water, of any temperature desired, to a very small quantity of the powder will often be resorted to. The "Soluble" tea would no doubt have been a boon to our soldiers in South Africa as has been said by members of the Ceylon Contingent who have seen and tasted it, as a man could easily have carried in his belt enough to make two or three hundred cups of tea. Here I may mention that one of the Dutch Doctors, who was a prisoner here lately told the writer that he believed the use of this "Soluble" tea in the water by our soldiers in South Africa might have prevented, in some measure at least, the enteric which was so prevalent. This is an important point, which has, however, yet to be proved.

In Australia and other Colonies, where distances are often very long, and where in many cases, it may be a matter of some trouble and expense to transport so bulky an article as a large chest of tea, it is probable that the carriage of a few pounds of "Soluble" tea which will give an equal quantity of infusion, or as many cups of tea, may be preferred, and tea thus become a more common beverage than it is now in such localities.

But beside its advantages in portability and convenience in use, the writer holds that "Soluble" tea is absolutely the purest and most wholesome form of tea that can possibly be used. That all teas are not absolutely pure and wholesome may be perhaps, admitted, but that the British Planter is—or, rather, let us say that British-grown teas are—like Cæsar's wife is, of course, everywhere allowed, and the writer (as one of the Pioneers of the Tea industry in Ceylon) would be the last to cast any shadow of doubt on such an opinion. It goes then, without saying, that Ceylon and Indian teas

are as absolutely pure and unadulterated as it is possible for leaf tea to be. But I think a little consideration will show, that by a process, in which the leaf, or the fibre or woody part is wholly eliminated, and no insoluble matter can possibly remain, the absolute purity of the extract must be still further assured. It is true also that there are teas and teas, and that some, it has been darkly hinted even of British-grown teas, are not —well, not quite so nectar like as others; and there have been more than hints of some mysterious and terribly baneful stuff called tannin being present in an injurious excess in some of the commoner or lower-priced teas. Tannin was an easy word to pronounce, and yet had a learned sort of flavour about it which made it quickly catch on with the public; so poor tannin was blamed for all the bitterness and any bad flavour found in tea, and for any bad effects on digestive organs caused by excess in tea-drinking.

Here the writer would beg his readers to remember, that he does not wish to, nor has he the slightest claim to pose as a Scientist or Chemical expert in the smallest degree, and he admits that the views given in these notes are solely his own unsupported theories and based on his own personal but unlearned observation. He regrets that the undoubted and acknowledged authority of his co-patentee is not available at this juncture, when these notes on our invention have been called for. Years ago, the writer made a special study of the tea leaf at home, in connection with another matter altogether, having the advantage of a considerable quantity of green tea leaves from small plants growing in pots at the time in a nursery near London. It is an old story now, but may be repeated, that a pound of tea was made from leaf plucked from these plants, probably the

FIRST AND ONLY POUND OF TEA

ever made from leaf grown in England, and probably also the most valuable, as something over three guineas an ounce was refused for it, the London tea packet firm to whom it belonged preferring to present it to Her late Majesty, who was graciously pleased to accept it, the firm no doubt thus making a very paying advertisement out of it. The writer at that time came to the conclusion that the extreme bitterness sometimes complained of in tea, is not altogether due to the much abused tannin, but in great measure to what Mr Kelway Bamber calls in his book on the "Chemistry of Tea" bitter or fatty acids, and that these are simply the juices contained in certain parts of the leaf which have not been reached in the several processes of manufacture, such as rolling, fermenting and drying. The juices in such portions of the leaf would naturally become rancid and bitter in the extreme, and would take longer to extract in infusion than the tannin in the properly prepared parts of the leaf. No one complains of excessive bitterness until the tea has infused a long time, and, I think, it is an admitted fact that the great bulk of the tannin, extracted by ordinary infusion in a tea pot, comes out in from five to seven minutes. The complaints about tannin are of comparatively recent date, and the writer believes the presence of green, or raw, or uncured parts of the leaf, containing these bitter rancid acids, might be traced back to the same period, and for this reason. In the early pioneer days, in Ceylon at least, and before the introduction of all the elaborate machinery now in use, so much more time was spent, especially in firing or drying the leaf over chulahs, or in machines without any artificial draught apparatus, and so much more care taken in plucking and in manufacture, that it was practically impossible that any leaves or parts of leaves could escape being perfectly cured. I do not mean to insinuate that the present day Tea-maker does not take as much care and personal interest in his work as his predecessor of twenty or more years ago. It would be untrue and absurd in the extreme to say anything of the kind in reference to either Tea-makers or Superintendents, but in those early days,

THE TEA-MAKER

had only a very small quantity of leaf to deal with, and that small lot, he had more thoroughly under his own control. With the present enormous quantities being made, and, in many cases at least, the larger leaf being plucked, and the remarkable developments in tea machinery, it is a very different story now. It appears to me that the attention of inventors in Tea machinery has been directed almost solely to the cheapening of manufacture, by inventing machines to turn out the greatest possible quantity in the shortest possible time, and that more attention ought to have been paid to retaining the fine flavour and aroma, and generally to keeping up the fine quality of the tea. For example, I do not think that the use of the powerful fans in drying or firing tea has been an unmixed blessing, but that this powerful drawing off of the steam or moisture from the wet rolled leaf, immediately a strong heat has been applied to it, must draw off much of the delicate aroma contained in the very volatile essential oils. Some years ago, on a former visit to Ceylon, the writer ventured to express these views, which he has never yet seen contradicted or proved to be erroneous. In any case I think those of us, who remember the small quantity of teas made twenty years ago, will agree that they were of much finer quality than the enormously greater quantity of teas now being put on the market. (By the way they fetched a trifle of something like a shilling more than the present average.) The young expert in tea of the present day will not admit this, but then it is probable that about the time I refer to, he spent more of his valuable time in absorbing milk without tea, than in tasting teas without milk. I hope, I shall not get into trouble over these remarks if they ever do see the light.

What I wish to claim in regard to "Soluble" tea is, that no such injurious results as may arise, or are said to arise from drinking an imperfectly or too hurriedly manufactured leaf tea can possibly obtain in the use of "Soluble" tea from which all the insoluble part of the leaf or insoluble matter of any kind has been eliminated. As to the much abused tannin, I suppose most people know now that without tannin, tea would not be drinkable. In "Soluble" tea, though there is undoubtedly weight for weight, more tannin than there is in leaf tea, yet it may be taken for granted that owing to the smallness of the quantity required for a cup, each cup of "Soluble" tea must contain

LESS TANNIN

than a cup of ordinary leaf tea, but from what I have said, it may be gathered, that for my

dart, I do not lay much stress on that fact. Complaints are constantly being heard of good leaf teas being spoiled in the making or infusion. The water has not been at the exact boiling point when put on the leaf, or has been allowed to stand half-a-minute too long, or half-a-moment too short a time on the tea leaves. For "Soluble" tea, water of any desired temperature will do, and it may be claimed, that it is impossible to spoil it in the making. At least the writer would have confidently claimed this for it, until the other day, when he happened to meet some business gentlemen in a Colombo office. They had just been tasting some "Soluble" tea, and were remarkably unanimous in abusing it. What was wrong? It was far too strong! It turned out that they had put into one cup enough to make ten cups. When the proper quantity was put in, it was pronounced all right. The writer was rather depressed when relating this experience to an upcountry friend, saying how could one calculate on, or think of guarding against such an instance, say, of idiosyncrasy as that? But his friend assured him that he "need not worry about that," adding, "You really must not gauge the intelligence of the general public by what you may see or hear in a Colombo office." To the ordinary man, it would naturally occur to add more water if the tea is too strong, or to put less stuff in next time. The "Soluble" tea will, no doubt, have many detractors, especially amongst those who regret most that they are not themselves directly interested in its success, or by a few foolish persons in the trade who may fear that their interests may suffer by it in some way. But all new enterprises have to contend against, and profit by such opposition. The writer is old enough to remember the dismal forebodings and adverse opinions very confidently expressed as to the future of extract of meat, when first introduced by Baron Liebeg, and later as to condensed milk. Liebegs was not nice in apperance—it was nasty to handle—one could not tell exactly how much to use at a time, once the bottle was opened, the stuff would not keep good any time, and lastly it did not taste like beef. Yet we all know how such extracts have become essentials now, and I never heard of any farmer, cattle breeder or butcher being ruined by the introduction of "Liebig." Everyone knows that nothing will "keep" in Ceylon, when once exposed to the exceptionally humid atmosphere The "Soluble" tea like all such extracts in powder form, must be hygroscopic, absorbing moisture even more readily than leaf tea, and in such a moist climate as this must be kept in its air-tight bottle or packet, and the powder must not be exposed to the air longer than is necessary in its use. The general public are, however, now well accustomed to such articles, and know to keep the

BOTTLE WELL CORKED

when not in use, and yet I have been told that some people have spread it on paper and laid it out on a table to dry? or have put it on a chair, and sat on it to compress it?—the result in this latter case was disastrous to the seat of the chair—or have emptied some out of the air-tight bottle into the waist-coat pocket, with like unfortunate results to the waist-coat. But my upcountry friend again consoles me. He says only very clever people do that kind of thing, and that there are not many such very clever people in the world. That the common or garden duffer will do just as he is told on the label, put a little into a cup, pour on water and make a drink of it, and that is exactly what the "Soluble" tea is meant for. As has been said, "Soluble" tea will never displace ordinary tea in general use, it is ridiculous to suppose it will; but there is already evidence, that it is likely to open up new markets for itself, and to introduce the use of tea amongst people, and other places where tea has hitherto been an unknown quantity, and if the taste for tea is thus created, is it unreasonable to suppose, that it may lead to a demand for ordinary leaf tea in such localities. I shall not, therefore, be surprised to hear soon that that Friend-in-Need, "The Thirty Committee," has come forward and offered some of their spare cash for advertising purposes to the "Soluble" Tea Syndicate Limited, or that the Government have voted a special little grant to these public benefactors, in the interests of the Tea Industry of Ceylon. J R.

Dec. 18.

P.S.—The writer has just been informed that orders for trial lots have already been received from some most unlikely quarters by the Secretarie and Agents of the "Soluble" Tea Syndicate, Colombo, Ceylon.

TEA PLANTING INTERESTS:

THE NORMAL VALUE OF THE BRITISH TEA INDUSTRY: THE CAUSES OF DEPRECIATION: OVER CAPITALISATION CONTESTED: THE QUESTION OF ORIGINAL COST: A NEED FOR ORGANIZED CO-OPERATION;

BY SUUM CUIQUE.

There appears to be in some quarters a general impression that the British tea industry, as a public investment, is over-capitalised. Doubtless there are companies which are in that position; but to equalise these there are many others which have for years put by large reserves, so as to fully compensate the industry generally for any loss it may have sustained from those whose capital exceeds their normal value. Many of the former seem to have just hit upon the locality where, from some hidden cause, specially fine teas can be produced; and these have naturally appreciated in value; while many of the latter have depreciated from just the opposite cause.

The chief reason for the present position of the industry arises from (1) a slight over-production which, I believe, never exceeded 5 per cent. of the requirements of the market—or, say, about a *fortnight's requirements*, (2) made more apparent by the combined action of the large buyers; (3) but chiefly what a leading Tea Company Chairman described as "a want of cohesion among producers." One point I believe all will agree in, that the industry could not be reproduced upon a capital materially below its present nominal value, and to establish this I will submit the best evidence at my disposal.

In Mr George Seton's interesting table on the "Results of the Working of 45 Indian Tea Companies" for the year 1901, he shows that the entire return on the nine millions odd sterling, invested in these 45 representative companies, averages only 3½ per cent. These figures, low as they are, make no allowance for depreciation in any form whatever, being simply profits as shown,

without any provision for wear and tear. To arrive at some practical purpose let us divide these 45 companies into two; *i.e.*, that proportion which pays oves 5½ per cent or its capital, and that proportion which pays less than 5½ per cent. I have chosen 5½ per cent, as I look upon it as the mean average rate upon which loans can be obtained on fair tea property, either on mortgage, or in the form of debentures. Consequently, before any profit to the ordinary shareholder can be paid interest upon debentures and mortgages, and any intervening preference share dividend, has to be covered. From this table I gather that 15 of these companies paid 5½ per cent. and over and 30 companies paid less than 5½ per cent. Furthermore that these 30 companies, of themselves, only aggregate a total profit on their capital of 2·17 per cent. and this, too, without any allowance being previously deducted for depreciation of buildings, or machinery, or, in fact, in any manner whatever. The proportions in acreage, actually work out as follows :—

15 Companies	55,104 acres	29 per cent.	
30 do	132,311 do	71	do
45 do	187,415 do	100	do

It will thus be seen, that a little more than 2 to 1 represents the larger part; but I shall adhere to one-third and two-thirds, as the simplest form of investigation, and quite near enough for general purposes.

SEVENTY-ONE PER CENT OF THE INDUSTRY WORKED AT A LOSS.

I notice the average price obtained for produce per pound in the London market from these 45 companies is 7·61d, which is slightly higher than the average for all teas from India during 1901; while in Ceylon, although teas on the whole obtain a lower price, they also entail a lower average cost of production. Thus all considered, this carefully arranged table may be taken to represent approximately a section in every detail of the British tea industry generally. The only disparity that might arise being in the slight difference of average cost of production between India and Ceylon, which is practically equalised by the slightly lower price obtained for Ceylon teas. Thus all things considered, the analogy is a fair one, and if it errs it is slightly on the side of a more favourable result for the 45 companies. It may, therefore, I think, be concluded that under present conditions, one-third of the British tea industry is paying its owners over, and two-thirds are paying under, the borrowing rate of capital. Now, if this order were reversed, so that two-thirds paid over the borrowing rate, and one-third only 2.17 per cent, I could almost understand the wisdom of leaving it to the so-called laws of self-adjustment. But here we have actually 71 per cent, of the entire industry being worked at a loss, without any apparent reasonable and combined effort being made for its redemption.

ORIGINAL COST, APPRECIATION AND DEPRECIATION.

Putting down the total extent of the Indian and Ceylon tea gardens at 900,000 acres, which is slightly under the computed area, and costing in the aggregate £40 an acre to bring into full bearing including land purchase, buildings, machinery, communications with interest on money until productive, we have a total cost of £36,000,000. In reckoning £40 an acre as the cost of bringing tea-land into bearing in India and Ceylon, I do not imply that that its value has remained at £40; for some has become more valuable and some has depreciated; what I mean is that everything fairly considered, from Darjeeling to Ceylon, and where work is rightly completed, that the figures I state will be fairly close. One certain fact is evident, the more land planted with tea just now, the less the value of the whole industry; or expressed in other words, every extra acre opened now means something taken from, rather than added to the general value of the whole, as indeed may be reckoned any unnecessarily excessive production, no matter how small. The cost of the industry may be understood better in the following tables :—

ITS COST AS DESCRIBED ABOVE.

300,000 acres paying over 9 per cent, costing £40 per acre, £12,000,000
600,000 acres paying 2·17 per cent, costing £40 per acre, £24,000,000
900,000 acres averaging 3.50 per cent, profit costing £40 per acre, £36,000,000

COST BETTER ANALYSED AS FOLLOWS :—

300,000	acres paying satisfactorily,	cost £12,000,000
600,000	exhausted in paying interest at 5½ per cent	cost £9,000,000
	chiefly ordinary shares absolutely unprofitable	cost £15,000.000
900,000		£36,000,000

Thus far I have dealt with cost. It will be well now to consider how far this original cost has altered under the fair and legitimate, or, unbiassed process of supply and demand.

AN APPROXIMATE NORMAL VALUE.

300,000	acres at £60 the acre		£18.000.000
550,000	,, £31	,,	£17 0 0.000
50,000	,, £20	,,	£1 000.000
900,000	,, £40	,,	£36,000,000

Some explanation may be necessary in arriving at these figures: why one third is valued at sixty pounds the acre and nearly two-thirds at no more than thirty-one. My reason is that the smaller proportion pays over 9 per cent on invested capital, and the larger only at present 2.17 per cent; but I cannot believe otherwise than if the same premeditated care were exercised by the sellers, that the buyers exercise in buying, and which sooner or later they will have to adopt whether they like it or not, that this great disparity could not exist. For apart from all other causes, if a body of labourers, retailers or wholesale dealers, part with what they put into the market at less than it costs, or what I may denote as "a living wage," not only is much needless suffering entailed, but in nine cases out of ten it is nobody's fault but their own. On the other hand, £31 an acre may appear relatively high, compared with what pays 9 per cent.; but we must remember it is the bulk of the industry which has during the last three months been suffering from an over-supply, of, at most, possibly 2 to 3 per cent. on the actual yearly requirements of the market—say, *11 days' consumption* A quantity, far beneath the increase that may any year arise from a favourable flushing season, and probably less than a fourth of what would follow a reversion to the grade of plucking adopted, practically everywhere, up to two years ago. The final 50.000 acres, valued at £20 an acre, is relatively, probably for its worth, the highest valuation of the whole; yet its total value

does not amount to what the industry has lost yearly since 1899. Most of it pays altogether little more than commission on sales, freights, and insurances, and beyond this will I never believe be quite satisfactory. Doubtless some acres of similar land have already been abandoned during recent bad times; and, doubtless, if our present system continues, this too will be eventually eliminated at a cost to us of many times its worth.

What precedes this, surely shows that the industry is not over capitalised. That in the aggregate it has cost its owners fully what it represents in paid-up capital. That the depreciation of its 71 per cent, is met by the improved value of its 29 per cent; also that the larger proportion could not with full modern machinery buildings, etc., be opened at £31 the acre. I also think that it is satisfactorily shown that we are suffering from a small over-supply, which hitherto we have not had the courage to rightly face. The actual depreciation, beyond what I call the normal value of tea property, and from which we are suffering, must for the present represent some £15,000 000 sterling; and judging from what we see done elsewhere is quite capable of more permanent re-establishment.

THE EVER-RECURRING WANT OF ORGANIZED CO-OPERATION.

So far in this paper my chief aim and object has been to show where the unprofitable portion of the industry comes in. It will be seen that it is represented by two-thirds of the total tea area, so practically incorporating all the medium and common teas. I think it may be assumed that the owners of the one-third with its 9 per cent profit are quite satisfied with their position, but how about the owners of the medium and common teas? If the former average 9d, it may surely be assumed that the latter are worth, relatively, 8d. and 7d, instead of something less than 7d. all round. Now, is there no way of coming together over these two-thirds of the industry? Even though the efforts have hitherto failed over the whole, cannot a more successful attempt be made by the guardians of the two-thirds? To show how utterly we are beating the air to no purpose, let me bring forward two extracts from sale reports, in which I need hardly add that the italics are mine:—

"A decided flatness was noticeable in the earlier part of the week, and became gradually more pronounced, finally resulting in a round decline in price *many large buyers keeping almost entirely out of the market*. Happily the auctions of both Indian and Ceylon teas, so far advertised for next week, are comparatively light, and may thus tend to relieve the position, *but unless supplies are brought forward moderately* the depression may continue *in spite of the improved statistical position, etc.*

"The average of all Indian and Ceylon tea sold for the month of October *is a 1d. per lb. under last season's corresponding month, and is not justified by either the position or quality.*"

There is a very little originality in these reports. The same has been the "shibboleth" for the past three years with one exception, "the improved statistical position now"; and yet, notwithstanding this improvement, teas are 1d lower than a year ago. In other words, as statistics improve, so far prices are worse. Doubtless, there may be a special reason for this, but we want consistent prices, consistent with the conditions of the market, not these continual suggestions for improvement, or, at least some really practical method of meeting this ever recurring difficulty.

Sooner or later, but how much sooner or later, in spite of strenuous efforts to keep a low level of prices, the market will make some natural adjustment, though not to the permanent degree we require. So long as the larger buyers can, as these sale reports tell us, withdraw their buyers if prices do not please them; and so long as they act collectively, and we individually, they will have the advantage. So long as they can appoint one man each, to represent several buyers, reducing buying to a system, and when if a few hundred chests more happen to be put up than immediate wants require; I do not see prospectively, nor do those sale reports help me to see; how the tea industry can assume a permanently right position. They are useful in their way, but they lack the method of an unmolested supply and demand market, which ours has long ceased to be. Still the same difficulty is before us. The first buyer and first seller are unequally placed, and any position short of absolute inadequate supply, will be in favour of the first buyer. Such would, if prices reached too high a range, entail an inrush of cheap and common teas; and with them inferior Chinas would reassume a position. Surely stopping short of this is our right course. If steadily and firmly, during the past three years, an effort in London had been maintained by holding steadily three weeks extra supplies in our own hands throughout, the market I believe would have been steadied and our chief losses avoided. With a strong lead from the heads in London all the markets would be strengthened, and restriction of output abroad would have a chance of possibility. Weakness in the centre means weakness throughout the whole organisation. Mr Andrew Carnegie tells us, that a prosperous and strong market is the chief source of success, both at home and abroad, so can we not in the future take a leaf our of his book and strengthen ourselves by unity of action?

SHAREHOLDERS AND EMPLOYEES ALL SUFFER.

It is desirable that something should be done if only in the interests of superannuated tea planters and others, of widows and orphans; and the long string of suffering shareholders who are deprived of their incomes from the defaulting 15 millions before referred to. Neither does the pressure of these starvation, and, I believe needlessly starvation prices, stop at shareholders; they penetrate the whole industry; garden managers, assistants, and labour are all down on their lowest cut-down wages. Even the tea business in London is becoming a by-word by those employed. Remove extreme pressure, and all will be relieved, and with them, I believe, even the large and small dealers will in the long run benefit, for a too low market produces a trying and unnecessary pressure on all affected.

In the perusal of what I have written, some may consider that I have over estimated the cost of bringing tea into bearing. In my experience, I know of very few instances where I may say land has been brought from jungle into bearing, upon the originally estimated sum, especially in later years. These low, sanguine estimates never complete work; which usually means that the fourth and fifth years returns are used in finishing up; promised dividends are deferred, and thus estimated

outlay kept down. I refer of course to the later periods of lower margins, combined with the necessity of more costly equipment. Many, however, have cost more and many less, than the figure I have quoted. A great misconception has often existed as to the extent of outlay upon a truly efficient factory. Personally, I believe, and few will differ from me, that nothing pays like early efficiency in tea; in its management, in its material, and transport facilities.

It is now four years since some regulation of sales was strongly recommended in London, and for a short time tried. Had this been more thoroughly organised and continued, it is a moderate computation to conclude that by now an average advantage of ½d per lb. would have been added to the standard price of our staple. One of my reasons for saying so, is that, less than a year ago, it was reported that the Indian Association intended to resume the regulation of sales, which had the immediate effect of sending all teas up pretty close upon ½d per lb. An aggregate increase of ½d per lb. for one year on all tea produced in India and Ceylon, would mean 2 per cent on capital invested—nearly three-quarters of a million sterling. It would also have raised the general average profit of forty-five companies from 3½ per cent to 5½ per cent, and would have been almost equivalent to a gain of 5 per cent on the defaulting fifteen millions before referred to. Merchants, directors, shareholders, and all concerned, should remember that strength is the winning order of modern business; the sole apology for failure is weakness, either morally or financially; and that still the first holder is initially in the strongest position, if he only chooses to exercise it in his favour, even to one-half the device that the same power is exercised against him.—*Tea* for Nov.

SALT IN AGRICULTURE.

On the threshold of a New Year, we are called on to defend ourselves against a charge of neglect of duty. Our offence, as laid out in the indictment, is that, on a date not mentioned but easy of ascertainment by the industrious, we failed to support a communication on "Salt" with editorial backing. The charge assumes that support was necessary; and if an impartial jury, under the direction of a competent Judge, should find, that the eloquence on Salt, of a seasoned correspondent, to whose instructive lucubrations and arguments, extending over a series of years, we have afforded due prominence, with frequent editorial benedictions, demanded support in his latest deliverance, we are prepared to abide by the penalty prescribed for what, we believe, the lawyers call *laches*. Our submission will not, we give notice, be wholly unqualified. In the first place, we should dissent from the verdict, as one to be taken *cum grano salis*, for reasons to be hereafter stated. In the second place, we should require an assurance that the penalty be not the same as that provided for the use of the knife—lightened though it has been by recent merciful legislation, as to its *maximum*, by one-twenty fifth! With these reservations, we are prepared to go before a Judge and Jury. Now to our argument The "communication" referred to spoke sufficiently for itself: it needed no support. The correspondence of our opinion of Salt with the Biblical, is well-known. But, just as Salt which has lost its savour is worthless so surely is excess of Salt unpalatable, and even injurious to the digestion. We claim, therefore, to have done a service to our correspondent in not having weighted the special number of the *Observer* to which he refers, with a saline editorial. In the next place, we desire to give our numerous public-spirited and able correspondents, who have with laudable persistency proclaimed the virtues of Salt in our columns, full credit for the part they have taken in impressing on the Government its duty to the agriculturist and the stock-breeder. Why should *we* do or say aught which would detract from their services when victory was in sight, and draw attention on ourselves. Is the complainant not aware—is it not written in the Chronicles of the Taxation Commission?—that the Governor, already one of the highest authorities and most brilliant exponents of Attic Salt, intends making special inquiries himself into the article as produced at Puttalam and Hambantota? With that assurance, and with the knowledge that the Government is appreciating the unwisdom of saying to those who come to it, for Salt, that it has none to sell, we do not for a moment believe that it will continue the unnatural policy of denying its own children the wherewithal for increasing their food. Land, therefore, is in sight. It would not become us to stand between our correspondents and their full share in the victory, even if it be not a sufficient excuse for our silence that it is impossible for an editor to find time and space for expressing his approval of all the views set forth in his columns. In token, however, of our agreement with our correspondent as to the importance of Salt in Agriculture (and in Stock-breeding), and the duty of the Government to issue Salt for these purposes on special terms, we give editorial prominence to his complaint:—

"I was surprised to find the communication on Salt, published in your columns without one line of editorial comment. After the interest you took in the subject recently, and strongly urged on the Government the advisability of issuing salt for agricultural purposes at special rates, the least one expected from you was an editorial.

"I send you an extract on the virtues of salt from an old book I came across quite accidentally. You will see that one of the properties claimed for salt, is its ability to prevent the dissipation of ammonia in manures. A booklet issued locally, claims for kainit the same properties, and suggests its being sprinkled over manure heaps on this account. Perhaps it is the chloride of sodium in kainit that has this useful property:—

FUNCTION OF SALT IN AGRICULTURE.

Mr. A Beauchamp Northcote has communicated to the *Philosophical Magazine* No. 65, a paper of experiments undertaken to ascertain the *rationale* of the action of salt in increasing the fertility of certain lands,

We have not space for details but quote Mr. Northcote's conclusions;—"The results, then, at which we must arrive are, that agricultural salt is a most energetic absorbent of ammonia, both in virtue of its chloride of sodium and of its soluble lime-salt, and that the proportion of the latter especially, most powerfully effects its action, but that at the same time its agency does not seem to be altogether a permanent one; it will collect the ammonia, but it is questionable whether it can retain it for any great length of time, because in the very decompositions which happen in order to render the ammonia more stable, salts are formed which have a direct tendency to liberate ammonia from its more fixed combinations. It may, however, retain it quite long enough for agricultural purposes, if the young plants are there ready to receive it. Its state of gradual liberation may be for them the most advantageous possible; and to this conclusion all experiments on a large scale appear most obviously to tend. It is described as an excellent check to the too forcing power of guano; and from M Barral's experiment we see that it either prevents the too rapid eremacansis of the latter, or stores up the ammonia as it is formed. As a manure for growing crops, all experience and all theoretical considerations therefore show it to be most valuable; but when employed to mix with manure heaps which have to stand for considerable periods of time, theory would pronounce, as practice has in many cases done, that its power of retaining ammonia under those circumstances is at the best doubtful."

CEYLON COOLY TIN TICKET SYSTEM: THE AMENDED REGULATIONS.

(*Copy*)

General 5 (Fs)—Circular No. 6682a.

From the Hon. the Government Agent, W.P., to the Chairman, Planters' Association, Kandy.

Dated Colombo —— December, 1902.

Subject:- (*Amended tin ticket regulations.*)

Referring to your No. ———

Sir,—I have the honour to enclose for your information a copy of the amended regulations under the Tin Ticket System, and to state that Estate Superintendents, who wish to have copies of the same, can obtain them on application to the Kachcheri of your District—I am, Sir, your obedient Servant, A. M. GALBRAITH, for Government Agent.

[Printed at the request of the Secretary of the P.A.:—]

The attention of Superintendent of estates is invited to the following amended Regulations:—

1. It is *necessary that each immigrant* cooly should have a *tin* ticket. The letter and number on that ticket supply all the information that is required to *enable* the Superintendent at Ragama to forward the cooly to the estate. Either one ticket may be given to each individual cooly on his departure to enable him to return, or a supply *may* be given to kanganies who are going to the coast to bring coolies.

2. In point of fact the system is simply one by which coolies are forwarded as packages of goods, the tin ticket being the address. *By its means a cooly travelling from Tuticorin*, Tataparai, Tondi, Ammapatam or Paumben is delivered at the railway station nearest to his estate without the necessity for his expending a cent *on his way*. All his expenses are borne by Government and recovered subsequently from the estate to which he goes, through the local Kachcheri. Individual numbers as well as estate numbers are entered on the tickets, thus: 270 17 *in circle*.

If the "17" is entered on the check-roll it will give valuable information as to the identity of the person who presents the tickets.

3 All estates must be registered at the local Kachcheri, where a number will be assigned to each estate, and tin tickets will be issued if required. Tin tickets are supplied at R2·50 per hundred, stamped with the district letter and estate number, and consecutive individual numbers.

Even if no tin tickets are required, registration of the estate is necessary to enable the Superintendent to issue certificates for coolies travelling within the Island. These certificates must be on the form issued by the Railway Department.

4. In the case of large estates, so many numbers should be allotted to each Kangany. These numbers being entered on the bill from the Kachcheri, it will be seen at once to which Kangany the coolies belonged. Care should be taken to issue the numbers consecutively. All tin tickets issued should be collected on the arrival of the coolies on the estate, checking the individual numbers and keeping them under lock and key.

5. Immigrant coolies who have recived advances can still pay their expenses on the journey, but they can no longer obtain cheap cooly rates by rail and steamer, except on the production of tin tickets.

6. All coolies holding tin tickets will be despatched by the 6 a.m. train on the morning of the second day after their arrival at Ragama. Thus, coolies who arrive on Monday will be despatched by the morning train on Wednesday, Tuesday's arrivals on Thursday, and so on. If, however, the estate is so far from a telegraph station that the Kangany has not time to meet Wednesday's train after the receipt of a telegram despatched from Ragama on Monday afternoon, the Superintendent of the estate should write to the Superintendent of the Cooly Camps at Ragama, stating the number of days' detention that is necessary; these instructions will be carried out. Thus, if the Superintendent is satisfied that he cannot meet Monday's arrivals before Thursday, or even Friday, the coolies will be despatched on the day named. The telegram will be in one of the following forms:—

"5, 2, 1, Saturday, 42, Ramasamy, second," or
"1 woman, 2 children, Saturday, 42, Ramasamy, second."

The first of these means that five men, two women, and one child are being forwarded on Saturday; "42" is the first individual number on their tickets: "Ramasamy" is the name of their Kangany; and "second" is the number of the division, in the case of large estates, to which they belong. The second form is used when there are only men and women, men and children, or women and children in the gang.

The day mentioned will be that of departure from the camp, and therefore that of arrival at the railway station. Kanganies who go to meet coolies should have one of the estate tickets. Each cooly, will of course, have a similar ticket and the letter and number of the estate will be entered on the railway ticket, so that the Station Master can point out to the Kangany the coolies who belong to him. If the coolies, whose departure from Ragama has been telegraphed, do not arrive by their proper train, the Superin-

tendent should at once communicate with the Station Master, and failing a satisfactory reply, write to the Superintendent at Ragama.

7. It must be distinctly understood that Government does not hold itself responsible for the safe delivery of the coolies on the estate, but merely at the railway station nearest to their estate. Any Superintendent who does not wish intimation of the arrival of coolies to be sent by telegraph should inform the Superintendent, Ragama Camp, accordingly.

8. Coolies will be given bread and tea before they leave the camp. They will also be given ½ lb. of bread a-piece to take with them. If any Superintendent thinks it necessary that his coolies should receive money for their maintenance between the railway station and the estate, an amount not exceeding 50 cents, a cooly, will be paid to each before he is put into the train. The Superintendent must write and state the amount to be given. If such instructions are given, the amount will always be paid to all coolies for that estate, the Superintendent at Ragama cannot undertake to issue it to some coolies and not to others.

9. Payment of the expenses incurred on account of coolies must be made to the local Kachcheri just in the same way as hospital bills. In correspondence with reference to accounts, Superintendents should always refer to the serial number in the account.

Colonial Secretary's Office, Colombo, Dec. 4th, 1902.

INDIAN TOBACCO.

(To the Editor of the *London Times*.)

SIR,—As the writer of the interesting special article in *The Times* of the 22nd instant on Indian Tobacco and its Possibilities makes reference to reports written by me, perhaps you will kindly allow me the privilege of space for a word on the subject.

Much as I sympathise with the laudable desire of the writer for the development of an Indian industry, I venture to doubt whether his suggestion for the manufacture here of cigarettes from Indian Tobacco is well designed for the attainment of the end desired. My hint to the manufacturers of Indian cigars to enlarge their operations by the inclusion of cigarettes was based on two considerations. In the first place, the recent increase in the importation of cigarettes—which totalled a value of about 21 lakhs of rupees last year, say £140,000—is mainly due to the adoption in Calcutta and some urban areas in Eastern and Northern India of a new habit in supression of the practice of smoking the *hukka* or water-pipe. Amongst especially the younger generation the old-fashioned "hubble-bubble" has been found clumsy and time wasting and been discarded, as the churchwarden pipe has been discarded here. That the new habit will spread extensively is inevitable; and my suggestion to the Indian cigar manufacturer was, in effect, that he should turn his attention to the meeting of a rapidly and continuously increasing indigenous demand by the supply of cigarettes of indigenous tobacco, even if it were necessary to roll them in imported paper.

In the second place, I did not and do not believe that a foreign market of any extent can be found for cigarettes of Indian tobacco. The excellence of Indian tobacco has been eloquently described by many, as well as by Sir Richard Temple, whom the writer of the article quoted. Nevertheless, it must be taken as a fact that Indian tobacco possesses a peculiar flavour of its own which is not easy of appreciation except by those who have smoked nothing else for years. The distinctive merit of Indian cigars in India is their cheapness. When a man can smoke freely at a cost of less than a penny a cigar he is not inclined—in India at any rate, where none of us are rolling in wealth—to indulge in Havanas, even Dutch Havanas, at very much larger cost. But he is also not much inclined to confess that he smokes a cheap cigar because he cannot afford the more expensive kinds, and he learns to make himself believe that he likes the indigenous cigar better. I do not wish in any way to decry the real merit of the Indian cigar, well rolled from well-cured tobacco, but, in fact, the best of them are covered with Java leaf; and I have not yet met the man who, being offered at another's expense the choice between an Indian cigar and a good imported cigar, selected the former. There is something in the physical conditions of the soil and climate which precludes us from growing and making such tobacco as that of Cuba, Puertorico or the Philippines. Much money and energy have been expended fruitlessly during the last 30 or 40 years on the introduction of the best exotic seed, and on the improvement of processes of cultivation and manufacture. These latter are susceptible of further improvement; but, as with many other products, it seems vain to hope for essential change in the quality and distinctive aroma of Indian tobacco. The statistics of the export trade in Indian cigars confirm the view that there is but a restricted demand for them, and the demand does not seem to have any tendency to expand. It is true that last year there was a very large increase in the exports but that increase in the main represented cigars sent to the troops in the field in South Africa.

It seems to me that, if the demand for Indian cigars remains small and non-progressive after many years of effort to create a market, there is not much reason to expect a more active demand for Indian cigarettes whether made here or in India. Nor do I think it would be expedient to make the cigarettes here of Indian tobacco for consumption in India, where, as I have said, the consumers would be natives. The cost of the article would be augmented by the charge for freight on the tobacco to England and back to India, by the wages of the more highly-paid labour employed here, and by the import duty which would be charged on the entry of the cigarettes at the Indian Customhouses. All this additional cost would prevent such manufactures from competing successfully with cigarettes made in India, and perhaps even with the cigarettes made in the United States which are now so largely consumed by natives in India. But that there is a fairly wide field for the profitable employment of capital and skill in India in the improvement of native tobacco and in its manufacture into cigarettes admits of no reasonable doubt.

I am afraid I have written at excessive length, but I am anxious that British capitalists, who already look askance at Indian enterprises should not be misled into the entertainment of projects which must be dismissed as soon as inquiry is made into the facts.—I am, Sir, yours obediently, J. E. O'CONOR.

November 24.—London *Times*, Nov. 28.

PLANTING NOTES.

TRINIDAD CACAO PLANTERS—profit by the American market. Thus in the Port-of-Spain report of 5th December, we read:—

"Although it will be seen from above figures that Cacao is coming in very freely, there has been so active a demand from America that prices have kept up. and we make no change in late quotations of $12·75 to $13·50 as to quality."

ARTIFICIAL CINNAMON OIL.—A Leipzig firm of essential oil dealers have taken up a patent for the preparation of artificial cinnamon oil, depending on the mixing together of such of its constitutents as have so far been detected. These bodies are cinnamic aldehyde, amyl-methyl ketone, nonyl aldehyde, cumic aldehyde, caryophyllene, linalol and its isobutyl ester, cymene, benzaldehyde, phenyl-propyl aldehyde, furfurol, pinene, and eugenol methyl ether,—*Apotheker Zeitung*. 1902, 760.

Correspondence.

To the Editor.

TEA CULTURE IN SOUTH CAROLINA, U.S.—MR. SHEPHARD REPLIES.

"Pinehurst," Summerville, S.C., Nov. 22.

DEAR SIR,—Some kind soul has caused to be sent to me copies of your issues of October 20th and 22nd wherein your "funny-man" has disported himself at my expense and to my very considerable amusement. It was about my turn and I should not complain; for I have throughout the past summer intensely enjoyed the Indo-Ceylon green tea controversy as conducted in those valuable journals, *The Tropical Agriculturist* and the "Indian Gardening and Planting." Incidentally I would state my surprise that the old Indian process of lightening the color of green tea by panning or attrition (described by Dr. A. Tschirch in 1892) should have been overlooked by so many of your able scholars and planters for so long a time, and adulteration at least contemplated ! !

The Pinehurst Experimentation has received so much notice from the Press of this and other countries that it has become almost impossible for me to correct the frequently erroneous statements as to its object and results, and has compelled me to ignore personal attacks.

But as I am indebted to the Ceylon Tea Industry and especially its mouth-piece, *The Tropical Agriculturist*, for so much valuable information, I deem it proper to call your attention to some errors into which you have inadvertently fallen, and which in your desire to continue as a faithful historian you may choose to publish. The Pinehurst undertaking has been experimental from the start until now; at first and until within a few years at my own expense, but latterly it has received generous and welcome aid from the U.S. Department of Agriculture after official investigation had shown that its object was not commercial, but an attempt to prove the feasibility of establishing a new and profitable industry in the Southern States, with all of the attendant benefits. It should be superfluous to inform you that the experiments although on a small scale (none of my gardens are larger than a few acres in extent), have been directed so as to cover as many sorts of tea-seed and as different types of soil and exposure as possible. It was expected that success—measured pecuniarily—might attend very few of the experiments, but it was hoped that some of them might result favourably. I will leave to your own judgment whether the following returns for this season may be regarded as promising, especially as the limit of production does not yet appear to have been reached :-

Old Rose Garden, Assam hybrid seed, 392 lb dry tea from 83/100 acre, or at the rate of 472½ lb to the acre, or over 7 oz to the bush.

Lincoln Garden, Darjeeling seed, 554 lb dry tea from 1 90/100 acre, or at the rate of 290 lb to the acre, or over 2 oz to the bush.

South Fraser Garden, Chinese seed, 530½ lb dry tea from 2 acres, or at the rate of 250 lb to the acre, or 1⅓ oz to the bush.

I will not exhaust your patience with comparisons with Asiatic production.

Yield of Pinehurst tea for 1902 (don't laugh, please) about 8,500 lb. It is neither expected nor desired to exceed double that amount (don't be alarmed, please).

As to that little, cheap rotary sterilizer for the Green-tea manufacture, it does its work so well that the product sells very readily in the American market at a price which my respect for your feelings forbids me to quote.

In concluding this too lengthy note, I would ask you to favour me with any further notice that you may deign to bestow on this modest undertaking, even though it may be some fireworks from your aforesaid "funny-man."—Yours very truly,

CHARLES R. SHEPARD.

SNAKE AGAINST SNAKE: A QUERY.

Dec. 17.

DEAR SIR,—Can you, or any of your readers inform me through the medium of your much esteemed paper whether the bite of one venomous snake is fatal to another of a different species—and also venomous. And does a snake really prey upon another for food, or use the means of deglutition as a mode of vanquishing its adversary—and, subsequently, disgorging its inanimate body.

Re Mr. Blacklaw's disclosure I have seen the kinds "Karavilla" and "Tollavissa" in conflict, and both seemed to be making more than mere efforts at destroying each other by biting. In this instance, the former snake (always when full-grown larger than the latter) was getting the better in the fight. Being then at school and quite disinterested in the matter we, school boys, stopped the battle to the death of both combatants without waiting for results. Natives tell of the deadly conflict between the cobra and polonga, in which the former is always victorious over the latter by the more deadly nature of its venom, but this statement seems to be mere tradition as I have never heard the report from an eye-witness. In my opinion one snake uses the act of swallowing as a means of defence when its poison is of no avail against its opponent. However, Mr. Blacklaw's discovery and evidence are very singular—(the more so as the rat snake is not very venomous) and ought to be closely studied by all interested.—I am, Sir, Yours, &c.,

VIRUS.

P.S.—I have seen Koravens (gipsies) keep polonga and cobra together.

MOSQUITO BLIGHT ON THE HILLS?

Dec. 18.

DEAR SIR,—I was told, not long ago, that I was wrong as to Mosquito Blight being possible at 6.000 feet—so I daren't express an opinion. No sign of it this year yet; but I'll take careful "stock" should what I think is Mosquito, appear again and then I will be able to follow what Mr. Harold Mann has written on the subject. If Mosquito Blight is prevalent in Assam, Cachar,

parts of Darjeeling, etc., so far North of the Equator,—why should it not give trouble up to 6,000 feet in Ceylon?—Yours truly,

PLANTER.

[We suppose Mr. Green will say that it is not impossible for the pest to travel to our higher districts; but that so far, as a matter of fact, it has not been verified at or above 6,000 feet?—ED. *T.A.*]

CEYLON TEA ON THE CONTINENT OF EUROPE.

Bâle, Switzerland, 19th Dec., 1902.

DEAR SIR,—In your London letter, dated the 10th October, I note your London correspondent is somewhat sceptical about my statement to a friend as to selling hundreds of thousands of one-ounce tins filled with pure Ceylon tea on the Continent. It may interest your correspondent to know that in France and Switzerland alone during the past twelve months I have sold through the Tea Planters, Ltd., of Bale, 225,000 Quaker one ounce decorated tins filled with pure Ceylon tea, beside which considerable numbers of Koh-i-noor, Ugalla, Bee and Maravilla one-ounce tins are distributed every week, samples of which I send you per post. Further my distribution of teas in one-ounce tins, is not confined to France and Switzerland but is extended to all parts of the globe.

If the sale of a few hundred thousand one-ounce tins produce such scepticism in your correspondent, I fear for the results when he hears that my last order for decorated tins (for delivery within twelve months) is,—150,000 half lb., 150,000 one lb.. 150,000 two lb. and 150 000 three lb. It might also interest him to know that I have placed an order for over a million two-ounce parchment tea bags printed in nine colours, and that my largest sale up to date is in lead packets. This statement can be confirmed by the General Manager of the Tea Planters, Ltd., Bale, who will be pleased to show the original contracts signed by me for the above tins and bags.—Yours faithfully.

R. VALENTINE WEBSTER,
Chairman. Tea Planters Ltd., Bale.

MARIAWATTE ESTATE.

	A.	R.	P.
Yield of old Tea ...	101	1	0

Year.	Made tea. lb.	Yield per acre lb.	Year.	Made tea. lb.	Yield per acre lb.
1884 ...	109 230	1,078	1894 ...	110,448	1,090
1885 ...	117,842	1,163	1895 ...	118,560	1,170
1886 ...	105,925	1 046	1696 ...	113,360	1,119
1887 ...	115.996	1,145	1897 ...	105 729	1,044
1888 ...	106.410	1,050	1898 ...	108,423	1,073
1889 ...	113,834	1,124	1899 ..	111,987	1.108
1890 ...	140,144	1,384	1900 ...	137,066	1,357
1891 ...	120,366	1,183	1901 ...	110,302	1,092
1892 ...	119.909	1,184	1902 ...	101,991	1,009
1893 ...	115,440	1,140			

	A.	R.	P.
Yield per acre (& Rainfall) for the whole estate	458	1	17

	Yield per acre lb.	Rain-fall: inches.		Yield per acre lb.	Rain-fall: inches.
1892 ...	643	95·74	1898 ...	738	79 90
1893 ...	817	86·22	1899 ...	749	106 81
1894 ...	750	72·00	1900 ...	996	114 63
1895 ...	886	100·28	1901 ...	792	84·38
1896 ...	896	115·41	1902 ...	898	128·31
1897 ...	926	111·25			

D. M. SALMOND, Superintendent.
Mariawatta Estate, Gampola, Jan. 1st.

COCONUTS AND COPRA.

Hanwella, Dec. 23.

DEAR SIR,—In reply to the "Inexperienced," on the above subject, and your remarks thereon, in your paper of the 18th inst., I think your estimate of nuts to a ton is too low, unless the nuts should be extra big in size. My experience here is that between 4,000 to 4,500 dried nuts go to a ton. A cart load of copra, is generally five candies; a cart load of unhusked nuts=500 and of nuts in the shell 1,000 to 1,200. Here is a sample of my copra cured in the estate. I generally get top price for my produce.

PLANTER

[The samples of copra sent are very good —both clean and white and well dried.—ED. *T.A.*]

PLANTAINS: DIFFERENT VARIETIES.

Hanwella, Dec 26.

DEAR SIR,—In answer to your question in *T. A*, *re* plantains. I may mention that I have a variety called 'Bimkehal' *alias* 'Neukehal.' Bim=ground, kehal=plantains=the plantains which grow close to the ground. Neu=ships, kehal=plantains=plantains of the ships. It is a dwarf variety, bearing bunches within 3½ to 4 feet off the ground. Last month there were two bunches of plantains of this kind, on my plantation, almost touching the ground, having 13 and 11 combs respectively, bearing 10 to 15 fruits in each comb. The variety is used both for culinary purposes and dessert.—Yours faithfully,

G. E. AMARASEKERA.

THE LAKE FLY NUISANCE.

[The following instructive letter has been addressed to our senior morning contemporary by Dr. Willey, F.R.S.]

Colombo Museum. Jan. 2.

DEAR SIR,—In your issue of December 31st there is a paragraph stating that the Sanitary Officers have commenced a campaign against the Lake Fly by prohibiting fishing in a portion of the Lake. In an interview with one of your representatives last May or June, shortly after my arrival in the Island, I suggested the desirability of ascertaining the natural enemy of the Lake Fly.

After a brief stay at Negombo last August, I began to think that the abundance of flies might be correlated with the paucity of fishes, due to overfishing of the Colombo Lake, and I mentioned this view freely in conversation.

Later still I came across a statement emanating from a well-known German fishery expert to the effect that the larva of *Chironomus* (the genus to which the Lake Fly belongs) is a favourite morsel with the carps. One of the commonest fishes of the Colombo Lake is a carp called *Barbus dorsalis*, and there are others with similar tastes.—Yours faithfully,

ARTHUR WILLEY.

THROUGH RANGALA AND MEDAMAHANUWARA; ALL ABOUT CARDAMOMS.

Jan. 2.

SIR,—A few notes of a trip through the less-frequented district lying to the east of Kandy and bordering on the great 'Never-Never' country of Ceylon, which extends from the foot of the Walapane ranges across Bintenna to the Coast near Batticaloa, may possibly prove of some interest to your readers. Owing to the absence of railway or other facilities it is as yet quite out of the beaten track; although the enterprise of the

RANGALA AND MEDAMAHANUWARA

planters, who, in spite of transport difficulties, carry on their industrial occupation and wage persevering warfare against the elements which here oppose their sterner and more unpropitious phases, is deserving of a larger share of recognition and encouragement than it appears to have yet met with from the 'powers-that-be.' My own recollection of the district goes back to very nearly forty years, and so far as the means of transport are concerned matters seem to be very much *in statu quo*. It would look as if the Ceylon Government, alarmed at the too rapid exploitation of places of interest all over the globe, had determined that here at least a sanctuary should be reserved where the ubiquitous globe-trotter should not penetrate, or if he did, that it should be only by means of the antiquated gharry-wallah and the exacting resthouse-keeper. It struck me, however, that in this corner of our 'undeveloped estate' a good deal might be done to bring its attractions to the notice of the tourist. A look through the visitors' book at the Teldeniya resthouse showed that a few travellers had come this way; and their remarks were indicative of pleasure and satisfaction. The expense of carriage-hire and the discomfort of a slow journey through the hot Dumbara Valley must, however, to a large extent, discount the pleasure received and it is not likely this route will be favoured until cheaper and easier means of access are available. The drive out to Teldeniya along the banks of the Mahaweliganga is picturesque and interesting; and the crossing the ferry at Gonawatte and drive through the Pallikelle and Rajawala

COCOA GROVES,

with peeps of the hill ranges in the distance, and then arrival at the pretty little resthouse with a good appetite for breakfast, and a chat with the worthy dame who attends to one's comfort and provides an excellent breakfast—all go to make things agreeable But this is but a stage on the journey. The ascent towards the hills now begins, and a real tug-of-war it is, both for man and beast.* The scenery, too, alters in character, and as one rises above the river valley, the hills become more rugged and abrupt. The road winds up through narrow gorges, and presently another village,—

URUGALLA

—is reached. It boasts of a Court-house and Police station and a few bazaars; but the general aspect of the place gives one the impression that it ought not to be there. Three miles up the road there is a gap in the range, and that is where one would naturally expect to find a small centre, and there ought to be a resthouse; as it is here that a really grand view is obtained of the country on both sides of the mountain range. Not far from here the Mahaweliganga bursts through the circumvallation of hills, which has hitherto confined its course and debouches into the flatter country through which it meanders to its outlet at Trincomalee. The hills rise so sharply on both sides as to form almost a perfect wall, and here and there their summits are broken into battlements andembrasures having all the appearance of Titanic fortifications. The rock-capped peak of

NUGATENNA

frowns imposingly across the gateway towards his fellow-sentinels, Hanguranketa and Madulsima, challenging the intruder, be he human power or mightier foe, battalion or storm. The road now divides and a branch goes off hugging the base of the scarped cliffs in the direction of the Nitre Cave district, while the other tends towards the park country of Bintenna, a favourite resort of sportsmen, being now made a little more accessible through the gradual extension of the cart-road. Some thriving villages here nestle among the villages and ravines; but the cultivation is limited, owing to the comparative dryness of the climate. At the time of our visit, however, all was green and smiling, giving occasion for surprise at the apparent sparseness of population; but this may be due partly to the want of better means of communication with the outer world. As a grazing district this would give the impression of having a future before it; as at certain seasons there is an abundant rainfall, which, by means of small tanks, might be conserved for the benefit of both human population and stock. Our visit, however, was chiefly to the region of

CARDAMOM CULTIVATION

and we were agreeably surprised and delighted to find such fine groves, gardens or plantations,—I don't know how they are usually denominated—flourishing luxuriantly, and bearing such crops as it was refreshing to one's eyesight to see. Around us were the relics of a bygone *régime* when King Coffee held sway and the ruins of old stores, pulping-houses and bungalows recalled to memory the names of many a friend and fellow-planter gone to join the majority; and a touch of sadness could not but steal over us and we felt like

"One who treads
Some banquet hall deserted,
When lights are low, and guests are fled,
And all but one departed."

Reverie is not out of place in a scene such as we have here; but the age is too busy for any such indulgence, and our motto is rather

"Let the dead past bury its dead
Work, work in the living present;
Heart within and God o'erhead."

So mote it be!

* We made the trip up and down in March, 1864.—ED. *T.A.*

Revenons à nos moutons—CARDAMOMS rather. This cultivation bids fair to regain some measure of former prosperity, and the prospect is cheering. The past year has been very favourable owing to an abundant rainfall, and the owners of cardamom fields are rejoicing; although the ever-present shadow of declining markets and lowered prices, like the spectre at the feast, takes the gilt off the ginger-bread. The cultivation of cardamoms has some attractions and, perhaps, fewer drawbacks than are incidental to the majority of tropical products. They are generally grown under the shade of the larger jungle trees from underneath which the smaller under-growth has been cleared, leaving all vegetable matter to form *humus* on the surface which is constantly renewed by the falling leaves; and this style of cultivation is *par excellence* the desideratum for a country like Ceylon, when the denudation of the soil results in wash and impoverishment from the action of torrential rains on steep hill-sides The upkeep of the fields is comparatively simple cost of weeding and pruning almost nominal, and the buildings required for curing the produce do not need to be of an elaborate or expensive construction, as hardly any machinery is necessary. The fruit is merely dried, bleached and sorted, when it is ready for packing into boxes of the same kind as tea-chests, but without the lead-lining. Like all fruit growers

THE CARDAMOM PLANTER

—is not without his enemies in the shape of squirrels, monkeys, as well as bipeds of a higher degree of intelligence, who are here afforded an opportunity of supplying the missing link between the 'spicy breezes' and that peculiar trait of the human race which the poet has characterised as 'vile.' Verily a Garden of Eden, but alas! the trail of the serpent is here too; although it is satisfactory to find that the missionary has penetrated into these wilds and planted his schools here and there wherever an opening can be got. More power to his elbow! Here, as elsewhere, he is in the fore-front of enterprise, seeking to reclaim a lost race from out of the wilderness of sin and ignorance, and planting the flag of peace and good will. It is an end worthy of attainment and it needs courage, perseverance and—cash!

Had time permitted a visit to some of these villages would have afforded us great pleasure and given material for a fuller description of the work being done, but we had to pass on. The spell of fine weather which had so far favoured us now came to an end and the curtain literally dropped upon the scene. Passing through the Nugatenna Gap we kept along the Eastern face of the range and climbed up through Kobonella in drenching rain and mist and were not sorry to find ourselves once more under shelter of the hospitable bungalow we were making for. The next morning was wet again and, our time being up, we made good our retreat, reluctantly postponing any further description of the country until another time.

PERIPATETIC.

BEE-KEEPING IN CEYLON: SEVERAL EXPERIMENTS.

Colombo, Jan. 5.

DEAR SIR,—With reference to your remarks on page 508, may I point out that there are a number of expeiments in improved bee-keeping, with frame hives, now in progress. The most notably successful of these is that of Mr. Charles Andree, of Kurunegala, who has regularly exhibited working hives at our Colombo Agri-Horticultural Shows, and fully explained the whole process of honey-making by practical demonstration. Similar hives are being kept at the stock garden (in the late School of Agriculture), by Messrs. F Beven, Veyangoda, D. C Jayawardene, Nanuoya, and others.—Yours truly,

BEEKEEPER.

[We are very pleased, indeed, to have the above information: we missed the last Agri-Horticultural Show through being up-country.—ED. *T.A.*]

GREEN TEAS IN CEYLON IN 1902.—The bonus table for December 16th-31st 1902 is somewhat late in appearing, owing, perhaps, to its large size and the intervention of the holidays. The sum of R19,440·30 paid during the fortnight is larger than for any similar period, we believe, since the green tea bonus began and indicates the activity with which manufacture of this safety-valve of the black tea industry is proceeding in Ceylon. A number of new estate names also appear in the list on page 38. It will be interesting to give a table of the twenty-four half-monthly totals of the past year, as follows:—

Date, 1902.			lb.	Rs.
January	15th	...	65,020	4 086.16
	31st	...	87,853	5,271·18
February	15th	...	63,474	3,600·89
	28th	...	75,650	4,160·72
March	15th	...	65,811	3,464·36
	31st	...	104,239	5,211·95
April	15th	...	155,427	7,771·35
	30th	...	128,710	6,435·50
May	15th	...	61,771	3,088 55
	31st	...	237,900	11,895·00
June	17th	..	183,872	9,193 60
	30th	..	184,664	9.233 20
July	15th	..	222,046	11,102·30
	31st	...	189 216	19,460·80
August	16th	..	114,282	5,714·10
	31st	...	153,353	7,667·65
September	15 h	..	139,000	6,950·00
	30th	...	231,785	11,589·25
October	15th	...	189,437	9,471·85
	31st	..	217,714	10,885·70
November	17th	..	200,193	10,009·65
	30th	..	193,097	9,654·85
December	15th	..	260,742	13.037·10
	31st	..	388,806	19,440·30
	Total	..	3,914,062	198,396·01

Though the figures for 1902 are not yet quite complete, we see that there is at least an increase of 2,324,072 lb. over the total for 1901. The special monthly table for 1902 we have prepared elsewhere, together with that for 1901, provide some interesting points of comparison.

BRITISH AND SIAMESE MALAYA.

At a meeting of the Royal Colonial Institute, held on Tuesday, Dec. 9, at the Whitehall Rooms, Hotel Metropole, Mr Hugh Clifford, C M G., read a paper on "British and Siamese Malaya," which was illustrated by lantern slides. Sir William Robinson was in the chair.

Mr Clifford said that the Malay Peninsula was a country with a strong individuality, but it continued inexplicably to attract only a very small measure of attention from Great Britain. After describing some of the chief characteristics of the country, he said that in 1895, the year immediately preceding the federation of the States, the joint revenue of the protectorate amounted to $8,334,677; and the returns for last year showed that the total had reached $17,541,507 (nearly £1,500,000 sterling), which was more than double the joint revenue of the States six years ago. As to the sources of the revenue, he remarked that the main wealth of the peninsula had hitherto been in its vast alluvial tin fields, from which nearly 47,000 tons, valued at £5,240,000 were exported during 1901. Upon that the Government levied a duty. Another source of revenue was the farms, let by public tender, for the collection of import duties on opium and spirits. The taxes to which he had referred might roughly be stated to fall almost wholly upon the foreign—that was, practically, the Chinese—portion of the community. Railways, too, were a source of revenue, and had been and were being constructed by the Government out of surplus revenue, without any recourse being had to loans. This fact would perhaps show the extraordinary wealth of the country and the successful results which had attended its administration under the protection of Great Britain. At the beginning of this year the assets exceeded the liabilities by over $5,000,000, and the actual cost of administration, as represented by the cost of the Government civil establishment, amounted to only 17 63 per cent of the revenue. This demonstrated how economical was the system of government which had been introduced and how successful the temptation to extravagance had been resisted in the case of this British protectorate. An examination of the Blue-book relating to the Federated Malay States showed that the Malay population had increased during the decade ended 1901 by 35 per cent. But while the population increased it was found that their own land now yielded the people all the support they needed, and they were enjoying a complete individual liberty. It must be confessed that in a land such as the Federated States, where every enterprise was chiefly hampered by a lack of sufficient labour, the temptation to adopt the Dutch system was very great. The sight of the entire native population loafing away its days, and giving to its fields a *minimum* of grudging labour, was an outrage to the economist; for there was a vast quantity of potential energy suffered to go to waste. Whatever the feelings of the Asiatic populations might be elsewhere, in the Malay States it was certain that if a *plebiscite* were taken today it would return an overwhelming majority in favour of our rule as against the ancient *régime*. As matters stood at the present time, the most urgent and crying need of the Federated Malay States was a sufficient supply of labour. So far, the stream of Chinese immigration had flowed with hardly an interruption, but as a set off against it the counter-stream of Chinamen returning to their homes must be borne in mind, and it was not in the power of the British Government to control the emigration. It would appear that Malaya was specially created to serve as a receptacle for the overflow of the natives of India—a natural refuge for a population which annually counted the number of those on famine relief by the hundred thousand. The efforts in this direction had proved wofully disappointing, and the Government of India evinced no great desire to utilise the means of relief which the Malay States offered. After referring to Pahang, the most recently acquired and the least prosperous of the States, he briefly alluded to the portion of the peninsula which lay beyond the limits of the British Protectorate, and, in conclusion, said that, if the Siamese administration of the Malay States was to be saved from failure, they must secure the aid of a Civil service such as had been at the disposal of the British Government in Malaya during the past 30 years. (Hear, hear.)

A discussion followed and the proceedings closed.—London *Times*, Dec. 11.

VANILLA.

A consignment of about 300 kilos of vanilla cultivated in German East Africa, arrived in Hamburg a short time ago. The beans are said to be of the fine dark chocolate colour, and are commencing to crystallise. They are of various lengths, and are reported to compare favourably with the best Bourbon quality.—*Chemist and Druggist*, Dec. 13.

THE SHORTAGE IN GUTTA PERCHA.

If anybody doubted it, the recent enormous rises in the price of crude gutta-percha make it perfectly obvious that, taking it all round, the supply is not equal to the demand. Of course, the rise in crude gutta from about 5s 5d per lb to 9s per lb is very largely due to the new cable projects, but, as the tendency is for more cables in every direction, this rise promises to maintain itself for a long time to come, and it is, moreover, very definite proof of the fact that the production of gutta is extremely limited, and does not seem to be capable of extension in the near future. If additional proof for this contention were wanted it could easily be found in the fact that for several years there has been a marked and increasing deterioration in the quality of the gutta shipped. All this leaves no doubt that the present is an excellent time for a substitute like Gentzsch's New Gutta percha to assert and demonstrate its merits.—*India-Rubber Journal*, Dec. 8.

ZANZIBAR.—In 1901, Zanzibar exported £25,130 worth of rubber, against £25 286 in 1900. Of this, Germany received £7,828 more than in the previous year,

FRENCH GUINEA.—The import and export of this colony show a decided decline during 1901. This is chiefly caused by the rubber trade crisis, the chief product which the country exports. The export of raw rubber decreased from 7,580,120 francs in 1901. As the natives had not taken notice of the warning of the Government not to forget the culture of other products over rubber, they were unable, at the general fall in prices, to make their usual purchases, which caused the big fall in imports.—*India Rubber Journal*, Dec. 8.

CEYLON GREEN TEA IN 1901-2.

THE MONTHLY OUTTURNS.

(Specially compiled.)

	1902. lb.	1901. lb.
January	142,873	252,582
February	139,124	116,592
March	170,050	105,644
April	284,137	70,614
May	299,671	24,438
June	368,536	108,017
July	411,262	163,967
August	267,635	177,079
September	370,785	112,244
October	407,151	205,137
November	393,290	117,275
December	649,548	136,411
Total	3,914,062	1,589,990
	Increase	2,324,072

TEA IN PERSIA AND BEYOND.

The British Consul at Meshed, in a report of the trade of Khorassan, states that the taste for tea is strongly developed. It is mainly of the Indian product. The value of the tea imported by the Bundar Abbas, Bushire and Seistan routes was £50,267, but a considerable proportion of the tea brought by the two former routes is said to have been China tea for exportation to Trans-Caspia and Turkestan.—*L and C Express*, Dec 19.

APICULTURE.—A correspondent asks how it is that "beekeeping" is not more attended to by the natives of Ceylon? We can only reply that the natives are content to profit by gathering wild honey when such is available in a good flowering season; but that (with the solitary exception of the late Mudaliyar Jayatilake of Kurunegala) we have never know any local bee-keepers, and yet Ceylon has two indigenous bees good honey makers one, a large bee, common in the forests of the interior; and the other a bee not larger than a house fly, found chiefly in the maritime districts We had this fact brought before us first by an American visitor, Mr. Frank Benton, Professor of Apiculture in Michigan University. While visiting Cyprus, he got a commission from the Dutch Government to convey a colony of Cyprian bees to Java, which he accomplished successfully. Calling at Galle on his way back, he had some curious adventures (in getting the fly-bee) before coming to Colombo in search of the large forest-bee. We sent him to the Kurunegala Mudaliyar who gave him guides to the jungle where he got plenty of the bees to take home, but also a severe dose of malarial fever. Mr Benton wrote freely in *Observer* and *Tropical Agriculturist* at the time. He successfully conveyed the Ceylon bees to America; but we fear they died out after some time. The latest news of our friend was that he had been transferred to the headquarters of the Agricultural Department at Washington.—Meantime an experiment in "bee-keeping" after the most approved pattern should be begun at Gangaruwa Experimental Station.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Dec. 22nd, 1902.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·20
Do. dull medium do. R0·90
Special assortment, 0 and 1 only do R1·40
Seeds do. R1·00

CINCHONA BARK:—
Per unit of Sulphate of Quinine 6c—1½ to 3 per cent.

CINNAMON:—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 49c. }
Nos. 1 and 2 only per lb. 56c. } All fine sorts
Nos. 3 and 4 only per lb. 41½c. } are scarce.

CINNAMON CHIPS:—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R60·00

COCOA:—
Finest estate red unpicked per cwt R50·00
Medium do do do R40·00
Bright native unpicked and undried R35·00
Ordinary do do do R25·00

COCONUTS—(husked)
Selected per thousand R55·00
Ordinary ,, R44·00
Smalls ,, R37·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 18c.

COCONUT OIL—
Dealers' Oil per cwt R16·00.
Coconut Oil in ordinary packages f. o. b. per ton R355·00.—Business at both rates.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—R62·00.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—54c.

COPRA—
Boat Copra per candy of 560 lb. R51·00
Calpentyn Copra do do R52·50
Cart do do do R46·00
Estate do do do R52·00

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot R70·00 to 145·00—Sale of 1st Dec. 1902
Inferior R35·00 to R100.00. —Sale of 1st Dec. 1902.

FIBRES—

Coconut Bristle	No	1	per cwt	None
Do	,,	2		None
Do mattress	,,	1		None
Do	,,	2		None
Coir Yarn, Kogalla	,,	1 to 8		R16·00 Firm.
Do Colombo	,,	1 to 8		R11·00
Kitool all sizes				None
Palmyrah				None

PEPPER—Black per lb None

PLUMBAGO—

Large lumps	per ton	R600	Fine qualities scarce.
Ordinary lumps	do	R600	
Chips	do	R350	
Dust	do	R250	
Do (Flying)	do	R125	

SAPANWOOD— per ton R45.—Nominal.

SATINWOOD (ordinary) per cubic ft. R4·60 Sale of 1st
Do (Flowered) per cubic ft. R10·50 Dec. 1902.

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	52	42	40
Orange Pekoe do	45	37	35
Pekoe do	38	35	31
Pekoe Souchong do	34	29	28
Pekoe Fannings do	33	28	27
Broken mixed—dust, &c	27	27	26

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Agra Ouvah Estates Co., Ltd.	500	—	—	950
Ceylon Tea and Coconut Estates	500	..	—	—
Castlereagh Tea Co., Ltd.	100	95	100	95
Ceylon Provincial Estates Co. Ltd.	500	510	—	—
Clarendont Estates Co., Ltd.	100	—	—	—
Clunes Tea Co., Ltd.	100	65	..	—
Clyde Estates Co., Ltd.	100	...	50	...
Doomoo Tea Co., of Ceylon Ltd.	100	..	—	...
Drayton Estate Co., Ltd.	100	—	..	—
Eila Tea Co., of Ceylon, Ltd.	100	..	40	—
Estates Co of Uva, Ltd.	275	—	—	..
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	1100	..	..
Great Western Tea Co., Ltd.	500	—	—	..
Hapugahalande Tea Estate Co.	200	125	150	—
High Forests Estates Co., Ltd	500	525	—	—
Do part paid	400	—	...	...
Horrekelley Estates Co Ltd	100	110	...	110
Kalutara Co., Ltd.,	500	..	200	..
Kandyan Hills Co., Ltd	100	—	..	—
Kanapediwatte Ltd.	100	60	...	—
Kelani Tea Garden Co., Ltd.	100	..	32½	—
Kirklees Estate Co., Ltd.	100	110	—	—
Knavesmire Estates Co., Ltd.	100	..	55	...
Maha Uva Estates Co., Ltd.	500		—	800
Mocha Tea Co., of Ceylon, Ltd.	500	800	..	...
Nahavilla Estate Co., Ltd.	500	250	300	—
Nebeda Tea Co., Ltd.	500	—	...	—
Palmerston Tea Co., Ltd.	500	...	400	—
Penrhos Estates Co , Ltd.	100	75	—	..
Pitakanda Tea Company	500	—	...	—
Pine Hill Estate Co., Ltd.	60	—	—	—
Pundaluoya Tea Co., Ltd.	100	...	..	—
Ratwatte Cocoa Co., Ltd.	500	.	...	—
Rayigam Tea Co., Ltd.	100	—	50	50
Roeberry Tea Co., Ltd	100	90	—	—
Ruanwella Tea Co., Ltd	100	...	35	—
St. Heliers Tea Co., Ltd,	500	...	—	—
Talgaswela Tea Co., Ltd.	100	20	...	—
Do per cent Prefs.	100	—	—	—
Tonacombe Estate Co., Ltd,	500	...	—	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estates Co., Ltd.	500	550	—	—
Uvakellie Tea Co. of Ceylon, Ltd	100	—	80	80
Vogan Tea Co., Ltd.,	100	..	55	55
Wanarajah Tea Co., Ltd.	500	...	800	800
Yataderiya Tea Co., Ltd.	100	...	375	350

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	...	80	...
Bristol Hotel Co., Ltd.	100	..	100	—
Do 7 per cent Debts	100	107	...	..
Ceylon Gen. Steam Navigation. Co., Ltd	100	—	225	225
Ceylon Ice & Cold Storage Co. Ltd.	00	—	—	110
Ceylon Superæration Ltd.	100	—	—	—
Colombo Apothecaries' Co. Ltd.	100	—	150	147½
Colombo Assembly Rooms Co., Ltd.	20	15	..	15
Do prefs.	20	...	..	..
Colombo Fort Land and Building Co., Ltd.	100	87½	90	—
Colombo Hotels Company	100	295	.	295
Galle Face Hotel Co., Ltd.	100	—	195	194½
Kandy Hotels Co , Ltd.	100	..	..	—
Kaluganga Nav. Co. Ltd.	70	...	—	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	—
New Colombo Ice Co., Ltd.	100	60	70	60
Nuwara Eliya Hotels Co., Ltd.	30	..	27½	—
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	7½	10	—

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	..	6—7	6½
Anglo-Ceylon General Estates Co	100	...	52 57	—
Associated Estates Co., of Ceylon	10	..	1½—2½	..
Do. 6 per cent prefs	10	..	3—/	...
Ceylon Proprietary Co.	1	.	3- 6	..
Ceylon Tea Plantation Co., Ltd.	10	..	22½ 23½	...
Dimbula Valley Co. Ltd	5	..	5—6½	—
Do prefs	5	—	5—6	...
Eastern Produce & Estate Co. Ltd.	5	...	3½—3¾	—
Ederapolla Tea Co., Ltd	10	...	5—8	...
Imperial Tea Estates Co., Ltd.	10	...	3¼ 4½	
Kelani Valley Tea Assen., Ltd.	5	...	3—5	—
Kintyre Estates Co., Ltd.	10	...	4—5	—
Lanka Plantations Co., Ltd	10	..	3-4	—
Nahalma Estates Co.,Ltd.	1	...	nom	..
New Dimbula Co., Ltd.	1	...	2¾—3	..
Nuwara Eliya Tea Estate Co., Ld.	10	—	10	
Ouvah Coffee Co., Ltd.	10	..	6½—7½	—
Ragalla Tea Estates Co., Ltd.	10	.	9-11	—
Scottish Ceylon Tea Co.,Ltd.	10	.	10-12	—
Spring Valley Tea Co., Ltd.	10	...	2—5	—
Standard Tea Co., Ltd.	6	..	9¾—10¼	..
The Shell Transport and Trading Company, Ltd. •	1	...	2⅞—3⅛	—
Ukuwella Estates Co., Ltd.	25	—	par	...
Yatiyantota Ceylon Tea Co., Ltd.	10	—	3½—4½	..
Do. pref. 6 o/o	10		8—9	...

BY ORDER OF THE COMMITTEE.

Colombo, Jan 9th, 1903.

• Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor General*

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	2·46	3·53*
February ..	1·98	2·78	0·63	3·55	4·67	2 02	
March ..	4·21	0·88	3·71	5·12	6·85	4·52	
April ..	22·81	6·66	15·12	8·71	10·01	11·30	
May ..	5·80	17·73	10·63	6·28	11·89	11·86	
June ..	10·94	9·23	7·83	5·93	9·84	8·32	
July ..	6·15	1·11	6·77	4·52	4 63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·15	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9 25	19·84	20·10	13·00	
December ..	3·05	4·44	5·20	1·70	6·43	6·56	
Total..	103·11	73·48	83·68	76·86	118·70	88·76	

* From 1st to 6th Jan 3·53 inches, that is up to 9-30 a.m. on the 7th Jan.—ED *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for	Dec.	1902—9½ to 10 mill. lb.
Total Shipments	Do	1902— 9,000,000 lb.
Do Do	Do	1901—12,235,867 lb.
Do Do	Do	1900—11,241,918 lb.

[ESTIMATE for Jan. 1903—9½ to 10 million lb.]

SIERRA LEONE.—The raw rubber export of Sierra Leone has fallen considerably in 1901. In 1899, it amounted to 545,385 lb, in 1900 to 274,616 lb, and in 1901 131,655 lb only. By the irrational method of the natives in tapping the trees many of them have perished, which, together with the keen competition of the neighbouring French Colony of Guinea, would, no doubt, account for the decline. The French product is considerably better,

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 3rd December, 1902.)

	QUALITY.	QUOTATIONS
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay } White ,,	Dingy to Fair	£5 a £6 12s 6d
Yellow ,,	Fair ,,	£6 a £6 7s 6d
Madagascar ,,	Dark to good palish	£6 5s a £6 17s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	16 s a 17Es
Japan ,,	Fair average quality	16' s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	s 9d a 2s
	Middling, stalky & lean	1s a 1s 7d
Ceylon.—Mysore ,,	Fair to fine plump ..	1s a 3s 6d
	Seeds .	s d a 1s 7d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish .	1s 8d a 1s 6d
,, Long ,,	Shelly to good .	9d a 2s
,, Mangalore ,,	Med brown to good bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2¼d a ½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 4 s
CINCHONA BARK.—lb.	Ledgeriana Orig. Stem	d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	2½d a ½d
	Red Org. Stem	½d a 4½d
	Renewed	3d a 5¾d
	Root	¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	8½d a 1s 6d
per lb. 2nds	,, ,,	d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba }	Good and fine bright	4⅜d a 4½d
	Common dull to fair	4 a 4 5-16d
Stems ..	Fair	2d
COFFEE—		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 118s
	Middling to fine mid .	80s a 105s 6d
	Smalls	55s a 6 s
Native	Good ordinary	40s a 5 s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	6 s a 88s
	Medium and fair	58s a 64s
	Native	s a 60s
COLOMBO ROOT ,,	Middling to good	13s a 2 s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, .. very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	1 s a 25s
CUTCH ,, ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	40s a 60s
Cochin Rough ,,	Common to fine bold	36s a 40s
	Small and D's	32s a 35s 6d
Japan ,,	Unsplit	33s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £16
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	£70 a £8 15s
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ..	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 37s 6d
Turkey sorts ,,		27s 6d a 2s 6d
Ghatti ,,	Pickings to fine pale ...	10s a 2 s
Kurrachee ,,	Good and fine pale ..	2 s 6d a 30s
	Reddish to pale selected	0s a 25s
Madras ,,	Dark to fine pale ..	18s a 25s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 37s d
KINO ,,	Fair to fine bright	4½d a 7d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	50s a 75s
OLIBANUM, drop ,,	Good to fine white	4 s a 47s 6d
	Middling to fair	28s a 42s
pickings ,,	Low to good pale	18s a 20s
siftings ,,	Slightly foul to fine	18s a 28s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 3d a 4s
Assam	Good to fine	2s a 2s 4d
	Common to foul & mxd.	7d a 1s 6d
Rangoon	Fair to good clean ...	2s a 2s 4d
Borneo	Common to fine	6d a 2s 2d

	QUALITY.	QUOTATIONS
INDIARUBBER *(Contd.)*		
Java, Sing. & Penang lb.	Foul to good clean ..	8d a 2s 3d
Mozambique ,,	Good to fine Ball ..	2s 6d a s 9d
	Ordinary to fair Ball ..	1s 10d a 2s 2d
	Low sandy Ball	9d a 1s 6d
	Sausage, fair to good ..	1s 10d a 2s 10d
	Liver and Livery Ball .	1s 9d a 2s 3¼d
Nyassaland	Fair to fine ball	2s 3d a 2s 8d
Madagascar	Fair to fine pinky & white	2s a 2s d
	Fair to good black ..	1s 1d a s 1½d
	Niggers, low to fine ..	7d a 1s 9d
INDIGO, E.I	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 8d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s
	Ordinary to fair	1s 4d a 1s 11d
	Pickings	1s 3d a 1s 4d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s d a 4s 6d
Bombay ,,	Jubblepore	4s 6 a 6s
	Bhimlies	4s a 7s
	Rhajpore &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	2s d
Bombay & Penang ,,	110's to 65's	1s d a 2s 5½d
	160's to 1'5's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	4s a 17s
NUX VOMICA, Bombay	Ordinary to middling	5s 6d a 6s
per cwt. Madras	Fair to good bold fresh	s a 10s
	Small ordinary and fair	s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 9d a 4s 10½d
CASSIA ,,	According to analysis	3s 3d a 3s 9d
LEMONGRASS ,,	Good flavour & colour	5d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 1d
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody	0s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ..	6d a 6¼d
Singapore	Fair	6d
Acheen & W. C. Penang	Dull to fine ...	5½d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	2 s a 28s
chips	Dull to fine bright ..	9s a 15s
dust ..	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£16 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	117s 6d a 120s
SENNA, Tinnevelly lb.	Good to fine bold green	5⅝d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt,	Bold and A's	
	D's and B's }	48s a 130s
	Small ...	
Mergui ,,	Small to bold ..	£7 15s a £10
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	18s a 24s
TURMERIC, Bengal cwt.	Fair ...	14s a 16s
Madras ,,	Finger fair to fine bold bright	1 s a 14s
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger .	10s a 12s
	Bulbs ..	9s a 9 6d
VANILLOES— lb.		
Mauritius ... } 1sts	Gd. crysallized 3½ a 8½ in	7s 6d a 28s 6d
Bourbon ... } 2nds	Foxy & reddish 3½ a 8 ,,	6s a 18s
Seychelles 3rds	Lean and inferior ...	4s 3d a 8s
VERMILION lb.	Fine, pure, bright ...	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	56s a 59s

The TROPICAL AGRICULTURIST MONTHLY.

XXII. COLOMBO, FEBRUARY 2ND, 1902. No. 8.

REPORT ON HEVEA BRASILIENSIS IN THE MALAY PENINSULA.

By Stanley Arden,

Superintendent, Experimental Plantations, Federated Malay States, 1902.

HEVEA BRASILIENSIS.

SHORT HISTORY.

H*EVEA BRASILIENSIS*, the tree furnishing the Para rubber of oommerce, is a native of Tropical America and was introduced into the British possessions in the East, at considerable cost and trouble, by the Indian Government in 1876 through the instrumentality of Kew. According to the Ksw Report for that year a Mr. Wickham was commissoned to colleot seeds at the rate of £10 per 1,000. "He succeeded in obtaining 70,000 in the Siringals of the Rio Sapajos which he packed with the greatest care and with a full knowledge of their evanescent vitality; and coming straight home with them arrived at Kew on 14th June, 1876. Although sown on the following day, of these only 3¾ per cent germinated." At Sir Joseph Hooker's suggestion, it was arranged that the seedlings should be sent to Ceylon, to be cultivated and propagated for subsequent distribution to the hot and moist districts of the Indian Empire, and the late Dr. Trimen (then Director of the Peradeniya Gardens reports, that thirtyeight Wardian cases, containing 1,919 plants, despatched from Kew on August 12th, were received at Peradeniya in very good order.

In the same year (1876) plants of Para rubber were forwarded direct from Kew to Singapore, and the following year, Mr. Murton reported that "our climate is evidently suited for the growth of Hevea, judging by the progress the plants sent last year have made." It was introduced into Perak about the same time by Sir Hugh Low, but whether he obtained his plants from Singapore or Ceylon I have been unable to find out. That they were some of the original lot there is little doubt, for in 1879 he reports that "the Heveas are now 12 to 14 feet high. They take to the country immensely," and in 1883 he reports "the trees are now six years old."

In the year 1887 some seeds were obtained from these trees and planted in the Museum Grounds at Taiping; others were sown at Kummuning Estate (Perak) and a few years later at S'tiawau (Perak).

There seems to have been very little interest taken in the product, however, by planters, presumably on account of the high prices ruling for coffee about this time, and with the exception of the trees cited above, there are very few trees in the Native States over four years old. But with a decline in the price of coffee, planters began to look for other cultivations and during the season 1896—1897 the planting of rubber was taken up seriously. Since then its cultivation has received great attention and there are at the present time, in the Malay Peninsula alone, at least 12,000 acres planted with Hevea, representing about 1,500,000 trees, presnmably the whole being the progeny of the trees originally introduced by the Government of India.

Of the many trees yielding commercial India-rubber the various species of Hevea are the most important, furnishing about one-third of the world's supply or 45,000,000 pounds of rubber annually, and always obtaining a market value in excess of that of all other commercial rubbers. To a certain extent this is no doubt due to the fact that Para rubber reaches the market in a purer and drier condition than most rubbers; the method of coagulation in vogue in Brazil not lending itself to adulteration to the same extent as is practised by collectors in other parts of the tropics.

CULTIVATION.

Conditions of Growth.—Although a native of the tropics of the New World, *Hevea brasiliensis* is admirably suited to the conditions obtaining in the Malay Peninsula and adjoining islands and its cultivation

here is a comparatively easy matter. From reports to hand it would appear that this tree naturally affects swampy places; but here it thrives in any locality—at low elevations, and on almost any kind of soil. Swampy districts or places that are periodically inundated are not essential to success and fine specimens are to be seen growing in what would generally be supposed to be the most undesirable spots. A good tree for instance is growing in the Penang Botanic Gardens on a dry stony bank "*not at all the place I should choose," and althongh probably mnch smaller than if grown under better conditions, this tree has given an average annual yield of over 2½ pounds of rubber from the eleventh to the fifteenth year of its existence.

Other good specimens, 11 years old, 70-75 feet high with a mean girth of about 4½ feet at 3 feet from the base, are to be found in Perak, growing on disused mining land which is about as devoid of plant food as it is possible to find. If the reports concerning the conditions under which this tree grows in a wild state are correct, it is somewhat strange that it should flourish here under such different root conditions, for the only trees I have seen in the Peninsula which conld hardly be said to be thriving were those which were planted in a swamp. I find the same fact is reported from Zanzibar, where the Director of Agriculture states that "although planted in typical rice swamps they are nearly all dead.' This at any rate goes to strengthen the theory that plants do not *always* occur naturally, under those conditions to which they are best adapted, although as a general rule it is as well in the cultivation of plants to imitate as far as possible the conditions which the plant is known to affect.

There are many instances of plants succeeding much better in the country of their adoption, and the orange may be cited as an example: this plant althongh indigenous to eastern Asia succeeds nowhere so well as it does in Southern Europe and California. Some writers have advocated the cultivation of Heveas on partly cleared land or in lines cut through the jungle; and others to plant it very closely on the assumption that being a jungle plant it would require plenty of shade. But this I venture to think is a mistake, for we are informed that in the forests of Brazil it towers above all other vegetation, thus indicating, that so far from being a shade loving plant it enjoys plenty of light.

Nothing could succeed better than this troe does in the Federated Malay States, planted on newly cleared, well drained land; and although it is often stated that partial shade, swampy places and other conditions are essential to success, given a climate with a uniform temperature of about 90° F., and a large rainfall equally distributed throughout the year, the conditions laid down above are eminently suitable. So far as I can judge it does not appear that the natnre of the soil affects either the quantity or the quality of the latex (milk) but in any case it is advisable to plant on a fairly rich soil, a loamy soil for preference, as under such circumstances the tree would grow qnicker and stronger, and probably give a return at a younger age than if grown on land deficient in the necessary constituents of plant life. The rate of growth is very rapid, and I have measured trees grown under the conditions recommended, which were 2 feet 6 inches in girth at a yard from the base, and approximately 30 feet high though only 4 years old; although this must not be taken as an average size. The mean girth of an acre containing 161 trees, 3½ years old, was 17·51 inches, and that of an acre of 4 year old trees 22·45 inches, while 10 year old trees, growing on a very sandy soil at S'tiawan, Perak, were approximately 65 to 75 feet high, having an average circumference of about 4 feet 6 inches taken at 3 feet from the ground, the largest being 5 feet 5 inches.

* C. Curtis, F.L.S., Annual Report, 1900.

Germination of the seed.—The usual method adopted when planting Hevea is to germinate the seeds in nurseries, where they remain until they are about 5 to 6 feet high, when they are cut down to within 6 inches or a foot of the ground; the stumps being then planted in the open, in holes previously cut and filled with surface soil, without any shade, and needing very little care beyond keeping the ground free from weeds for the first 3 or 4 years. This method, although retarding the growth for a short time, is perhaps advisable, especially on land which has previously been used for other cultivations, as a precaution against the attacks of vermin, which would greedily devour the seeds were they planted "at stake"; though on land from which the jungle has recently been burned off, the advantages do not appear to be quite so great.

Another very successful method is to germinate the seeds in small baskets—similar to the small strawberry baskets so familiar on the home markets and which could be made by coolies on the estate at a very cheap rate, or in bamboo pots—the hollow bamboo cut into lengths of about a foot. These should be nearly filled with soil and one seed placed in the centre of each, about 1½ inches deep, and the baskets or bamboo stood out in blocks, as near as possiblo to the place in which it is intended to plant them. When the gronnd is ready they can be put out into holes, without being removed from the basket, which will soon rot and the plants will thus avoid any check whatever. If bamboo pots are used, they shonld be split down each side, and the pieces can then be drawn out after the plant has been placed in the hole and surrounded with soil. This method is recommended when planting must be done in dry seasons, and although a little more expensive at first, will, I consider, repay the extra attention bestowed on the seedlings by avoiding the check which must necessarily ensue, when the system of planting from stumps is followed.

The watering of the seed in the nursery beds is a matter requiring careful attention. Before sowing, the soil should be thoroughly moistened, and if the surface becomes hard it must be stirred up again before watering, otherwise the water will not soak into it. The aim of the cultivator, however, shonld be to avoid the necessity of watering, by shading the beds fairly heavily, but if it becomes necessary it should be done *thoroughly* not *frequently*. The effect of 'sprinkling the seeds' when the soil has become dry, is disastrous, as it simply attracts the young growing tips of the roots towards the surface, there to be shrivelled up immediately the surface becomes dry again.

The chief difficulty in planting the seed "at stake," *i.e.*, in the position it is to permanently occupy, is that as it retains its vitality for so short a period, planting can only take place at definite intervals, for it is essential that the seed be sown within a week from the time it arrives at maturity. Nevertheless, I am of opinion that when possible this practice has points which recommend it to the consideration of those concerned. I refer more especially to the method invariably adopted by planters, of cutting away the tap-root when transplanting stumps from the nurseries. Now it should be remembered that in addition to it being an organ for the absorption of food, one of the functions of the root is to act as an organ of support, so that to cut away the tap-root is to deprive the plant of its main support.

Moreover, I consider it very probable that white ants effect an entry into the heart of the tree by means of the root so injured. I have examined scores of trees that have fallen over, due to the ravages of these insects, and the fact that at the time of falling, these trees were, almost without exception, to all appearances in a robust state of health, shews that the cambium layer was not affected, or at least only to a very small extent, while on examination the trunk of the tree was found to be completely riddled. I very much doubt whether these ants could enter into the heart of the tree protected as it is by the laticiferous

tissue (unless in very young trees where the tissue is only slightly developed) except by means of a wound previously made.

Some trees tapped somewhat severely about a year ago, and whose wounds are not yet healed over have been noticed. At the time of tapping, they were quite free from ants, but now are very badly attacked. In this case the wounds are 6 feet from the ground, and the ants after constructing earthworks up to the wounds, have entered the tree at a point where they have not encountered any laticiferous tissue. On other trees they will construct earthworks up to a height of 30 or 40 feet, sometimes more, in order to enter the tree at a point where the snapping off of a branch or a crack caused by the wind affords them a place of least resistance.

There is also the fungus to be taken into consideration; recently determined by Mr. Massee of Kew, as a species of *Helicobasidium*, 'a root parasite, nearly allied to *H. nompa* . . . very destructive to the mulberry tree in Japan': and it is probable that the injured root proves an acceptable host to this fungus, which exists on the living tissue. There has been some discussion as to whether the loss of trees is attributable to this fungus or to the ravages of the white ants, or to both, but in the large majority of trees I have examined neither one nor the other could be said to have *killed* the tree. Had the trees been *killed* by the fungus there would doubtless have been some indication of its presence some time previous to the tree falling over; but, as already stated, at the time of falling the tree generally appeared to be in a robust condition, and I incline to the belief that the fungus had prepared the way for the ants, which by eating away the heart of the trunk had caused the tree to fall simply for want of support.

Distancing.—A great difference of opinion exists on this subject, and at the present time this tree is being planted at distances varying from 10' x 10' (435 to the acre) to 36' x 36' or 33 trees per acre. Close planting is sometimes recommended as a means of obtaining a long straight trunk—a large tapping surface ' but if it results in a diminished girth, I venture to think it a mistake, for, as will be seen later, the lower part of the trunk yields the largest proportion of latex. In order to procure a good stout trunk, over-crowding must be avoided, and the tree allowed plenty of light and air, so that it may produce a maximum amount of foliage, for a well developed crown invariably results in a good strong trunk. Again, if the latex acts as a reserve material, as it sometimes supposed, upon which the tree can rely in 'hard times'' we might imagine that the laticiferous tissue, *i.e.*, the latex producing tissue, would be most fully developed in those trees with the largest crowns for the following reason. In dry weather, evaporation by means of the foliage take place at an enormous rate, and the greater the amount of foliage the greater the evaporation which occurs and consequently the greater the necessity of a large food reserve, and it is reasonable to presume that the laticiferous tissue will be developed in accordance with the requirements of the individual tree. I have noticed repeatedly that trees growing on the edge of a plantation, or in more or less isolated spots and consequently able to obtain a maximum amount of light and air have given by far the best returns.

There does not appear to be any necessity to plant closely, even to ensure a tall tree, for Hevea seldom branches during the first two or three years of its existence, during which time it runs up forming a whip-like stem 20 to 30 feet high. To give some idea of the space required to allow this tree to develop itself, I may say that I have measured trees planted 36' x 36' which were touching each other at the tops and producing a dense canopy, nine years from the time of planting. Assuming that the roots cover the same area as the crown of the tree, which may be taken as a fact, it will be easy to imagine what a struggle for existence must ensue when trees are planted to 10' x 10'. It may however, be found, that although the individual tree yields a smaller quantity of latex when close planting is followed, that the loss will be compensated for by having a large number of trees to the acre. This, however, remains to be proved. There is the undoubted advantage that the cost of weeding will be reduced by planting closely, while on the other hand it will necessitate a deal of extra labour when tapping operations commence. However, taking all things into consideration, I am of opinion that in a country where land and labour is cheap, close planting is false economy.

INSECT PESTS AND FUNGOID DISEASES.

Of insect pests by far the most troublesome and destructive is the 'white ant,' *Termes gestroi*, previously referred to. With a view to exterminating this pest almost everything conceivable likely to prove beneficial has been tried, including lime, tar, arsenic, sulphate of copper, Jeye's fluid, etc., but up to the present nothing has been found which keeps the trees free for any length of time. Gondal fluid has recently been reported from India as an effectual remedy, but so far as I am aware has not yet been tried in this country: it is intended to experiment in this direction.

The only means of protecting the trees at present seems to be by constantly harassing the ants by destroying their earthworks which they built on the trunk, but although by this means the trunk of the tree is protected, the ants are still at liberty to attack the roots, which they often do, and thereby cause the death of the tree.

A species of weevil, nearly allied to, if not identical with *Astychus laterails*, has recently been discovered eating the foliage of Hevea, the life history of which is given by Mr. Wray.* In the beetle stage it feeds on the young foliage and when abundant is very destructive. The only remedy is systematic hand-picking, which may be readily accomplished, as on the least agitation of the branch on which the insect is feeding, the insect falls to the ground and shams death, and may be collected and destroyed. So far this insect has only been noticed on one estate and as it breeds but slowly, should be easily kept in hand if a smart look-out is kept from the time of its first appearance.

Fungoid diseases are, so far as I know, restricted to the species previously mentioned. Whenever this fungus is observed precautions should at once be taken to prevent it from spreading, for it will probably be useless to try and save the tree when once infected. An effectual preventative is to dig a trench all round the tree at a distance of 8 to 10 feet from the trunk and about 2 feet deep, taking care to throw all the soil removed from the trench towards the centre of the circle thus to throw all the soil removed from the trench towards the centre of the circle thus formed. A liberal dressing of lime or sulphate of copper should then be thrown into the trench and over the soil excavated; this will arrest the growth of the mycelium. The dead tree should not be allowed to lie on the ground, but chopped up and burnt.

When a tree has been tapped I would strongly advise that a coating of tar be applied to the exposed wood, to the exclusion of rain which might lodge in wounds and lead to decay, and as a protection against the growth of fungi, which are always difficult to eradicate when once established, and in some cases are exceedingly destructive.

EXTRACTION OF THE LATEX.

Under this heading the following points are dealt with, viz:—

1. Method of tapping:
   - (*a*). Instruments employed.
   - (*b*). The style of incision.
   - (*c*). Area of trunk to be worked.
   - (*d*). Length and distance between the incisions

* Perak Museum Notes, II., Part I. (1897.)

2. The effect of wounding the tree on the flow of the latex:

(*a*). The number of times the incisions can be advantageously renewed.

(*b*). The length of time that should elapse before renewing the incisions.

Preparatory to tapping, that part of the trunk it is intended to work should be well cleaned of all loose particles of bark and dirt. In old trees the rough outer bark may be shaved off with a blunt knife and then rubbed down with the husk of a coconut; but in the case of young trees where the bark is not so thick and rough, a good rubbing over with a coconut husk will suffice. It cannot be too firmly borne in mind that foreign matter of every description decreases the value of the prepared rubber, and every endeavour should be made to avoid its inclusion from the commencement.

When tapping trees in isolated positions or on the edge of a plantation, the shady side of the tree should be selected, as the sun has the effect of coagulating the latex on the wound, thereby preventing a further flow and adding to the percentage of "scrap" or second grade rubber.

(*a*). *Instruments employed.*—The instruments used during these experiments were an ordinary five-eighth inch wood chisel and wooden mallet, and a sharp pruning knife. The chisel and mallet were ultimately discarded in favour of the knife, as it was found that with the latter the work could be done quicker and better; while there was not quite the same danger of cutting into the wood, thereby causing permanent injury to the tree. Whatever form of knife is used, it should be kept very sharp so as to enable the operator to make as clean a cut as possible; any tearing of the bark resulting from the use of a blunt instrument will tend to close up the cells and prevent a free egression of latex.

The collecting vessel used was a tin cup, about the size and shape of an ordinary cigarette tin, to which was affixed a metal lip. This lip being filed at the edge pierces the bark, rendering impossible any escape of latex between the tree and the collecting receptacle avoids the necessity of the use of luting material. The tin is also supported by this means so that nails, wire, etc., are unnecessary.

(*b*). *The kind of incision.*—The laticiferous or milk-producing tissue is composed of a number of vessels or tubes which by constant branching (anastomosing) have formed a complete network of tissue. In some trees, this system of communication between the cells is only developed to a very small degree; while in others—notably in the *Dichopsis spp*, which furnish the gutta-percha of commerce, the cells containing the latex remain isolated. The more completely this system is developed the easier it becomes to extract the latex, as it is evident, that other things being equal, a less number of incisions will be required to extract a given quantity of latex.

The vessels constituting this tissue are chiefly distributed throughout the phlœm or inner layer of bark' so that whatever form the incision takes, it must be sufficiently deep to cut through this layer. Immediately beneath the laticiferous tissue lies a layer of active cells known as the cambium, and the operations should be conducted with care so as to incur as little injury to this layer as possible. I have found that it is practically impossible to cut through the milk-producing tissue without injuring, at least to some extent, the cambium; but fortunately the tree is very hardy in this respect, so that if ordinary care is exercised, no serious consequence result.

The thickness of the bark varies from ¼ to 3-8 of an inch, gradually thickening as the base of the tree is approached.

In actual practice the object to be attained is to puncture the maximum number of the laticiferous tubes while doing as little injury to the tree as possible and as these tubes run more or less longitudinally, it is clear that a horizontal or an oblique incision will puncture more tubes than a vertical one. The difficulties arising in collecting the latex from a horizontal incision are obvious, so it remains to be seen what form the oblique incision should take; whether it is advisable to make a single incision (/), or a double incision (V), or a number of double incisions feeding a central vertical channel and forming what is known as the "herring-bone" incision.

Experiments have been conducted at S'tiawan, Perak, with a view to ascertaining the difference in yield by these various methods, and the result of tapping five trees with single oblique incisions is shewn below. The incisions were made 6 inches apart, ranging from the ground to a height of 6 feet up the trunk, and in each case were 6 inches long, running at an angle of 30 degrees with the perpendicular.

Age of trees 9 years	Mean girth at 3 feet from base 4 feet 2 inches
120 incisions yielded ...	23·75 ounces of dry rubber
Average yield per incision	·19 " "

Twelve months later the same trees were tapped with double oblique incisions, the two lines forming the V being in each case 6 inches long. As in the former experiment, the incisions were equally distributed over the first 6 feet of the trunk, commencing at the base. The result was:—

Age of trees, 10 years.	Mean girth at 3 feet from base 4 feet 3 inches.
120 incisions yielded ..	44·25 ounces of dry rubber
Average yield per incision	·36 " "

Thus it will be seen that the V incisions gave considerably more, almost double, the amount obtained from the single incisions; but as twice the amount of labour was required and twice the amount of injury inflicted upon the tree, the result may be said to be slightly in favour of the former method. The reason the yield is not quite in proportion to the labour expended, or rather to the surface exposed, is due to the fact that the two lines forming the V become so close to each other as they approach the base of the incision, that they probably puncture the same tubes.

We have now to compare the V incision with the herring-bone incision, which is practically the same principle, except that in this case there are a number of V incisions feeding a vertical channel, the latex being conducted by the oblique incisions towards the central channel at the base of which is placed the collecting tin. The feeders should be made to join the vertical incision at an angle sufficiently acute to enable the latex to escape freely—say 40 to 45 degrees, and care should be taken that these incisions do not join the central incision opposite to each other, or the result will be an ugly wound (Fig. *B*, *a*) which will take a considerable time to heal.

Fig. *A* shews the method to be followed and Fig. *B* the incorrect method.

Fig. *A*.

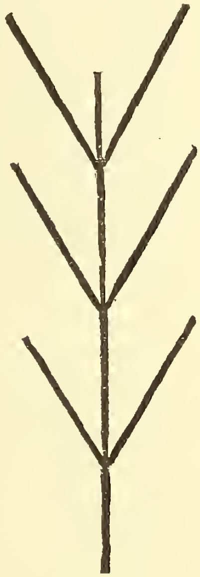

Fig. *B*.

The yield from 22 trees tapped on this principal, with two incisions per tree, one between the base and a height of 3 feet, the other on the opposite side of the tree at a height of 3 to 6 feet was as follows :—

Age of trees, 9 years.	Mean girth at 3 feet from base 4 feet 1 inch.
44 incisions made on 22 trees gave	·29 ounces of dry rubber
Average yield per incision	·65 ,, ,,

The central channel in each case was 2 feet 6 inches long and the 'feeders' 1 foot long. These were 1 foot apart, there being three on each side of the vertical channel.

Taking into consideration that the exposed surface, or the total length of the incision on these trees was 8 feet 6 inches, as against 1 foot in the case of those trees tapped with a V incision, and also that a much larger area was operated upon the yield is at first surprisingly small, being less than double the amount obtained from those trees tapped with V incisions while eight times the amount of labour was entailed in making the extra incisions. It is evident then that some other force is at work *viz*., the effect of wounding on the flow of latex, for, in this experiment the whole of the trunk was tapped on the same day, while in the two previous experiments there were five incisions per tree and the operations were carried on over a period of 24 days. This question will be considered later.

(*To be continued.*)

THE FIBRE INDUSTRIES.

The Textile Fibres of Commerce. By William S. Hannan Pp. x × 236. (London: Charles Griffin and Co., Ld., 1902.) Price 9s. net.

The title of this work raised a hope that the author had seized the opportunity open to any specialist of carrying on the critical labours of Vetillart, Wiesnet, Hugo Muller, J. Christie, Otto Witt, and the experts of the Colonial and Indian Exhibition, now almost of ancient history. The opportunity is a great one; for the subject matter is vast, the interests involved are stupendous while the first principles of the subject are few, very few, and so are they who recognise them. The opportunity is one, not merely for a book enunciating in one comprehensive view the relationships of our highly developed textile methods to one another and to the properties of the ultimate spinning units, but for a definite forecast of the progressive future, which is of obvious commercial moment.

The book before us, however, neither aims at nor claims to reach the pioneer standard of technical literature, and must be judged accordingly. The author's labours have no doubt been exhaustive and minute. But the failure to attain to the ideal standard is self-predicted by the opening sentence of the introduction :—

"The vegetable and mineral fibres of commerce may be arranged in four groups, viz. (1) plumose fibres (2) stem and leaf fibres; (3) fruit fibres (all derived from plants; and (4) mineral fibres. These groups are represented by the fibres used in various important industries, and by other vegetable fibres which at present are of special interest from a scientific point of view only."

This classification has no morphological basis and is devoid of technical significance. The sentence stands immediately beneath the title "The textile Fibres of Commerce," and the reference to these "other fibres," which are, in fact, from the point of view of commerce or industry, mere lumber, introduces us to the supposed antithesis of science to commerce, which is archaic, but in these days misleading, and were better left out. The introduction, in short, prepares us for the plan actually followed in the book, which is that of alphabetical sequence of the conventional or trivial names of the fibres; perhaps the best in the absence of a positive, critical basis and consequent classification. The reader is thus prepared to find the book a non-critical compilation, and although the title suggests the subordination of the matter to commercial that is industrial, proportions, the expert will be disappointed and the lay reader will get little instruction in the *practical science* of the subject.

Of course, be it understood, a book of 230 pages, upon such a subject, and containing 150 illustrations, mostly the original work of the author and friends, affords much interesting reading. This interest belongs to the subject, which is fascinating from whatever point of view it may be handled. We have no wish to depreciate the author's evident aim to popularise the subject; on the contrary, we wish for the book a successful run, and that a second edition may see a considerable improvement in the matter. But as we take the request in the preface for "any suggestions that will enable me to add to the utility of this work" as an honest invitation to the critic, we feel we should be wanting in honesty and in a duty to the technical public if we shirked the task of pointing out by a few examples the author's want of precision in handling fundamental questions. We cite first the introductory sentence of the section "Vegetable Fibres," p. 3, "Physical and Chemical Properties," which reads, "The principal vegetable fibres are plumose and bast. Both are used for spinning and weaving, and their prices fluctuate in accordance with the quality and quantity of the annual crops. The plumose fibres are composed of cellulose.

Plumose and bast should not be coupled with the same term "fibre" unless the author intends "ultimate fibre." We take it that the spinning unit is intended, and in the case of the bast fibres the unit is a more or less complex *filament*. Fibres are not used for spinning *and* weaving; the fibres or filaments are spun into yarns and the yarns woven. It is fairly obvious that prices vary with supply and quality, but there is something to be said for demand. Why, however, interject this superficial reference to the important question of value under the heading of "Physical and Chemical Properties"?

Lastly, to describe the plumose fibres as "composed of cellulose" is misleading. In the cotton substance the non-cellulose, it is true, is small in proportion, but the composition of the *eriodendron floss*, as of other seed hairs, is widely divergent. Later in the section we find the bast fibres described as made up of cells of which the "walls are composed of more or less thickened lignin or woody material." This is quite inaccurate in regard to the most important of them viz. flax, hemp and rhea. Again, the good "commercial qualities" of the fibro-vascular bundles of monocotyledons ' depends upon their moderate length, strength, flexibility, and the number of fibre cells in each bundle. Without reference to the grammatical slip, we will fix the looseness of the phraseology by transposing the terms to another case. "The good commercial qualities of gold depend upon its moderately yellow colour, specific gravity, ductility, and the number of silver coins of equivalent value"?

We have dealt with this section on "Physical and Chemical Properties" at disproportionate length, for the author exhausts it in a single page of matter. The failure to lay a solid critical foundation by an adequate treatment of the section, of obviously fundamental import, measures the failure of the work to contribute to the systematic development of the subject. We are bound, further, to particularise some strange inaccuracies in the information conveyed to the perhaps unsuspecting reader. Jute is described under the heading "Jute, Common," and the description contains many curious statements. Thus :—

"The fibres are several feet in length, have a satiny lustre on account of which they are sometimes used in the manufacture of the cheaper silks."

There is a popular confusion, we presume, between ute and "jute"; there is also a slang word "water" well known, "in the city" but we suggest that only in the official mind of a judge of the High Court would there be any possible confusion of the material with the immaterial "water." So we venture to think that the author has served up a popular error in relation to "jute" as an industrial fact in relation to jute.

In particularising the applications of jute yarns we find,

"the backing of hearthrugs, the lining of ladies, slippers, the collars of gentlemen's coats and burlaps for bales of jute or hemp coverings."

We refer the author to Dundee for information. Lastly, "the jute fibre readily dissolves in alkalies and mineral acids at a low temperature." The reader may correct this statement by reference to any of the standard works on cellulose chemistry. The chemistry of the fibre substances is dealt with generally in a superficial way. The author should have been careful to avoid such statements as the following in reference to cotton (p. 91) :—

"Acids have so destructive an effect upon cotton that their use in the cotton industry ought generally to be dispensed with since alkalies such as soap . . . can be employed for scouring and cleaning cotton fibres without materially injuring them."

And again (p. 97),

"Cotton fibres have some affinity for vegetable dye stuffs such as Indigo . . , but little or none for coal-tar dyes." The section on "Cotton" otherwise contains useful information of a conventional commercial order, and as it comprises some forty-five pages is clearly the most important of the book. In the categorical description of the various cottons, the dimensions are given in inches and fractions of an inch. This in a scientific text-book is a gratuitous concession to the rigid conservatism of our industrial system. We should like to ask if the expression 1/1180 inch conveys any definite mental impression to the reader?

We briefly notice the section "Paper Fibre Plants." We all know that paper can be made from an endless variety of fibrous materials, and the author is evidently more impressed with the fact than with the advantage of using the qualifying term "commercial" as a winnow for separating the grain from the chaff. The paper maker will find the section of little practical importance. The subsection "Woodpulp" opens with the curious sentence, "This is rather confused and mixed up with paper-making." The remainder of the section may be similarly described. A subsection on "Woodpulp silk" is rather out of place at the conclusion of the section on "Silk." The treatment of this highly important industry indicates that it lies outside the author's range of experience and does not invite serious criticism.

The author is entitled to the credit of having produced an interesting book on a universally attractive subject. That it does not take the place of a standard text-book of critical importance is due to the fact that he has not sufficiently grasped the trend of the progressive scientific movement which underlies the many-sided "commercial" developments of the fibre industries,—*The Nature.*

THE PAPAYA AND HOW TO GROW IT.

The fruit called the Papaya or Papow is so well known in India that I feel some diffidence writing about it.

The papaya tree belongs to the natural order *Papayaceæ* several species of which are remarkable for their poisonous properties. The Papaya itself has long been known as an excellent fruit yielder, and recently the fruit has become very popular with Europeans in India. It is believed to be a native of Tropical South America, but is naturalised in India. Some weird and wonderful properties are assigned to this tree. For instance, it has been stated that tough meat wrapped in its leaves and kept for a few hours, is rendered tender and toothsome. Of course, this is one of those stories that will not be killed. Scientists have however, found that the fruit contains a substance called papain, which, like pepsine, has the power of helping digestion of food. And as dyspepsia is one of the ailments from which modern humanity suffers considerably, the fruit of the Papaya tree should become very popular with those afflicted with a weak digestion. But apart from this important property, the fruit is not only wholesome and beneficial, but is of a flavour and consistency which cannot fail to commend it to the consumer. Unfortunately, in India, this fruit like many others, is grown in such a haphazard manner, that its peculiar flavour and delicacy are not developed, and the consumer is obliged to be content with the insipid fruit commonly met with in the bazaars.

Now there is no reason why the consumer should not Papaya fruit of good quality. It is a very simple matter. The tree can be raised from seed sown during the rainy reason; and the plants so raised will yield fruit of good quality the following year. The tree is of very rapid growth. The point to be kept in view is to sow seed obtained from really good fruit *ripened on the tree.*

It is, of course, well known that natives pluck the fruit in a green state and ripen it artifically. This system is responsible for the absence of flavour and quality so common in the fruit sold in the bazaars. If the readers of *Indian Gardening and Planting* will observe the following directions, every one may grow and gather his or her own Papayas of really good quality.

Firstly, obtain seed of good variety from the Superintendent of the State Gardens, Bangalore. Sow the seed in pots or pans in common garden soil, say in July. As soon as the young plants are about six inches high, transplant them simply into 12 inch pots, filled with a fairly rich soil. When these pots are filled with roots, transfer the plants bodily to ordinary tubs, or the largest sized pots obtainable, filled with good, rich soil. Water them in dry weather and let them grow. If you have sufficient ground, put out the young plants into the open, in rich soil, and water in dry weather. In the following April and May you may gather your fruit and enjoy a really good Papaya. The tree fruits well when grown in tubs or large pots. In order to get fruits of large size, it is necessary to thin them out, and so give them a chance of swelling and developing.

The reason why I have recommended the procuring of seed from Bangalore is that it is the best variety of Papaya I have yet seen.

There is one point, however, which the grower must make himself acquainted with. The Papaya tree carries the male and female on separate trees. The male tree bears its flowers in large loose bunches which hang down, and the stems on which the flowers are borne are from one to three feet long. The female tree bears stemless flowers, attached close to the main stem or trunk of the tree. Therefore, as soon as the trees show flowers. all the male trees, except one, should be uprooted and thrown away. Some trees bear what botanists call "hermaphrodite' flowers. that is, they carry the two sexes in the same flower. These are no good as fruit bearers and should be treated as males and thrown away unless you wish to grow a plant or two as a curiosity. It is important to bear the foregoing in mind and thus avoid much disappointment. I have often heard my friends say that their Papaya trees never bear fruit, though they are covered with flowers. On looking at them, I have always found the trees to belong to the ' male persuasion.'

If you like the Papaya fruit and wish to get it of good quality follow the foregoing hints. There is no reason why everyone should not have his or her own Papaya trees in pots and tubs if there is no garden or grounds to grow the tree in. The tree fruits in one year from time of sowing the seed, so it is easy enough.

Amateur Gardener.

The Indian Agriculturist.

BUDDED AND SEEDLING ORANGE TREES.

Budded Orange Trees are Dying out by Scores in some Groves, While the Good old Seedlings in the Pastures go on Bearing Merrily.—Letter from Correspondent.

Although the practice of using budded citrus trees has become generally adopted in the island, there are still a great many who look askance at the innovation, and remain staunch in their belief that seedlings make the most reliable and best trees. They point to seedling orange trees, self-grown, half wild unattended, uncultivated, which have been bearing steadily as far back, perhaps, as they remember; strong, upstanding, healthy trees proof against scale insects, against drought, or wet, dieback or footroot, blight or beetles. And they compare *such* (note the *such*) seedlings common everywhere in woodland and pasture, with *certain* budded trees in *certain* groves, (note the *certain*) grown from seed, sown in beds, transplanted, and well tended then transplanted to a nursery, budded, kept clean, and then planted out in a grove, where they are kept hoed fairly clean, forked round, limed, perhaps and manured and yet in two or three years, snails and beetles attack the leaves, grubs eat the roots, scale insects infest the whole tree, so that washing and spraying are begun as a necessary part of the cultivation or else the trees die out. Even with all such attention many trees die. This is all apparently plain, as is pointed out by many who do not believe in new fangled things (though the "new" things are often methods as old as the Pyramids), and often the planter of budded trees can only feebly excuse himself to the enthusiastic advocate of things as they were, and seedling trees, by saying he will get a crop in three or four years against the seedling man's seven or eight, and that his will come true while the seedling tree may turn out half-sour.

Now let us bring common sense only to bear on this subject, and leave out all thought of mystery and magic, fads and fancies, theories and tall talk.

The stout seedling tree in the pasture, never cultivated, yet, proof against disease, and always bearing well, has germinated as the fittest of a million seeds deposited on the soil around has grown from thousands that sprang through the soil, has survived of hundreds of young trees that grew up, has alone reached bearing of scores of its companions, has kept on bearing of dozens that bore fruit and afterwards died out. Between this stray tree and the neighbouring strong orange tree, may be a space of 50 or 60 feet, and between, bush of many kinds, a pear, a breadfruit, an ackee, and so on. It invariably happens where there are clumps of seedling trees or two or three close together, that they are infested with parasites and pests of some kind, and are poor trees, only their great grip of the soil up-keeping them. Almost every tree, or plant has its peculiar pests, and as a rule these do not prey indiscriminately upon plants of opposite characteristics so that when there is some inimical scale on an orange tree, and that tree is well separated by other trees from neighbours, there is not much chance of one particular pest, spreading fast or gaining the upper hand, for there is also likely to be some specific enmies preying upon it, enemies that may also be on the other kinds of trees between, ready to intercept it. Or if there does happen to be an indiscriminate pest, there are also sure to be many enemies to prey upon it. It is this mixing up of economic plants in Jamaica, this apparently hopeless muddle of coffee cocoa, orange, breadfruit, pear ackee, bananas, plantains, etc., all through each other that has actually saved the island from the trouble, annoyance and loss through insect pests and diseases, that agriculturists in other lands have suffered and are suffering from. California and Florida suffer heavily from these, and large sums have to be spent yearly in combating them. In Ceylon, where there were miles upon miles of land under coffee alone, plantation after plantation adjoining, beautifully planted and well kept, the coffee industry was ruined by a leaf disease, and the planters took to tea and cocoa. Now the cocoa trees have caused serious anxiety through dying out from a widespread and general disease, so that the loss was calculated at 15 to 20 per cent. of the annual crop, and a specialist had to be engaged to make minute investigations into the matter. Here, we have not had, with the exception of sugar and bananas, large stretches planted to one kind of plant alone, an estate after estate adjoining, growing one and the same product. But lately, we have had groves of orange trees set out, row upon row of nothing but orange trees. Hence, as in other orange growing countries, these are excellent nurseries for the specific scale insects and other pests that feed upon citrus plants; and more than that, the various grubs and slugs that lurk in the soil especially about rotten wood, finding every other thing cleared off, have therefore to feed upon what they can get. Even if they had never before touched the roots of orange trees it is certain that necessity, especially through hunger, knows no law, and they would quickly adapt their tastes to what they could get. Hence the troubles of our orange growers, who finds insects of various kinds feeding on their trees, and injuring them, and grubs—the larvæ of various beetles, but particularly the "Fidler" beetles and their larvæ the "makaka" grubs—feeding on the roots of the orange trees. The larvæ formerly found plenty of rotten wood, in some form or other in the ground; now they can find almost nothing but roots of orange trees. If these were entirely strong and healthy they would probably not touch them; but they find some injured, or bruised or diseased from some cause and they immediately find feeding ground. They are probably voracious too, from their numbers and the scarcity of food, and a small abrasion of a root that where enemies were not instantly on the spot to attack, would likely have healed quickly in a healthy tree and in sweet soil, is instantly attacked So that above and below our orange trees find enemies. But, we should fancy the enemies of these pests should increase proportionately? Yes perhaps if we all knew what these

were; but it so happens, that we ourselves have seen the deadliest enemy of scale insects destroyed as an "ugly red bug," both by picking off and spraying, namely the lady bird beetle, the same insect that Californians hunted the world to get found one kind in, and introduced it from, Australia and which saved their orange groves from destruction by the "San Jose Scale," while lately after searching the world through they have found a more voracious species of "Ladybird" in the heart of China. There may be other friends of our trees insects or birds unknown to us, which get scant mercy at our hands. Is not all this worthy of special study and investigation, by an entomologist? I daresay in saving the cost of an entomologist, we are losing one hundred times as much in the time and labour involved, in every man attempting to being his own doctor of his trees and still losing them. We have doctors for men, another branch for horses and cattle, so why not a plant doctor? It is hard to see scores of trees that have just reached bearing age, dying out; but it is just at the stage when the great call is made on the constitution of the tree, that its weakness become apparent, and it cannot stand the strain. The whole trouble, we think can be traced. It is not in the fact of budding or grafting, for the bud is part of another tree and if there is any weakness in its constitution that can *only* affect the top of the tree, while our most serious trouble is at the roots, and these roots art those of the stock, grown from a seed. It is in fact *seedling sour* orange trees that are dying out in out groves from root troubles, exactly what the advocates of seedling trees forget. The sweet seedling trees in wood and pasture are subject to exactly the same, and to all d seases that the budded trees in groves suffer from, and every day some are dying out: you can see them diseased and decaying on every estate, only certain of the very fittest almost disease-proof surviving, as we have pointed out, and there is in every cultivated grove always the same thing, certain stout, strong, healthy trees, that cannot be killed. But never having had much, if any money, spent on them, and little or no care, these dead or dying seedlings are not particularly noticed. Still they do not suffer as much from disease of the roots as do budded trees; that is evident; wild self-planted seedlings are diseased above ground, seldom below, while it is the opposite with most of the budded trees the growth of which is so unsatisfactory in many places. Is it not evident from this that there is some fault in the transplanting and in the treatment generally of these grove trees. The fact is, the whole operations from planting the seed in a nursery on, have been bad. The self-sown seedling select themselves by the fittest surviving; but no selection has been made by the planter, as a rule. He has not chosen the sour orange tree that was perfect and free from disease, and well loaded with large fruit; nor has he chosen the plumpest seed from these fruits. We question whether in transplanting the small seedling trees from a bed to a nursery, the treatment has been such as could be calculated to make them strong and vigorous. Both in off nursery beds and in groves—and generally with all our horticultural operations,—the ground has been too quickly and roughly prepared. It is mainly old fallow ground, which is cleared, holes dug, and trees put in all in a week. The soil with this treatment cannot be in condition for tender trees to make growth,—tender, for all trasplanted trees are tender, and the soil must be of the sweetest and finest for the cut surfaces to heal and put forth the little feeble roots to take food material, and they consequently get a bad start. But a seedling never interferred with grows slowly and steadily, its tap root is deep down; as it puts forth a fresh root, it is seeding all the time through a hundred others. Our treatment therefore has not been tender enough, has been too rough and ready. When deep planting is added to this, the death of the tree is certain. What is required is to plant fewer trees, and take more time in all the cultural operations from the beginning, for what does it profit to have ground cleared, holes dug, and 5,000 trees might be looked over that are bound to give trouble and anxiety and loss later, when 1,000 trees very carefully and minutely looked after will probably give as a large a return. There is far more money in 100 trees bearing 1,000 oranges each than in 1,000 trees bearing only 100, and poor ones at that. We also want a special study made to find the most deadly enemies to our greatest pests; what for instance would prey most upon Fidler beetles, and what upon their larvæ the oily "makakas?" At present the only enemies to the "makaka" we know are poultry, and young pigs, let loose in the grove, and these rout and scrape these grubs up. If the roots are thoroughly healthy the tops will never likely die off mysteriously. Spraying the foliage and branches for all sorts of diseases is not an unmixed blessing if you kill off the lady birds which are so valiant in our interests. Without healthy roots there can be no healthy tree. The proper preparation of the soil and the careful planting of the young trees are things to be looked upon with respect. To dig a row of holes in raw soils and get any odd worker about the place to stick the trees in up to the bud as fast as the holes were dug was the general style of planting some of these very trees that are now dying out. There is a science in planting trees that may not be learned in a day, however easy it looks—*Journal of the Jamaica Agricultural Society.*

CULTIVATION OF SUN FLOWERS.

The first year of the twentieth century closed with a curious sale, on the Baltic, of a cargo of sunflower seeds, which changed hands at £11 5s. per ton. Though a small trade has been done in sunflower seeds for close on 200 years, this transaction was the first in which a whole cargo—300 tons from Odessa—was dealt with. In Russia, where the cultivation of the sunflower and the manufacture of oil from its seed is conducted on a large scale, the Grandi Flora is the variety grown. The species rises in a slender stalk of 5ft. high, producing one monster head, the average yield being as much as fifty bushels of seed to the acre. So rich is it in oil that that quantity of seed will yield fifty gallons of oil; while the refuse of the seed, after the quantity of oil has been expressed, weighs 1,500 lb. when made into cattle cakes. Few people in England who grow the sunflower for ornament have any idea of its usefulness. It is among neglected crops in which there is money, as is shown by the price paid a few days ago. Besides the seed, every other portion of the plant can be utilised. The leaves furnish an excellent fodder; while in Russia the stalks are prized as fuel, and their ashes, which contain 10 per cent, of potash, are readily sold to soapmakers. Naturally, in Russia the chief virtue of the sunflower lies in oil contained in its seed. The oil is of a clear pale yellow colour, almost inodorous, and of an agreeable, mild taste, so that it is in great request as a table article. Why sunflowers are not cultivated on an extensive scale in England, it is difficult to say. Poultry and cattle like the seed either in its natural state or crushed and made into cakes. No plant produces such fine honey and wax; when the flower is in bloom the bees abound in it.—*Journal of the Department of Agriculture of Western Australia.*

A Large Indian Melon.—A very fine fruit of the Indian Melon (Cucumis Melo var. momordica) was grown at Government House, Singapore, in sandy soil. It was dark green, mottled with lighter colour, and weighed 16½ lb., with a length of 2 feet 3 inches and a circumference at the broadest end of 1 foot 10 inches. It had not much flavour, but is said to be very wholesome, and is an important article of food in India.—*Gardeners' Chronicle.*

VANILLA GROWING, AND CURING.

[For the following Essay we are indebted to Mr. A McFarlane, Planter of Tahiti. The work bears the marks of practical experience, and as a record of such will doubtless be welcome to many who are attempting to grow this plant in the West Indies. Mr. McFarlane remarks that after many years practical work he "*does not claim to know all about the subject.*" His modesty is commendable, but it will be patent to most cultivators by a perusal of his Essay, that his knowledge of the methods adopted in successful cultivation, is well worthy of being put on record, for the benefit and instruction of those who have been less favoured in opportunities of obtaining information. —ED.]

VANILLA.

The Plant Vanilla is produced by a terrestrial, climbing vine, belonging to the Orchid family, having the oddly-shaped flower of its family, and like many of its relatives lacks the power of self-fertilisation. This can be learned from any encyclopædia. Here I learned as a beginner that there was but one variety, and that the reason why Tahiti Vanilla only brought about one quarter the price of the same article grown in Mexico, was in the difference in the soils, the soil of Tahiti containing some deleterious ingredient, which changed the odour. I never could understand this statement, as I knew that the best Mexican Vanilla grows on volcanic soil, and Reunion, which produces a very superior quality, only second to that of Mexico, is of volcanic formation as is also Tahiti. I have since then learned that we have three varieties, all of course imported as Vanilla is not indigenous to any of these islands. "La Vanille"* mentions eight varieties, five of which are indigenous to Mexico. The three varieties which we have, are *Vanilla planifolia V. sylvatica*, and *V. pompona*. This last yields the Tahiti Vanilla, known in Mexico as Vanillon and in the English market as Vanillos, *V. planifolia*, here yields a bean equal to that grown in Reunion, but is not grown to any appreciable extent, and I only know of a few vines of *V. sylvatica*. Although all of these varieties were imported at the same time. *V. pompona* quickly recommended itself to the Kanaka planter, with the result that the others were discarded and what few plants of them were left were only to be found in some deserted plantation, while *V. pompona* was rapidly distributed over Tahiti and the adjacent islands.

Now, a few plantations of *V. planifolia* have been started, since we have learned its value. To describe the vines as they appear to me (an entirely unscientific description), *V. planifolia* is very distinct, the stems are large, as large as the little finger, and the leaves are short and broad. The vines does not grow as rapidly as do the other two. The bean is long, thin and round, and the blossom end is at a sharp angle to the bean The blossom end of *V. pompona* is at right angles, or nearly so, to the bean, and there is a decided difference in odour, (a decisive test if beans of the two varieties should happen to be mixed) *V. sylvatica* and *V. pompona* and very similar in habit, with long narrow leaves, of rapid growth, slightly dissimilar in the flowers, but the difference is very marked in the fruit. *V. pompona* has short thick beans which can be left on the vine until they become brown while *V. sylvatica* has a very long bean which splits badly and has to be gathered early, in order to save it. In odour it more nearly approaches *V. planifolia.* The stems of *V. pompona* are only about half as large as those of *V. planifolia* and the joints are longer.

THE PLANTATION.

THE SITE.—It is in the selection of this that the greatest care has to be exercised. From the nature of the vine it is at once seen that it will not thrive everywhere, although to look at the various plantations in Tahiti one would imagine that the native grower thinks it will. Here it is planted upon every conceivable sort of soil from swamp to sand, and with any tree, shrub, post or rock, that may be most convenient for a support. Of course with such treatment it cannot be expected to yield a good return. I claim that the steep little valleys with which these islands abound, are an ideal home for the vine, and have proved it (at least to my own satisfaction) on my own plantation which is in one of these valleys, and although only about half a mile from the sea and a couple of hundred feet above it, my beans average over an inch longer than those grown close to the beach or on flat undrained soil. Vanilla revels in moisture (but it wants no stagnant water about its roots) and the hill side plantation gives it that. Heavy dews, more or less moisture constantly descending from the hills above, almost obviate the necessity of rain, while the natural drainage keeps the ground always sweet, no matter how heavy or how prolonged a rain may be. The vine also delights to send its roots around and among rocks, probably in search of nutriment and moisture. Of course, the advocates of planting on low level ground have many arguments in their favour such as ease of working, possibility or rather certainty of getting more plants on equal sized pieces of ground and probably of getting a larger weight of beans. These and any other claims which may be advanced I contend are more than balanced by the fact that the Vanilla on the hill sides is in, as nearly as possible, its natural condition; that the vine looks stronger and healthier, and should be in better condition to withstand disease and finally, that the beans certainly are no longer, and that the largest beans command the best price. My advice is, eschew level ground, select a piece with a moderate slope for ease of working (as Vanilla does not care how steep the ground may be but the work man does) and let it be if possible in a valley not of too great extent.

After the ground is located, it is necessary to prepare it for planting. There are two ways of starting a plantation. The first is to cut away such of the trees originally growing upon the land as may be necessary, saving such as may be required for shade or to plant the vines upon filling in the gaps with posts. The second is to chop everything off the ground and to plant posts (of such trees as will grow from cuttings) or young tree plants at regular intervals. The second plan gives the prettiest plantation and when once established requires less labour in keeping it in condition, but takes longer in the first place before it brings in any returns. Besides the original cost is more. Whatever plan is adopted, never resort to fire as an aid in the clearing. Chop all the trees and branches into small pieces and leave them to rot on the ground as food for the Vanilla.

As to what variety of tree is the best to use as a support, I have tried a number, and have found several that I like, and also some, recommended by others, which I do not like. I would advice trying the trees indigenous to the place where the plantation is to be started as it is certain that some of the native trees would prove suitable. The best tree is one which will grow from "cuttings." That is one the majority of pieces cut from which will grow when planted—posts to be from three to eight inches in diameter and seven or eight feet long. One which is a moderate grower, which takes a good hold of the soil and which does not give too dense a shade. All these requisities I have found in one of our native trees, the botanical name of which, unfortunately, I do not know. The following are recommended in "La Vanille":—*Mango, Acacia Lebbek, Pterocarpus indicus, Artocarpus integrifolia Eriobotrya japonica, Laurus persea, Bombax malabaricum, Ficus elastica* and *indica, Jatropha Carcas Dracæna tesselata* and *Jatropha Manihot.* "The three salt are employed in plantations exposed to the sun and without shade, grow rapidly and furnish plenty

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* To a valuable little work, published by the French Government in Tahiti (La Vanille, by Dr. A. Delteil), I am indebted for such statements as I have made regarding the culture, methods of curing, etc., pursued in other countries than Tahiti.

of good shade." Of these I have only tried one or two. I have been told that in Fiji, the only plant which will carry the Vanilla through a hurricane is the Croton Oil plant, *Croton tiglium.* I do not like it. Its stems look too much like those of a cabbage and it appears to be short-lived. My favourite trees, besides the native one already mentioned are *Bauhinia purpuea* and *Bixa orellana.* The bixa gives the deeper shade of the two. Both grow easily and rapidly from seed and make good supports in from eighteen months to two years after planting. The candle nut tree of these islands also makes a good post.

Six by eight, or eight by eight feet is a good distance to leave between the posts. I have seen them at four foot intervals and also the Vanilla planted on fences or trellises, but the posts at four feet are much too close together and trellises when they begin to rot and fail entail too much labour in the replacing. In fact it is hardly worth while to try and replace Vanilla which has fallen with a post, let alone a wall of it. I have spent hours in replacing posts which have rotted and putting the vines upon the new posts and have never made a satisfactory job of it. Of course it is sometimes necessary in order to save such immature beans as may be on the vine when it falls, but for future use I would prefer to root out the old vine and plant a new one. Here I refer to vines of three or four years' growth which is about the time that trellises and dead wood posts take to rot here. Where wood eating insects are had, only live posts should be used.

While the plantation has been preparing, a stock of vines should have been provided. Here we have no trouble as any quantity is to be had for the cutting but in starting a plantation in a place where no old plantations were "come-at-able" it might be necessary to have recourse to growing them from seed. This I have never tried, but I give the method recommended in "La Vanille." "The seeds are extracted from the bean placed in a cloth and washed many times with strong soap-suds, in order to remove the greasy matter which envelopes them. They are then exposed to the sun until dry and when dry are mixed with fine sand or ashes to seperate the grains. They are then sowed in a box on a soil composed of equal parts of humus, sand and fern soil (terre de scolopendre) which has been well mixed and passed through a fine seive. With care in watering and a moderate exposure to the sun it is possible to obtain the yong plants." Where a limited number of vines only are to be had, they may be cut into lengths of three or four joints and planted in a bed composed of decayed and partially decayed leaves and leaf mould. By keeping them well matured and shaded, in a couple of months they will have made good roots and can be removed to the plantation. This is preferable to planting small cuttings at once in place. Such plants will not give a crop under two, or two and a half years. The plan followed here is to plant vines of three or four yards in length. These will give a few beans in a year or eighteen months from the time of planting. Some people claim that by using such long vines, the resulting plant is weaker than one produced from short cuttings, but I have not found it so.

At any rate whether a vine of six joints or one of six yards is to be planted the method to be followed is the same. A slanting holé is made about a foot from the post and a couple of inches in depth. Into this the end of the vine is inserted, and the soil pressed tightly around it. The vine is then laid flat on the ground from the hole to the post and tied to the post. The part upon the ground should be of a length of two or three joints. This is thickly covered with rotten and dead leaves and rotten wood, and on top of all one or two stones to keep the vine and its covering in place. While the vine emits roots and its cut end still the strongest roots are sent out at the joints, hence the necessity of covering one or two of these. The best time to plant is at the beginning of the rainy season.

I have seen it seriously stated that a hole two feet deep should be made and the vine planted in that. This I do not recommend, as the Vanilla is essentially a surface feeder, the roots spreading between the soil proper and the layer of decaying matter which covers it. On this account it is not only unnecessary to dig or plough the ground, but I believe positively hurtful. It is on the contrary very necessary to keep the surface covered with decaying vegetable matter, and if the trees supporting and shading the vines do not yield sufficient material, then manuring should be resorted to. That is by applying a coating of rotting material such as the leaves and stumps of bananas, coconut leaves, stable manure, guano, &c. Artificial manure should not be used. Although doubtless much nicer looking I do not like a "clean" plantation. By this I mean one which is kept weeded. I prefer to have mine well covered with weeds of various sorts. These act as a mulch for the surface feeding roots of the vanilla, a very good thing in a dry spell, and the deep rooting varieties are constantly bringing up nourishment from the deeper layers of soil which the roots of the vanilla do not reach, converting it into food (in the shape of their fallen leaves, &c.), which the Vanilla can assimilate and placing it where it will be likely to do most good, thus constantly manuring the vine. *Tradescantias* although surface feeders, act as a mulch, and keeps the ground cool and moist, and where I have seen it, the Vanilla seems to thrive. After the vines are planted all the care that the plantation requires, until the blooming begins, is to keep the growing posts pruned, and in case any of the vines grow too high to turn them down. On short posts and trees of course the Vanilla turns down of its own accord, but on the taller trees it must not be allowed to travel out of reach. The turning down is *a most important operation* (Ed. Italics), and must not be neglected. The plantation should be gone over at least every two months and vines which have reached a height of ten or twelve feet should be carefully loosened from the tree, for the upper half of their length and hung over convenient branches. These hanging wines are the ones which produce the flowers. Hence, the necessity of turning down. *As long as the vine can continue climbing it will not bloom.* Do not let the vine hang nearer than a foot from the ground. Pinch in the end when it has reached that length. The vines have in climbing wrapped their tendrils around their support, and some authorities direct that great care must be exercised in loosening them so that they may not be injured. From this I differ. After the vine is sepearated from the tree the tendrils have no further work to do and are of no further use to the vine, consequently, when letting down I simply cut them off close to the vine thereby saving time and in many cases the vine also when a tendril is wrapped two or three times around a twig it takes time to remove and often, as the vine is much the more brittle of the two it is broken before the tendril is cleared.

PRUNING.—It is the same with Vanilla as with fruit trees. When they run too much to wood they do not give a full crop of fruit. In consequence rank growing vines have to be kept within bounds with the knife. The plant is also benefited by removing the old vines which have fruited. These may only have given two or three bunches of beans and may still have several buds left on them which might produce flowers, but if cut off close to the top of the post, the plant will replace them with one of the full necessary length by next flowering season, which will give more bloom than the old one would have done and probably produce better beans. For the turning down and pruning a small portable step ladder is useful.

FERTILISING.

Here *V. pompona* gives two crops of flowers in the year, and occasionally a few flowers at other seasons. The main or largest flowering season begins

about the first or middle of July and lasts until September. The second begins usually in January and runs through February into March. This flowering gives the longest beans. This is doubtless owing to the fact that the July bloom comes in mid-winter and the cold checks the growth of the bean. In Tubuai, one of the Austral Group, four hundred miles south of these islands and where a limited quantity of Vanilla is grown, the July crop is frequently a failure, a succession of Southerly winds causing the flowers to drop from the vine.

V. planifolia blooms only once, the season lasting from September, through October and into November.

During the height of the blooming season, the planter must procure extra labour, as the flowers remain open but one day, and all have to be fertilised on that day. Here we principally employ women and girls as they are more nimble-fingered and quicker than men. The flowers are very erratic in their opening. Some days the bunches may have two or three flowers open and the work people will be taxed to finish by three p. m., at which time the flowers begin to close. Upon another day there will be but a scattering of bloom, and the day's work will be ended by ten or eleven a.m.

The following record of my last flowering will give some idea of this variation:—

Jan.	24	540	Feb.	7	Rain	Feb.	21	12,500
,,	25	520	,,	8*	300	,,	22	6.940
,,	27	1,080	,,	10	2,320	,,	24	14,740
,,	28	960	,,	11	460	,,	25	9,620
,,	29	1,000	,,	12	2,440	,,	26	7,340
,,	30	1.820	,,	13	2,200	,,	27*	8,040
,,	31	1,400	,,	14*	3,120	,,	28*	3.600
Feb.	1	Rain	,,	15	5,980	March	1*	2.360
,,	3	None	,,	17	48,40	,,	3	4,920
,,	4	1.560	,,	18*	4,060	,,	4	3,240
,,	5	1,200	,,	19*	5,840	,,	5	2.800
,,	6	2,140	,,	20	8,220	,,	6	1,700
							7	1,280

On the days marked with a star, worked was stopped by rain. Febuary 3 was a most remarkable day as there were absolutely no flowers open upon any of the plantations in this neighbourhood.

Many statements are extant regarding the number of flowers that a single individual can fertilise in a day.* These range all the way from one to six thousand. This last figure is regarded as quite fallacious as it is not considered possible that it can be reached. Experience teaches that a quick worker with vines growing close together and in heavy bloom, can fertilise three thousand in the day, but I think that is about the limit. Two thousand three hundred is my best day's work, and it meant a hard day From fifteen hundred to two thousand is a good average.†

The operation is simpleness itself and can be learned in five minutes if one has the opportunity of watching one who already knows how. To explain it in writing is more difficult. In the first place the only tool required is a small pointed stick, similar in size and shape to a wooden toothpick. This can be made of almost anything in the shape of wood; and is so made by the Knakas. The best however is either a silver of bamboo, or the mid-rib of a coconut leaflet, sharpened at both ends (this simply for convenience as then it does not matter which end is uppermost in the hand). We make half a dozen in advance and carry them stuck in our hats and if one is dropped, no time is lost in looking for it, but another pulled out of the hat. As to the operation itself. Holding the flower in the left hand, the "petticoat" or lip is stripped down, exposing the column, the top of which is then held between the finger and thumb. The point of the operating stick is now drawn upward, raising the cover of the stigma and the anther, which by a gentle pressure of the finger and thumb holding the column are kept open, while with the point of the stick the pollen mass is removed from the anther and placed under the cover of the stigma. The pressure of the fingers being removed this flies back into place and holds the pollen securely and the flower is fertilised. By this method the operator sees that the mass of pollen reaches the stigma. Another method which is slightly more rapid is the following: A very thin stick is used. Instead of using the point the side is made use of. With this, the cover of the stigma is raised and pressed flat against the column under the anther. which is then pressed downward by the thumb and by this pressure the pollen mass is transferred to the stigma. My objection to this method (I won't allow it to be used on my flowers) is that the operator does not see the pollen enter the opening of the stigma. It ought to and in most cases does, but sometimes fails to remain and the flower is lost. With the other method every part of the operation is visible and there is no possibility of making a mistake. The difference in rapidity is but slight and is more than made up by the certainty of the first method. It requires but a very slight touch to disengage the pollen mass from the anther, and it adheres to the stick not one in a hundred falling. When placed on the stigma it at once leaves the stick as there is an adhesive substance which retains it. The planter who has several work-people fertilising his flowers will do well to occasionally examine flowers which have been finished, in order to see that the pollen has been placed upon the stigma. It has frequently happened here that, when a woman has been behind or is in a hurry to finish, she simply breaks the "petticoat" and goes on, leaving the flower unfertile, although to outward appearance properly finished.

The flower is upon the end of a slim round stem, usually about two inches long. This is the bean in embryo, and is upright while the flower is open, but upon the following day is found to have bent over and to be hanging down. By the second or third day there is no mistaking the flowers which have taken. If the operation is carefully performed, very few fail. The bean in the meantime will have grown sensibly longer, and the petals have withered about the column. In the case of an unfertilised flower, the column falls off together with the faded flower. The column remains attached to the growing bean until it is nearly ripe, that is for seven or eight months. There are, however, exceptions. Flowers fertilised late in the day, say after three o'clock or when they have begun to close, will still take, but I am of opinion that they are responsible for a number of the beans, the colums of which have fallen off. Sometimes a bean has only grown two or three inches long when its column falls off. This appears to have an evil effect upon the future growth, for while the bean continues on the vine and eventually ripens with the others, it is always short. I have never yet seen a long bean which had lost its column early in its growth. There may be a spell of rainy weather just when the vines are in bloom. A little rain makes no difference, but a heavy downpour of half an hour or more causes the pollen to run, an instead of a dry mass put upon the stigma, it is a kind of yellow soup. These or some of these beans take, but the softened pollen masses have not apparently given them the necessary amount of vitality to carry them to full growth and the column drops off. In fact it indicates partial fertilisation.

From the time the flower is fertilised the bean grows very rapidly, attaining its full length in about three months. Thus upon one bunch the first bean may have attained a length of four or five inches before the last flower blooms. This is the time to see that they grow in the way they should go. In turning from the upright position of the flower

* *Taking the day as eight hours, viz., from seven a.m. to three p.m.*

† *In the height of the season we breakfast when the flowers are finished.*

to the pendant one of the growing bean, the bean often turns over a branch or leaf or the withering flower sticks to something thus preventing the bean from hanging straight. This makes a crooked bean and crooked beans invariably lead to crooked language on the part of the curer, when he has to tie them into bundles. Unless taken in hand young there is no hope straightening these crooked ones, so each bunch should be looked over several times during the fertilising season and the beans arranged so that they can grow straight.

The flowering shoots appear at the axils of the leaves, and on each of these shoots are from five to twenty five flowers.* Authorities differ as to the number of flowers which should be fertilised but I think all are of the opinion that some of the last flowers should be removed. Here the planter must use his own judgement. While one vine may be able to carry ten beans to a bunch, another might have difficulty in carrying three. No hard and fast rule should be set. In my practice with *V. pompona* I fertilise from eight to fifteen flowers on a bunch and latter reduce them to anywhere from six to twelve beans by removing the shortest beans. I like to have about one fifth more flowers fertilise than I intend to have beans just for this purpose of selection. *V. Planifolia* should have fewer beans left, never more than eight to a bunch. In our market all beans are bought at one price, so it is not very necessary for the grower to be very particular in cutting the short ones Had I to sell my beans in a market where an increased price was paid for the longest beans, I would leave yet fewer on the vines than I have recommended.—*Trinidad Bulletin for August.*

(*To be continued.*)

GERMAN SOUTH WEST AFRICA.

NATIVE VEGETATION.

I am sending you a small bag containing seeds of the so-called Caffir Water-Melon, a variety of Citrullus vulgaris, largely grown by the Hereros in Okahandya, and many other places in Hereroland. [Sent to Chiswick. ED.]. The whites do not cultivate it. Whilst I was there, two months ago, no Water-Melons were to be bought; the Caffir Water-Melon being very late, is but now beginning to ripen. Caffir Water-Melons can be found in the native gardens of Okahandya in various forms, differing in shape, colour and weight, but I believe not in the seeds, the colour of these being always red, but never black or white, at least I saw red ones only. You will find the seeds rather larger than those of our sweet varieties. The weight of Caffir Mellons of all the three or four varieties is generally 6 to 10 kilograms. The flesh is very solid, and when not fully ripe and still tender, it may well be used instead of Cucumber, which is not easy to cultivate; the female flowers are generally fertilised by a fly. The ripe fruits remain hard, and are not sweet, but they may be kept four months in a dry room without rotting. The Hereros slice them, and dry the slices in the sun for winter provision. As required, the dry slices are boiled with water to a soup.

In the dry east rn red sandy region (O nahek) which forms part of the Kalachari, there grows in many places in masses, the so-called "Sweet Dachammas" the common or bitter Dachammas is Citrullus vulgaris, the ancestor of our sweet Water-Melons), which is not at all sweet, but is at any rate perfectly free from colocinth flavour, as is the cultivated Caffir Melon. That waterless area is in some parts habitable for men and oxen only, owing to the presence of the sweet Dachammas." The Caffir Water Melon requiring no cultivation, might advantageously be naturalised in waterless, desert regions, as for instance, along the Southern Algerian *wadis* (our rivers), Egypt, S. California, and West and Central Australia.

* *Often 30 to 40.*—(ED.)

Okahandya is doubtless the most promising place for horticulture in the central part of our colony. Broad meadows, consisting exclusively of Cynodon dactylon grass, edge the Okahandya river, interspersed with welcome groups of Acacia hebeclada, and sometimes of Acacia spirocarpodes; 1 50 to 2m. below the thick, grassy carpet, the water percolates in quantities, and is of the purest quality. The alluvial soil below the grass (to extirpate which is a rather expensive work, the long stolons being as tough as wire) is a highly fertile clayey sand

The cultivation of Tobacco is increasing in a very satisfactory manner. For sowing Tobacco, clay pots 4 to 5 inches in diameter are now used; formerly the seed was sown broadcast in beds, and the seedlings were planted out without balls of earth, so that they flagged for three weeks, in spite of small huts covering them against the burning sun; they are now planted in any weather, when of the proper size, and with a large ball of earth. Planted in this condition, and at once watered they do not flag for a single hour, but continue to grow uninterruptedly.

Although pots obtained from Germany are rather expensive here, this method of raising Tobacco is unquestionably to be preferred to all other ways. Every plant, once in the plantation, grows, and there are no dead plants to be replaced; the expensive building of huts made of grass, dry dung, &c., over each transplanted seedling is obviated, and the planting from pots can be effected even by careless natives. This planting out from pots may be strongly recommended to Coffee-planters for these reasons as well as to foresters for any kind of evergreen tree even in the driest tropical places, where the seeds are not sown directly in their final position; thus one transplanting is avoided. For this purpose, pots of firm cardboard, which Schmidt & Co., Elberfeld, have introduced, may be used with great advantage. They are to be had in several sizes, and very cheaply and they do not break as do clay pots: the carriage also is inexpensive (2,000 pots of 7 centimetres, price per mile 18 marks, make only nine post-parcels of 5 kilograms each). These pots last until the trees reared in them are large enough to be planted out. It is true a clay pot lasts for three or four years on an average when carefully handled, but the price for 5,000 such pots of 7 centimetres, costing at Erfurt about 75 marks, is here, in the interior, about 400 marks. To return to my account of the Tobacco: the fermenting is now done here in a proper manner, the leaves are first partly dried, then sprinkled with water, and then fermented: or they are fermented green as they come from the plantation.

The latest plan, which is carried out by one firm is, that the quite fresh leaves are cut with the tobacco-cutting machine, and put into large heaps. Such heaps get warm very quickly, and they are then turned over inside out in a few minutes, whilst the same quantity of leaves would require the labour of one man for half a day. The product is very uniform as regards colour, which is almost black. All the Tobacco cultivated in the country is for local consumption as good cigar tobaccos cannot apparently be cultivated here, the weed being too rich in nicotine. At this moment only American varieties are cultivated, very seldom N. rustica. Although in Okahandya in winter as much as 4° C. and even more is often experienced, the place being over, 1,000 metres above the sea level, and on the borders of a river from 600 to 800 metres broad, nightly radiating, unhindered, the sunshine absorbed in the daytime.

Banana cultivation is found possible and steadily increasing; and it is not that of the wild small kinds like M. Cavendishi, but one of the medium-sized forms, which are so extensively cultivated in the Canaries. I am convinced, that under proper cultivation Bananas would yield remunerative crops at Okahandya and in many other places situated north of this village, not for export, but for home consumption. There are, even at Windhoek, several gardens where

the same Banana flourishes splendidly and ripens fruit. Windhoek, is situated 1,660 metres above the sea. Near Okahandya there is a tannery where tanning material, the pounded rhizomes of Hydnora africana? are exclusively used with the most satisfactory result. The Hydnora grows there in quantities already diminishing on the roots of Acacia horrida. In Gibeon Namaland, there is another tannery, where Elephanrorrhisa Burchelli only is used.

I have not found in the *Gardeners' Chronicle* any articles about forestry in the inner parts of Cape Colony, the Transvaal and Orange River Colony. Can you not induce some experienced forester there to write a series of articles about forestry in those parts especially about Eucalyptus planting. It would be indispensable to state the average rainfall, temperature, &c. Thus the statements would serve as a guide for foresters in regions with similar climates. Is there any book on this subject?—DINTER.—*Gardeners' Chronicle.*

PLANTING RUBBER SEED.

To the Editor of THE INDIA-RUBBER JOURNAL.

In my last article I promised a letter explaining our method of "Planting Rubber-seed at Stake." For the best results the ground should be well burnt over; all trees, after felling, should be "well lopped"—*i.e.*, the branches should be cut from the trees so that they all lie flat on the ground, so as to ensure a first-class burn; everything that will burn should be consumed, and only the largest trunks of trees left. There may be quite a number of cedar as well as mahogany trees, and other hard woods of value. The fire does these very little harm, and they may be sawed up later with a whip-saw, or if the owner can afford it a small saw-mill, either for sale or for building purposes, on the plantation.

After the burning is over staking and lining is done, and snakes put in at whatever distance may be decided upon; but here let me give a word of caution. Put in hard wood stakes that will not rot for at least two years. These stakes serve to show the weeders where the little plants are, and so save them from being cut down with the weeds for at least the first and second weeding. Should the seed not germinate, there is the mark to show just where the supply should be put.

I put two or more seeds at each stake, always in front and rear—as the lines run. Never allow them to be put on the sides of the stake, as this would make a very crooked line but you can see that by planting seed in front and rear—while the plants will be a few inches nearer or further—they will be in a straight line. I open the soil the width of the hoe and about 1 in. deep, two men can do this work to the best advantage, one in front opening the holes, the other closing after dropping the seed and covering them with the soil dug out by his partner, knocking the same back with his foot. In this way they can plant about two acres a day.

Some years this mode of planting rubber does well; at other seasons it is a complete failure. Last year with us it was a complete success. Thousands of our trees planted on July 4th 1901, measured 4 in. to 8 in. in circumference on October 15th this year, while a few measured 12 in. We have planted corn with our stake-planted rubber this season, and have a very fine crop I should say about forty bushels to the acre.

Our rubber this year has been planted 9ft. by 9ft., with two rows of corn between. No doubt it will be interesting to your readers to learn how the Indians plant corn: They take a long stake say about 6 t., point it at one end, then stick it into the ground about 4 in., throw in three to four grains of corn into each hole, and the corn is planted. No earth is thrown in. Ours was planted in this manner, with the result that we get about 40 bushels to the acre. No weeding is done after the corn is sown till it is saved. When I first saw corn planted in this manner I said, "What fools these mortals be!"

We have a gentleman with us now who saw one my letters in the India-rubber Journal when he was twenty-five days' journey up the Amazon River. While they have more rubber trees there, he says they are fast dying out from greed in tapping; but for cultivating rubber, he considers the isthmus of Tehuantepec far superior to the Upper Amazon country.

I have received quite a large number of letters since writing these notes in the Journal about lands in Mexico for rubber and other tropical crops. To one and all I would say, "Come and see for yourself." There are new railroads being opened up from Vera Cruz, South, down into the very heart of the Tropics, and land will be going up in price. I have none for sale; I am simply a planter. If intending purchasers cannot come themselves, get some of your country-men to do the inspecting for you. Good land near railroads can be had just now in 1,000 acre lots at 21s. to 25s. per acre, and much cheaper as you got away from transportation facilities; but remember, the purchase price is paid but once, while transportation charges have to be paid as long as the property is productive. I think we have solved the question of the expenses in coffee cultivation on this plantation; after this no more land will be cleared for coffee; all land will be planted for rubber, and two years after, coffee will be planted under the rubber; then while you are cultivating rubber, why, the coffee is cleaned for nothing, and, if coffee will not pay in this way the sooner we know it the better for all concerned. I see in some East Indian papers that coffee planters there are going to cultivate their coffee after the Brazil method. They are to send a delegation out there to look into the Brazil *modus operandi* in cultivation, to find out how they make coffee pay when it sells the lowest of any, and pay just ten times more for labour than the East India planter. I would advise them to try rubber where they are not too high up, but I feel certain rubber will not pay at high altitudes.

Where rubber is planted by itself, after three years it can be turned into a cattle pasture, and cattle-rearing pays well here in South Mexico; hundreds are shipped to Cuba every month but no doubt. sugar-planting is one of the best paying industries on the isthmus. Mexico consumes more sugar than is made in the Republic and a very large import duty is imposed on all imports that come in competition with any, agricultural product that can be produced in the country.

I would like to see other tropical economical plants introduced such as nutmegs, cloves, cola, as all these could be cultivated with the rubber plant and, after the cost of planting is met the cultivating part—which is of course the heaviest—would be done as the rubber is cleaned. I trust to be able to call on the Editor after the middle of December.

JAMES MAUNDER.

[*Editorial Note.*—Since writing this letter Mr. Maunder has paid *The India-Rubber Journal* a visit, bringing with him some extremely fine specimens. Particularly of interest were two samples of corn grown among the rubber which we have seldom seen anything to beat. By the time this has appeared in type Mr. Maunder will have left these shores. He is extremely well informed on rubber cultivation, takes a very great interest in everything concerning it and is enthusiastic concerning the certainty of the future success of rubber plantation.]—*India-rubber Journal*, Dec. 22.

THE TOBACCO AND PALM INDUSTRIES OF SOUTH CHINA.

There are few objects more attractive to the eye than tobacco fields and palm groves in full bloom. They flourish very luxuriantly in the rich soil of which the delta of the Canton River is composed. No doubt, the vast corn-fields of Canada and the extensive fruit orchards of California are more magnificent, but the deep dark green of tobacco and palm fields are full of beauty.

Tobacco has been cultivated in the district around the San Ui city for many decades. It is stated that during recent years, however, the average under cultivation has considerably increased. The assigned reason is that the farmer can command a larger financial return than from any other crop, and, as Tonquin rice is now imported, he can venture to depart from the time-honoured custom of growing, on his little plot, sufficient rice to support his own family. The young tobacco shoot is transplanted from its seed-bed in January, and rapidly springs into a strong plant provided the soil is suitable and the manure liberal. It is planted on ridges, and, in the ditches between these, water flows plentifully. In April or May the lower leaves, being dark and juicy, are carefully plucked, for the Chinese gather them as they gather their mulberry leaves, as they mature, whilst the immatured leaves are left to ripen. About three thousand plants are planted in a plot equivalent to an English acre. When the leaves are picked the imperfect ones are discarded—theoretically—and the drying process begins. A piece of bamboo wicker-work, about six feet by five, is laid upon the ground, and covered with leaves carefully flattened out. Another layer of bamboo is placed upon them, and the two are fastened together. By this simple method, the leaves cannot curl up, and they can easily be moved from place to place. After a week's exposure to the hot sun, the leaves are quite dry, and ready for export. Those who have charge of the drying have a very responsible task, for as we know, at this season rain often falls, and very little water will spoil the leaves. When they have been dried, they are packed in bales of 30 lb. weight, and shipped to Canton and Hongkong. It is reported that a large quantity is sent to Yunnan. Some, too is exported to foreign countries.

One Chinese acre will produce about 830 worth of leaf. Tobacco demands a rich soil and plenty of manure, and even then is not satisfied, for it leaves the soil poorer than it found it, and consequently the farmer cannot cultivate it in the same plot two successive seasons without courting failure.

What the leaf would be if prepared for Europeans, according to Western methods, is perhaps difficult to say, for though a little of it is now made into cheap cigars in Canton, for native use, the bulk of it is prepared to suit the Chinese taste, and is so steeped and saturated with native oils that no foreigner, however seasoned by Manilas, can attempt to smoke it, and few can endure the smell of the smoke without an internal revolt.

One has often wondered why some enterprising capitalist has not attempted a cigar factory in Hongkong. One would think that, good tobacco being available over the way, such an industry would have been tempting and remunerative.

When we stand and admire the palms that decorate the verandahs and gardens of our Hongkong houses, we do not perhaps consider the important part these plants play in the economic life of the Chinese. Nor can we adequately imagine the fine natural scene that a plantation of these palms present. They grow so thickly that the tufted tops meet each other, and when the wind passeth over them there is, between earth and heaven, a glorious undulation of 'living green.' A Chinese acre, one-third of its English equivalent, will support about four hundred of these plants. If the reader can imagine twelve hundred of these growing in an English acre, each encircled with a beautiful green crown, his picture is correct. These palm plantations are, like the tobacco gardens, planted in the very richest and deepest alluvial soil of these deposits, for it is found that in the long run this pays best. The young plant begins to bear marketable leaves about five years after planting, and will continue to do so under favourable conditions, for thirty or forty years. As a matter of fact, however, these plantations never fail, for young plants are set among the older ones long before age renders these latter useless, and when these fall, they lie and die and so form nourishment for the young life surrounding them. The leaves of a healthy tree in the full vigour of life may be cut three times a year, but the rule is two harvests, and yearly growth about twenty leaves. The labour involved in preparing these leaves for their respective uses is very considerable, and thousands of hands are employed at the industry. The labour of cutting these leaves and bringing them into the city is not very difficult, for canals make transit easy. They are then dried in the sun, and afterwards stacked as corn is stacked at home, and will then retain their freshness for years.

A large number of these leaves are manufactured into fans. First their ragged fringes are clipped off, then they are passed over a flaming fire in order that the crooked ones may be straightened; after this, they are passed into the homes of the people, where women and girls hem their edges, and so they make a cheap and effective fan, the stem, of course, being the handle.

The trade in these palm-leaf fans is very great, and Chinese merchants are constantly shipping large quantities of them to their *confreres* abroad, especially to those who have made their home in the Straits Settlements. And, verily, they are a great boon to the poor, for the coolie—even though he be an opium smoker—is not too poor to obtain one, and not forgetful of the comfort he gets from one. They are strong; they are cheap; they are as effective as the most costly in the hands of the rich. There are many other uses to which these leaves are put, and the Chinese could almost as well spare their bamboo, as their palm, but enough has been said to give a general outline of this industry.—*Overland China Mail.*

CEYLON TEA IN AMERICA.

IMPORTANT ALLEGATION REGARDING RE-COLOURED CEYLON TEAS.

(By T. Gossupp, of New York.)

It may be of interest to many of the planters of India and Ceylon to know a certain amount of actual facts about the American tea trade without being puzzled by a lot of figures.

In the first place, Ceylon teas are coming rapidly into favour here, and without doubt Ceylon green teas are slowly replacing Japan teas. Unfortunately, however, the Ceylon green teas are offering at rather higher prices than the buyers of sun-dried Japan are accustomed to pay, except for Japan sun-dried teas of really fine liquors.

Your writers may not be aware that there are three classes of Japan teas sold here, the "sun-dried" being similar to our uncoloured Ceylon greens but of much better make, having a darker colour and of rather more delicate flavour in the cup. Then there is the 'pan-fired" Japan which is similar to a coloured Ceylon green, but the basket-fired Japan, to my mind as a tea expert, is far superior to anything I have seen with the exception of perhaps one invoice of Ceylon greens which came, I believe, from Bloomfield estate, but which was only a very small parcel.

I advocated some time ago that the Ceylon planters, in order to cope with the over-production of tea (from which they have been suffering) should endeavour to make an "Oolong" tea similar in flavour and style to the Formosa Oolongs which are in general use here. It would be very easy for any of your planters to write to Formosa or to Japan and get samples from these two countries in order that they may see from an actual sample the kind of tea which is wanted in America. The price of Oolongs to-day is 10d. per lb. c-i-f. N. Y.

To take the United States first, it is necessary to remember that it is about 73 times as large as Great Britain and has a population of 76,000,000 people as against Great Britain's 40,000 000 so that you see if we can once induce the Americans to become tea

drinkers on the same scale as the British people generally, or even, say, they take three lb. of tea per head, in a very few years to come we shall have no fear of over production, as America alone will be able to take nearly all the output of Indian and Ceylon It is therefore, a field we have to consider and during the last few months (when Japan teas have been very high), we had a chance of getting Ceylon green teas into favour, but the price held out for by the planter or merchant in Colombo, has prevented them from being more readily taken.

The grades wanted here are Hyson No. 1 and Hyson No. 2, and for these people are willing to pay from 6½d. to 7d. for the Hyson No. 1 and about 5½d to 6d. for the Hyson No. 2. The Young Hyson grade is generally coloured in New York, which can be done for ½d., per lb. and it is then sold as China Green tea.

A great many of the Ceylon greens sold in the States are coloured, repacked and either sold as coloured Japans or as China green teas, being packed in China packages and faced with the usual paper *exactly*, to represent them as China or Japan teas.

With regard to Canada; this country is different as there is a large population who have now become accustomed to Ceylon uncoloured greens, and the loyalty that exists in Canada prompts the consumer to support British tea in preference to Japan tea. Here again the question of price comes in and the only way that Ceylon greens can oust China and Japan is by selling them at reasonable prices, as the grocer will always push the teas that show him the largest profit.

The labour in Ceylon and India is cheaper than in Japan, so one would think that the planters would have a great deal in their favour. The duty of 10 cents per lb., which was a war tax, is to be repealed on the 1st January, 1903, and it is anticipated that a much larger trade will be done.

Some of the favourite grades here are the Norwood, Labukellie, Coodegalla, Meeriabeddie, Warwick and similar liquoring teas, so this will guide many of the planters (who are in these districts where this class of tea can be made), to get samples and follow them very carefully and closely, as there is a regular demand for the light liquoring, flavory, good quality (so called lemon flavoured) Ceylon teas.

If a few of the estates shipping desirable and suitable teas for the American market were to create a demand here by shipping direct, they would find that in a very short time the venture would pay as the writer has seen tea sold here 2d. and 3d. per lb. above the price that they sold for in the London auction.

There are other matters I could write about in connection with the tea planters of Ceylon and India, the tea cess, the packages that are required for this market, the question of shipment, and several other matters which I will touch upon in my next letter. —Local "Times"

IMPROVING JAFFNA TOBACCO.

Mr. Gibson's idea as to the destination of his cured leaf is to send the samples of necessary weight to the various European markets he has decided upon, but the bulk he considers should be made into cigars. The present country-made cigars are mostly of a very rank na ure; and he believes there is an increasing market to be built up amongst the many Ceylon-born lawyers, doctors, clerks, and the moneyed classes in the island, who are beginning to get tired of the black, dirty Jaffna cheroot so long in use. They would, he thinks, purchase cigars of better-cured tobacco at an increased price. As to his future intentions, Mr. Gibson is most anxious to go on. His faith in the capacity of the island to turn out good tobacco is unbounded, and he is hopeful that the result of the present experiment will make Europeans who are in this island and many others anxious to give his experiment a much extended trial. Jaffna methods of cultivation in small gardens will not, however, satisfy his requirements, and the system of watering the tobacco carried out by each small cultivator would never suit a large property. His idea is that some of the excellent land lying near the Karachi tank could be very successfully utilised. Since he has been in Jaffna Mr. Gibson has not been passive in the matter of the grant of land, which Government led him to believe may be given to him. He has applied more than once to Government to get the matter on a more assured basis: but the absence of H. E. Sir West Ridgeway from the island has, doubtless, been the cause of his making no progress. We trust everything he has been led to expect in this connection will be accorded to him, for the opportunity to test such an important new product as tobacco is one which may not occur again for a long time, should Mr. Gibson be illiberally treated. It was suggested to him in one of these communications that he should wait until the experiment was a success before a definite answer could be expected; but we submit that this is scarcely the way to look at Mr. Gibson's effort, for experiments are not always successful at the first start, and it must be remembered that Mr. Gibson is working in, to him, an entirely new country. We understand that the Ceylon leaf according to Mr. Gibson's idea, will not clash, for instance, with Sumatra grown tobacco which is so excellent for covers in the great markets. The jat of tobacco which is produced in Jaffna is more useful for filling than for being used as outside covers for cigars. It is a tobacco with a flavour and that is the desideratum. As a pipe tobacco the Jaffna leaf will it is also believed, be well received.—Local "Times."

COFFEE CULTURE IN QUEENSLAND

(*From Report Mr. Newport the Instructor*).

Sir,—I have the honour to submit my report 1900 1901:—The past year has, on the whole, being a fairly good one for coffee. The crops throughout the colony have been fairly good, in several localities averaging well over 10 cwt. to the acre. A somewhat curious though not very serious effect of the long dry season was noticed this year in the parchment skin, or putamen, being thinner than is usual The crops in this past season have, in direct consequence of pruning and cultivation, ripened up much more uniformly. Labour for picking has been, on the larger estates, somewhat of a difficulty, except to a few exceptionaly situated ones. In the North where aborginal labour was available, use was made of it, but picking by contract by white men, women, and children, has been much more general. Rates for picking have varied from 2 to 3 lb. of cherry, 1d.; and wages of 30s. and over per week with rations have been made. New machinery, both for drying and pulping, has been erected and put in use this year, for the first time by a number of growers in all distrscts; others have replaced, by good machine, their rough-and-ready or home-made apparatus. Stores and drying sheds have also been built and more use made generally of time and labour saving appliances, the building of a very mill, replete with modern machinery, by Messrs. De Molyns and Butter, of the Lower Russell being a noticeable instance. Crops have in most instances been locally bought up this year, and a few growers, not having pulping machines of their own, disposed of their crop to their neighbours, who have generally purchased it outright at rates varying from 1d. to 1½d. per lb. in the cherry. No coffee this year has been sent to the London market, due mainly to the fact

that fairly good prices have been obtained in Queensland for the higher grades, and of the medium qualities there has not been sufficient to ship a consignment large enough to make its export to so distant a market worth while.—*Annual Report of the Department of Agriculture.*

PLANTING NOTES.

A Canadian Note.—A good project is now afoot for extending Railway communication from Ontario to the Pacific coast of British Columbia. The length to the projected railway is 3,000 miles, and trade with the Far East will thus be greatly facilitated and encouraged. Canada has vast stores of horticultural and agricultural produce to dispose of, as well as valuable minerals, and it says much for the pluck and determination of our Canadian brethren, that to look at it one way—they have designed a "fall" with the combines of the United States with such admirable "play."—*Gardeners' Chronicle*

Guavas.—In the *Report of the Agricultural Experiment Station of the University of California*, part i., published in 1902, we find an article by Mr. J. Burtt Davy on the cultivated Guavas, and their botanical differences. Our colonial brethren will do well to consult this article. The cultivated species referred to are: 1 Psidium guajava, with three varieties, sapidissimum, pyriferum, and pomiferum; 2 P. polycarpon; 3, P. araca; 4 P. guianense; 5, P. Cattleyanum, the Strawberry-Guava, with a variety lucidum. Other less known species are mentioned by name. The distinguishing characteristics lie in the four angled, two angled, or cylindrical stems, as well as in the form and colour of the fruit.—*Ibid.*

Utilisation of Home Products.—Dr. Morris, who is exerting his energies so laudably in the promotion of applied botany in the West Indies, points out in the *Agricultural News* (Barbados) that in the days when sugar-growing was very profitable, everything was sacrificed to make way for the planting of Sugar-canes. Then sugar sold for £20, or even £30 a ton; now it is only worth as many dollars; nevertheless, enormous amounts of food-stuffs and other articles are imported, a great part of which could and should be produced locally. The high value of molasses as a feeding-stuff for horses is pointed out, and yet molasses are sold at very low rates in the Islands whilst thousands of bushels of high-priced Oats and corns are annually imported from the United States.—*Ibid.*

French Colonial Schools.—It is a pleasant duty to have to record the appointment of another Kewite to a post of importance. In this instance the fortunate individual is Mr. H. Navel, who after having been educated at the National School of Horticulture at Versailles, and having stayed at Whiteley's nurseries long enough to learn the English language, made a stay of twelve months at the Royal Gardens, Kew. He then returned to Franco, and after spending some months in tho "Jardin Colonial" of Vincennes, under the direction of M. J. Dybowski, has recently been appointed *Directeur des Cultures de l' Institut Colonial de Nantes*, a post lately created by the French Government for the development of the instruction and also for the rearing of economic plants useful to intending planters in the French colonies. Our best wishes to the new director who, during part of his stay in England, occupied the position of Vice-President of that useful institution the Société Francaise d'Horticulture de Londres, which has done so much during tbo last twelve years on behalf of the young French gardeners who have resided in this country, and the few English gardeners who have sought its help and support to procure for them suitable situations on the continent. It is a society to which every English gardener, having even a small knowledge of French, might well belong.—*Ibid.*

Food of Plants.—M Laurent in a recent number of the *Comptes Rendus* shows that glucose, saccharose, and other sugars, as well as glycerine supply excellent food for plants, and that humic acid in the form of humate of potassium modifies those interchanges of gases which lead to the assimilation of carbon in the plants. On reading this, one wonders whether refuse sugar-canes, from which all the sugar cannot bo extracted, would be serviceable as manures.—*Ibid.*

The Rubber Industry.—In Ceylon, and in the Straits Settlements, large plantations of Para rubber (Hevea brasiliensis) have been made by private enterprise. The Government of India now propose to plant 10,000 acres in Burmah with the same tree, a proceeding viewed with dismay by the private growers in the colonies aforesaid. The Secretary for the Colonies has been memorialised on the subject, but the demand for rubber is so great that it is hardly likely that steps will be taken to limit the output in any way.—*Ibid.*

Keeping Birds Out of Fruit Trees.—The birds of Ceylon must have different ideas of the value of material objects from those entertained by our Queensland felons in feathers, the fruit-eaters. In our February issue we described a plan for obstructing their nefarious proceedings by means of looking glasses, as given by the *Ceylon Tropical Agriculturist* A correspondent from Georgetown, Etheridge, not, writes to say that he has found looking glasses to be a complete failure. The bower birds simply danced round them with delight, and one even tried to carry off a bit of the broken glass. Our informant bought a dozen of cracked mirrors and hung them by strings from sticks stuck in the ground and on the branches. It appeared, however, that the birds were rather attracted than repelled by the glitter of the mirrors. Those who know the habits of the bower bird will not be surprised at that dancing dervish amongst birds trying to run away with the glass for they seize on anything shining, as well as shells, to scatter round their bowers, which are often 'halls of dazzling light."—*Queensland Agricultural Journal.*

Education in the Netherlands.—There has just been issued, through the King's printers (Eyre & Spottiswoode, West Harding St., E. C., price 5), what may be termed a supplementary report on the system of education established in the Netherlands, the result of enquiries by a commissioner sent over for the purpose of gathering up facts, possibly for use by the House of Commons in its struggles over the Education Bill, now on the legislative "stocks," and where it is likely to remain some time longer ere being launched into history as a full fledged Act of Parliment. We can only hope that our legislators may find the little book of use to them, as it surely will be of interest, seeing that we are being assured that we are ever so much behind every body else in the matter of education. Our Dutch friends are very earnest educators, and those who are being educated must also be very earnest in the subjects to pass in which is necessary to matriculation. Amongst other things being three languages (modern) mathematics chemistry, theoretical and practical mechanics, and goodness knows how many more. In all "centres" these are subjects common to all; in some, selections are made: agriculture is well cared for; and botany, it may be said, of course, runs side by side; and botany, it may be said, of course, runs side by side; or is forestry forgotten. We are under the impression that the sons of farmers do not sufficiently estimate the advantages of the education provided for them by State and Commune. Evening classes are felt to be a boon by very many, and compulsory attendance at day school has resulted in nearly all juniors finding their way to the class-room. The little book is well worth persual by all who take an interest in the proper education of the rising generation.—*Gardeners' Chronicle.*

TEA PROSPECTS.

With reference to recent articles in the periodical "Tea"—the latest of which we reproduced on page 497,—a Ceylon proprietor writes from London, Dec. 11th :—

"There is not the slightest doubt but that we shall never be permanently right until we can have some organisation among the sellers, as well as among the buyers."

We attract attention to the contribution by "Suum Cuique" given elsewhere. He makes the bold statement as regards "overproduction" that it has never exceeded 5 per cent of the requirements of the market and that the trouble and low prices are due to the combined action of large buyers and the want of cohesion among producers. All that he writes on the subject should theretore be carefully studied by planters.

EXPORTS OF CEYLON TEA TO THE UNITED KINGDOM IN 1902.

The following are the monthly shipments of Ceylon tea to the United Kingdom during the past year, in round numbers :—

			lb.
January	..	..	9,250,000
February	..	..	8.000.000
March	...	...	8,500,000
April	..	..	9,000,000
May	...	..	9.750 000
June	...	..	13,000,000
July	..	..	10,750,000
August	...	...	7,250,000
September	...	..	6,750,000
October	...	...	7,000,000
November	..	..	6.250,000
December	...	...	9,000,000
	Total	...	104,500,000

Estimate for January 1903—9½ to 10 millions lb.]

SUGAR AND RUBBER IN THE STRAITS.

We were sorry to miss Mr. John Turner, the General Manager of the largest Sugar Cultivation Company in the Straits : he arrived by the ss. "Arcadia" recently and left in a few hours by the ss. "Coromandel" for Penang. Referring to Sugar prospects, Mr. Turner writes to us :—

"You will no doubt have seen what has been taking place in connection with sugar bounties. Prices have already gone up considerably and we look for a further rise. So that with our new estates we are in a position to take full advantage of the rise."

Mr. Turner is also interested in rubber.

SWEET POTATO FROM BARBADOES.

(From a home Correspondent.)

Messrs W Pink and Sons, the well-known wholesale fruit merchants, have begun a new departure to which Mr Alleyne, M L C, Barbadoes, has been drawing attention in the newspapers. They are now regularly importing

into this country from Barbadoes and hope to develop a good market ere long. They have, at present, only stocks of sweet potatoes, Mr Pink tells me, but after Christmas he expec s large deliveries of yams. The sweet potatoes they sell in baskets of about 17 lb and 34 lb and barrels of 124 lb, prices being respectively 3s 6 l, 6s 6d, and 16s, carriage paid to nearest Railway station. The endeavour to introduce those vegetables is further assisted by recipes stating how to cook Barbadoes' potatoes, taken from a pamphlet issued by Ceylon's old friend, Dr Morris, C M G, Commissioner of Agriculture for the West Indies. I append a few of those at the end of this letter for the benefit of any Ceylon housekeeper who may sigh for something new for dinner. Housekeepers here, who have more variety to select from, are yet showing interest in the new vegetables from the West Indies, and the idea seems worthy of support in view of the distress of West Indian Industries at the moment. It is said yams and sweet potatoes are very deliciously cooked in this country where really good butter can be incorporated with them in various ways. That may be, but some of the recipes Dr Morris brings forth out of his treasury of knowledge smell of indigestion to the experienced stomach to which the yam is not entirely a new creation, notably the rich pastry dish, which prudent "lovers of the table" (vide Cockle's pills) will put off trying till the New Year festivities are safely past !

RECIPES FOR BARBADOES POTATOES.

(Broiled.)

Potatoes to be half-boiled, the skin removed, and put in the oven till brown. Cut into pieces, serve hot.

(Rechauffé of Cold Barbadoes Potatoes.)

Mash till perfectly free from bumps, stir into every pound of potatoes two table-spoonfuls of flour, two of minced onion and 1 oz. butter ; add sufficient milk to moisten well, press in a mould, bake in a moderate oven till brown and turn out.

(Barbadoes Pie.)

One quart of Barbadoes potatoes boiled and mashed, three beaten eggs, three table-spoonfuls of sugar one table-spoonful of butter, half a nutmeg (grated), half tea-spoonful ground cinnamon, a little ground cloves, a little lemon peel, enough cream to mix together to a batter. Line the pudding dish with a rich pastry, pour in the mixture, and bake with a top crust.

PRODUCE AND PLANTING.

We published last week a vigorous appeal from a correspondent calling upon

TEA PRODUCERS TO COMBINE.

Our correspondent, after putting forward proposals for meeting the present difficulties of tea-growers, asked who will move in this matter? Some days have elapsed since our correspondent's letter appeared, and up to now there is, so far as London is concerned, but small indication of any movement on the part of those chiefly interested. We have received some letters, but so far the attempt on the part of our correspondent to inspire the leaders of the tea industry with life and action, even to the extent of calling a meeting to discuss preliminaries, has met with no overwhelming response. Possibly some step indicating concerted action may be contemplated, but if this be so, nothing has leaked out in confirmation. We trust that those who desire to initiate some movement

for the general welfare of the tea industry will not be left to the empty echo of their appeals. It may be premature yet to write that nothing is likely to result. Those who are prepared to act must wait a little longer before finally deciding that their efforts are in vain, but it would have been encouraging at least if some enthusiasm could be traced in favour of a live movement towards unanimity and a practical plan of campaign. The operation of crying in the wilderness is disheartening, and is calculated to lead to the conclusion, which we trust is not yet completely justified, that any attempt to bind the interests of tea growers which may conflict in minor matters but should be identical in the main, is doomed to failure.

While the British-grown tea industry is under a cloud because of over-production and other causes, reports are received of a threatened extension of tea growing in lands when the experiment will be new. Texas will make an attempt, and we hear also that M Prudhomme, Director of Agriculture in

MADAGASCAR

believes that tea can be cultivated in almost the whole of the island, but especially on the East Coast, which is moist and rainy. There may be some slips between the cup and the attempt to fill it with tea from Texas and Madagascar, but it shows the keen desire exhibited on all sides to cultivate tea where climatic conditions render it possible.

With reference to the

PROPOSED TEA CULTIVATION IN TEXAS

the "San Antonio Express" says:—J H Kinsler, representative of the Department of Agriculture, who has been investigating the adaptability of the soil of Eastern Texas to the cultivation of tea, has returned to Washington. The Department of Agriculture will put in an experimental farm for tea. Just where the experiments will be conducted is not known. The citizens of Nacogdoches have formed a stock company recently for the purpose of furnishing to the Government the land and help and building necessary to experiment with the growing and curing tobacco. Something was said at that meeting about tea, but no action was taken. Wherever the Government believes the tea farm should be placed, there is little doubt that the citizens will get together the necessary funds to provide the lands.

THE JAPAN TEA COMPANIES

are reported to be forming a combine consisting of the following firms, viz: The Kyusu Tea Export Co., the Nagasaki Brick Tea Manufacturing Company, the Fukuoka Tea Manufacturing Company, of Fukuoka, and the Higo Tea Manufacturing Company, of Kumatoto. The aim of the combined companies is to extend the business of tea export into Siberia. The agreement that has been entered into sets forth that the three last named companies shall procure their tea from Kyushu Tea Export Company, which will undertake the actual business of exporting for the combination.

INDIAN TEA IN CENTRAL ASIA.

In his new book, "Across Coveted Land," just published by Macmillan, Mr A H Savage Landor, referring to Seistan, the half-way house between Quetta, in British India, and Meshed, in Persia, says that a greatly developed Indian tea trade will, in all probability, pass through it some day. Mr Landor, in his interesting chapter on this subject, believes that only an understanding with Russia is needed to procure for Indian teas a most profitable market, not merely in central and Western Asia, but all over Europe.

TEA IN CANADA.

Whatever sceptical persons may have thought a short time ago, it is evident that British-grown green tea have secured a permanent footing upon the market, says the "Canadian Grocer." Of course, their use is very small when the quantities of China and Japan greens that are annually consumed are taken into account, but the fact that their consumption is steadily increasing, and that they are now figuring in the statistics which are from time to time issued in regard to tea is evidence of this. A return recently issued, giving the distribution of green tea from January 1st to the end of September, shows that there has been a substantial increase over the same period last year. The quantity exported to all countries was 637,224 lb, while this year for the same period the quantity was 1,593,063 lb. In 1901, Russia took no Ceylon green tea, but this year she took 106,435 lb. Africa also appeared for the first time as a consumer of Ceylon greens. Australia and China on the other hand, while they took small quantities last year did not take any this year during the period in question. Our readers are, no doubt, mostly interested in the figures relating to the quantities exported to this continent. These show that while for the nine months last year the quantity was 457,982 lb this year for the same period it was 993,970 lb, an increase of about 117 per cent. Our own trade returns giving the imports of green tea into Canada show that for the fiscal year ending June 30, 1901, we took 81,574 lb of Indian and 335,815 lb of Ceylon green. This year, however, the figures were 71,466 lb of Indian green and 520,480 lb of Ceylon green tea. The dearness and scarcity of China and Japan green teas have, no doubt, materially added to the consumption of British grown green teas on this continent, but, of course, to what extent cannot be estimated. Whatever may be the causes, the fact remains that the consumption is increasing, and not only in America, but elsewhere.—*H. and C. Mail*, Dec. 12.

AN AERIAL ROPEWAY IN SOUTHERN INDIA.

BY L. DAVIDSON.

The native State of Travancore pays an annual tribute to Britain of £80,000, and has a population of about 2,500,000. It occupies a strip of land of 6,730 square miles on the extreme south-west of India, and Cape Comorin is situated at its southern extremity. From the sea coast, which forms the western limit of this native state, the land rises eastward to the summit of the range of hills which, running almost parallel to the coast, separate Travancore from British Territory. On the eastern, or British, side these hills are too steep for railway—and in many places for road—construction, but on them are large areas of rich land, which are to some extent cultivated with very profitable results. The greatest difficulty attending their development lies in easy and cheap means of communication, for the transport of labour and food to the estates, and of the produce to the lower land, where it finds a market.

An example of how this difficulty has been overcome on one large estate is of considerable interest. It is located at a point where the rise from the plains to the cliffs at the top of the "ghaut," is unusually steep and rugged, in some parts there being an almost perpendicular face of rock from 1,000 feet to 1,500 feet in height; below this are several thousand feet of steep, rugged grass land, sparsely dotted with trees and broken up with innumerable ravines. The crest of this ridge is 6,000 feet or more in elevation, and the plains at the foot are about 1,200 feet above sea level, so that there is the extraordinary rise of nearly 5,000 feet in an average horizontal distance of about five or six miles. The eastern side is British territory, and very dry, much cultivation being done with the aid of wells, though the recent completion of the Periya-aar irrigation works, which comprise a dam in one of the valleys on the Travancore side of the range, with a "bund" 150 feet deep, and a tunnel through the hills to the dry British side of the country, enables a large tract of land to be irrigated which

would otherwise be subject to the vicissitudes of irregular rainfall, and it is hoped, from this source alone, that 100,000 acres of rice land will be kept under permanent cultivation.

The rainfall in Travancore side of the range is very heavy, amounting to 250 inches per annum, and even more in some parts; while it is not over 30 inches on the British side, only a few miles distant. An agricultural company secured a concession from the Travancore Government of some 100,000 acres of land, and has of recent years been developing the suitable portions for the cultivation of tea and coffee, cardamoms and chinchona; about 20,000 acres are now under these varied crops. The labourers required in connection with the gardens, together with their families, number about twenty thousand, and in order to feed them some three thousand transport ponies, donkeys, and cattle were employed, besides a large force of probably not less than eight hundred coolies for carrying head loads.

The principle base of operations, Munaar, was thirty-two miles from the end of the cart road on the plains, which ran from that point to a station on the South Indian Railway; along this road it is hoped that a narrow-gauge railway will be laid by a company which has secured a concession from the Government. The road has been extended recently by the Agricultural Company ten miles of a valley to the base of the steep ghaut, and from the top of the range about forty miles of cart road have been constructed in various directions to serve the estates. It was to connect those two points that it was decided to erect an aerial ropeway capable of filling the company's requirements, as well as those of the general public, for many years to come. A cart road up this ghaut would have been impossible to make or to work except at a prohibitive cost. The question of cutting a cart road in a westerly direction was also duly considered, but the heavy cost of construction through virgin forest in an unhealthy country, with a rainfall of upwards of 250 inches, and the fact that fifty miles of such road would have had to be made and maintained under difficult conditions, resulted in the abandonment of the idea. It was finally decided to join up the steep section between the ends of the two roadways by an aerial rope line, and the type to be adopted received careful consideration. The local engineer of the company, Mr Kemlo, finally designed the installation with a view to erect an efficient ropeway with materials of as light a section as was compatible with strength, as the cost of transporting material in the very unhealthy ghaut was excessively heavy. His design took the form of a moving rope carrying its own loads, and although the trouble in connection with its installation was great, the results have more than fulfilled expectations. This is probably the steepest ropeway of its class in existence, and its success is in a large measure due to the grip carriers which will be described presently. The total length of the ropeway is 2.6 miles, measured along the slope of the ground, and the rise is about 4,000 feet. It is divided into two sections, the lower one being 7,400 feet in horizontal length, with a rise of 2,150 feet; the upper section has a horizontal length of 5,800 feet, and a rise of 1,850 feet. In the lower sections, there are thirteen spans, the longest being 1,028 feet horizontal, and in the upper section there are nine spans, the longest 1,560 feet horizontal. The slope is fairly uniform throughout, except, that the lowest four spans are less steep than the rest of the line.

Fig. 1, Plate XLV, is a profile of the line. The positions of the standards are numbered consecutively from 1 to 18, and the information on the section is so complete as to render any further reference unnecessary.

The reasons for working the rope in two sections are (1) in the event of breakdown only half of the installation would be out of work; (2) that part of the stress at the top, which is due to the weight of the rope, is diminished, and thus its load-carrying capacity is increased; and (3) the climate at the foot of the Ghaut is so unhealthy that no European could stand it, while by the present arrangements the ropeway is worked from the central station, which, being at an elevation of nearly 4,000 feet, is comparatively healthy. The rope is of good quality plough steel, ¾ inch in diameter, and about 1 lb weight per foot. It was sent out on eight drums with an interchangeable axle and wheels, and each drum was rolled into the line of ropeway and unwound on the axle, the hauling being done by ⅜ inch steel ropes on hand winches, a tedious process. Four drums of rope were required for each section; the splices were 60 feet long, and have stood well. The rope is supported on 18 inches pulleys, with groove of 1 inch radius, and the pulleys are carried on light angle steel standards of various heights to suit the nature and slope of the ground, varying from 10 feet for the lowest to 40 feet for the highest standard. The feet are in most cases embedded in concrete blocks, though in some instances they are bolted on the rocks that happened to be in the line of ropeway. One rock shown in the engraving, Fig. 2, Plate XLVI, was 120 feet high, and an iron ladder was fixed to its almost vertical side to enable the work to be done at all.

The engraving, Fig 3, Plate XLVI, shows the standards very clearly and indeed gives a good idea of the ropeway generally. The other illustrations on this plate are characteristic of the work. Fig. 4 shows one of the terminal stations, and Fig 5 shows the zigzag cart road approach to the upper terminus. The tension gears are at the top and bottom stations (see Figs 6 and 7, Plate XLVII). The tension wheels are 8 ft in diameter, carried on a sliding arrangement 35 ft long. The requisite power is got by a worm wheel winch and three block sheaves with a half inch specially flexible wire; the anchors are heavy masonry and concrete blocks over 30 tons in weight.

The driving arrangements are at the central station, and consist of two electric motors, either of which can be used geared on to a counter-shaft which, in its turn, operates, through a rope drive, a vertical shaft and pinion geared on to two 8 ft spur wheels. These spur wheels have bolted on to them hard wood pulleys, by which the ropes are driven. The upper and lower sections of the ropeway are connected by shunt rails, along which the loads pass one road to another, and at the termini loads automatically run off the rope on to shunt rails, or off the rails on to the rope, without any loss of time.

The current for supplying the electric motors is generated about a mile further down, at a point where a head of 750 ft. of water is available. This operates two Pelton wheels; they in their turn drive two dynamos, each supplying 40 amperes at 500 volts. One of these is sufficient to work the ropeway at two miles an hour, while the other is always ready in case of accidents. No water power was available nearer the central station than at this point, so that electric transmission was indispensable.

The general form of carriers is shown in Fig 8 to 12, Plate XLV. It consists of a frame or hanger, B, which carries the load clear of the standard head pulleys. To the upper end of this frame the rope-gripping arrangement is attached. It is made up of the frame, A, carrying two pendant jaws, E E, which are so arranged that when the load is run along the shunt rail, and the jaws come in contact with the rope, they automatically close on and grip it with a force proportional to the weight of the load. The other letters on this figure refer to the following parts: I is the carrying pulley; F is the shunt rail; and O is the supplementary pulley running on the shunt rail and taking the load off the rope.

Enlarged details of the jaws are given in Fig 9 and 10. In Fig 9 the jaws are shown closed over the rope, a result due to, and varying with, the amount of load suspended. In Fig 10 the jaws are open and the rope released, the weight on it being removed. It will be noticed that the proportions of the jaws do not interfere with the free running over the pulleys.

Fig 11 and 12 show a somewhat modified form of the grip arrangement.

The large groove in the standard head pulleys has the advantage of altogether preventing the rope from being jerked off, which is a common fault with the ordinary rope-carrying pulleys having a groove only half the diameter of the rope.

The top bracket A, of the grip frame shown in Fig 8 carries a rail pulley D, already referred to. This comes in contact with the shunt rail F, when the load reaches the end of its journey, and as the shunt rail is laid at a flatter down grade than the rope at this point the weight of the load is taken up by the rail, and the pendant jaws open and release the rope automatically. This process is reversed at the loading side, the shunt rail being almost level while the rope has an upward slope at this point, so that as the load travels along the shunt rail, the open pendant jaws close on the rope, and the load is automatically taken up by the rope from the shunt rail.

The loads carried are limited to 5 cwt each, but necessarily most of them are less, as it is easier to handle lighter loads though the ropeway is capable of taking far more than the existing traffic.

Assuming forty loads as about the average number on the rope at one time, a delivery is ensured of fifteen loads at both ends per hour, when the rope is running at the rate of two miles an hour, and working ten hours with 4 cwt loads. This gives an average of 30 tons a day each way, or more than double the ropeway has actually to carry. The speeds arranged for are one, two, three, and four miles per hour, but at two miles the line handles more than has been required of it hitherto. The economy in working, as compared with the old methods of transportation, is close on £1 per ton. The advantages of being able to erect an aerial rope of this class on steep grades are obvious, as not only does it effect a considerable saving in regard to the original cost of the installation, but by the use of the grip carrier described, the life of the rope is greatly prolonged, owing to the fact that they probably never grip exactly the same part of the rope twice, and the wear and tear is thus equalised throughout its length.

The prospects of success when the work was commenced were small, but the results obtained have been very satisfactory.—*Traction and Transmission* for Nov. 1902.

A NEW CEYLON PUBLICATION: "SPOLIA ZEYLANICA."

"Spolia Zeylanica" is to be the title of a new publication issued by the Ceylon Government Museum, Colombo, for taking the initiative in which credit is due to the new Director, Dr. A. Willey, F.R.S. The publication will be commenced shortly in the form of an Illustrated Quarterly Journal, containing Records and Contributions, together with Notes, Abstracts and Reviews, relating to the Economic and Systematic Knowledge of the Natural Resources (Zoology, Anthropology, Palæontology) of the Island and of the surrounding Seas. The subscription will be R5 per annum, payable to the Director, Colombo Museum. We wish the new Quarterly all success.

BLENDING INDIAN AND CEYLON TEA;

SAUCE FOR THE GOOSE MUST BE SO FOR THE GANDER.

Lately our evening contemporary contended that it was an advantage to Indian tea planters that Ceylon tea should be admitted free :—

Indian tea is not so palatable as a blend of Indian and Ceylon teas, and that, as a matter of fact, the use of such a blend will be to the advantage of their consumer and to no real disadvantage o Indian producers.

The "Indian Planter's Gazette" is not to be caught after this fashion :—

If it was a fact that the indigenous article was undrinkable by itself, and unsuitable to the palates of consumers without the admixture of an exotic brand such as Ceylon, surely the largest firm of tea dealers, Messrs. Brooke, Bond & Co., Ltd., would have taken cognisance of it, and would not have confined themselves to selling blends of *pure* Indian tea. We have their assurance that the blends they are selling in this country are all blends of *pure* Indian teas. This statement cannot be gainsaid, so where does the contention of our contemporary come in? Some time ago it was suggested that the Ceylon import duty should at least be abolished on Indian tea, so as to permit of blends of Ceylon and Indian teas being made in Colombo. But our Island contemporaries would not hear of it. Now, however, in their attempt to drive in the thin edge of the wedge, they put forward the cool proposition that their product should be blended with ours in order to make it go down the throats of our *hoi polloi* the more easily. Such a procedure, we are told, will make our teas demotic. But, needless to say, we are well able, with the great varieties of tea we produce in this country, to cater to the wants of our proletariat, without the assistance of any adventitious aids. With Ceylon, however, it is otherwise.

Our Calcutta contemporary is inexcusably wrong in part of the above; for he has had evidence before him more than once that the *Ceylon Observer* has consistently advocated the abolition of the Ceylon *import* duty on tea as an antiquated, unjust and altogether indefensible levy,—the proper substitute being expert inspection at our Customs to keep out any teas below a certain standard.

CHINA TEA EXPORTS—it will be seen from the latest reliable figures published elsewhere—are still far ahead of the preceding year. To the end of the year 1902 the increase was 13,725,567 lb. America has taken about 10 million lb. more than on the previous year, Russia has taken some 4 millions less, and England 2 millions less.

"COLOURED" CEYLON GREEN TEA REJECTED IN AMERICA.—We direct attention to the information conveyed to the Ceylon Planters' Association by Mr. William Mackenzie regarding the rejection of 38 packages of green tea in New York. From the statement "some colouring trick had been tried on it" it would appear that Mr. Mackenzie's friend is under the impression that colouring Ceylon Tea is unusual in America. This is not so. After the above disquieting statement we should like to be sure that of the green tea which leaves Ceylon for America none continues to be similarly treated before shipment; though our Commissioner does not actually state the present "trick" took place in Ceylon. We have credible authority for saying that much of the Ceylon tea which leaves here as pure Ceylon green tea is treated in America before being placed on the market. Perhaps the American buyers prefer to do their own colouring, with colouring matter, before the green tea is sold; for then they know exactly what they are offering to the public?

TEA IN 1903: THE PROSPECT FOR WEATHER AND CROPS; EXPORTS FOR 1902 AND ESTIMATES FOR 1903.

The year, which has just closed, has not been a red-letter one for the tea planter. Abnormally wet weather has been the main factor in the untoward result, and further emphasis was supplied by a long continuance of low prices. But that season is now behind us; and with past experiences as a guide, our thoughts naturally turn to the opening year with its fresh hopes and probable possibilities, and we ask ourselves what the future months have in store for the premier culture of the island. A great deal depends on the weather, and how uncertain that is, goes without saying. And yet in this age of possible impossibilities, a new prophet, Mr. Hugh Clements, has arisen, with Mr. Wm. Digby, C.I.E., formerly of the *Observer* staff, as his mouth-piece, who claims in the latter gentleman's work on "Natural Law in Terrestial Phenomena," to have found the secret to enable him to forecast the seasons. As Mr. Hugh Clements, however, will likely have all his time employed in defending his theory, and will not be available for the service of the Ceylon planters, we are forced back from the region of exact science to the land of incertitude and the rule of thumb.

Meteorologists tell us that the longer it has rained the chances are that the longer it will rain; and Ceylon has had its wet cycles, but happily also its dry ones. What a prospect we would have before us of soddenness and green mould if the rule mentioned above was inviolable! Happily it is not. Tropical agriculture has found its best interpretation rather in "the swing of the pendulum"; and the poet's saying "all things will come round to those who will but wait," has been vividly illustrated in many a pathetic story of planting life. Last year having been a poor year for tea, we instinctively feel that this year should be better, and, given decent weather, we feel sure it ought to be. Tea is in good heart, is healthy and free from blights, and whatever there may be in the idea that the flood-tide of production is past and increase by "leaps and bounds" only now to be a memory, to expect in 1903 such beggarly months as was November of last year, is, in planting circles, to anticipate the incredible. Planters, in submitting crop estimates, do not, as a rule, add a "D. V." to the tabulated figures; but it is unconsciously done when they postulate a normal season, a rule which the wise ones adopt. If planters could approximately forecast the weather, there would be no necessity for the occurrence of shortage of estimates, nor the apologetic eloquence which Chairmen of Companies indulge in, in explanation thereof. After so much rain, it is quite within the range of possibility, that the present year may prove a dry one. In 1891 the rainfall in Colombo was 119 inches, and 1892 followed with only 60 inches. If this should be duplicated this season, the tea crop might even suffer, and instead of the anticipated increased outturn, there would be receding figures. High estates would gain through an excess of sunshine and a paucity of rain, and the reserved energy, which has so long been kept in check by the cold and wet, might burst out into exuberant flushing, and bring about a busy time. Medium and low places would, however, fall off, and as these properties are in the majority, a serious deficit might easily occur. It used to be held that it did not matter very much to have a period of poor returns, as it was certain to be made up later on; but we are not sure that this idea obtains now to anything like the same extent that it did formerly, nay, the more general experience is that it is a hard task to recover lost ground, and that the tea bush, unless stimulated by manures, has a horizon limited by today, and is pretty much unaffected by what was left undone yesterday, or the day before that.

Another point to be considered in a speculative estimate of the coming season, is the Labour Question, which is too important to be over-looked. Granted a season of pressed down and overflowing measure, could it be effectively harvested by the present labourers at command? For some time back there has been no high pressure from flush, which would have withdrawn all hands from other work, and yet spite of this slackness, our planting reports hint at work so necessary as pruning, being far behind on certain places, and other needs clamouring vainly for attention. The estate, which is well supplied today with coolies, is somewhat exceptional, while the bulk of places—in many districts if not in all—register "short," or "very short," as the condition of the labour force. It is a kind of hand-to-mouth existence which, we fear, is the present condition of labour in many parts of the planting districts and while it may be possible to get along during the slack months in a kind of crippled and worrying way, a real good season—unless a determined effort be generally made to recruit new coolies, and gangs are strongly reinforced—would be no blessing, except, perhaps that disguised kind which, the optimist always discovers, hidden somewhere under the shadows cast by disaster. If the squeeze, at present, were severer, there would be more hope of immediate action to relieve it; but as it can be borne without much inconvenience the industry may drift into the future busy months badly equipped, unless planters wake up, and there may be later on, a real regret, when regret is unavailing.

From the home side there is every reason to expect substantial returns for tea shipped. There are, of course, the large blending Companies who charge solid, and with determination to break down prices: but restricted offerings in the London market, circumvent their selfish plans, and the law of supply and demand comes into free play and reflects itself in the markets' bidding. The home outlook is very hopeful, and the regular trade circulars, which have been for so long a time, dreary

reading, and have had for their key-notes the imperative need for a reduced output and a higher quality of tea, are now becoming quite chirpy in the growing brightness of the dawn of better times. Private advices also, which had acquired a stereotyped style—apologetic in tone for the wretched market and its low rates, with a saving clause that the teas arriving were poor—are today much changed. Planters are said to read them now with real pleasure and every tea-maker swaggers around with an unconcealed air of being master of the craft of manufacture! A leading London agency firm, writing last mail on the prospects in view, said :—" About half the Indian crop remains to be sold between this time and 31st May, and the quantity offered each week will probably average 37,000 packages. This makes a total much less than last season's and as supplies of Ceylon teas are at present not in excess, there is reason for a continuance of good markets." The present year, therefore, has opened both in London and Colombo—to judge by yesterday's sales—with much promise; and, given a fair weather record and an increased influx of Tamil immigrants, its close should be more heavily gilt, than the year which has just expired.

As regards ESTIMATES of the EXPORTS for the current year, there are several, we hear, floating about Fort offices of more or less authority. In our last *Overland* summary, we ventured on the best approximation within our scope at the present time. Against a total of 148,994,730 lb. of all kinds of tea shipped in 1902, we put down 153 millions for 1903; but of this 8 millions are given as green tea—leaving 145 millions (100 to United Kingdom against 103 millions in 1902; and 45 against 43¾ millions to other places) for Exports of Black tea to all countries. It may be said, indeed, that as not much green tea goes to the United Kingdom we put down nearly 52 millions lb. altogether of our teas as likely to be sent to "Other Countries" during the present year. This is surely a liberal enough estimate? A merchant with special interest in tea crops, who has seen our figures and who remarks on the discrepancy between the Chamber's and P.A. figures for "greens" (so much green tea really shipped as "black") writes :—

"Bounty was paid in 1902 on 3,914,062 lb. greens. Shipments of greens have therefore probably been about 3½ millions, against 2,806,844 lb. per Chamber of Commerce. A good many fresh estates are making greens, but the 388,806 lb. for the last half of December may be partly accounted for by a rush of applications before the bounty is reduced to 4 cents. I see Mr. Philip does not give the lbs. on which 5 cents bounty can still be paid, as he usually does? I think your estimate of 153,000,000 lb. a very fair one and reasonably, I don't think crop will be more."

For further details, we can only refer to last *Overland* Summary, meantime emphasizing the fact that if weather prove unfavourable, or labour runs short by April-May, we may not even see 150 millions of exports realised. At the same time the London market cannot complain if we only send them 100 millions lb. of black and perhaps 1½ million lb. of green tea, during 1903.

TEA IN PARIS.

Under the heading "Paris at Five o'clock." Mrs Alec Tweedie described last week in the *Pall Mall Gazette* the craze for tea-drinking in the gay city. In the course of her article Mrs Tweedie said :—" There have been several revolutions in Paris; but none more complete than the

REVOLUTION OF THE TEA CUP.

Tea cost forty francs a pound at the time of the coup d'état, and was only indulged in on rare occasions by the wealthy. Afternoon tea was almost unheard of ten years ago in Paris, and yet today it is the fashion everywhere. There is no doubt about it: afternoon tea is a particularly British institution. Rich and poor alike enjoy that stimulating beverage between four and five o'clock, and look upon it as a necessity of existence. This has been the custom for years, ever since the duty went down and the imports from China went up; but until lately Britain has stood alone as a drinker of afternoon tea. Is the present craze in Paris the outcome of the International Exhibition of 1900? Is it the result of the British invasion at that time, which clamoured for afternoon tea, a habit followed by other weary sightseeing folk, who in their turn found it so refreshing that they have kept to the habit? Or is it that fashionable Parisians dine so much later nowadays, they find refreshment of some sort is necessary between a twelve o'clock déjeuner and an eight o'clock dinner? Whatever the cause, the revolution is complete, and Paris has succumbed. In many of the fashionable hotels a notice is posted in the hall intimating that the band will play from four to six o'clock, when tea will be served. The idea of smart hotels is being quickly followed by smaller shops, and bills announcing in English 'Five o'Clock Tea' may be seen on every side. So completely have Parisians adopted our custom, they speak of the meal as 'le five o'clock,' the word 'tea' being often omitted altogether.

"THE REVOLUTION IN TEA"

has gone even further. We have lately stayed in three delightful old French châteaux, where nothing is more noticeable within the last few years than the decline of coffee and the ascendency of tea. Formerly everyone took 'café au lait' at their early breakfast in their own rooms; now tea is almost as universally drunk as coffee. Formerly everyone drank café noir after déjeûner and dinner; now, apparently, only half of the people do so. Formerly coffee was excellent it was a treat to go to France for the sake of the coffee alone; but this is changed. So many people have given up drinking coffee and those take it black so often drown its flavour with liqueurs, that a cup of really good coffee is now the exception and not the rule. The tea has improved as much as the coffee appears to have deteriorated. The afternoon tea custom which has started in Paris has spread to the country house. Every afternoon we found the valet de chambre brought in his silver tray with tea-things arranged upon it as in England. The daughter of the house deftly dispensed her wares, and the other noticeable differences between England and France were—

the tea was weaker, the lumps of sugar larger, the teapot always had a silver strainer hanging from its spout to hold back the leaves, and instead of eating the cakes dry many of the people preferred to *tremper* them—that is to say, dip them in their tea and eat them soaked with that beverage. When visitors came to call, tea was immediately offered, as it is in Russia. Until lately Russia was the only country which ran us anywhere close in the matter of afternoon tea; but then in Russia tea is going on all day long, and the samovar is in constant requisition. In Russia, however, the tea is served in tumblers without milk, a piece of lemon being added to bring out the flavour. Russian tea is excellent; but then the very finest China tea goes to Russia, where the colour and the aroma are as much considered as these qualities are by a connoisseur of good wine.

PARIS HAS NOT COPIED THE RUSSIAN WAY OF DRINKING TEA,

but has adopted our thoroughly British institution and mode of enjoying that beverage at five o'clock and at five o'clock every afternoon the smart folk of the city may be seen enjoying their tea as to the manner born. Paris has been besieged, and has capitulated in favour of afternoon tea."

Mrs. Tweedie's inquiry whether the tea-drinking habit of the Parisian is the outcome of the exhibition of 1900 has brought a reply from Mr Edward F Langdale, one of the tea representatives at the exhibition. He says:—"Most assuredly yes. And I hope that by virtue of the office I held at the exhibition I may claim to give my opinion so decidedly. Acting under the influential auspices of their respective tea associations, and by the authority of the Indian and Ceylon Committee of the Royal Commission, Paris Exhibition, 1900, the representatives of the tea interests of India and Ceylon were able to do good work at the exhibition itself, and, what is more important, to lay the foundation in Paris of a trade or business which is, I believe, becoming the permanent one of which Mrs Alec Tweedie has now so agreeably treated. Tea interests, generally, are now in such a precarious state that all who are closely concerned with them are naturally grateful when the Press gives its powerful aid to find fresh outlets for the present over-production of tea. The following Press notice was written in 1900, and the opinions therein expressed are, I think, now being verified:—

"Nothing of this kind has ever been done before in Paris, or has succeeded so well. The attempt to sell tea to the public at previous exhibitions has usually ended in disappointment. The object of the association, to popularise tea, is evidently been attained; the tea has become popular, and a nucleus has now been formed for a business which should be continued after the exhibition is at an end.'

"Mrs Tweedie also asks if the 'craze' is the result of any British invasion of the exhibition?

"I do not think so, for my own experience, so far as regards the Indian tea courts, was that our fellow-countrymen were more conspicuous by their absence than by their presence. The tea courts were the resort daily of some of the best French society, members of which were known to say that the Indian tea courts were the most chic of any in the exhibition, and that the Grand Prix should have been awarded for the manner in which the tea was served as well as for the goodness of the tea itself.

"As a further proof that the

TASTE FOR TEA IN FRANCE

became more general at the time of the exhibition, many people particularly those from the provinces bought small packets of tea to take home with them. These sales direct to the public were most encouraging for the prospects of tea, for they showed the desire of the purchasers to try and cultivate a taste for it. Also, they showed visitors to the exhibition that good tea is obtainable at as low a price as from 3 to 4 francs a pound instead of at such a prohibitive one as from 8 to 12 francs, which I often saw marked up in the shops in Paris.

"By the enterprise of India and Ceylon, particularly of Ceylon, tea is now often obtainable in the cup at many of the cafes, but the knowledge how to make it properly has yet to be gained. There are also depots and tea-rooms, run mostly by English people. One, very tastefully decorated, is an offshoot of the exhibition, and is situated nearly opposite the British Embassy. The proprietor is a French gentleman who evidently believes in the ultimate success of tea drinking in France. If only tea-rooms after the kind of those of our Aërated Bread Company's shops could be dotted about Paris, the middle classes would probably be secured and then, in course of time, the masses, who are as yet much averse from tea, and treat it as medicine. There is, however,

ONE DANGER AHEAD

which cannot be ignored—that is, that the French Government might increase the Customs duty, still as high, I believe, as 1 franc 25 cents per pound, and thus blight the hopes of importers of tea into France. Their hopes must rest on the Chambers of Commerce of France and England, between which two bodies there is evidently an excellent good feeling and understanding. At the time of the exhibition there was some talk of the duty on tea being increased. 'Hinc illæ lachrymæ!"

Another correspondent writes:—"It is not in Paris that a taste for tea is spreading. A week or two ago I happened to be in Rheims, and noticed that there was quite as much tea as coffee exposed to view in the grocers' windows. But, in provincial France, at least, there is still evidently a

PREJUDICE AGAINST TEA GROWN IN THE BRITISH DOMINIONS.

I am not enough of an expert in tea to tell from its appearance where it is grown. But perhaps you will allow me to quote some of the labels under which tea is sold in Rheims—a town, it should be remembered, which has a large English population. One sample was thus described. 'Thé de l'Ile Bourbon. Ce thé par son arôme et sa finesse est sans rival, ayant le gout du thé anglais de Ceylon, *il lui est supérieur*. (The italics are in the original). Another sort is 'Thé d'Annam grosses feuilles fort en théine. Se recommande pour boissons hygiéniques.' A third variety is described as 'Royal Souchong.—Thé noir, très digestif.'

"It is quite possible that all three are Indian or Cingalese blends masquerading under popular titles. May I, as an Anglo-Indian not in any way interested in the tea trade, suggests to Mr Langdale that Rheims, an important town in which Englishmen are already strongly represented in the cloth and champagne trade, might be a good scene for a crusade in support of Indian tea. The 'tea-habit' is already formed, but the Reimois is educated to believe that tea grown French colonies issuperior to the product of our

gardens, which is very much as if an English grocer were to advertise 'gooseberry' as superior to the wine of Sillery or Ay."—*H and C Mail* Dec. 19.

THE GROWTH OF A NEW INDUSTRY: ONIONS IN THE WEST INDIES.

Some twelve years ago there were probably no onions, to speak of, grown in the West Indies. Large supplies were consumed, and for these the colonies were dependent on importations. The profits arising from the cultivation of these onions went, not to West Indian agriculturists but to the onion growers of the Canary Islands, Bermuda, etc. In about 1890 an old Bermuda grower, resident in Antigua, put his practical knowledge to account and made an experiment in onion cultivation. The attempt was successful, and by 1896 he had ten acres under onion cultivation in the island. (See *West Indian Bulletin*, Vol. II, p. 163). The question had meanwhile been vigorously taken up by the Botanic Station, and in 1895 to '96, onion cultivation may be said to have attained the rank of a minor industry in Antigua. It has thriven year by year, and its present position may be gauged by the fact that last year, in addition to the large quantities consumed locally, Antigua was able to export over 27,000lb. of onions to the intercolonial and New York markets. The industry has also been attempted in other islands, where with the advantage of the valuable experience gained at Antigua, progress has naturally been more rapid. In Dominica experiments in growing onions from sets, imported by the Botanic Station, were made in 1899. The results proved that the conditions were suitable, and the experiments were repeated in 1900. One or two crates were exported, and gained a good report at New York. Last year both seeds and sets were imported, and the onions exported from the Agricultural School and the Botanic Station to New York were reported as being equal to any from Bermuda and Cuba. Montserrat has not been behindhand in endeavouring to found a new industry. The first efforts were made at the Experiment Stations, in 1900-01, and the cultivation has progressed so rapidly that last year Montserrat exported no less than 3,410 lb. of onions to various parts of the West Indies, and 450lb. to New York. In the growth of this comparatively small industry we have an excellent example of progress in the right direction. The imports of onions into the various colonies are large, and are still mainly obtained from outside sources. In 1900 Barbados imported onions to the value of £1,187, Grenada £737, British Guiana £2,833, St. Vincent £145. It has been conclusively shown that onions of excellent quality can be grown at Antigua, Montserrat and Dominica. Experiments are about to be made in other islands, and we trust that within a few years the West Indies will not only grow onions in sufficient quantity for local consumption, but also to maintain a valuable export trade with the United States and elsewhere.—West Indies *Agricultural News*, Nov. 22.

CASTILLOA AND COFFEE.

Mr J Hill, a coffee planter at Santa Anna, Salvador, is making the experiment of planting Castilloa elastica amongst the coffee trees on his plantation. Two years ago he planted six thousand castilloa trees, which have already reached a height of from one to two and half yards. There are betweeen thirty thousand and forty thousand castilloa trees one year old, and in this year he hopes to bring the total number of trees to sixty thousand. It seems as if at the comparatively high altitude at which the coffee plantation is situated, the castilloa trees grow somewhat slowly, and only future experience can show whether the yield of rubber is not affected thereby. Mr Hill appears to feel a little apprehensive regarding the effect of these trees upon his coffee. He writes according to the "Tropenpflanzer," 1902, p. 542: "Many condemn the mode of planting as likely to be prejudicial to the coffee when the rubber covers it, but I am going to try anyhow, and I will let you know later on how the thing works, so that others may profit by the experiment."

How the rubber trees will thrive in that locality I have no data to express an opinion upon, but I think I may reassure him on the question of influence of the castilloa trees upon his coffee. Castilloa elastica does not develop a dense crown, and could, therefore, hardly be considered a shade tree. Moreover, there is a considerable plot planted in exactly the same manner on the plantation at Las Cascadas, and while the rubber trees are doing extremely well, there is not the least evidence that they interfere with the bearing of the coffee trees. At the time of my visit to that plantation the coffee trees amongst the rubber trees were in full, rich bearing.—*India Rubber Journal*, Dec. 8.

SWEET POTATOES AND YAMS.

During the period of stress which our sugar-growing colonies in the West Indies are passing through pending the abolition of the foreign sugar bounties, the attention of the planters has naturally been given to other produce. In Barbados great success has been achieved in the cultivation of sweet potatoes and yams of the very best quality, and an endeavour is now being made to introduce these into this country. The sweet potato is a cheap and palatable vegetable, but a good yam is a positive luxury.

During a long residence in London I imported several barrels every year for my own use, and out of the numerous guests who tasted them at our table there was not one who did not highly appreciate them. I may add that here the flavour is even more delicious than in the West Indies, as the butter which is a vital ingredient in a well-cooked yam, is so much better.

I am returning to Barbados almost immediately but any information on this subject will be given by Messrs. W Pink and Sons of Portsmouth who are importing regular supplies. Receipts for various ways of cooking both sweet potatoes and yams re-sent out with every parcel.

FORSTER M. ALLEYNE, Legislative Council of Barbados.
—*Journal of the Society of Arts.*

A RICH ISLAND.—The Southern Philippine Island known by the name of Paragua or Palawan, is now coming into prominence, says the *Straits Times*, Jan. 2nd. Captain William A. Phillips, Governor of the island, in speaking of the conditions, states that probably no part of the archipelago offers more inducements to capital than does Paragua. The vast forests containing rubber trees in great abundance are fortunes in themselves, saying nothing of the other industries,

FRESH BUTTER FOR INDIA.

[FROM OUR OWN CORRESPONDENT.]

A few years ago, so few as to be well within the memory of the present generation of Anglo-Indians, the Government of India brought out a young Scandinavian to initiate the people of this country into the mysteries of butter-making. It was an experiment, like many an other, conceived in the vague hope that something useful might come of it, but with only an indefinite idea as to how this something was to be accomplished. That a large proportion of the European inhabitants had from time immemorial been able to obtain only an oleagenous mess in place of butter, was the reason for attempting it, but very few looked upon it as anything else than a comparatively harmless method of wasting public funds.

Today, this experiment has become an established success. The young Scandinavian is the head of an industry which supplies well-to-do members of the European community in Calcutta and Simla with really first class butter, and which is likely to considerably extend its operations in the near future. Branches are being opened in Rangoon and in Darjeeling. Even Fort Sandeman, in the wilds of the distant frontier, is not too far away to share in the great boon of obtaining fresh butter.

The achievement is so remarkable, and its success is so important to the health of the European in this country, that it is worth while to visit Aligarh, the headquarters of the industry, to see how it has been accomplished. On a bright morning last November, your correspondent happened to be in the neighbourhood of the dairy. The latter is located in a big, substantially built enclosure standing in an open plain, some three miles from the civil stations. Around is a wide expanse of thin pasture broken with scrub and trees, the surface white and bare in patches where the soil is impregnated with "reh" salt, verdant in narrow belts where irrigation channels are situated. A wide gate, through which runs a light railway for conveying fodder, leads to a central building well separated from the sheds in which the cattle are stalled. This building is of solid masonry with great arched verandahs that make it delightfully cool. Within it the whole of the processes of manufacture are carried on.

The milk is brought in from the sheds, some of which are within the enclosure while others are located in neighbouring villages, and on arrival, goes at once into the separator. This separator is so small as to appear almost a toy. In reality, it can deal with the produce of five hundred milch kine daily. In appearance and size it is not unlike a tea-table with a kettle with two crooked spouts set on the top and various cogwheels below. On lifting the upper part of the kettle a humming-top like arrangement is disclosed within; which spins with giddy speed when the machinery is set in motion. The milk goes in above and is set whirring by the humming top. The heaviest constituents, which is the watery skim-milk, flies, by centrifugal action, to the circumference and pours in a continuous stream out of one of the spouts. The lightest constitutent, which is beautiful rich cream, takes on less of the centrifugal energy and gravitates to the centre where it is drawn off through the second spout. Milk, warm from the buffalo, is thus separated and there is none of the delay and exposure, with the attendant risk of turning sour, which awaits the time honoured process of standing for the cream to rise. The separation process is also infinitely more complete, almost the whole, instead of only a part, of the butter-making constituents, being turned to useful account. From the separator the cream goes straight into the churns, great barrels revolving on axles, with wooden beaters inside, by which it is shaken and jarred into butter. From the churns the butter is mechanically lifted to a round rotating wooden table, raised in the centre so as to be like a circular lectern and with a gutter around the edge. Here the great yellow mass is manipulated by the help of wooden spades and squeezed and washed. A wooden roller, thick at one end where the table is low and then at the other where the table rises into a peak in the centre, is fixed so as to revolve as the table rotates. The butter passes under the roller which squeezes it flat. On emerging it is turned and heaped by the use of the spades, water playing on it the while, so that before it has made the round and reached the roller again much of the butter-milk has been eliminated. The process is continued until the mass is completely consolidated.

The next process is even more interesting. It consists in the digging out with wooden spades of equal sized lumps and the weighing and wrapping of them in paper. Up to this point the butter has not been touched by hand, but one thinks that this part of the process is impossible without the aid of the fingers of the attendants. The operator stands, in big white apron, in front of the scales. In front of him is a small mountain of butter in either hand he has a small wooden spade. With lightening speed he transfers a lump to the scales, thence it passes on and is folded into clean white paper. The slightest miscalculation in the size of the spadeful he takes means a portion to be added or subtracted at the weighing, but so skilful does the workman become that hardly a correction is necessary. The spade picks up the exact amount, be it a quarter of a pound or a pound, that goes into a packet. There is no halt in the process and a human finger never touches the butter. From the time the milk enters the separator, to the moment when the paper packets of golden butter leave the ice house for the train, the whole of the handling is mechanical, wooden spades being the sole instruments employed to aid the machines in their task.

The milk used is that of buffaloes, and the only extraneous matter introduced, in the course of manufacture, is a microscopic amount of harmless vegetable essence which deepens the yellow of the pats. A cleaner, more wholesome, or speedier process it would be difficult to imagine. The rooms are cooled with ice, and the result of the care that is taken is that the butter can be conveyed immense distances by rail, without deterioration, even along routes where ice packing is impossible.

Condensing engines where ice is manufactured in great solid slabs, are attached to the dairy. Other plant is in course of erection which will eventually enable the churns and separator to be driven by steam, instead, as at present, by manual labour.

From the dairy the cattle sheds are easily reached. They are long, well elevated, and carefully paved structures, the sides open to the sunshine and the wind, the feeding troughs ample and convenient. Here one may see buffaloes that are a

revelation to the ordinary dweller in this country. A playful young bull, of the size of a growing elephant, sleek and covered with hair like fur, was getting its morning meal when your correspondent arrived upon the scene. It was the kind of animal to inspire ability to climb through the thorniest of fences in the shortest of time, but the genial proprietor did not hesitate to pat and caress the animal and the latter evidently appreciated the attention. Mangel-wurzels grown in the locality, and gram and butter milk, with any amount of green fodder, are what the buffaloes are given to eat. They also have grazing in the open. Their wonderful condition and the surprising quantity of milk they yield afford remarkable illustration of what care and good management will effect with the elsewhere neglected Indian buffalo.

The enterprise is entirely self-supporting and deserves the prosperity it has attained.—*Bombay Gazette*, Dec. 29.

TRADE IN STRAITS PRODUCTS FOR 1902.

The following is the report on certain products exported from Singapore, in which Ceylon is more or less interested :—

Copra.—Export figures of this article shew a very marked increase over 1901, being indeed almost double what they were in that year, and as prices have ruled very high, touching at one time $11·25 per picul for Bali and similar types, this industry must have been an exceedingly remunerative one for those engaged in the cultivation of coconuts. Demand throughout the year has been good and a feature to be recorded is the steadily increasing consumption by local Oil Mills.

Black Pepper.—From Jan./June prices varied from $29¾ to $33 and July/Dec. $29¾ to $37, value on 31st Dec. being $37. Supplies have increased about 15 per cent on last year and are likely to show a further increase in 1903. Stocks in Europe and America are considerably smaller than they were at the end of 1901, which proves that the consumption has exceeded production.

White Pepper opened in January at $53 (5 per cent loss in weight) and declined to $46½ in March, advancing again in June to $56½. Heavy arrivals in Aug./Sep. drove the price back again to $51½ but a recovery soon afterwards took place and the market advanced steadily to $61½ which is closing quotation. Had a number of the Sarawak plantations not been destroyed by floods, supplies would have shown an important increase, but as it is they total only about 7½ per cent above last year. The demand for the United Kingdom and Continent has been active and prices have kept firm throughout the last three or four months.

Liberian Coffee.—At the close of last year No. 1 Liberian Coffee was valued at about $19 per picul, and with a few fluctuations the price has advanced to $22. Quality on the whole shows an improvement, and less has been heard of claims for sourness said to be caused by defective curing. During the last two months supplies have been small and a good demand for India has led to as much as $24 being paid for small lots of good quality.

Nutmegs and Mace.—After a long period of depression during which 110s Nutmegs were sold as low as $44 per picul and Banda Mace $68, an active demand has sprung up, and prices have advanced to $65 for the former and $120 for the latter. The average quality of Nutmegs coming to market is far from satisfactory, and the proportion of shrivelled and unsound Nuts seems to increase every season. —*Straits Times*, Dec. 31.

AN EXPERT ON GREEN TEA.

Having seen a good deal of the green tea industry both here and in other countries perhaps a few views may be acceptable to my fellow tea men. As, I suppose, is but natural there appear to be very confused ideas prevalent in India regarding the varieties of green tea on the markets of the world, Indian planters seeming to think that it is a plain article, the same fundamentally throughout without regard to its outside appearance in the dry leaf which is diversified. It follows from this erroneous impression that many efforts are directed towards producing a nondescript style of tea, with the appearance of one kind and the characteristics of another. Now, if we are to follow the lead of Far Eastern countries and produce teas sufficiently close to theirs to compete with them successfully in countries where they have established the national taste it is clear that we should study the characteristics of their teas thoroughly and in working to our end endeavour to follow out the principles on which their teas are made.

To begin with, I have been informed by several tea makers that their ambition was to reproduce the round roll of China hysons, gun-powders and imperials. Now these same tea makers were producing their green tea by the steam process. The result of rolling steam-made tea in the Chinese fashion would be to produce a tea which would possess a liquor of quite a different character to that of Chinese tea, and consequently the tea would not reproduce Chinese, and having the Chinese roll would equally not represent any other description.

The two standard descriptions of green tea are, of course, the Chinese and the Japanese, and they differ very fundamentally in their character. The initial operation which destroys the fermenting principle of the tea leaf, and thus divides green (or unfermented) from black (or fermented) tea manufacture is differently carried out in China and Japan. In both countries heat is the agent used for sterilising the fresh leaf, after which operation it is not subject to fermentation, but the heat is applied in a different manner in the two countries. In China dry heat is used ; the leaf is thrown upon open pans heated by stoves, and the contact of the leaf with the heated metal causes the temperature to rise above the point at which the natural ferment in the leaf dies. This preserves the whole constituents in the leaf, which is, after being thoroughly panned, rolled and dried in the usual manner, and panned again at the end of the manufacture to bring up the grey-green colour characteristic of the dry tea. The Chinese roll by hand in a manner to secure the round curly teas with which the market is familiar. Very good imitations of these teas are produced in the North-West of India tea estates. These North-Western teas truly represent China characteristics in form, colour and cup, and are as they should be, for this style of manufacture. The China teas are pungent and bitter, of great strength with a darkish liquor, but they do not possess the delicacy of Japan teas for a reason to be explained.

The Japanese, on the other hand, sterilise their fresh tea leaf by the moist heat of boiling water, which from the first differentiates their manufacture from that of China. The leaf treated in this way becomes wet, and in the process of rolling, which immediately follows, a good deal of the juice of the leaf is expressed and comes away

with the hot water with which the leaf is saturated. Simple as this fact may seem, it makes all the difference in the cup character between Chinese and Japanese tea. In Japanese tea manufacture, as stated, a good deal of the juice of the tea leaf is expressed and much of the bitter property is lost, the resulting tea being much more delicate in flavour than the Chinese variety, in which all these bitter properties are preserved. An analysis of the juice naturally expressed with the excess of water shows it to consist chiefly of tannin, a substance which is not advisable in excess in any tea. Japanese tea is therefore more wholesome as well as more distinguished in flavour than Chinese, and the fact made it a universal favourite in the great tea-drinking countries of America. The Japanese system of green tea-making is very fairly represented by the Ceylon patent steam process of Mr. Drummond Deane, and the teas so produced answer very well to Japanese teas in cup characteristics. To show the confusion of thought which exists in India, and the danger which arises from arguing on *a priori* principles from very insufficient knowledge, I may here state that some of the juice expressed in the steam process of green tea-making was submitted to a scientific man for analysis and report. He stated it to consist chiefly of tannin, but volunteered the statement that the system of tea manufacture by which this juice was expressed was erroneous and faulty, because in his opinion all the constituents of the leaf should be preserved. This was indeed a case of the cobbler going beyond his last, for be it noted the "expert" condemned the very process by which the superior delicacy and purity of Japanese teas are secured. The lesson to be learned from this case, of course, is that it is necessary to know the history and actual living facts of an article before setting up as a critic on its manufacture. Japanese tea has obtained its vogue by its special characteristics, and these characteristics are obtained by the incidental circumstances of its manufacture, the loss of a certain proportion of tannin, etc., in manipulating the wet leaf. It follows, therefore, that when we are endeavouring to reproduce this article, which is such an established favourite, it is absurd to say off-hand that it is wrong in principle to lose any of the constituents of the leaf; when by the very loss of that excess the superior delicacy characteristic of the article is produced.

There are thus two well-established descriptions of green tea, the strong, darkish liquoring bitter teas of China, rolled round or curly; and the delicate, pale liquoring, pungent teas of Japan, rolled straight. The latter roll can be very well reproduced in an ordinary black tea rolling machine, but as yet the China roll can only be imitated by hand. The steam process possesses great advantages in convenience, for the penetrative action of the vapour renders the sterilising of the leaf very rapid indeed, and large quantities can be readily dealt with. But the teas so made, possessing Japanese characteristics in cup, it stands to reason should be rolled in the Japanese manner to secure the familiar Japanese appearance. To roll steam teas to the China appearance most necessarily make a tea which is neither Japanese nor Chinese in style. The addition of panning either by hand or machine gives the dry leaf the appearance of the Chinese and Japanese teas, and where these countries add foreign ingredients to secure colour, we can very readily secure the same pure, but I deprecate the mixing up of styles, that is, the roll of one with the cup of the other.

THEA VIRIDIS.

—*Indian Planting and Gardening*, Jan. 10.

RUBBER MARKETS.

[MESSRS. LEWIS & PEAT REPORT.]

Dec 12.—Ceylon—21 cases bought in. Borneo—8 cases bought in.

Nyassaland—247 bags sold; small red and white clean ball, 2s 11d to 2s 11½d; ditto part heated 2s 5d to 2s 9d; good rooty ball 2s 7d; strong white ball 2s 9¾d to 2s 10d per pound.

Dec. 19.—Para.—We have had an excited market during the week, and prices have rapidly advanced fully 3d to 4d per pound on the average. Fine hard from 3s 5d to 3s 8d spot, and 3s 8½d forward; fine soft, 3s 2d to 3s d spot and forward; scrapy and Peruvian ball, 2s 9d to 3s; Mollendo 3s 2½d to 3s 5½d. Receipts continue very moderate and all medium grades are in active request, but very scarce.—*India-Rubber Journal*, Dec. 22.

PRODUCE AND PLANTING.

The report on last year's TRADE IN KHORASSAN sent by Lieutenant-Colonel Whyte, Acting British ConsulGeneral at Meshed, shows that although there is a preponderance of Russian trade in Khorassan, practically the entire foreign trade of Seistan is in British hands. The value of British and British Indian imports during 1901-2 was £131,775. Chief among British and British Indian imports to Khorassan and Seistan is tea. This is and should continue to be as safe a British monopoly as sugar is a Russian monopoly. There is said to have been a large accumulation of India tea in Meshed at the end of 1900-01, and the tea trade during 1901-02 is described as not having been as brisk in consequence as in recent years. The taste for tea is strongly developed, even among the poorer classes of Persians, and there is always likely to be a strong and steady demand for it in Khorassan and Seistan. The value of the tea imported by the Bundar Abbas, Bushire and Seistan routes, was £50,267, but a considerable proportion of the tea brought by the two former routes is said to have been Chinese tea for exportation to Trans-Caspia and Turkestan. The following note of prices ruling in Meshed in November, 1902, has been prepared by Mr. T J Greensill, Government canvasser for trade in Khorassan and Seistan:—Tea.—There are several kinds of both black and green sold here, but the most in demand are the following:—Black Tea.—Fine Pekoe leaf—wiry and even with few tips—known here as "Kalami" present rate 20 krans (kran equals 4d to 5d) per Meshed "man" (the Meshed tea "man" is 7 lb), with a credit of fifteen months, equivalent to 17 krans cash. Leafy kinds are not much in demand, but some would sell at 20 krans, carrying twenty to twenty-five months' credit equivalent to 15 to 16 krans cash. Green Tea.—Gunpowder—bold, even leaf, coloured greenish - known as "Sabz," present rate 21 krans per Meshed "man" (7 lb), with four months' credit, equivalent to about 20 krans cash. For natural unfaced or faced there is no demand, but coloured after the China style, in India known as Bombay tea, would find ready sale if not too expensive. Heavy soap-stoned greens are rejected at once. White or silver-tipped tea, known here as "Lamsa," is really a mixed tea, consisting of about 15 per cent silver tips and about 85 per cent uneven orange Pekoe and Pekoe leaf, and comes chiefly from Java, usually packed in 5 lb lead-lined wooden boxes, and sells here at 40 krans per "man" (7 lb), with twelve months' credit, which is equivalent to about 35 krans cash. Those with more white tips fetch slightly better rates, but the demand is very limited.

THE CAPE COLONY IMPORTED TEA during 1901 to the value of £138,092, while the value of the tea imported into Natal was £37,401.

IN A REVIEW OF THE COCOA TRADE the *Grocer* says:—"This article is of yearly increasing importance, and each branch of the trade is continually making fresh strides towards a higher point of advancement than it had ever reached before. Apart from mere assertions, statistics prove that the quantities received and delivered in the United Kingdom are far ahead of those in previous years, and, confining the figures as taken from the official accounts to this year and last, it will be seen that the total importations of raw cocoa during the past eleven months have amounted to 53,009,256 lb, against 49,406,166 lb, in the same period of 1901. A corresponding improvement was observable in the duty-paid entries for home use, which were 42,619 394lb, in comparison with 39,833,326lb last year; and the quantity taken for exportation was also much heavier than in the first eleven months of 1901, being 12,253,700 lb, instead of 10,710,189 lb. As a result of these extra outgoings, the bonded stock in the U. K., as officially stated, was by the 30th ult. reduced to 10,030,000lb, against 15,097,000lb in the preceding year. As a defect which mars the completeness of the Board of Trade returns it may be noticed here, in passing that the compilers do not distinguish one description of cocoa from another, and keep colonial separate from foreign sorts. The latter mode, it is but fair to say, is that regularly adopted by the authorities at the Port of London, where the landings and clearances of the leading kinds of cocoa are kept totally distinct from each other. They are on that account doubly interesting to the importer, dealer, and exporter, who carefully note every new movement that shows itself in this article of commerce and manufacture. To follow out this plan we therefore give particulars of both colonial and foreign cocoa as they enter and leave London, from which it will be observed that of the two main growths the former forms the chief portion of what is landed and delivered from time to time as the season progresses. Thus, in the fi st fifty weeks of the present year, in comparison with those in 1901, the receipts and clearances of cocoa, as returned at this port, have been as annexed:—

	Landings.		Home deliveries.	
Colonial pkgs.	102,450	87,850	72,700	72,550
Ceylon	35,350	32,750	25,850	12,200
Foreign	80,850	89,500	62,500	58,700
Totals ..	218,650	210,100	161,050	143,450

	Exports.		Stocks, December 13.	
Colonial pkgs.	30,600	20,500	22 700	24,900
Ceylon	17,600	10,400	6,600	14,400
Foreign	24,900	30,600	33,700	41,400
Totals	73,100	61,500	63,000	80,700

"These totals confirm in a remarkable manner the general outlines of the Board of Trade returns above alluded to where in most cases the amounts entered during 1902 exhibited appreciable increases over those in 1901. It is, consequently, no wonder that, with an aggregate supply more than sufficient to satisfy all requirements (though leaving stocks materially lighter than in last December) prices of cocoa almost throughout the year have been materially below those in 1901. For instance, under the influence of a large crop of Trinidad cocoa now beginning to arrive, fine red quality has latterly been sold at 65s. per cwt, whereas last year it was fetching over 70s. The same may be said of the Grenada description, which offers at 59s to 62s, instead of at 63s to 68s in 1901, or 8s per cwt cheaper than the article was in 1900. African cocoa has, however, been little affected by the depression existing for colonial sorts, as its principal market is in Liverpool, where between 4,000 and 5,000 bags come in every week from St Thome, via Lisbon, and about 15,000 bags have already been sold, sub rosa, for arrival next February on terms equivalent to those for 'spot' parcels in London. Guayaquil, on the contrary, is an exception to the prevailing depreciation in values, and is actually shillings dearer than it was a year ago. Beyond this there are faint signs of improvement or better prices in the cocoa market, owing to the fact that supplies nearly everywhere are most abundant, and more than equal to the demands from consumers."

As is well known, the various SOUTH AMERICAN STATES play a very important part in the production of produce of all kinds. Venezuela's chief industry is COFFEE PLANTING, and its greatest exports are, in the order of importance named:—Coffee, cocoa, hides and skins, timber, coprah, and cotton. Bolivia is a wonderfully productive country, and it is difficult to imagine a tree, grain, fruit, or vegetable that could not be successfully grown. Bolivia grows barley, oats, wheat, beans, potatoes, maize, and all kinds of vegetables and fruits upon the uplands; and oranges, pineapples, bananas, coffee, rice, cocoa, chocolate, vanilla, sugar-cane, manioc and rubber in the forest-covered regions. There are others as the quinua, a grain indigenous to the mountain regions; the oca, a kind of potato; the cherimoya or custard-apple; the tembe, a fruit of a species of palm; the guava, the granadilla, the fruit of the passion-flower, and many more. Thus great areas of the country may be designated huge gardens, and there are millions of acres of the finest timber, watered by navigable rivers. British Honduras has not merely its mahogany and logwood to depend upon, but vanilla cacao, rubber, sapodilla, and other valuable products, as well as useful woods of many sorts, are indigenous and abundant, and the soil in many large areas is peculiarly fertile and suitable for the growth of sugar cane. Bananas, oranges, rice, and maize are only a few of the products which grow luxuriantly, but scarcely anything is done with them, and the bounteousness of nature has made existence so easy that the inhabitants have lived almost solely by cutting their mahogany. Even the natural forest produce remains ungathered. The vanilla grows so abundantly that the traveller when riding through the forest roads has often to clear away the vine of this valuable orchid with his machete before he can pass. The cochune nut, which yields the finest table oil, grows in immense quantities, and is also entirely wasted.—*H and C Mail*, Dec. 26.

"COCONUT OIL PRODUCTS."

New York, Nov. 12.

An article in the Oct. 20th issue of the Oil, Paint and Drug Reporter under the heading of "Copra Products in Marseilles" has come before my notice and being personally connected with the largest refiners of these goods, I feel justified in making some little comment on the subject.

I trust that you will give me an opportunity of correcting any possible misunderstanding to which former statements may have given rise that the Germans and French are ahead of British manufacturers in this particular industry.

The demand for high grade and guaranteed pure, coconut butter is increasing with enormous rapidity in this country, among both the chocolate and candy manufacturers as an entirely satisfactory substitute for cocoa butter, and among cake and biscuit makers and confectioners generally in place of lard and butter.

In view of this I think it is only fair that Johnny Bull should get his due and it may interest your readers to know that considerably more coconut

butter is made and sold in England than by the whole of the factories manufacturing this article on the Continent and America combined.

Toward the end of the article in your Oct. 20th. issne the writer says: "English manufacturers have lately learned something of the bleaching method as in use here (meaning Marseilles) and are employing it."

I ventnre to suggest that "lately" is hardly the right word to use, for the manufacture in England of a hard coconut butter was undertaken about sixteen years ago by the prodecessors of Loders & Nucoline, of London.

Furthermore, the "bleaching" is not the serious difficulty, nor is the elimination of the three volatile fatty acids mentioned in your articles, viz: caproic, capric and caprylic.

The value of a perfect process lies more in the entire elimination of the non-volatile fatty acids and in certain preliminary and final treatments.

The large chocolate mannfacturers in this country make a very thorough and scientific examination of their raw materials; they require coconut butter to be guaranteed pure and to consist only of the searine of oil of the coconut (Cocos nucifera and Cocos butyracea). It must contain no extraneous matter, and yet have a high melting point in order that the candies produced with it may "stand up" well in hot weather.

It must also be refined to a nicety and be absolutely neutral.

The patents and secrets of manipulation used in producing a first-class coconut butter are exceedingly valuable, no doubt, but there is no royal road to the manufacture, and when a perfect product is aimed at, great care at all stages of the process is the first consideration.

As "touchin' on and appertainin' to" this subject, the following reprint of an extract from the recent controversy in the English scientific journals may be found of interest.

The original article which was headed "Utilizing the Coconnt," concluded by saying:—

The coconnt is ntilised entirely—the fiber from the hnsk being used for coconut mats, matting and brushes; the shell is nsed for fuel, and the cake which remains in the hydranlic press after squeezing out all the oil is a valuable feeding cake for cattle, whilst the dreg which is extracted in the refining of the oil is very largely nsed for making soap and candles.

The mannfactnre of "desiccated coconnt" was not, however, included. This is very largely an American industry and right in New York over 30,000 selected nuts are treated daily by the Dunham Manufactnring Co., who own large palm plantations in Cuba.—*Oil, Paint and Drug Reporter.*

COCONUT CULTIVATION IN TRAVANCORE.

The Settlement Operations in Travancore have involved the counting of nearly 800,000 coconut trees, and as an area of slightly over ten thousand acres, or one-sixth of the occupied area in the State, pays no taxes, we may take it that the number of coconut palms is far in excess of that which has been acconnted for. Indeed, if we bear in mind that very many years ago, it was calculated that there were twenty millions of coconut palm trees in the south-west of Ceylon alone, then Travancore ought surely to be credited with a good deal over a million trees for all along the coast as well as in the belt of flat country which runs ten miles inland, there is nothing but a dense, unbroken, mass of coconut and areca groves, and forty coconut trees to the acre is a very moderate computation.

So important is the coconut industry in Travancore that on certain Crown lands, in addition to the money tax on coconut trees, the tenant has to contribute one coconut frond for every anna of his assessment and about twenty thousand fronds are thus paid in on these particular lands. The staple industry in Travancore is the cultivation of the coconut tree, rice being grown only in the hollows between the laterite ridges and the amount reaped does not suffice even for home consumption. Lord Curzon, when he visited the State two years ago, remarked with characteristic humour: "Here every man has three acres and a palm tree." Hereupon, Mr Mackenzie, the British Resident, told us not long afterwards, that if Lord Curzon had said: "three acres and thirty palm trees," he would have been much nearer the truth, and we may add that his analysis shows that the average holding of a ryot is two and one-third acres, with thirty-five fruit trees.

The assessment of lands in Travancore is all in favour of the taxpayer, for the average demand on garden and dry lands is Re. 1 1 8, in addition to an assessment ranging from eight pies to one anna eight pies on each coconut tree, and as each tree is estimated to bring in from R2 to R4 a year, the poorest ryot can very well afford to meet the assessment, more especially as the soil, the warmth and humidity of the climate, the neighbourhood of the sea, the brackish lakes, and the equable distribution of the rainfall are all congenial to the growth of the tree. In some parts no labour whatever is required and the tree almost grows wild. It has been observed that the cultivation increases steadily from year to year, but we fear, this is not altogether to be commended, for though within recent years new economic uses have been found for the palm, among others, the manufacture of coconut butter, there is always the danger of overproduction. Moreover, the overstocking of gardens is calculated to produce deterioration in the quality of the fruit. Up to now, nothing of this sort has perhaps occurred, and a few years ago at a local exhibition, a bunch of coconuts with 153 nuts was on show, and another, with ninety-five, though the number required in the prize list was fixed at no more than forty. Of course every tree does not bear like this, but, as a rule, the Travancore coconut produces very prolifically, and would be a far larger source of income to the husbandman were it not for the ravages of its numerous insect and animal enemies. Among these are two very destructive coleopterous beetles. Then, there are the rats, monkeys, toddy cats, flying squirrels and other rodents, which do considerable damage to plantations. The natives are so supine in all matters affecting their own welfare that beyond an occasional rat hunt or an excursion after beetles, undertaken at distant and irregular intervals, they have never realised the great value of combining and organising their forces with the object of destroying these enemies of theirs. This is one of those matters in which the enlightened and progressive Government of the State might usefully undertake to educate the ryots, with profit both to the State coffers and to the purse of the taxpayer. —"C" *in Capital.*

BUTTER MAKING: A NEW INVENTION.

We are indebted to Mr. Thos. Christy, F.L.S. for the following:—

"Now I am going to give you a few lines upon an experiment which may appear to you improbable, but I have tried it myself. Take a small quantity of cream, say a pint, or, if you can afford it, go up to a quart, get a thin muslin cloth and on this place a large sheet of filtering paper, or blotting paper will do for the experiment, then suspend the muslin at the four corners and pour the cream into it gently. You will in a few minutes find that the water has run out of the cream, and you can then fold the butter together, press it slightly, and when you have added a little salt it is ready to eat. I may tell you that the filtering paper appears to be the only means by which the inventor can get any protection or return for his invention, and it is only fair to say that the inventor is an American. There is no waste. In fact the volume of butter coming from this cream is about 5 per cent to 20 per cent more than if it is made in a churn."

Residents at Nuwara Eliya and planters' wives everywhere, will, we have no doubt, be among the first to experiment on the lines of the above discovery. It is as simple and would seem to be as notable, as the case of Columbus and the egg; but let us have a local practical report, before saying more.

A "planter's wife," who had heard of the above in time to make an experiment, writes:—"I don't think that butter experiment will be a success. I have carried out directions to the letter; water is dripping out slowly, but cream is still cream and not butter and it has been dripping for an hour. I will have another try, but cream is *very* scarce with us just now. I think the blotting paper we have is too thick; if I had proper filtering paper, results might be different. The experiment is worth trying."—An hour later: "I really think that with proper paper, the butter *will* be a success, only it takes about 1½ hour to extract all the butter-milk."—We are sending a few sheets of chemical filtering paper, to enable a proper trial to be made.

MR. ALEX WHYTE, OF EAST AFRICA.

Some readers of the *T.A.* would have noticed a short time ago in its columns, a letter from Mr ALEX WHYTE, the Naturalist, who was then on his way home invalided from East Africa. The doctors then considered an operation would be necessary and ordered him home. He has since been in hospital in Edinburgh, I understand, but the more up-to-date surgeons there took a more cheerful view of his case, and he has been improving gradually without undergoing any operation whatever. He hopes to be able to come to London to his sister's, Mrs Millar for Christmas, being due in Chelsea about the 23rd, I believe, and is not without confidence that he will in time be sufficiently confirmed in health to return to work and complete his survey of the area round Mombasa, which he undertook to visit for Government and report on the best products to be introduced into the district. After finishing this task, Mr Whyte hopes to retire and come home for good. He has done excellent work of recent years for the British Government in Africa, and his friends will all be pleased to know that there is a good prospect that he may be able to complete it.—*London Cor.*, Dec. 19.

A NEW MANURE FOR RICE FIELDS.

A writer in the *Madras Mail* of January 13, says:—"It has been brought to my notice by cultivators now and then, and it is my experience too, that 'tobacco backbones' now either thrown out or sold at low prices for *beedi* manufacture, can be utilised as a useful manure for rice fields—especially for first crop, that is Kar produce. Lands once cultivated with this manure continue to yield very favourable crops for the next two years. I wish that landowners and Zemindars would consider the matter and make a trial."

TROPICAL PRODUCTS IN COOK ISLANDS.

NEW ZEALAND EXPERT TO REPORT.

Mr. T W Kirk, chief of the division of biology and horticulture of the Agricultural Department, left by the "Countess of Ranfurly" on Friday for our new possessions, the Cook Islands, under instructions from the New Zealand Government, to report as to the growth and production of coffee, cotton, vanilla, cocoa, citrus and other fruits in these islands. Mr. W A Boucher, one of the fruit experts of the Department, who has had considerable experience of the growth of citrus fruits in California, accompanies him; the idea of the Government evidently being to ascertain what steps are necessary to encourage the growth of tropical products in this portion of New Zealand's territory.—*Auckland News*, Dec. 18.

PRECIOUS STONES IN THE UNITED STATES:

IMPORTS AT NEW YORK IN ONE YEAR OVER £5,000,000.

Nearly every mail brings us one or more useful publications from the United States authorities, in their Agricultural, Mineral or Scientific Departments. The latest is from the "Department of the Interior"—U. S. Geological Survey—and is a pamphlet on "The Production of Precious Stones" by George F. Kunz. We receive, indeed, two carefully compiled summaries of the results for 1900 and 1901; and to make his information complete for 1902, Professor Kunz is anxious that we should give him all possible information regarding the gems, plumbago and other minerals of Ceylon. It will be inferred from this that attention is not confined to the outturn of precious stones in the United States, although that is much more considerable than we had at all conceived. Diamonds in Montana and Georgia, sapphire and corundum in Montana, ruby, golden beryl and moonstone in North Carolina, varieties of quartz (amethyst, etc.)

turquoise and garnets in half-a-dozen States, tourmaline in California, opal in New Mexico, afford evidence of the richness in gems of many of the American States. But the country is so rich that far more than all the local production is absorbed; for the value of precious stones imported in 1901 at New York alone was 24½ million dollars, quite five million pounds sterling! But we must quote Mr. Kunz's pithy introduction to his Report for 1901:—

The chief points of interest concerning precious stones in the United States during the year 1901 are:—

(1) The finding of a diamond in Lee County, Ga., which adds a new locality to those previously known; (2) the increased yield of sapphires in Fergus County, Mont., where two companies are now engaged, and further exploration for the fancy-colored sapphires at Rock Creek, Granite County, in the same State; (3) an extensive output of rhodolite garnets in the Cowee Valley, Macon County, N C, and also considerable mining in other parts of that State for blue, green and yellow beryls, amethyst and the new emerald-matrix; (4) continued activity in the remarkable locality for colored tourmalines at Mesa Grande, San Diego County, Cal., and the discovery of a new deposit adjacent to the first; (5) further work at several chrysoprase localities near Visalia, Cal., and the purchase or control of them secured by a company; (6) sustained and enlarged production of turquoises, chiefly in New Mexico, where several important companies are actively engaged in mining them, and the discovery of new turquoise localities in Colarado and Nevada; (7) the finding of epidote crystals, magnificent in size and colour, at Prince of Wales Island, Alaska; (8) and the discovery of a beautiful jade-like compact idocrase Siskiyou County, Cal.

The importation of precious stones for the year 1901 at the port of New York amounted to $24,500,000. The importation of diamonds has exceeded that of any previous year, and never have larger or finer stones been brought into the United States. Emeralds have greatly increased in public favour; and coral, long out of fashion, has once more become popular.

Although turquoise is now mined by six diffrent companies, and they all had fair yields, the popularity of the stone has been such that the entire product was consumed.

The first year of the new century has been the greatest in the history of the precious stone industry in the United States.

Never has the prosperity and growth of a country been more faithfully indicated, as if by a sensitive barometer, than by the wonderful increase in values and business in the jewelry trade in the United States during the past year. Never were more diamonds, pearls or emeralds sold, nor did fine gems ever before command better prices, nor were they ever more firmly held; and yet diamonds are likely to advance still further during the present year.

Not since the famous looting of the Chinese Summer-Palace in 1862 have so many treasures of jade, rock-crystal, pearls and other precious-stone objects reached not only this country but every country in Europe. The distressing fact remains that many objects, such as an altar set, or a writing set, or the funeral offering at the tomb of an emperor, empress or a noble, and made up of two or three pieces, were divided among several soldiers. Often a superb scepter, or some similar object, will have upon its upper side a thick coating of dirt, the firmly knit dust of ages, and the lower side will be as clean as it was when laid upon the tomb a century or more ago. No class of objects, whether the seal of the imperial post-office, or the tomb ornaments of generations ago, or the name of an emperor in jade, escaped the rapacity of the soldiers, who would secrete them in their baggage with other hard stones, or with metal objects, and then carry them in this crude manner halfway round the globe, thus breaking, scratching and nicking objects of priceless and historic value. Never has the more open boast of 'loot' been made with the memory of man. Frequently the objects offered for sale have a complete history, as having been the jade tablets of some famous altar.

Thus three times has China been sacked of its priceless, precious Yu jade objects—at the looting of the Summer Palace, again during the Japan-China war, and finally in the late international war with China; so that today New York, Berlin, London and Paris hold more such objects than any Chinese city.

The Carolina ruby is not first-class; but the amethysts and moonstones are good; Montana sapphires are well spoken of, and so are the turquoises of Colorado. The following curious bit of information is given in regard to "amber":—

Dr. Hapke mentions a single enormous piece weighing 3,125 kilograms, 6.875 pounds, of mingled straw colour and greenish yellow, which had been found in the 70's by some fishermen in Langluijensand. Other discoveries had also been made in clay and sand in Binnenlande. This amber of the north-west coast rarely shows enclosures, as it is mostly opaque or subtranslucent.

We have more than once mentioned the close alliance between the diamond, amber, plumbago, coal, peat and petroleum—all having their basis in carbon. Most people dispute the place of amber in the list; but a reference to authority shows that the percentage of carbon is between 80 and 90 per cent.

Dr. Kunz gives a good deal of information in regard to precious stones in Borneo; but he does not seem to have seen our publication on "Gold, Gems and Pearls in Ceylon," so slight are his references to our island. We must enlighten him as far as we can; and he is sure to learn a great deal further at the St. Louis Exposition in 1904.

THE TEA MOSQUITO.

The hunting and tracking to its lair, of the tea-mosquito, by the scientific officer to the Indian Tea Association, Mr Harold H Mann, B Sc., forms the interesting subject of a pamphlet recently issued. This insect is a totally different fellow from the human blood-sucker we are acquainted with in Calcutta. He has four wings; ours has only two. The tea pest is a plant-bug; the house mosquito is a fly, and in its earlier stages is an aquatic grub totally different in every particular from the mosquito itself. The planter's pest passes its early stages in a form not widely different in appearance or habits (except in the absence of wings) from that of the adult insect. The non-recognition of this ab-

solute distinction has led to much lack of comprehension, and many mistakes in treatment of the insect

The tracking down of the little rascal by Mr Mann until he found its place of hibernation in the tea bush itself, is well told in the pamphlet, and deserves to be widely read by all interested in the cultivation of tea. Mr Mann, like all careful scientists, is very chary in making large generalisations, from a few experiments But he seems to be on the right track. These experiments, along the lines of his working hypothesis, all confirmed each other in their results, and it looks as if he had not only found out all about the nature of this expensive pest, but has also been able to put tea planters in possession of the means of ridding themselves of what hitherto has been the perennial cause of blighted leaf entailing heavy loss. One hundred and fifty gallons of a very cheap emulsion, of which a pound or two of country soap and two gallons of low kerosine oil form the basis, are all that an acre of tea plants require. It has to be put on in a fine cloud-like form of spray about the end of February, and Mr Mann says that the best instrument for doing this is one made by the Goulds' Manufacturing Co., New York, and sold by Messrs. Jessop & Co., Calcutta.

The Tea Association never did a better stroke of business than when they appointed a scientific expert to fight the enemies of the tea plant. Every other crop has its own specific enemies, but as these crops are not raised like tea, by European capital under European management, the enemies of the crops get leave to commit ravages as they please. The success which has followed the efforts of the Tea Association ought to stimulate our paternal Government to put their Bureau of Agriculture in efficient working order, and to put thoroughly trained and well-equipped scientists on to every crop that is raised in India. If they would fight the enemies of cotton, jute, hemp, wheat, rice, the oil seeds, and other chief products of the soil as Mr Mann has fought the pests of Assam, they would deserve to have their memories perpetuated by statues or by hospitals or in any other manner a grateful people might devise. After all, let it be remembered that agriculture is the first and prime asset of the inhabitants of India. When it fails, everything else is wrong.—*Capital*, Dec. 24.

PLANTING NOTES.

COARSE PLUCKING: A WARNING. — The Ceylon Association deserves credit for its most timely warning in view of the recent rise in the market and the natural tendency of local producers to return to coarse plucking; but we trust the latter will do all in their power to falsify the anticipations of the London buyers who apparently regard India as alone understanding the necessity for controlling its output. The warning cannot be too sternly and persistently emphasised. By fine and careful plucking the market has been improved and now, when from this and other causes supply and demand is becoming somewhat equalised, it would be genuinely suicidal were planters to allow their discretion to be eclipsed by a desire for quantity and return to coarse plucking.

PARA RUBBER doing so well at 1,600 feet elevation as Mr. F. J. Holloway reports on page 543, is a very interesting fact which may tend to increase the area over which this kind of rubber can be profitably cultivated in Ceylon.

A NEW STYLE OF TEA DRIER—is to be introduced, in which the tea to be dried is steam-heated *in vacuo*, Certain advantages are claimed for the new process, but having some experience of machines in which vacuum processes are employed, we are inclined to think that it will prove troublesome and costly.—*Indian Planting and Gardening*, Jan. 10.

THE LAKE-FLY NUISANCE.—Dr. Willey elsewhere replies to Mr. Theobald's suggestion that, to destroy the lake-fly nuisance, Colombo Lake should be emptied and refilled with sea-water. His trenchant letter scarcely leaves room for hope that the scheme will be generally regarded as either imperative or practicable! But experiments are first required.

THE CULTIVATION OF "ONIONS"—in West Indian islands is described on page 534, as "the development of a new industry," and it causes us to enquire why more is not done in Ceylon in growing this useful vegetable? That there is great room for a home industry is shown by the fact that during the past five years we imported "Onions" into Ceylon as follows:—1898=131,003 cwt., R786,019; 1899 148,281 cwt., R444,844; 1900 157,116 cwt., R471 350; 1901 161,927 cwt., R582,578; 11 months of 1902 151 558 cwt., R454,832.

HOW LONG WILL GREEN TEA CONTINUE TO BOOM?—This is a question many in Ceylon would like answered. That it is booming now, no one will deny, and we have heard of low-country teas recently having sold at 36 cents, plus 5 cents bonus, bringing the seller 41 cents—considerably over what his black teas would fetch. The great caution shown by buyers seems to indicate that prices will not be maintained. For instance when prices were at 32 and 33 cents buyers readily took contracts. Now that 34, 35 and 36 cents are obtained buyers strictly refrain from making contracts, evidently believing that green tea has already reached its high water mark. Referring to a recent allusion of ours to these contracts, *Indian Gardening and Planting* of January 10th, just to hand, says:—

"These transactions certainly offer a good inducement to Indian planters to follow suit. 35 cents, or 5 annas 7 pies steady average without any anxiety whatever as to the rise and fall of the market, would pay very many concerns well, to say nothing of the bonus which would defray the extra cost of machinery. The contracts are, of course, for uncoloured tea, and it should not be difficult, considering the excellent quality of green tea turned out in India, for some of these contracts to be secured locally. The effect upon the development of the new industry of such arrangements must be most marked, for the buying contractors will necessarily make every effort to get the tea into consumption."

Correspondence.

To the Editor.

"PINEHURST" TEA IN AMERICA.

Toronto, Dec. 9th, 1902.

DEAR SIR,—I read with interest the editorial in your issue of October 22nd, was highly amused by it, and think it is the proper spirit in which to take any statements that appear in the Press about the "Pinehurst Tea Plantation" in America, for it is a huge joke; but when your article went on to state that "The Pinehurst Plantation" accomplished the publicity that it got in "The Boston Herald," for the mere writing of the said article, then you evidently do not understand newspaper methods here. If you think "The Boston Herald" would allow any institution or person to boom itself at the expense of the proprietors of the "Herald," then you are mistaken. Every line of the article you allude to was paid for, and paid roundly for, and in fact it is articles like this that bring around the donations from the Government of $10,000 to $20 000 to help on the "experiments" of the "Pinehurst Plantation." Therefore when you reflect on your Commissioner for not getting similar articles inserted free, you are doing him an injustice. I will venture to say that Ceylon tea has had more free reading articles in the Press of the United States twenty times over than the "Pinehurst Plantation," but this has been done not only by making the articles interesting, but also by buying much space in their advertising columns.—Yours truly,

P. B. LARKIN.

PARA RUBBER IN THE MALAYAN PENINSULA.

Resident General's Office, Selangor, Malay Peninsula, 24th Dec., 1902.

SIR,—I am directed by the Resident-General to enclose for your information one copy of a report on *Hevea Brasiliensis* in the Malay Peninsula, by Mr. Stanley Arden, Superintendent, Experimental Plantations, Federated Malay States.—I have the honour to be, Sir, your obedient servant.

O. W. H. COCHRANE,

for Secretary to the Resident-General, Federated Malay States.

[We are much obliged to the Resident-General for his attention. The importance of Mr. Arden's Report can be judged from his covering letter:—

Secretary to the Resident-General, Federated Malay States.

Batu Tiga, Selangor, 27th September, 1902.

Sir,—I have the honour to forward a report on *Hevea brasilienis*, the tree furnishing the "Para" rubber of commerce.

2. The report deals with :—(*a*) A Short History of its Introduction into the East. (*b*) Cultivation. (*c*) Extraction of the Latex. (*d*) Yield. (*e*) Preparation of Marketable Rubber. (*f*) Cost of Opening and Maintaining a Plantation. (*g*) Probable Returns.

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Many of these questions need much further investigation, work which is greatly handicapped owing to the very few trees at any disposal and the disparity in yield of trees growing under similar conditions, which necessitates the conduction of experiments over a large number of trees if reliable information is to be obtained.

3. The age at which tapping might profitably commence is still a matter of conjecture, but I have ventured the opinion that probably 50 per cent of five year old trees will give an average yield of eight ounces per tree, and that from 75 per cent of six year old trees an average yield of 12 ounces may be expected. Experimental tapping of young trees will be continued and the matter should be definitely settled within another eighteen months or two years.

4. The report on the rubber prepared by various methods will be made as soon as possible.—I have the honour to be, Sir, Your obedient servant,

STANLEY ARDEN, Superintendent, Experimental Plantations, Federated Malay States.

—ED. *T.A.*]

RUBBER AT 1,600 FEET ELEVATION.

Kepitigalla, Matale, Jan. 7.

DEAR SIR,—In reply to "Cha's"'s enquiry whether Para rubber would be profitable if grown at an elevation of 1 600 to 1,800 feet? I am now tapping some trees at about 1,600 feet on a hill side, and am very pleased with the excellent results obtained. Trees at this elevation, although a good deal smaller than the ones of the same age at a lower elevation, are now being proved to yield *better* than those lower down. They only require one incision in the morning and the cups are emptied at 11 a.m. and replaced under the same cut immediately, and are again emptied at 3 p.m., thus giving the same yield from one cut as would be obtained from two cuts on trees at the lower elevation. I have never been able to do this at the low elevation, as the latex does not flow after 10 a.m. This is proof positive that Para rubber yields better at 1,600 than at 600 feet.

I think this a very important fact, and one that will no doubt be noted by all concerned in Para. It is probably due to the cooler atmosphere at the higher elevation, which does not tend to coagulate the pure latex as it exudes from the wound. Whereas at the lower elevation the temperature being much higher, the latex scarcely has time to run into the cups before it coagulates on the way, owing to the heat.—Yours, &c.,

FRANCIS J. HOLLOWAY.

RAINFALL NEAR NAWALAPITIYA.

Donside, Nawalapitiya, Jan. 8.

SIR,—The following rainfall may be of interest to you, as also some of your readers, as there seems to be no register kept in this district by any of the Government officials :—1891, 194·88 inches ; 1892, 130·61 ; 1893, 124·95 ; 1894, 100·54 ; 1895, 130·19 ; 1896, 133·61 ; 1897, 131·51 ; 1898, 107·19 ; 1899 132·83 ; 1900, 149·26 ; 1901, 118·33 ; 1902, 126·31—Total 1,580·21 for the 12 years : an average of 131·68 inches. —Yours, &c., R. B. HECTOR.

[So that, strange to say, last year's rainfall —at Donside, close to Nawalapitiya—was below the average,—ED. *T.A.*]

BUTTER-MAKING.

Jan. 11.

Dear Sir,—To give that new style of butter-making a fair trial, I put about a pint of cream into the muslin and filtering paper: it took 3 or 4 hours for the moisture to trickle through and the butter was softer than if made by the old way viz., the cream put in a bowl and stirred with a spoon; by this method the butter was made in 5 minutes, as with this cold weather the cream is thick and firm and makes into butter very quickly and it is nice firm butter too, so that on the whole I like the old system best.—Yours truly, HOUSE-KEEPER.

P.S.—I'll give that butter-making yet another trial.—H.

COARSE PLUCKING: A WARNING FROM LONDON.

Kandy, Jan. 13.

Sir,—I enclose for publication the following telegram, received here today from London, which explains itself.—I am, Sir, yours faithfully,

A. PHILIP,

Secretary to the Planters' Association of Ceylon.

"Big London buyers recognise India means control quantities auction; spite strong statistic position, buyers confident able to keep down prices, because Ceylon resorting as before coarse plucking flood market: warn planters earnestly against coarse plucking. Ceylon Association."

THE LAKE-FLY NUISANCE: AN EXPERT REPLY TO THE "SEA-WATER" SUGGESTION.

Colombo Museum, Jan. 14.

Dear Sir,—Referring to Mr. Theobald's suggestion regarding the extermination of the Lake Fly, I have read his letter and may say that, as for the practicability of converting the Colombo Lake into a temporary arm of the sea, I have no doubt that this herculean method of purification would be child's play to an engineer—other things, of course, being equal. With regard to the question as to whether it would be likely to achieve the required object, it is necessary to know certain facts before an opinion based upon biological considerations could be hazarded, *e.g.*, the differences in density and salinity between the lake-water and the sea-water, the degree of salinity which could be endured for a longer or a shorter period with impunity, firstly by the larvæ and secondly by the eggs of the fly.—Yours faithfully, ARTHUR WILLEY.

THE LAKE-FLY NUISANCE.

Colombo, Jan. 14.

Dear Sir,—While thanking Mr. Willey for his reply to my letter in your columns *re* the "Lake Fly Nuisance" I fail to see that his remarks are in any way conclusive that my proposal is impracticable. The engineering difficulties appear to me the easier of the two, but we need not waste time discussing this till we know whether sea-water will exterminate the flies. On this point Mr. Willey is not definite. Perhaps, if he would kindly make a few experiments he would be able to give a decided opinion.—Yours faithfully,

F. C. THEOBALD.

COARSE PLUCKING AND RESPONSIBLE PARTIES.

Up-country, Jan. 16.

Sir,—You can put "Avoid Coarse Plucking" in a prominent place in every issue of your paper, but it will do little good unless the country is supported by the Colombo agents and certain V. A's., who, at present, are in that habit of jumping on their Superintendents for not keeping down the cost of plucking. If the Colombo agents would *insist* on their Superintendents spending say ½ cent per lb., *more* in 1903 than it cost to pluck in 1902, they would reap a penny profit for the ½ cent extra outlay. There are so few properties in private hands now, that the matters of supply and demand lie entirely in the hands of the Colombo agents. A Superintendent is not going to pluck "fine" or "medium" if it means the "sack" for exceeding his estimate for plucking. I have always maintained that since nearly all Ceylon tea estates fell into the hands of Companies, the Colombo agents have been the arbiters as far as yield is concerned. Mr. Figg apparently agrees with me.—Yours, &c., NORTH C. DAVIDSON.

PLANTING NOTES.

Notes on Plantain (Musa) Fibre Industry—by V T Vencatraman Aiyar, Valavanur South Arcot District—is a useful little pamphlet; but there is not much in addition to what we have already heard from Kew, Drs. Watt and Morris.

Java Cinchona Exports for 1902—are given at 13,143,000 Amsterdam lb. of bark as against 12,606,000 for 1901. In English lb. the comparison runs:—

1902	...	29,440,320
1901	...	28,237,440

The Amsterdam *pond* is equal to 2·24 English pounds—the French kilogramme being 2·20.

Rubber.—It is certainly quite time that the Chamber of Commerce added rubber to their list of exports since the one district of Kalutara is expected to give a crop of 7 tons or over 15,000 lb.; and this is bound to increase year by year as younger trees come into bearing. No doubt there are other districts, such as Matale which will contribute so that the youngest product in the list should make a brave show before long. From the Customs accounts for the first eleven months of 1902 we see that 161 cwt. (18,000 lb.) of rubber were exported, valued at R34,086.

COCOS ISLANDS.

Governor Sir F A Swettenham forwards to Mr Chamberlain a report by Mr. L H Clayton, District Officer, Christmas Island, who was deputed to pay the annual visit to the Cocos Islands. Sir Frank remarks;—"The report shows that the islands continue to prosper under the paternal rule of Mr. George Clunies-Ross and that the people are on the whole well-to-do and contented. There are no new developments which call for special remarks" Mr Clayton reports that the islands are still happy and contented, though they suffered severely from a cyclone in March, when the natives ran to lagoons and stood up to their necks in water, as the only place of safety. Existence at Cocos Islands is otherwise uneventful, but they now have a doctor, who is a great acquisition, for hitherto cases of illness have been diagnosed and treated by telegraph from Perth (Western Australia). The next great event will be the establishment of a Lloyd's signal station. The following is extracted from the report:—

I have nothing to add to what has been stated in former reports as to the excellent condition of the Cocos and Bantamese villages. The Cocos-born people are tidier and more attractive than the Bantamese, and, in the same way, the village of the former presents a better appearance, but in neither case did I see anything to call for adverse comment.

I visited Direction Island, a portion of which has been leased to the Eastern Extension Telegraph Company. There are resident there at present in temporary buildings Mr. Cameron and nine European assistants, with 14 Chinese servants and four Malay boatmen. In addition to these there are three Europeans and 39 Chinese engaged on the erection of permanent buildings for the staff. Eight or nine houses of various sizes will be required, and I should imagine it will be over a year before the staff are finally settled down. The chief difficulty that they have encountered has, I understand, been the lack of water. No water is obtainable on Direction Island, and at first they were supplied from the other islands by boat. A condenser has now been erected, and as the buildings are completed water will be collected from the roofs. The yearly rainfall is almost certainly over 80 inches.

In order to avoid the necessity of chartering ships to take the copra away, Mr Ross has recently purchased a sailing vessel, the "Broughton," a barque of 571 tons register. The only shipment of copra made in the past year was one of 706 tons sent to Europe by this vessel in May last. The quality of the Cocos copra appears to be as high as ever, as the shipment fetched the excellent price of £18 5s per ton, the highest figure reached for some years. There have been no other exports. About 190 tons of copra were in store ready for shipment, and I was told that 15 tons were produced in an average week's work.

The natives complain about their clothes. I share Mr Carter's opinion, in last year's report, that the difficulty of obtaining nice clothes is obviously not insuperable. A sailing race was also held for prizes given by Commander MacHutchin, and the winners had their choice of a piece of serge or a pair of substantial boots as prizes. The serge was chosen, as the men explained that boots were of no use except to dance in.

The ship went to North Keeling with Mr Ross on board. The island has only once been visited (1893) by a man-of-war, and in that year Mr Ross decided not to continue working it. No one had in consequence set foot there for nine years. Under the circumstances I was surprised to find that the undergrowth was not particularly thick, and that we had little difficulty in getting about. The house formerly occupied by Mr Ross was standing, although of course out of repair. The stock of food left in case of shipwreck had not been touched, and the well was in good order. Only slight damage had been done by the cyclone, and Mr Ross decided after inspection to work the island again in October. Every tree and bush is covered with the nests of frigate-birds, boobys, gannets, terns, &c. The birds are quite tame and have no fear of man. The white tern, to my mind the prettiest of all, is most inquisitive, and numbers of them kept fluttering round our heads. Mr Ross showed us one of the bird's egg *in situ*. It has been laid so as to rest between two ribs of a cocoa-nut leaf, and was so placed that the swaying of the leaf in the wind did not shake it off. There was no nest of any kind.

During my stay at the Cocos very few complaints were made to me, and those chiefly by the women. Poverty and the high prices charged at Mr. Ross's store were the principal grievances, but it did not seem to me there was much foundation for them. Mr. Ross told me that he had already detected among his people signs of restlessness owing to presence of the employés of the Telegraph Company. I cannot say, however, that I observed any indication of it.

The extraordinary influence exercised by Mr. Ross over the natives, and the wonderful success of his administration, made a great impression upon me, and I am confident that so long as the present proprietor retains his health there need be no fear that justice will not be fairly and evenly administered, or that welfare of the inhabitants will not be properly attended to. So long, moreover, as the conditions of life are as favourable as they are at present, I do not think that any complaint can be made if every legitimate inducement is held out to natives to remain there. —*London and China Express*, Dec. 5.

CEYLON TEA IN VIENNA.

We have received a copy of the illustrated "Wiener Bilder" of December 24th, which contains, beside Mr. Marinitsch's regular advertisement, nearly a page of illustrations devoted to "Tea Culture" with corresponding letter-press and a portrait of Mr. Marinitsch—all of which is well calculated to interest readers in our staple industry and the product recommended to their notice.

The writer, who has gained his information while interviewing Mr. Marinitsch in his warehouse in Vienna, gives a full and interesting account of tea cultivation, packing, and exports. As the duty on tea in Austro-Hungary is double that levied in Germany, it must still be too dear to become the people's drink, which, he says, it ought to be throughout the Continent.

THE "THIRTY COMMITTEE."

Minutes of a meeting of the "Thirty Committee" held at the Victoria Commemoration Buildings, Kandy, on Saturday, 10th Janury, 1903. (7-30 a.m.). Present:—

Messrs A C Kingsford (Chairman); A Philip (Secretary); Hon. Mr J N Campbell, M.L.C.; Hon. Mr Edward Rosling, M L.C.; Hon. Mr Stanley Bois, M.L.C.; Messrs Gordon Pyper, Edgar Turner, James F Headrick, Hercules J Scott, W Shakspeare, Walter J Smith, C E Welldon, R Morison, W D Gibbon, G H Alston, H V Masefield, W Forsythe, Frank S Vowler, W D Bosanquet, T C Huxley, James Westland, Joseph Fraser, W R Tatham, R A Galton, Fred. Hadden and E Webb, (26 members.)

(After Formalities.) MISCELLANEOUS.— Read letter from Mr R V Webster regarding a new Tea Company for Switzerland. Read letters from the Co-operative Tea Gardens Company transmitting newspaper advertisements in Honolulu, America, Egypt, Malta, and Africa and sundry advertising matter in connection with Mr R V Webster's vote, for pushing and advertising Ceylon Tea. Read letter from Messrs Rodewald & Heath, Colombo. Submitted correspondence with Mr Charles Stonter. Read letter from Mr O H Greenslade and from Mr W Wilson Smith regarding selling of Tea in California, Mexico, Arizona and the Mining towns in the desert. "Resolved:—That the Committee regret being unable to entertain the applications."

TEA TRADE IN ANNAM.—Submitted correspondence with the Ceylon Chamber of Commerce.

MEMBERS OF COMMITTEE.—Read letter from Capt Gordon resigning his membership in the "Thirty Committee" in view of his departure from Ceylon.

CORRESPONDENCE, &C. CIRCULATED.

CEYLON TEA IN AMERICA.—Letters from Mr Mackenzie to Mr Kingsford, dated, Chicago, 27th October and Toronto 30th October; Montreal 4th November New York 14th and 7th November; to Mr Kingsford, Hampstead 5th December; Mr P C Larkin to Secretary, Toronto 3rd November; Mr R V Webster to Mr Kingsford, 4th December; Mr P C Larkin to Mr Kingsford, Toronto, 20th November; Mr Mackenzie to Mr Kingsford, Hampstead 12th December, 1902.

COMMISSIONER ON THE CONTINENT OF EUROPE.—Letters from Mr Renton to Mr Kingsford, dated, 2nd November and Berlin 13th November Buckeburg, 27th and 30th November; (2) 4th and 5th December.

CEYLON TEA (NEW MARKETS) FUND.—Letter to Secretary, from Government, dated, Colombo, 29th November, 1902.

PROPOSED INCREASE OF THE TEA CESS.—Letters received by the Ceylon Association in London in reply to Circular letter on the subject. Correspondence received from the Secretary, Ceylon Association in London, showing the opposition raised against the increase of the Tea Cess in 1901.—Submitted letters from Treasurer of the Colony.

CEYLON GREEN TEAS GRANT 1901-1902.—Memo. of payments made at 15th December, 1902. Amended Green Tea Memo. up to 15th December, 1902, in lieu of previous one with printers' error.

FINANCES.—Interim Sketch of Ceylon Tea (New Markets) Fund at 31, 12, 1902 subject to closing entries indicated.—Submitted Correspondence with National Bank of India.

CEYLON TEA IN AMERICA.—Letters from Mr Mackenzie to Mr Kingsford, dated, New York, 17th and 21st Oct., 1902.

COMMISSIONER ON THE CONTINENT.—Letters from Mr Renton to Mr Kingsford, dated, Stuttgart, October 10th, Lyons, 20th, Orleans, 24th, Paris, 26th, Paris, 28th, and Lyons, 17th 1902.

CEYLON OOLONG TEA.—The process in Formosa described, (printed.)

CEYLON TEA IN AFGHANISTAN.—Letters from Mr Foley to Mr Kingsford, dated, Quetta, 20th and 29th October and 13th and 29th Nov., 1902.

CEYLON TEA (NEW MARKETS FUND).—Memo. of Payments since July, 1902

CEYLON GREEN TEAS.—Statement of lb on which payment was made during 1901 and 1902.

CEYLON TEA (NEW MARKETS) FUND.—Submitted letters from the Treasurer of the Colony.

GOVERNOR IN EXECUTIVE COUNCIL.—Read letters from Government stating that His Excellency the Governor had been pleased with the advice of the Executive Council to sanction a further expenditure of R1,500, in presenting the Boer Prisoners-of-War who are returning to South Africa, with gifts of Ceylon Tea; and to sanction the following proposed appropriations from the Ceylon Tea Fund of a sum of R470,000:—

Green Teas, 7,000,000 lb. at 4 cts.	..	R280,000·00
America ..	.. ..	105,000·00
Continent of Europe ..	..	75,000·00
Administration Contingencies	..	10,000·00
		R470,000·00

CEYLON TEA IN AMERICA, REPRESENTATIVE IN AMERICA, WORLD'S FAIR, ST. LOUIS, U.S.A. IN 1904.—Submitted correspondence circulated. Read lettter from Mr Wm. Mackenzie, dated London, 19th December, 1902, in reference to Ceylon Green Teas. Resolved:—"That the extract from the New York correspondence be published in the newspapers."—Read letter and Memo of Instructions from the Chairman to the Hon. Mr William Henry Figg, representative in St. Louis, U.S.A. on a preliminary mission for report regarding the World's Fair there in 1904.

PROPOSED INCREASE OF THE TEA CESS.—Submitted correspondence and discussed the question. Resolved:—(I) "That it be publicly notified that the funds available are only capable of meeting the payment of a bonus at 4 cts. on 7,000,000 lb. spread over the year and that should larger quantities be made, say than an average of ⅝ million lb. per month, payment will have to be held over from time to time until funds are available (II) that the "Thirty Committee" considers Mr Rutherford's proposal to guarantee a bonus of 4 cents a lb. for 1903 payable partly out of 1904 funds is extremely inadvisable (III) that Proprietors at Home be again approached through the Ceylon Association in London and that it be represented that in view of the outturn of Green Tea during December, 1902 having been, say 700,000 lb. and the estimated manufacture for 1903 (submitted in detail), amounting to 12,000,000 lb., the Committee would again ask the Ceylon Association in London to consider the question of an increase of the Cess, and would push for an incease up to ½ a cent per lb. limited to eight months, 1st May to 31st December, 1903, thus providing funds for the payment of a further amount of, say, 5,000,000 lb. at 3 cents per lb.

CEYLON TEA IN AFGHANISTAN.—Read correspondence with Messrs Crosfield Lampard & Co. Submitted correspondence with Mr E G Foley.

CEYLON TEA IN HONOLULU AND WEST INDIES.—Read correspondence with Messrs Bosanquet & Co., and Mr R Valentine Webster, and intimated that the sum of R7,500, had been paid for credit of Mr R V Webster in full settlement of Grant voted to him in connection with pushing of Ceylon Tea in Honolulu, West Indies, North and South Africa.—The "Thirty Committee" then adjourned. A PHILIP.
Secretary to the Thirty Committee.

"THIRTY COMMITTEE ACCOUNTS, 1902.

	R c.	R c.
To Balance in Bank on Jan. 1st, 1902 ..	22,984 74	
,, Cash in hand on Jan. 1st 1902 ..	127 71	
,, Cess payments Jan.-June, 1902 ..	146,604 14	
,, Bank Interest ..	148 51	
By Expendiure Jan. to June, 1902		145,369 42
,, Balance in Bank on 30th June, 1902 ..		24,353 02
,, Cash in hand on 30th June, 1902 ...		142 66
	R169,865 10	R169 865 10
To Balance in Bank on July 1st, 1902 ..	24,353 00	
,, Cash in hand on July 1st, 1902 ...	142 66	
,, Cess payments July-Dec., 1902 ..	227,846 51	
,, Bank Interest ..	162 77	
By Expenditure July-Dec., 1902 ...		236,457 43
,, Balance in Bank on 31st Dec., 1902 ...		15,830 02
,, Cash in hand on 31st Dec., 1902 ..		217 51
	R252,504 96	R252,504 96

CESS PAYMENTS, 1902.

	R c.			R c.
January	21,324 57	..	July	46.312 69
February	25,783 70	..	August	51,365 53
March	21,249 03	..	September	39,184 49
April	20 677 02	..	October	33,397 77
May	30,284 45	..	November	29,152 62
June	27,285 37	..	December	28,433 41
Total ..	R146,604 14		Total..	R227,846 51

EXPENDITURE, 1902.

	Jan. June. R c.	July-Dec. R c.	Total. R c.
Continent of Europe	30,120 25	37,529 35	67,649 60
Russia	—	2,273 69	2,273 69
America	30,041 05	45,058 70	75 099 75
Green Tea Bonus	73,685 20	128,677 40	202,362 60
South Africa and West Indies	—	7,500 00	7,500 00
Afghanistan	5,779 27	1,403 04	7,182 31
Boer Prisoners-of-War	—	9,408 50	9,408 50
Golden Tips	249 00	—	249 00
Salaries and sundries	5,494 65	4,505 35	10,000 00
St. Louis Exhibition	—	101 40	101 40
	R145,369 42	236,457 43	381,826 85

DETAILS OF EXPENDITURE.

CONTINENT OF EUROPE: R67,649·60—being cost of £4 500 remitted Mr Renton, details of this expenditure will be shown later in Mr Renton's account.

RUSSIA: R2,273·69.—Amount paid Messrs. Crosfield Lampard & Co. being balance of £1,000 voted them in 1898 for pushing Ceylon tea in Russia. Against this vote of £1,000 Messrs. Crosfield Lampard & Co. show shipments of 5 million pounds during the three years.

AMERICA. R75,099·75—being cost of £5,000 remitted Mr. Mackenzie, details of this expenditure will be shown later in Mr. Mackenzie's account.

Green Tea Bonus: R202,362·60

	R c.
Claim on account, 1901. 18,183 lb. at $1\frac{1}{2}$ cts.	272 24
Being bonus on 36,995 lb. at $6\frac{1}{2}$ cts.	2,404 66
137,863 lb. at 6 cts.	8,271 78
151,883 lb. at $5\frac{1}{2}$ cts.	8,353 52
3,661,198 lb. at 5 cts.	183,059 90
3,987,939 lb.	R202,362 60

Total.. 3,987,939 lb.	1902
1,590,000 lb.	1901
472,294 lb.	1900
86,327 lb.	1899
13,302 lb.	1898

6,149,862 lb. to date 31st December, 1902, on which a bonus has been paid. Amount remaining of 5 cents bonus, R7,454·83 for 149,095 lb.

SOUTH AFRICA AND WEST INDIES, R7,500—being grant of £500 voted Mr. R V Webster in 1900 for pushing Ceylon tea in North and South Africa, Honolulu, the West Indies, Malta and Gibraltar.

AFGHANISTAN, R7,182·31—No. 2 account received from Mr. Foley R3,000.

	R c.
Despatched 120 half-chests Green Tea costing	2,846 01
Telegram to Quetta...	3 60
Amount at credit transferred to No. 1 account	150 39
No. 1 Account.—Paid Mr Foley for report on the Bombay Tea Trade	500 00
Green Tea samples sent to Sir Acquin Martin	53 00
Fancy Boxes Green Tea sent to the Ameer	29 20
One half-chest Ceylon made Namouna ...	25 20
Paid Mr. Foley	1,000 00
Paid Mr. Foley, Telegraphic remittance	1,012 20
Cost of 8,061 lb. Tea sent Mr. Foley and Freight	3,159 67
Cost of 3,300 lb. Tea sent Mr. Foley and Freight	1,288 19
Paid Messrs. McIver Mackenzie & Co...	265 24
(Being Duty, landing and forwarding charges about R690 less proceeds of damaged tea)	
Total ..	R7,332 70
Less amount at credit No. 2 account..	150 39
Total outstanding ...	R7,182 31

Of this amount about R5,000 is recoverable from Mr. Foley.

Total amount of tea shipped Mr. Foley about 14,500 lb

BOER PRISONERS-OF-WAR.—R9,408 50—being the cost of 4,585, five pound boxes of tea presented to all prisoners-of-war returning to South Africa. Total amount of tea 22,925 lb. costing with boxes 41·04 cents per lb. This tea was distributed before landing in South Africa and was allowed into the country free of duty.

"Golden Tips" R249.—Cost of 50 copies of "Golden Tips" sent to Mr. Mackenzie for distribution in America.

Salaries and Sundries, R10,000.

SIX MONTHS ENDING 30TH JUNE, 1982.

Auditor	R65	00c.
Printing, etc. Book of Proceedings ...	667	80
Miscellaneous (Cyclostyle services) ...	300	00
Ceylon Association in London ..	450	00
Secretariat and Management, A Philip & Co., Contribution to Office Expenses	1,500	00
Peons' Services	168	00
Postages, Petties, &c.	217	05
Charges	107	50
Printing, Advertising, &c. (Capper & Sons)	132	12
Secretariat and Management Secretary	1,500	00
Stationery Account	315	74
Telegrams	71	44
	R5,494	65

SIX MONTHS ENDING 31ST DECEMBER, 1902.

Auditor		R 65·00
Miscellaneous as under :—		
Mr Kingsford	R250·00	
Mr Philip ..	125.00	
Walker's ...	15·00	
Cyclostyle ...	300·00	690·00
Messrs A Philip & Co.		1,500·00
Peons' Services, ...		163·00
Postages, Petties &c.		101·05
Charges as under :—		
Cheque books	R 10·00	
Coolies ...	105·00	
Brown and Davidson ...	102 50	
Railway Freight ..	1·10	218·60
Printing advertising, &c. as under :—		
Capper & Sons	R 46 43	
Apothecaries Co., Limited	105·85	
Ceylon Independent ...	60·25	
H W Cave & Co. ...	33 05	
Kandy Industrial School ..	17 12	262·70
Secretary		1,500·00
		R4,505·35

First six Months in 1902	R5,494 65
Second do do	4 505·35
	R10,000 00

ST. LOUIS-EXHIBITION R101·40—being cost of Telegrams to Mr Figg.

GREEN TEA AND PATENTS.

Writing under date, 7th January, Mr Drummond-Deane mentions :—"My Ceylon patent for the Deane-Judge Strainer hangs fire owing to the usual red-tape, though it has been granted long ago for India. I am of opinion that the 'Thirty Committee' bonus on green teas should be on a sliding scale; otherwise, as black teas rise in value, greens will fall back. I suggest as worthy of consideration that with black tea average 8d or over, the green tea bonus should be not less than 8 cents which, with such an average, the black tea producers can well afford and that for every farthing fall (or fraction of a farthing) there should be ½ a cent reduction down to 6d average, where it should remain at *4 cents*. Something on these lines is wanted if you don't want to nip the green tea industry in the bud. We shall shortly have a Deane-Judge Finishing and Pan-firing Machine for the Ceylon public."

Mr. Drummond-Deane will see that we cannot go on even at 4 cents and that there are many who think green tea could stand by itself, so good have been the prices paid at Colombo sales lately. What does our correspondent think of 36 cents for low-country greens apart from bonus ? But the question is now pertinently asked as to whether the fostering of a *new industry* is not peculiarly the duty of the Government.

TEA CULTIVATION IN THE CAUCASUS ASIATIC RUSSIA.

With reference to the notice on pp. 368-9 of the *Board of Trade Journal* for 15th November, 1900, H M Consul at Batoum, in his recent report, states that the cultivation of the tea plant in the Southern Trans-Caucasus, and principally in the vicinity of Batoum, is making great strides. It is only some nine years since the first attempts in the culture of tea were made on the coast of the Black Sea by a Russian gentleman, and his undertaking was then looked upon most sceptically by the majority of the agricultural people in the district. Since then it has, however, become evident that tea can be cultivated to advantage, and several other persons in the district also began to grow tea on their estates, among them the managers of the Imperial Domains, who now have 500 to 600 acres under tea.

During the present year the tea crop surpassed all expectations, 1 dessiatine (2·7 acres) having, on an average, yielded 20 pouds, or 800 Russian lb (720 lb avoir. weight), which, at the rate of 1 rouble per pound, the all-round wholesale price at which it has been sold, has brought in 800 roubles per dessiatine; or, as near as possible, 30*l* per acre.

Owing to the satisfactory results obtained during the period under review, the Russian Ministry of Agriculture, it is understood, is about to adopt a series of measures in order to encourage and foster the cultivation of tea by the small peasant classes, and books containing instructions and explanations with regard to the industry, are being widely circulated among the farmers of the locality in which the tea is grown.

Under the conditions set forth above, the theory that tea growing in the Caucasus would not be generally adopted on account of the unfavourable climatic conditions and other difficulties which have to be encountered, including the high rate of wage paid for labour, or that the tea industry and trade of the Caucasus could not possibly expand to a stage which would render it, even at a remote date, of commercial importance, is apparently an exploded idea. The results obtained during this season show that quite the contrary is likely to be the case, and that there is every reason to believe that the cultivation and manufacture of tea promises to be one of the most prosperous and profitable agricultural pursuits in the Trans-Caucasus.—*Board of Trade Journal*, Dec. 24.

TEA TRADE CHARGES.

The recent regrettable failure of an old and honourable City firm of tea merchants, who attributed their losses chiefly to the changing conditions of their business, has directed attention to the almost complete revolution that has taken place in the tea trade of late years. So far as the retail buyers are concerned, it has come about so silently and gently that they have fallen in with it, quite unconscious that any transformations were proceeding. They are vaguely aware that China tea has to all intents and purposes passed out of their grocer's shop, and they are learning that tea should be drunk when freshly made. Price remains their chief standard of comparison, and the average householder feels she has acted rightly when she orders a quantity at 2s. a

pound for general use, and a smaller amount at 2s. 6d. for her weekly "At Home" day. But how it has come about that month after month she can rely upon having the same quality of tea, and

THE SAME "ROBUST" OR "SOFT" FLAVOUR,

to cite the terms of the dealer's list, she knows not, nor has she any idea of the skill and science which have ousted the rough and ready methods of by-gone days. The old-fashioned tea-caddy, with its divisions for black and green tea, which were mixed at the discretion of the lady of the house, seems as far from the elaborate machinery of scientific blending of today as the tallow candle from the electric light.

To understand the present conditions of a trade of such vast proportions and Imperial moment, it is necessary to go back to the early sixties, when the experiment of tea-growing were first made in India. China was then supplying the world, or rather, such portions of it as consumed tea, and gentlemen of long experience in the trade can tell one that about 1868 the general quality of this tea was at its best, though 1879 saw the "record" of bulk ever furnished by the Celestial Empire. Meantime, it was steadily deteriorating, however, and India was becoming a more and more formidable rival. Ceylon came into the lists, too, and by 1886 was sending in 6,000,000 lb, and every year has made enormous strides. It is interesting to note, therefore, the

RELATIVE PROPORTIONS OF THE TEA

now drunk in this country by the figures of last year. Roundly, India furnished us with 148,000,000 lb, Ceylon with 91.000,000 lb, and China with 10 000,000. According to the latest available statistics, India has nearly 525,000 acres now under tea cultivation, and Ceylon 387,000. Tea is a growth that is most easily affected by soil, height, the wetness or dryness of a season, and a score of other influences, and the products of certain estates are known to be superior to those of others. With the varying conditions of such a wide area, and tea good, bad, and indifferent available, how is it that it reaches the consumer so unvarying in the standard of quality and flavour?

It is due entirely to the expert ability of the blender and when new methods were introduced about 1888, the transforming change began. Previous to that the grocer, judging approximately the amount he would required, ordered a few chests of China and Assam tea of varying degrees of pungency or mildness, and according to his own judgment mixed any two or three of them, and gave them labels and designations as he thought most likely to commend them. He did not possess the super-cultivated palate

ESSENTIAL TO A TEA-TASTER;

his ideas of combinations were essentially primitive and restricted, and he quite failed to take into account that, say, the Orange Pekoe from Darjeeling, which had been so good a feature of "our strongly recommended" last year, might this season be a totally different tea, on account of an abnormal season. Of course, his mixtures sometimes proved successful, but there was always uncertainty, and the fastidious people who were wont to say, "they could not drink grocers' tea" were in the habit of sending to one or other of the old fashioned London houses, which made a speciality of high priced and choice teas.

The pioneers of the change conceived the bold idea of supplying the grocers with ready-blended tea, and bold and enterprising firms pushed forward the scheme with rapid success. They secured the assistance of tasters able to detect the subtlest gradations of flavour, and able to judge to a nicety the exact degree to which a full, rough Assam, with its large precentage of theine, should be tempered with the softer growth of Ceylon's uplands, and the fragrant dash of some scented variety. By means of constant experiment they mastered the great secret, which is to produce a "negative" blend.

IN A POPULAR TEA,

at the present time there may be anything from twelve to twenty different kinds of the leaf, each representing some different qualification of strength, delicacy, flavour, or aroma. The importance of the water used is now recognised as it never was of yore, and different blends are prepared for districts where this can be broadly classed as hard or soft. In the mixtures prepared for Scotland and Ireland, for instance, the combinations are quite distinct. But between these clearly defined divergences there are endless lesser ones and it is found on experience that a blend embodying numerous constituents is more likely to prove universally suitable and palatable than one into which fewer varieties enter. Moreover, in the event of a failure in any of the crops represented, it is easier to replace a small proportion of the whole, and to maintain the level standard that the public now demands in what may be termed the "branded" teas of favourite firms.

It is pleasant to be able to state, on the highest authority of the wholesale houses, that never has better value been offered to the retail buyer than at the present time. The prices both of Indian and Ceylon teas have been steadily declining during the last twenty years, and adulteration has thus been stamped out. So much genuine, even if not high-class, tea is now available, that there has ceased to be the incentive there once was to mix other items with it, so that though flavour of the cheaper descriptions sold may not always appeal to a critical and fastidious tastes in tea, there is no occasion to fear it may contain foreign substances. The average housekeeper, too, has learnt to make tea upon better principles, and instead of extracting every grain of tannin it contains by long infusion, she uses more of the leaf and pours it out after two or three minutes' "drawing," to the advantage of the nerves and digestion of the consumer. This point is illustrated to some extent by the steady growth of the tea drunk per head of the population, which from the 4.91 lb of 1895 had attained last year to 6.17 lb., and is beginning to approach Australia—the greatest tea-drinking country of the world in ratio to its population—with its 7.80 lb.—*Daily Telegraph.*

SEYCHELLES VANILLA.

The Administrator of the Seychelles, in the course of his annual report on the trade for 1901, states that the falling off in the value of exports of coconuts, coconut oil and soap is attributable to neglect of existing plantations in favour of the cultivation of vanilla. Admirably suited as are the climate and soil of Mahé, Praslin, La Digue, Silhouette, and many other islands for the cultivation of this valuable orchid, the abandonment, or even partial neglect, of coconut-plantations is much to be deplored. In view of the many uses to which coconuts can be put, the danger of over-production is slight; but in the case of vanilla, the danger of over-production is considerable. There is capriciousness about the yield of vanilla, and even a greater capriciousness about its price, which renders it desirable that planters should have some other products of economic value to rely on when the yield is small or its selling-price unremunerative. This conclusion seems to be justified by the following statement, showing the quantity of vanilla exported from Seychelles and its declared value at the Customs from 1891 to 1901:—

	Quantity in Kilos.	Declared Value. Rs.
1891 ..	40,929 ..	373.190
1892 ..	28,177 ..	394 478
1893 ..	28 869 ..	346,428
1894 ..	24 444 ..	293.328
1895 ..	4,553 ..	60,344
1896 ..	31,227 ..	936,000
1897 ..	30,691 ..	920,730
1898 ..	25,177 ..	748.810
1899 ..	41.835 ..	1,338,720
1900 ..	17,569 ..	580,877
1901 ..	71,899 ..	1,108,792

Nearly the same amount of vanilla was exported in 1891 as in 1899, and yet the declared value of the vanilla of 1899 exceeded the declared value of the vanilla of 1891 by almost 1,000,000r. In 1901 the quantity of vanilla exported exceeded four times the quantity exported in 1900, and had prices been maintained, the declared value of the vanilla exported should have been over 2,000,000r., or four times what it was in 1900; but it will be seen that it was not quite twice as much, and, as has been pointed out before, the declared value probably exceeded the actual value.

The first year for which there is any record of vanlla being exported from Seychelles is 1877, and in this year the quantity was 60 kilos., valued at 1,195r. The next year the quantity exported rose to 147 kilos., valued at 2,950r., but fell in 1879 to 8 kilos., valued at 160r. In 1880 the export of vanilla amounted to 1,713 kilos., valued at 22,877r., and from that year Seychelles has never looked back as a vanilla-producing country. —*Chemist and Druggist*, Dec. 27.

THE BRAZILIAN RUBBER CROP.

DEVELOPMENT OF THE GUTTA PERCHA INDUSTRY.

In a report on the prospects of the Brazilian rubber trade the United States Consul at Para says the political troubles in the Acre territory have had a serious effect upon the rubber trade throughout that region, and will undoubtedly result in largely reducing the crop. The rubber produced on the Beni and the Acre is considered the best that comes to Para, and its loss will therefore be felt by shippers and importers alike.

It is said that the caoutchouc forests of Peru, from which nearly the whole supply of this product has heretofore been drawn, are practically exhausted, as the result of the wasteful methods persued by the gatherers. It appears, however, that there is an almost inexhaustible supply of caoutchouc in the little-known regions about the Upper Madeira. In the near future,

GATHERERS MUST LOOK TO BOLIVIA

for their supply of this gum. It is understood that a strong effort will be made to prevent their destroying the trees as in Peru. Experts state that the tree can be tapped in a special manner and its gum extracted year by year for a long term before it becomes exhausted.

A serious obstacle to the successful production of rubber on the head waters of the Madeira is the system of taxation now in effect. Rubber merchants are charged 23 per cent ad valorem export duty by the State of Matto Graoso. The State of Amazonas also charges 23 per cent duty.

GUTTA PERCHA.

The supply of balata in sight is said to be so great that no fears of a shortage need be entertained for years to come, if the business is properly and intelligently handled. Experts report that there is not a tributary to the Amazon which does not show forests of this tree upon its banks. The importance of this new industry in Brazil may be realised when it is known that the market price of balata is equal to that of the best rubber and the cost of production is less than one-tenth that of rubber.

BALATA HAS ANOTHER ADVANTAGE

in that it does not necessitate the risk of life attendant upon the gathering of rubber. The balata grows upon high ground, as well as on the margins of the swampy streams where the fevers lurk. It is a common saying in Para that every ton of rubber from the upper river costs two lives. This can never be said of balata, for men may work at this industry with no greater risk than usually attends any labour in the Tropics; and four men will gather as many kilograms of balata per day as thirty men can obtain of boracha.

At present there are three syndicates in the field to produce gutta-percha, one English, one Belgian and one German.—*Commercial Intelligence*, Dec. 25.

MASKELIYA PLANTERS' ASSOCIATION.

THE ANNUAL REPORT.

The CHAIRMAN—after the notice calling the meeting was read, asked the Secretary to read the annual report.

Mr H A WEBB—Hon.-Secretary, read the report as follows:—

Your Committee begs to submit to you its 31st annual report.

Four General and four Committee Meetings were held, at which the attendance as usual was good.

MEMBERSHIP.—The number of estates subscribing to the Association, is 54 against 52.

FINANCES.—The balance at credit of the Association is R742·11 as compared with R705·10 in 1901.

CROP ESTIMATE for 1903 is:—Black Tea, 7,436,000 Green Tea, 350,000.—Total 7,836,000 against an estimate for 1902 of 8,000,000.

TOTAL ACREAGE in tea on the district is 18,096. Estimated yield in this is at the rate of 440 lb per acre.

SEASON.—The very bad flushing weather of the last half of the year has caused a great shrinkage on the out-put of the district and on many cases estimates will not be reached. This was not so much due to incessant rainfall as to the long-continued, cloudy, cold weather and the great want of sun. Prices have generally been rather lower.

LABOUR has been sufficient for the needs of the district, probably owing to the shortage in the crop before-mentioned.

UPCOT-GLENUGIE CART ROAD.—This subject, which has occupied the attention of the Association for a long time past, seems at last, in a fair way to be settled. For this the thanks of the Association are largely due to Messrs Craib and Cuff who have taken much trouble in the matter.

TRAVELLERS ROADS.—The following grants were made:—Hapugastenne Road, R100, Stockholm Road R60, Nyanza Road, R40, Glenugie Road, R50, Balangoda Road R30, Browulow Road R10, Emelina-Brunswick Road, R25.—Total R315.

PLANTERS' RIFLE CORPS.—This continues to be well-supported in the district and great interest is shown both at drills and on the two ranges.

REGISTER OF ESTATES.—The Tin Ticket system has been working on the whole fairly well during the year and promises to be of assistance to planters. There have been a few complaints about minor details connected with it; but it is only natural that slight irregularities should occur at the inception of such a scheme, and they are being rectified as attention is called to them.

CEYLON NURSING ASSOCIATION.—This Association took the initiative in bringing the claims of the C. N. A. more prominently before the Planting Community, and it is hoped that much benefit to the Funds will result.

W. A. BRAYBROOKE,
H. A. WEBB,
GEO. GREIG.

The report was received with applause.

CALIFORNIAN ORANGES IN LONDON.—Mr. Thos. Christy, F.L.S., reports by a recent mail:—

You will, perhaps, be surprised to learn that the Navel Orange, which grows near California, is being sent to England this year in small boxes, most carefully packed, and the price in the market is 6d each—small ones 4d each. It, certainly, is a very fine orange. Those that have come in front Jamaica sell at 2d each, taking a whole case. They certainly are well packed and have arrived here in fine order.

OUR COCONUT PRODUCTS IN 1902.

The tabular statements which we issued as a *Supplement* to all our subscribers last month, shew that the Coconut Products of the Island have had another good year as regards volume. In prices, too, 1902 has been a satisfactory year, although for the latter half of it they compare unfavourably with those which ruled during the last few months of 1901, when Copra ranged between R55 and R62·75 per candy—select parcels fetching even R65 and R66—against R52·50, which has been the top price for about three or four months past. But Coconut Oil in 1901 ran up from R375 on 1st October to R437·50 on 31st December, while last year it fluctuated but little between R370 and R380. Hence 1903 has not opened as brightly for the products of our most useful and valuable palm as the previous year which, however, was in many ways an exceptional one.

Turning to our tables it will be seen that the quantity of Coconut Oil exported—512,498 cwt.—was the largest during the decade; but it was exceeded eleven years ago (in 1892) when 550,977 cwt. were shipped. That figure has never been realised since; but the quantity of Copra exported in 1892 was little more than one-third of that for last year, and Desiccated Nut less than one-fourth. Most of our Oil in 1902 went to the United Kingdom—as, indeed, it generally does—save, we believe in 1897 and 1898 when India displaced the mother-country. But whereas the United Kingdom was responsible for 301,647 cwt. last year, or about three-fifths of the total export, India took only 64,370 cwt. or less than one-half of the quantity she had in 1901. Can any of our expert readers enlighten us as to the causes of the heavy falling-off, and the curious shifting of trade in the two years we have specially named? America takes second place with 92,996—a bigger leap from 27,205 cwt. in 1901, than India, which has third place, has taken backwards. Austria, with 24,774 cwt. comes next—being the only other country with more than 20,000 cwt. to its credit.

In Copra, the mother-country takes a decidedly back-place, having had only 12,908 cwt., out of 374,796 cwt. exported. Germany takes the lead, having displaced France which used at one time to lead, with 179,819 cwt. against 110,144 cwt. for France, Russia making a bad third with 33,136 cwt., and Belgium and Austria coming next. The United Kingdom may be said to be at the bottom of the list, as Holland with 476 cwt. and India with only 5 cwt. can scarcely count. If, therefore, the claim put forward on behalf of England, that she makes more Coconut butter than the Continental countries which are advertising it so largely, the manufacture must be direct from the Oil, and not from the raw material which France and Germany probably specially value for the residuum of poonac as food for stock. But notwithstanding the high prices which prevailed, and the large contracts of which we heard a good deal early in the year, the total quantity of Copra exported is disappointing, having been only 374,796 cwt. against 439,865 cwt. in 1901, and 506,277 cwt. in 1898—the record year for Copra, as 1892 is for Oil. In Desiccated Coconut, however, 1902, with over 16¼ million lb. sent away, stands *facile princeps*, the quantity exported the previous year having been about 2¼ million lb. less. The industry, as our readers are aware, is a comparatively new one, having found a place in our export tables for the first time only in 1891, with but 416,330 lb. Its steady growth without any fluctuation, save for a small one in 1893-94, is evidence that the industry is on a sound footing, and that there is no accumulation of stocks, and no out-running of the supply over the demand. As a rule, we believe, the outturn is regulated by orders; and the gradual development is proof that the manufacture is growing in popularity for confectionery. The United Kingdom is here, again, our best customer, with nearly 10 million lb. to its credit, America coming next with 2,249,143 lb., and Germany showing kinship with both countries with 2,067,490 lb., followed by Australia with 795,050 lb.! Another hopeful future about the industry is that it is exported to thirteen out of the nineteen countries which find a place in our export tables, while Copra finds a market only in eight, at any rate in direct shipments.

In Coconuts in the shell again, the year is a disappointing one with about 12½ million nuts against nearly 15 millions in each of the two previous years, and considerably over 13½ millions in 1897 and 1898. As in Oil and in the Desiccated kernel, the mother-country comes first, having taken over three-fourths of the outturn. Africa, curiously, is the next best customer with 1,375,621 and Germany the next with 1,169,780. The nine other customers which follow have been content with much less than quarter-a-million nuts each. We cannot say that we regard with satisfaction the fact that 1902 is the record year for Poonac, with 247,697 cwt. sent away, since the cattle of the Island are not particularly well-fed, and they would be all the better of getting, as food, the refuse of all the Oil expressed in the Island. But as there is little chance of the village cattle being allowed the luxury, we cannot complain of buyers being found in Belgium and Germany, which are practically our only two customers for all the Poonac we do not use ourselves, save 200 cwt. which is distributed among four other countries. The exports of Coir, in the shape of Yarn, Rope and Fibre, call for no special remark—the quantities having been only fair average ones; but prices have ruled fairly high, and there is practically an unlimited quantity of Coir available, if only the demand grows. As it is, Singapore takes almost all our Rope—over 15,000 cwt., leaving less than 300 cwt. for four other countries. The United Kingdom is again our largest customer for Fibre and Yarn. Who will say, after this, that there is not room for the expansion of trade in low-country products in America—the way for which can be shown at the Louisiana Exposition.

HONEY AND WAX IN MADRAS FORESTS.

(*From a Correspondent.*)

Amongst the various items of minor forest produce, by no means the latest important of those collected in the Sattyamangalam Hills of the Coimbatore District are honey and wax, of which there are

THREE SORTS,

found in different places and made by different kinds of bees. These are :—(1) Rock honey, made by very large bees, and found in holes and under ledges of rocks—this honey is coarse and dark, and the wax very dark-coloured and very large-celled ; (2) honey made by smaller bees, and found in the hollows of rotten trees—the honey and wax are both lighter than those found on the rocks ; and (3) honey made by very small bees, and found on the branches of trees—this is the best honey and the finest, whitest wax, much resembling the English heather honey, but with smaller cells. Of the rock honey, the average number of combs found on each rock is from 10 to 15, which give altogether about 150 measures of honey and 10 maunds of wax. These take about 10 or 12 days to collect, and for this amount the collectors are paid Rs 50 to Rs 80, and it brings in some Rs 240 to Government. From the hollows of trees the largest combs afford about one measure of honey and 2lbs of wax, while from branches the largest give only about a quarter measure of honey and less than half a pound of wax. Sometimes the rock honey is very poisonous, due to the bees gathering from the flowers of the *Thorova* (believed to be *Sapium indicum*). A few of these flowers (easily recognisable) are always deposited in some of the cells, and the honey is always bitter in taste. Ordinarily, the bees gather from the flowers of *Vengai Nagai Cassia Fistula Shorea Albizzia*, Jasmine, &c. ; they build over and over again on the same spots on the rocks, and the number of combs varies very little, depending on the number of flowers available, two or three, more or less, than the average number of combs being the most. The young bees from undisturbed combs take flight with the queens to other localities, and form fresh colonies.

THE BEES HAVE TWO WORKING SEASONS

in the year viz., June and July—this honey is collected in August when the rocks are dry; and September, October, and November—this honey being collected as soon as the hot dry weather set in. The collection of rock honey is always done when the rocks are dry and the chance of slipping are less. In the Sattyamangalam Hills the collection is done only by Kurumbers, and their method of collecting is a curious one. A party consisting of never less than 10 men, sometimes as many as 15, is formed. Of these, two only are the collectors (Kurumbers), the rest, who may be either Sholigars, Uralis or others, are taken by the Kurumbers to carry their goods and chattels, erect sheds, light fires, and also to be company for them in the forests. The two Kurumbers are always brothers-in-law, that is to say, each man's wife is the sister of the other man. (The reason for this is that one of them is, for the time being, responsible for the life of the other; if the rope were not held very firmly, or were allowed to slip, the man on the ladder would be dashed to pieces against the rock, and so his wife (sister of the other) would become a widow, to the lasting shame of her brother who was responsible for the catastrophe.) The expedition always starts on a Monday, which amongst these hill tribes is the auspicious day. On the eve of the start, the elder Kurumber and his wife invite the other Kurumber and his wife to their house to partake of a meal with them, after which each woman warns her husband and brother of the dangers which lie before them and of the precautions each must take in guarding the other during the collection of the honey. This done, the men and women take leave of each other, and this occasion of the farewell meal is the only time during which the

HONEY COLLECTORS

may see their wives for three days before setting out; should they violate this rule, they believe that they will most assuredly be badly stung, and two or three of the Kurumbers solemnly declare they have been stung, but *only* in such circumstances. When starting off on the Monday morning, the party take with them coconuts, plantains, camphor, etc., as offerings to their deity, also their implements of collection, which consist of a long ladder (*malkunni*) made of *karacha* (*Hardwickia binata*) with a stout rope made of the same material attached to it, a bowl made of basket work covered with mud, with a long handle, in shape much resembling a soup ladle, a sharp pointed stick, and a bundle of torches made of green and dried grass mixed. Having arrived at the scene of action, they look about for a large firm tree, and, having found one, make *puja* and offerings to it. They then fasten the rope attached to the ladder firmly round the tree and dangle the ladder over the edge of the rock and one of the Kurumbers holds on to it while the other, having offered more *puja* to his deity for his safety, climbs down the ladder until he finds himself on a level with the honeycombs. Arrived there, he plants his right foot firmly on one rung of the ladder, leans his left knee on the rung above and puts his head through the next two above, thereby securing himself, and leaving his hands free. Being firmly fixed he swings himself backwards and forwards, having in one hand a burning torch, and in the other the pointed stick, and as he swings in towards the rock he applies the torch to the combs, and by repeating this many times he succeeds in driving out the bees. Having got rid of them, he next drives the pointed end of his stick into the comb, and as soon as the honey begins to flow he calls out for the bowl, which is lowered from above by means of a rope, and hangs it under the comb until it is full. It is then drawn up again and the contents emptied into a chatty at the top of the rock. The bowl is then sent down again, and the process repeated until all the honey is extracted, and then the wax is removed by hand from the rock. The whole time the man is swinging backwards and forwards in his rope ladder he utters *manthrams* to keep off the bees and to prevent himself from being stung. At the end of each day's work he climbs up on to the top of the rock, and again

MAKES PUJA FOR HAVING BEEN KEPT IN SAFETY,

and on the last day, when all the honey and wax have been collected, the two Kurumbers untie the rope from the tree, and drop the ladder down to the bottom of the rock, uttering, as it falls, words which mean "My mother comes down." They then make their way down to the bottom of the rock as best they can, taking with them three leaves full of the honey. They prostrate themselves on the rock and offer the honey to

their deity as a thank-offering for their safety. This over, they roll up the ladder and proceed homewards, and the end of the expedition is a ot bath.

In the Sattayamagalam Hills there are four sects amongst the Kurumbers. (1) *Hal* Kurumbers, who are field labourers, and magicians; (2) *Mulu* Kurumbers, a nomadic tribe, also magicians; (3) *Kuri* Kurumbers, sheep shearers, and wool weavers, and (4) *Andai* Kurumbers, bamboo workers. Of these only the two first are collectors of honey. and each pair of brothers-in-law keeps entirely to his own beat, so much so that those of one beat do not even know those of the next, even though living in adjacent villages, often less than 20 miles apart. There is no inter-marriage between any of the sects.—*M. Mail*, Jan. 7.

BRITISH CENTRAL AFRICA.

N. E. RHODESIA CLOSED TO THE RUBBER TRADE; COFFEE SUFFERING FROM DROUGHT.

Blantyre, Dec. 31.

The Chartered Company has proclaimed the whole of North-Eastern Rhodesia closed to the rubber trade from January 1, 1903.

The officials of the Chartered Company are vigorously enforcing the new game laws. Consequently settlers residing near German territory are taking out licences to shoot there.

Glowing accounts have been received of the Harrison Expedition to the Victoria Nyanza. These reports state with regard to the Mombasa route to Lake Tanganyika that goods can be brought there in three months' less time than by the Zambesi route.—London *Times*, Jan. 1.

Blantyre, Dec. 30.—The long continued drought in the Shire highlands has wrought havoc with the coffee plantations, many of which, being of recent growth, will probably be destroyed. The native food crops are also backward in many districts, and if there is no rain it is feared that there will be a famine.—London *Times*, Dec. 31.

GOW, WILSON AND STANTON'S INDIAN, CEYLON, AND JAVA **TEA** REPORT FOR 1902.

13, Rood Lane, London, E.C., Dec. 31, 1902.

The tea industry has been passing through a series of years showing unsatisfactory results to producers, and 1902 proved perhaps worse than any of its predecessors. The year opened with the most gloomy forebodings, the market being overweighted through surplus production, while it was generally anticipated that the output in 1902 would be even larger, and that prices in consequence would show a further fall. This cloud hanging over the market not only prevented a rise in prices throughout almost the whole year, but resulted in the lowest average ever recorded, that for Indian tea being for many months about a penny below the excessively poor rates of 1901;—perhaps lower than would have been warranted even had the anticipated increase in production taken place. But during the later months of the year, it became evident that crops would not be as large as was originally expected. Even this created no impression upon the market until too late to materially affect the average price. Although the last few weeks showed a considerable advance, so much of the crop had already been sold that the benefit to producers will probably be counterbalanced by the expected shortage in supply.

Nevertheless, the outlook is at length decidedly more cheerful than for many years past; the certainty of moderate supplies gives time to work off the world's accumulated stock caused by recent over-production, while the fact that very little tea has been planted in either India or Ceylon for some few years back, obviates the probability of largely increased crops for some time to come, the planting of former years being mostly in bearing. It is now an ascertained fact that consumption at home has been but very little interfered with by the late increase in the duty, and that the normal rate of progress has been about maintained, while the lower prices of recent years have considerably increased the use of British grown tea in foreign and colonial markets. Consequently with a crop almost stationary and every probability of a continued increase in consumption, the conditions so long prevailing in the trade are likely to be entirely reversed. The natural result of over-production has been a continued fall in price, and conversely the outstripping of production by expanding consumption should be accompanied by a corresponding rise in value. Hence the industry looks now in a more healthy condition, and there is every reason to believe that for five or six years to come, *i.e.*, until any new lands which may be brought into cultivation commence to yield heavily, prices will be on a scale more remunerative to producers;—while should there be a decrease in the rate of duty the industry would, to some extent, be relieved of a very pressing burden, with the probable result of a further improvement in price.

GREEN TEA.—The quantity of green tea made in Ceylon has been gradually increasing and is finding favour in North America; India has this year also made some green tea which is being well taken and there is every probability that both countries will next year manufacture increased quantities, by which means the black tea market should be still further relieved.

INDIAN TEA CESS.—The Viceroy has decided to legislate for the purpose of raising a tax of one-fourth of a pie per lb. on the exports of Indian tea, for raising money to exploit new markets. Planters should therefore soon have larger funds at their command for promoting the use of Indian tea, both in India itself and in other markets. Foreign markets continue to expand satisfactorily, about 105 million pounds being taken against 95 millions last year.

PRODUCTION.—It is expected that the total crops of India and Ceylon will be about the same as last season.

INDIAN TEA.—The quality of the crop as a whole was hardly equal to that of last season, although Darjeeling showed a considerable improvement. The average price of Tea sold on garden account was 7·35d, against 7·50d in 1901, and from 1st June to end of December 7·24d, against 8·04d, for the same period last season.

CEYLON TEA.—There is not much change to notice in the quality, which on the whole was very fair and about up to the average. The average of Tea sold on garden account was 6·81d, against 6·86d in 1901, and from 1st June to end of December 6·66d against 7·05d for the same period last season.

JAVA TEA.—Production in Java has lately increased and imports were in consequence somewhat heavier, previous quality being maintained.

Table showing movements of Indian Tea (in lb) in London during the Season years 1899-1900 to 1902-1903.

IMPORTS.

	1898-9.	1899-0.	1900-1.	1901-2.
Indian	136073465	148968867	161945205	155757498
Ceylon	92946656	107509408	111213383	97916545
Java	3678280	4656540	4978610	6158390
China	27863637	31965903	22574864	24749780
Total for season	260,562,038	293,100,718	300,712,062	284,582,213

LIVERPOOL.

	1898-9.	1899-0.	1900-1.	1901-2.
Indian	142645712	154260541	150074398	150490003
Ceylon	90149698	102506046	110719670	101355798
Java	3610740	4365060	4763850	6059130
China	29650012	29613711	23863154	21614354
Total for season	266,056,162	290,745,358	289,421,072	279,519,285

STOCK.

	1898-9.	1899-0.	1900-1.	1901-2.
Indian	31501541	26209867	38889575	44157070
Ceylon	19790252	24793614	25743557	22304304
Java	715120	1006600	1221360	1320620
China	10064889	12417081	11117815	14253241
Total for season	62,071802	64,427,162	76,972,307	82,035,235

WATER SUPPLIES IN THE PLANTING DISTRICTS.

AN AUTOMATIC HYDRAULIC RAM WHICH WORKS A PUMP.

To secure a plentiful and pure water supply and to introduce it into their bungalows (which are usually built on a high elevation) is a difficulty which many planters have encountered, but one in a country where the chances of contamination are so numerous, which it is absolutely essential in the interests of health should be overcome. On Mount Vernon estate, a representative of the *Observer* has just seen a most ingenious and simple device for pumping water from a low to a high level and which is the first of its kind made and erected in Ceylon. At Mount Vernon by an inexplicable whim of nature, just below the Superintendent's bungalow which is situated on a hill, there runs a plentiful supply of river water while at the foot of the hill there rises a gushing spring of pure water. Under ordinary circumstances if it was wanted to introduce this spring water into the bungalow and have it pumped automatically, a turbine or Pelton wheel with suitable gearing for driving the pump would have had to be erected. This, of course, is an elaborate and expensive method and entails complicated working parts. Messrs Brown and Davidson were entrusted with the work of introducing the water and Mr J A Dickson of that firm, while engaged on the work, was struck with the possibility of making the waste water automatically work a pump to drive the water up the hill. The idea was followed out and the work was completed at the end of last week and there is now on Mount Vernon an automatic Hydraulic Ram actuating a pump. The ram is working under a head of 30 feet and delivering 25 gallons per hour of pure spring water into a receiving cistern with a holding capacity of 250 gallons at a vertical height of 140 feet. The idea is entirely new and original, most ingenious in its conception and simple in its design and reflects credit on Mr. Dickson's ingenuity. Hitherto rams have been employed in various parts of the island for supplying water to bungalows and factories, but in these cases the same water as supplies the ram is delivered at the bungalow. About four times the amount of water which is pumped, however, in these cases goes to drive the ram. The method here employed is specially effective and simple as no pure water is wasted and there is absolutely no chance of the pure water being contaminated by the waste water which does the work. There should be a large demand for this simple and much less expensive automatic ram.

CACAO.

The Ligu cacao (*Theobroma bicolor*) is now fruiting at the Botanic Station, Dominica. Several plants of the Alligator cacao (*Theobroma pentagona*) has also flowered. Both of these species were obtained from Nicaragua by Mr J H Hart, Superintendent of the Botanic Gardens, Trinidad. On one estate in Grenada where very particular attention is given to cultivation and manuring the efforts of the proprietor have been rewarded by a yield of 130 bags (of 182 lb each) of cacao from about 16 acres. This is at the rate of 8 bags per acre.—*Agricultural News*, Dec 20.

SOME QUEER TEAS.

Tea-drinkers frequently express sympathy for the unfortunate people who lived before the days of tea-drinking. There may have been compensation, but we doubt it. A writer in the *Globe*, under the heading "Some Queer Teas," recently called attention to the great variety of beverages and decoctions made from herbs and plants quite unknown in China or India, called 'teas,' in imitation of the genuine article and drunk from various motives. He says :—'In early tea-drinking days, when fragrant Bohea was sold for from twelve to twenty shillings and more a lb, poor folk, who could not afford such a luxury, endeavoured to content themselves with decoctions from less expensive leaves. A great favourite of old was sage-tea, which was regarded not only as a pleasant but a particularly wholesome drink. John Wesley, who was a determined opponent of the Chinese leaf, strongly recommended sage as well as mint

and pennyroyal, as an excellent substitute; while another enemy of the cup that cheers ventured to prophesy about the middle of the eighteenth century, that the pernicious foreign leaves would quickly become cheaper, wherein he was right, and that tea would then go out of fashion and be replaced by sage, wherein he was hopelessly wrong. At the time when this wise person wrote, an ordinary breakfast among the poorer folk was bread and butter with sage-tea; but the cheapening of the real tea simply drove such substitutes as sage out of use. In revolutionary days in America various herbal substitutes for tea were used from patriotic motives. After the Boston mob had thrown the cargoes of the three East India tea ships into the harbour, and the colonists had taken a vow to buy no tea which had to pay the obnoxious duty, their wives and daughters—'daughters of liberty' they called themselves—devoted their ingenuity to devising fragrant beverages to take the place of the boycotted leaf from the Far East, and some strange decoctions were made and perhaps enjoyed. The stalwart New Englanders drank 'tea' made from the leaves of rib-wort, strawberry plants, and currant bushes, sage, thoroughwort, and other herbs. So called 'Liberty Tea' was made from the four-leaved loosestrife, while 'Hyperion Tea,' says Mrs. Earle—an invaluable chronicler of Colonial life and habits—was from 'raspberry leaves,' and was said by good patriots to be 'very delicate and most excellent.' The beverage may have been so when tasted by patriotic palates, but we can feel pretty certain that many a colonial dame must have thought with longing of the cups of fragrant Hyson which she had been accustomed to enjoy before the embargo was laid on the imported leaf. One at least of the substitutes named above, thoroughwort, is still used in rural New England for medical purposes, if Miss Wilkins' stories may be accepted as authorities. No reader of those delightful sketches will forget how often thoroughwort tea, as a remedy, especially for an ailing or more often supposedly ailing child, is suggested and made by village wisdom. Rural medicine of the same kind is, of course, common enough also on this side the Atlantic. Herbal remedies might not be used quite so much, perhaps, nowadays as in times gone by, but 'teas' from herbs of various kinds are still brewed and firmly believed in by many country folk. Valerian, for instance, which is commonly known by the significant popular name of 'all-heal,' is one of these herbs, for the 'tea' made from its root is believed to be of efficacy in cases of consumption. An infusion of milk-wort—the plant whose pretty flowers, varying in colour from pink to a deep blue or purple, are so abundant on dry, upland pastures—is good for a cough. In Sussex villages 'gazel-tea' is a favourite prescription for a cold. Berries of any kind are called 'gazels,' but those usually employed for medicinal purposes are black currants. But much stranger things than black currants have been similarly used. For example, when Queen Anne was known to be suffering from gout, a certain Martin Bowes wrote to the Prime Minister, the Earl of Oxford, suggesting as an easy cure a 'decoction, or tea, made of nettle-seed.' Not a few of the herbal teas which were drunk as beverages were, like the New England thoroughwort, also considered to have no small medicinal value."—*H & C Mail*, Jan. 2.

THE CURE FOR MOSQUITOES.

A POT OF BASIL.

There is a widely spread belief, both amongst natives and amongst the white sojourners in Western Africa, that the presence of a certain species of plant in a room drives away mosquitoes, and, in fact, a single plant is said to be sufficient to clear a room. On his recent return from Northern Nigeria, Major J A Burdon, of the Cameron Highlanders, brought with him and gave to me a few leaves of this plant. These, through the kindness of Mr. H H W Pearson, have been identified by the experts at Kew as belonging to *Ocimum viride*, Willd., a member of the order Labiatæ, which occurs from Senegambia southwards to Angola.

Major Burdon, who is Resident of the Nupe Province, Northern Nigeria, and Hausa Scholar of Christ's College, Cambridge, has given me the following account of the plant :—

"A fragment of what turns out to be *Ocimum viride* was given me in August last at Lokoja, Northern Nigeria, by Captain H D Larymore, C.M.G., R.A., Resident of the Kabba Province. Capt. Larymore's notice had been drawn to the plant by a native living in a low-lying part of the native town at Lokoja, who had told him that the natives suffered very little from the swarms of mosquitoes which existed in that part, as they protected themselves from them by the use of this plant.

"Capt. Larymore made inquiries and obtained a few specimens of the plant, which grows wild, though not very abundantly, in the neighbourhood of Lokoja. These specimens he planted in pots and boxes and kept in and about his house. The specimens I saw were about the size of a geranium.

"He informed me that the presence of one of these plants in a room undoubtedly drove the mosquitoes out, and that by placing three or four of the plants round his bed at night he was able to sleep unmolested without using a mosquito net. This is very strong testimony to the efficacy of the plant, for the house in which Capt. Larymore was living is, as I had cause to know well in former years, infested with mosquitoes."

In the fifth volume of Sir W T Thiselton-Dyer's "Flora or Tropical Africa," *Ocimum viride* is described as follows :—

"*O. viride*, Willd.; Benth. in D C. Prod. XII. 34. A perennial 3-6 ft. high, with much-branched glabrous stems. Leaves distinctly petioled, oblong, acute, membranous, 3-4 in. long, glabrous on both sides, or obscurely pubescent beneath. Racemes, lax, copiously panicled, 3 6 in. long; rhachis finely pubescent; bracts deciduous; pedicles not very short. Calyx 1-6 in. long; tube companulate; upper lobe orbicular, as long as the tube; lower teeth short. Corolla half as long again as the calyx-lobes. Stamens but little exerted, the two upper with filaments toothed above the base. —Benth. in Hook. Niger Fl. 488; Henriques in Bolet Soc. Brot. X. 149. *O febrifugum*, Lindl., in Bot. Reg. t. 753. *O. heptodon*, P. Beauv. Fl. Owar. 11 59, t. 94."

The plant is figured on plate 753 of the ninth voume of the Botanical Register, 1823 under the name *Ocymum febrifugum*, or the "Sierra Leone Fever Plant." This work mentions that the plant is "in request at Sierra Leone for medicinal purposes," and describes the species as an "*under shrub* 3 feet high," "having in a high degree the smell of common balm."

The leaves of the plant are highly glandular, and in India an allied species, *O. Basilicum*

Linn., the "common sweet basil," produces a "yellowish green volatile oil lighter than water, which, on being kept, solidifies into a crystalline camphor, isomeric with turpentine camphor." (*Gmelin's Handbook*, xiv., 359). The seeds of this species are widely used in the east as a medicine, and their properties "are said to be demulcent, stimulant, diuretic and diaphoretic." "The juice of the leaves mixed with ginger and black pepper is given in the cold stages of intermittent fever." The leaves, like those of thyme, are used as a reasoning in cooking. Another Indian species, *O. sanctum*, Linn., the "sacred basil," is the most sacred plant in the Hindu religion, and is consequently widely cultivated.

In "Notes on the Medicinal Plants of Liberia," Mr E M Holmes records that when chewed or rubbed, the leaves of *O. viride* give off a strong odour of lemon thyme, and mentions that Dr Roberts, of Liberia, entirely substituted the use of the plant for that of quinine in cases of fever of all kinds, giving it in the form of an infusion.

There is thus a good deal of evidence that *O. viride* is a plant of considerable curative value, especially in cases of fever, but the question that interests a large number of people in West Africa is whether it is equally efficacious as a preventative. Does it really repel the mosquito which acts as the intermediary in conveying the malarial hæmatozoon from man to man? Further experiment on this point is needed, but there is at least some indication that in this easily cultivated plant man has another weapon with which to fight malaria.

A. E. Shipley.

Christ's College, Cambridge.

—*Nature*, Jan. 1.

NORTH BORNEO.

(From the *North Borneo Herald*, Dec. 16.)

Fuel.—It has been proposed that when coal is exhausted, the eucalyptus should be cultivated for fuel. In hot countries the gum-tree can supply 20 tons of fire-wood per acre a year. To this end the cultivation of the eucalyptus tree which grows to a great height and affords plenty of shade, should be introduced and encouraged in British North Borneo where the climate is eminently suitable for the purpose.

Borneo Tobacco.—Tobacco from our young colony of North Borneo, the *Pall Mall* is glad to see, is holding its own, and up to the end of last month, 15,885 bales of the 1901 crop were sold in Amsterdam at an average of 90 cents per half-kilo, while the average of the Sumatra crop was only seven cents more. On the other hand, however, the highest price obtained for Borneo was 181 cents which compares very favourably with 135 cents for the best Sumatra leaf. "El Mandano" is an excellent cigar made from leaf grown on the Bongon estate of the New London Borneo Tobacco Company (Limited), which has produced some of the best tobacco raised in the colony since the cultivation of the fragrant weed was introduced.

The East Coast.—The following is from a most interesting account of His Excellency's tour of the above territory :—I came away very satisfied with all I saw and confident of the future prosperity of this part of the Territory. The tobacco estate belonging to Mr. Kortmann at Tawao is closed, but Mr Arensma's Company on the Segama is in full swing. I visited every estate and was very hospitably entertained. The number of fields planted is 625 and the average yield over 9½ pikuls. If prices approximating those of 1902 are obtained there will be great jubilation in Darvel Bay. As it is every one is very contented. I visited Mr Phillip's coal workings at Serudong and was greatly pleased. He has cut along a seam of coal for 137′ and its width is 3′ 4″. Mr Phillips has traced a tramway line for about 2,000 yards to the tidal river and, if the coal is in payable quantity, it could be transported in lighters to Sandakan where a wharf in deep water, could be erected at inconsiderable expense and where the coal would always find a ready market. I believe there is tin in Tawao and I know now that there is coal at Serudong. If therefore, the British Borneo Syndicate expends in those places some of the money it is bound to lay out in prospecting the territory, there is every hope that a bright future lies before the East Coast.

TEA IN AUSTRALIA IN 1902.

The year 1902 has been unsatisfactory for traders in this article. The removal of the duty by the Federal Government found dealers with more or less heavy duty paid stocks, on which a loss of 3d per lb. had to be faced. In addition, there was an impression amongst the trade that financial necessities would induce the Government to try and reverse the decision of Parliament, and in anticipation thereof large sales were effected at high prices. Tea, however, remains free of duty, and it has taken many months to get rid of these surplus stocks on a market which has been continuously adverse to all holders.

A further adverse element was the unexpected action of the Federal Government in condemning on a purely chemical analysis (which was part of the Customs Act) certain teas imported from India and Ceylon, because they contained a limited portion of ash in excess of the academical standard laid down by the act, although the tea extract they contained was largely in excess of the standard, and by the analysis they are admittedly "fit for human consumption." The contention of the trade is that reasonable notice should have been given to importers viz., time to advise their agents in the Far East, and that it is impossible to know whether teas comply with the act until their arrival in the States and analysis here. On these grounds permission has been requested to reship the teas in question.

It is now hoped that the Government will amend the clause relating to tea in the Customs Act—on the lines of the American Customs Act —which thoroughly protects the public without harshness to the trade. Over-importation during the past two years, due to tariff speculations, also contributed to depress the market, so that during the greater part of the year complaints were heard amongst all sections of the trade. For the past few months, however, imports have been restricted, and stocks are now getting into a more healthy position.

Colombo continues to be the main source of supply. Imports, however, will be fully 10 per cent less than last year. Prices in Colombo have risen considerably, owing to the London market recognising the strong statistical position of tea generally, and this market will, doubtless, follow

suit. With very moderate stocks held in the States, the new year should see a larger business passing on sounder lines, the present position being certainly in favour of stock holders.

Indian teas have been disappointing in quality. The earlier shipments were distinctly good, but with heavier arrivals the teas seemed lacking in point and distinctive quality, and they have certainly lost ground with the blenders as compared with Ceylon. The trade, however, are quick to notice all teas with point, as they form a valuable element in all blends owing to their superior keeping quality, as compared with Ceylon.

The Calcutta market has risen considerably in the last three months, especially in common teas. The crop is expected to be less than was estimated, and an early closing of the season is looked for Colonial imports will be 25 per cent. below last year.

China teas are getting into smaller and smaller compass. The year's imports will only be about 1,000,000 lb; the only demand has been for a little fine tea, fine buds, fine Panyongs and scented teas, which are in short supply. Kooloos are not so much used, and their sale has been slow and unprofitable. Stocks are now very much reduced, but the outlook for next year is very poor. —*Age* Jan. 2.

JAVA GOVERNMENT CINCHONA PLANTATIONS.

A sum of 289,000 fl. has been allotted to the Java Government cinchona-plantations, in connection with the estimates for 1903. This sum is an increase of 189,000 fl. on the estimates for 1902. It is intended for the purchase of quinine, gathering, manufacturing, transport, and sale of cinchona, &c. In 1902 the production of Government bark was estimated at 1,000,000 Amsterdam lb but this year they hope to increase the output by 50 per cent.—*i. e.*, 1,500,000 Amsterdam lb. In view of this, and also because more money is required for laying out new nurseries, upkeep of nurseries, &c., expenses of the Government plantations are estimated at 5,000*l*. There is also an increase of 3,250*l*. in the estimates for the purpose of meeting the extra cost of manufacturing the quinine produced by the Bandong Quinine Works. The revenue for 1903 is expected to realise 399,000 fl.; chiefly derived from the sale of Java quinine.—*Chemist and Druggist*, Jan. 3.

EWART, MACCAUGHEY AND COMPANIE'S ANNUAL **TEA** REPORT, 1902.

CEYLON.

The New Year brought in a strong market, particularly for common tea, which was quoted at 6¼d per lb, while over say 6¾d per lb. there was considerable irregularity. With occasional fluctuations the general feature of January was firmness for tea up to 7d per lb and great irregularity over that figure. Worse quality towards the end of the month led to an easier market, and in February prices favoured buyers, common leaf receding to 5¾d per lb or 5½d per lb., while Broken Pekoes round about 6d per lb were remarkably cheap. Importers were inclined to meet the market when anything near to valuations was bid, so that little tea was held up Quality on the whole, if not fine, was fairly useful and the range of prices worked all in favour of a very large trade, the blenders particularly in buying freely from week to week. Good tea was coming along in March, and from 1s 1d per lb there were plenty of buyers, but plain ordinary Pekoe kinds from 6d per lb to 7d per lb ruled easy, and Colombo bought invoices were not receiving much attention. A large proportion too. although fine, was over light in cup for home requirements, and, lacking support from foreign buyers, went very cheaply. After the Budget in April we had an easier market, and from 5¾d per lb there was a general ¼d per lb decline, while tea for price was at 5½d per lb. The month closed with heavy offerings, mostly of poor quality, and averages began to look very bad, teas between 6d per lb and 7d per lb being a perfect drug on the market. The general feature pretty well followed Indians in that from 5d per lb to 7d per lb prices were anyhow, while over 11d per lb top rates were being paid. The middle of May brought more general enquiry and, as a whole, better quality. Common stood at 5d per lb, and tea far and away better at 5½d per lb, all grades over 10d per lb making fancy prices. June opened with an easy market under 7d per lb, although common stood at 5d per lb against 3¾d per lb or 4d per lb in the previous season. Fine kinds were dear, in fact, much of the tea that was being paid up for would in ordinary times not have been called fine at all. There were, however, no Darjeelings to speak of, and this fact largely helped up any Ceylon with the smallest approach to quality Common dropped to 4¼d per lb before July, with Pekoe quotations of 4½d per lb, and excepting one week in 1901 the average price of 6d per lb at the beginning of the month was lowest on record. Weekly offerings were at this time very heavy, 36,000 packages being nothing unusual, but towards the close there was a slight rally and the month finished with a healthier feeling. Quality came a little better again in August, and Auctions dropped to about 28,000 packages a week. A slightly better enquiry set in, as buyers could not let teas go past them at the tempting range of prices. A considerable Export business, too, came along, the unusually low prices having attracted attention all the world over. September came in badly for common and plain kinds of teas and, just as on the Indian market, everything without special character stood on a dead level of cheapness. Pekoes at 5d per lb to 5½d per lb were showing wonderful value, while commonest leaf was quoted at 4¼d per lb. Good medium tea fell ½d per lb in the middle of the month and, with the blenders more or less standing out and few Export orders, only extra fine parcels were doing good. The early October sales showed conspicuously better quality from many estates and improved competition resulted. Common, too, advanced a little but there were still 4½d per lb quotations. Russian orders were invaluable in helping prices for flavoury kinds, and but for them, some of the fine light teas would have fared badly, particularly as outside influences not usually calculated upon, were upsetting everyone. A carefully engineered boycott demoralised the closing Auctions, but November brought along some recovery, and from 4¾d per lb at the opening, common tea went to 5¾d per lb at the close of the month, showing 1¼d advance form lowest point, while in the case of medium to good kinds the rise was even more pronounced. Buyers made another attempt to get the market down in December, but on this occasion the importers would not humour them, and although some cheaper tea was sold the general instructions were to take out any invoices which did not reach previous quotations, and common leaf closed at 5¾d per lb. The feature of the year has without doubt, been the extraordinary value generally shown among teas from just above common to just under fine. The whole weight of offerings as a rule has ranged from 5d per lb to 9d per lb. The quantity of fine tea included was never excessive, and for a large portion of the year not sufficient for the ordinary weekly requirements of the trade,

INDIAN PATENTS.

No. 502.—Charles George Landseer Judge, journalist, of 47, Free School street, in the town of Calcutta. An improved machine for colouring and finishing green teas by the process known as panning.

No. 503.—William Lennox, tea planter, of Luskerpore Tea Company, Limited, Chandpur Bagan, South Sylhet, Assam, in British India. A new, or improved sifter and ball breaker for tea leaf and the like.—*Home paper.*

SAMOA.

The Chief Justice and Governor of Samoa, under the German dispensation (the Hon. Dr. W H Solf), passed through Sydney this week to take up his duties after a 12 months' vacation. He came to Sydney in the "Tanglin" after visiting China, Java, the Philippine Islands, and New Guinea, and probably the information he obtained there will be turned to account at Apia, as, according to the ruler of Samoa, it is intended to introduce Chinese or Javanese labourers to do planting and general coolie work for the Samoans. Of course Fiji is already full of Indian, Chinese, and Japanese coolies working the sugar plantations, and at Noumea they are trying similar blends in the mines, but it is impossible to escape a feeling of regret that—as is inevitable—the Samoan type which R L Stevenson and all others who have lived at the islands learned to love should be subject to the intermixture and contamination inevitable where such labour is imported. Dr. Solf is quite a historical character in Samoan affairs. He was president of the Triple Alliance Council—England, America, and Germany—before the war, and German Governor since the main island was apportioned to Germany three years ago. He has faith in the industrial development of the country, and it is the spirit of the age to place industrial development first. —*Sydney Mail*, Dec. 31.

THE WYNAAD PLANTERS' ASSOCIATION.

THE ANNUAL MEETING.

We extract the following from the Minutes of the Proceedings of the Annual and General Meeting held at Meppadi Club, on the 7th inst.:—

Present :—Messrs. Abbott, Atzenwiler, Day, Mackinlay, Romilly, Taylor, Waddington, West, and B. Malcolm, Honorary Secretary. Mr. G Romilly in the Chair.

The Honorary Secretary read the Annual Report for 1902.

[FROM THE ANNUAL REPORT.]

PEPPER DISEASE.—After two years of almost incessant agitation we have received the good news that the Government of Madras has sanctioned Mr. Barber visiting the district, and arrangements for his tour have just been concluded. Though much valuable time has been lost, and the disease has made rapid strides, we must hope Mr Barber will succeed in suggesting a cure. No small share of our thanks are due to His Excellency the Governor for this aid, and we also owe our thanks to Mr Windle, of the Nilgiris, for representing the matter to His Excellency in person.

DUTIES: BRITISH IMPORT DUTY ON TEA.—The Resolution passed at the last U P A S I Meeting has so far resulted in the matter having been referred by the Indian Tea Association to its London Committee. That hesitating body is considering the best means of approaching the Chancellor of the Exchequer. It is to be hoped that it will be able to solve the problem in time to approach him before the new Budget is framed. Seeing the promise made to the Ceylon Association some two years ago it is difficult to understand the diffidence with which this matter is being taken up.

FRENCH IMPORT TARIFF.—It was decided at Bangalore "that as the matter was receiving the attention of Government, we confidently left it in its hands."

In the meantime the Ceylon Government has arranged matters for the Island and the Chairman of the U P A is taking action in referring the matter again to the Government of India.

COFFEE CESS.—A fair number of Members in this district have agreed to support this Cess on the condition that the scheme, when published, meets with their approval.

TEA CESS.—The Cess we agitated for is being allowed by the Government of India and it is intended that it should come into force on the 1st April. Our effort to obtain a larger share of representation for S. India has not been successful and it now remains with us to decide whether in our opinion both the representatives allotted us should be planters, or one of them a Member of the Madras Chamber of Commerce, which body has consented to appoint one of its number if required.

SALE OF TEA IN S. INDIA.—In this connection I may say that we hoped last year that the Ceylon import duty might be abolished. The representation to the Government of India to act in the matter has not been successful however. It becomes all the more necessary, therefore, that we should strain every nerve to capture our share of the Indian market. The demand for dust tea that exists is, at present, largely supplied by rubbish from Ceylon. We have the opportunity offered by Messrs Parry & Co. of Madras, who, with the Agencies they have in almost every town of any importance in S. India, afford a ready-made Distributing Agency which should enable the S. Indian planter to control the S. Indian tea trade. It is a matter for comment that one of the largest blenders in England, Messrs Brooke Bond & Co., are advertising the sale of their blends in Madras.

COFFEE CROP prospects are fairly good in the district; but prices unfortunately do not promise to improve. We must hope that the Leeming System, which has proved so successful on the Shevaroys, and which there is every reason to think will answer here, will prove our salvation.

TEA has, on the whole, had a good flushing season and prices are improving.

PEPPER CROPS are decidedly good and prices maintain a good level.

Our numbers have fallen off considerably during the past year—six members having left, and one new member joined.—*M Mail*, Jan. 21.

THE MOSQUITO PLANT CURE.—From *Nature* of January 1st, interesting latest particulars are given on page 555, regarding the West African plant, Basil, which is said to have a wonderful effect in keeping off mosquitoes. The Peradeniya Staff should import and keep as large quantities of the plant as possible on sale.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1903, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900 :—" I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for October-November delivery 1903, immediate booking necessary; large quantities on special terms ; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901 :—" We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which mouth we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter iu sending an order for this seed wrote on the 22ud August, 1900 :—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castlloa does not thrive."

Ficus Elastica.—Seeds available in May-Juue; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per aunum, the milk is drunk aud when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica-Liberian Hybrid.—A highly recommended leaf-disease resisting hardy new variety of Coffee (cross between Arabiau aud Liberian). New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—" Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products :—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902-1903.
2. Seeds aud Plants of Shade, Timber, Wind-Belts, Fuel aud Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in larger quantities.

" SOUTH AFRICA."—The great authority ou South African affairs of 25th March, 1899, says :—" An interestiug Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to aud prove that they were worth the grabbiug. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London :—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Agent in British Central Africa :—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: WILLIAM, HENARATGODA, CEYLON.

Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

KNUCKLES, KELEBOKKA AND PANWILA P. A.

REPORT FOR THE YEAR.

There are now 28 estates on the register.

Tea.—Acreage in tea is 10,109 acres, of which 9,880 are in bearing.

Estimated crop for 1903 is 4,047,000 lb. which shows a yield of 409 lb. per acre.

Native leaf, 689,000 lb. leaf.

Accounts were laid on the table, and show a credit balance of R98·52.

DIMBULA PLANTERS' ASSOCIATION.

SEASON 1903: TOTAL ESTIMATE OF TEA CROP IN DIMBULA DISTRICT.

	Total Acreage in Tea.	Total Acreage in Bearing.	Total Estimated Crop.	Crop per Acre.
111. Estates total	45,925	45,047½	21,786,535	483
Previous year, 1902	45,806¾	44,718½	22,647,619	506
Increase	118¼	329	—	—
Decrease	—	—	861,084	23

E. & O. E.

75 Acres were left to rest.

Eleven (11) Estates have not sent in returns for this year.

One (1) Estate sent only the acreage and did not mention the crop.

1902-1903.

THE DIMBULA PLANTERS' ASSOCIATION: COMMITTEE'S REPORT PRESENTED TO THE 28TH ANNUAL GENERAL MEETING.

19th Jan., 1902.

Membership.—The subscribers for 1902-1903, number 96 estates:—The total is (4) four Subscribers less than 1901-1902; (3) three estates and (1) one private. The three (3) estates have failed to pay, although two (2) had promised to do so. The private subscription was not paid owing to absence in Europe of the payer.

FINANCE.	R	c.
By Balance brought forward from 1901-1902	192	25
" 96 Estates Subscriptions at R5 ...	480	00
" Rent on Doctor's Bungalow, "Belgravia"	10	00
" District Road Grant for 1902-1903 ...	1,000	00
Total ...	1,682	25
Less. Spent on District Roads and Sign Posts, 1902-1903	1,004	67
Less. D. P. A. Expenditure Account in 1902-1903	677	58
	R540	19
Balance to be carried forward—Total ..	R137	39
Expenditure in 1901-1902	R585	35

Meetings.—There have been (4) four Committee and (4) four general meetings during the year. Several members of Committee have only attended (1) one meeting and it is to be regretted that keener interest is not taken in the affairs of the Association and of general import. The average attendance for the year has been for Committee, 12. General meetings, 23. It will be observed that the average attendance in Committee for the year, has been less than half of the members appointed: a most disappointing result; whereas, the average attendance in general meetings has been considerably greater than in the previous year, which is satisfactory and encouraging.

Acreage and Crop Estimate for 1903.—The total Acreage of the District is 45,925 in tea; in bearing, 45,047½ acres. The estimated crop for 1903, as far as it has been possible to collect, is 21,786,535 lb. of Black Tea, or an average of 483 lb per acre. These figures show a decrease in tea of 861,084 lb. and a decrease in yield of 23 lb. per acre under 1902.

Season, 1902.—The bad flushing weather during the latter part of the year, has caused low yields, consequently estimates are short in most cases. Prices throughout the district have been generally well maintained and in a fair number of instances are higher than those during last year. Plucking has been careful, but owing to the shortfall, profits are probably less than in 1901 on the majority of estates.

Labour.—Owing to less crop being harvested during the year, labour has been enough to cope with work done on estates generally; which is satisfactory. Your Committee would, however, impress on employers of labour, the necessity of recruiting more labour from the Coast during 1903, in order to maintain their labour forces to required strength and to avoid as far as possible issuing further advances to those already in Ceylon. That special efforts be made to tap new districts and if considered advisable to appoint a special recruiting agent.

Labour Federation.—There has been one case brought before the District Sub-Committee during the year between Ambegamuwa and Dimbula planters; the final decision exonerated the Dimbula planter as having been decided by one of his kanganies.

District Minor Roads.—The amount granted by Government towards the upkeep of these roads for this year was R1,000; out of this R288·15 was spent on sign-posts. Consequently after paying the votes granted for District Roads amounting to R716·52, there is a debit balance of R4·67 which the Association is obliged to pay pending supplementary grant to meet the expenditure on sign-posts from District Road Committee. Your Committee would point out that owing to the heavy expenditure on sign-posts during the past two years, grants for upkeep of District Minor Roads have had to be reduced to a minimum, which has been detrimental to proper maintenance of the roads throughout the district.

Sign-Posts for District Minor Roads in Dimbula.—Your Committee have to report that up to 31st December, 1902, R288·15 has been spent on the completion of the sign-posts undertaken. The total spent in 1901 and 1902 under this heading has been R757·33, which, so far has been deducted off the Annual Grants, allowed by Government for upkeep of District Minor Roads in Dimbula. It is hoped that the District Road Committee will be able to pay us an extra vote in 1903, towards the outlay under this heading. Your Committee would advise that the chaining of the Bridle Roads should be undertaken directly funds are available, in order that each District Minor Road may receive its Annual Grant in proportion to its mileage.

Main Roads.—Your Committee are pleased to be able to report that the Main Roads in the District have been on the whole, well maintained during the year. It is satisfactory to note that the improvements suggested by the Association are likely to be provided for in the 1903 estimates,

It is hoped that the improvements ultimately decided on, may be carried out expeditiously and on economic lines.

HOSPITALS AND DISPENSARIES.—Your Committee are glad to report that, to the best of their knowledge, the Craigie Lea and Lindula Hospitals and Dispensaries have been sufficient to meet the demands made on them in their respective vicinities:—The promised Agra Patanas Hospital has not yet been sanctioned, although, it is highly desirable that the mortality amongst coolies should be reduced.

FIREWOOD SUPPLY.—There have been no complaints made to the Association during the year; it is, therefore, presumed that the fuel Depot at Talawakelle has worked well and continues to give satisfaction to those estates interested therein.

PLANTERS RIFLE CORPS.—The strength of the corps in our District continues satisfactory:—The interest and keenness shown in Shooting is marked:—The District is to be congratulated that their Distinguished Officer Commanding the Planters Rifle Corps, has been deservedly promoted to be Lieut.-Colonel:—Your Committee would urge on all Volunteers, the necessity for making themselves thoroughly efficient in the use of the Rifle, besides, making themselves competent in Drill.

TIN TICKET SYSTEM AND REGISTRATION OF ESTATES.—Your Committee are pleased to report that this new scheme inaugurated by Government about a year ago, has given satisfaction so far:—It is thought that advances have been reduced thereby and that as it becomes better known and more widely adopted, it is calculated to produce even better results than hitherto, when thoroughly understood:—It is hoped that every Estate in the District has registered, but should there yet be some who have not done so, your Committee would urge on them to do so without delay.

COOLY BOLTERS.—Your Committee regret to report that the prevalence of Bolting and repudiating Advances amongst Canganies and Coolies, at one time during the year, threatened to assume serious proportions; but happily it has somewhat abated of late:—Your Committee would urge on employers the necessity for studying the cause of this serious evil, with a view to checking its further spread if possible:—It is thought that to some extent it might be reduced, if employers of labour would desist from retaining coolies, who want to leave their Estates, against their will:—It should not be forgotten that "The Indian" in the eyes of the law, is a free Agent; therefore, if his services cannot be retained by fair persuasion, it is best to pay him off and recover advances; to prevent him taking the Law into his own hands, and thus create a bad precedent on an Estate:—It has been brought to the notice of your Committee that some Proctors have unsettled Labour, but it would remind employers, that if coolies do not derive any benefit from the advice given by those gentlemen, it is not anticipated that labour will adopt this method on a large scale.

MEMORIAL WINDOW.—Your Committee have to report that the Memorial Window subscribed for by the friends of the late Mr. Sandys Thomas has been erected in the Lindula Church during the year:—It is a handsome window and adorns the Sacred Edifice which was frequented by the Deceased.

BULK PETROLEUM AND LIQUID FUEL INSTALLATION.—Your Committee are pleased to report that Installation for Kerosine Oil and Liquid Fuel are under erection at Talawakelle Station and when completed will meet a long felt want in the District:—It is hoped that everyone who can conveniently make Talawakelle their outlet will support Messrs. Delmege, Forsyth & Coy's enterprise.

DIMBULA HALL.—The question of Rebuilding the Hall was considered again during the year, but nothing definite was agreed upon,

THE CEYLON NURSING ASSOCIATION.—Your Committee would remind managers of Estates of the suggestion made, to endeavour to induce their Proprietors to subscribe to this Association:—It is hoped that some have been successful, but those who have not received permission to support this worthy institution, may yet try once again when the time is opportune.

OBITUARY.—[?].

MR. T. FAIRHURST'S ADDRESS ON "OOLONGS."

(Before the Dimbula P. A. Annual Meeting.)

Mr. Chairman and Gentlemen,—When I met Mr. Welldon in the train the other day, he asked me if I would lay before you what little knowledge I possess concerning China Oolongs. I have pleasure in doing so, but regret that my knowledge refers more to the tea as ready for shipment than to its actual manufacture. In China, European merchants are confined to the Treaty ports—travel in the interior of the country being discouraged by the Chinese and only entered upon with what amounts to a "safe-conduct" in the form of a letter from some high official to all Government officers in the interior. The purchase of land by Europeans, outside of the Treaty Ports is forbidden by Chinese Law, and so it happens that we who live at the threshold of the tea districts, know so little of the methods of manufacture. Even were the necessary permission to visit those districts obtained, the very rough nature of the country, necessitating travelling in comfortless boats up rivers encumbered by rapids, making progress very slow, together with contact with the frequently unfriendly dwellers by the river, would deter most men. We, therefore, only come into contact with the tea after it is manufactured and packed, as is the case in Colombo. The nearest tea district to Foochow lies about 20 miles distant, and the leaf is frequently brought into that town in a half-finished state. Thus we see a little of the later processes, such as firing or drying and sorting. Some years ago it was possible to see the final stages of green tea manufacture, but at Foochow only a low grade of green tea was made, very highly coloured, and when the United States legislated against the excess of colouring matter, the manufacture in Foochow ceased. All other teas than those of the near district which I have mentioned, are manipulated and packed on or near to the spot where they are grown. Touching Oolongs in particular, Foochow and Amoy in China, and Tamsui in the Island of Formosa, are the ports of shipment. As regards Formosa Oolongs, these, as their name indicates, are grown in the Island of Formosa—the principal market is at an inland town distant about 15 or 20 miles from the port of Tamsui. The leaf in a partially prepared state is purchased by Europeans or their Agents and brought down to Tamsui for final manufacture. This is done not only by Europeans but by Chinese and the teas thus prepared are sent by steamer to Amoy on the China Coast, for final shipment to the different markets in the United States and England. The teas so shipped from Tamsui by Europeans are mostly already ordered by their constituents, whilst those shipped by the Chinese are intended for sale on the Amoy market to the European buyers.

The teas grown in the island of Formosa, are all of one variety ranging from common to extra choicest. The best "chops" are frequently scented with a flower belonging to the Jasmin tribe. The soil of the island of Formosa is volcanic and very rich, and it is to this that the teas grown there owe their special and peculiar flavours. This is proved by the fact that the tea trees in Formosa are grown from seed imported from Amoy—the produce of the parent trees on the China side possessing nothing of the peculiar Formosa quality and like all Chinese teas deteriorating so much, that the produce of the Amoy gardens has practically ceased to be cultivated.

I myself some years ago, to my after regret,

IMPORTED INTO CEYLON SOME SEED FROM THE FORMOSA TREES,

and the resulting plants reverted to the worst China type. I am of opinion that this type of Oolong, kuown as "Formosa Oolong," cau never be produced in Ceylon to possess the true characteristics of the type. But it is different with the Oolongs made and grown at Foochow. Of these there are *three* varieties, and I see no reason why their mannfacture should not be successfully attempted in Ceylon. These varieties differ materially in make and flavour. The best are usually brought to market in what are called "String chops," that is they consist of "lots" varying from 500 to 3,000 half-chests, which must be bought *altogether*. There are usually 5 grades in each "string," "common" to "choice," and they are sold at an average price for the "lot," which the European buyer calculates by working out each grade at his idea of its value. The lower grades are large in leaf approximating to the leaf of an up-country Pekoe Souchong of long leaf. The size of the leaf decreases as the quality improves, until the best would resemble in size, a boldish pekoe. The iufused leaves show a greenish colour, very even in the finer ones, but becoming mixed with darker leaves in the lower grades. The liquor is soft and fine iu the better teas, becoming coarse in the commoner ones. Black leaves in Oolongs are highly detrimental, and canse danger of rejection by the United States Tea appraisers. No Tea intended for the United States market should contain more than 10 per cent of dust. The price paid for these in China is based on, say b.o.i.f. New York up to about 1/3. The only other kind which requires special notice is a variety made more after the style of Congou or Black Teas as regards the size of dry leaf, but of course showing the same light-coloured infused leaf and liquor as the variety previously spoken of. The flavour however differs greatly, for whilst, with all their softness, the first kind mentioned as "Stringchops" possess a good deal of pungency—the last named variety—known as "Suey Kut" Oolongs, taste more like the Black Teas from the Suey Kut district, and have little distinctive Oolong character. The leaf, especially of the finer sorts, resembles closely the teas which were being made in Ceylon 3 years ago, as Ceylon Greeu Teas Their value ranges from about 10 oents, say 5d, to 1s. 2d.

The remaining kinds of Oolong grown in Foochow are mostly of large leaf, and varying quality, many being below the standard insisted on by the United States.

The average crop of tbo Formosa Oolongs amounts to abont 15 to 17 million pounds, aud of the Foochow Oolongs to about 5 millions. But both crops are liable to sudden increase according to demand, and this has been exemplified during the season of 1902 by an increase in the Foochow production of 50,000 ½-chs. equal to 2½ million ponnds, owing to the speculative demand from America contingent on the abolition of the Tea Duty there.

I think that the class of Oolong known in Foochow, as

"SUEY KUTS" COULD EASILY BE IMITATED IN CEYLON,

but whilst "Suey Kuts" were on their first introduction into America, much liked and eagerly bought, there is not now the same demand for them. As regards that, I would suggest enquiries being made from some of the leading New York brokers, whilst as to the processes of manufacture—of both Foochow and Formosa Oolongs—the best way would be to ask the information from the British Consuls at Foochow and Tamsni. And the information wonld be more readily obtained if the request for it is forwarded through the Government of Ceylon, English Consuls abroad not being very well disposed to incur trouble over trade matters, which are regarded as somewhat outside their province. I would also recommend that a similar application should be made through the German Consul in Colombo to the German Consuls at the ports named. All Green Teas and Oolongs should be packed in half-chests containing 54 to 60 pounds Tea net. My own connection with China has practically ceased, but I could give the names of one or two firms in Colombo who could, I think, procnre large samples of Oolongs, and possibly assist in obtaining particulars of their manufacture. I will now reply categorically to the

QUESTIONS WHICH YOUR CHAIRMAN HAS ADDRESSED TO ME.

"How many kinds of Oolongs are sold in America?"—The reply is, three from Foochow and one from Formosa shipped at Amoy.

"Where are they manufactured and what is the range of prices?"—In Foochow and Tamsui the range of prices paid being from 5d to 1s 3d or 1s 4d for Foochow, and from 6d to 3s for Formosa. Many of the finest of the Formosas are sent to the London market.

"Could we in Ceylon mannfacture Oolongs that wonld give au average of say 1s per lb?"—To this I shonld answer decidedly, No!—since the average of the "Suey Kut" Oolongs, which would be more easily made, runs only about 9d per lb. if so much.

"Are 15 to 18 millions of Oolongs sold in America?"—A circular of the Foochow Chamber of Commerce dated 19th December last, gives the export of Oolongs to America from Foochow as 6½ millions, and the annual export of Formosa Oolongs would be about 12 to 14 millions.

"Conld Ceylon hope to displace say 5 or 6 millions of these Teas?"—I think that Ceylon conld certainly hope to place that quantity, provided the quality was right, and the average I have named—say 8d to 9d, a paying one.

"Are Oolongs artificially scented and is the process of scenting them difficult?"—So far as I know only the finer or finest kinds are scented. The process is not difficult or very expensive, provided the scenting flower is at hand.

"Can you tell us how it is done?"—The scenting flower is added in certain percentages to the Tea before final firiug. After the tea and flower have been left together for half or one day, they are fried or dried together and afterwards the flower is sifted out before the tea is packed.

"Is Formosa a country to which we should be likely to obtain admission in case of wanting to study the mannfacture of Oolongs?"—Anyone cau enter Formosa and visit the tea centres. A person so doing could doubtless pick up the process by watching, bnt as there are no inns or hotels in those parts, he would perforce be the gnest of one of the European firms engaged in the trade, and if they knew his purpose, they might do their best to thwart it, besides which, the guests attempting it would be placed in a very uncomfortable position.

"Is the crop of Green Teas going from Japan this year, due to labour difficulties or is it climatic?" I am unable to say, but should think it was mostly climatic.—"Are we likely to see a great fall in the price of Green Teas in America, supposing 15 to 17 millions were shipped this year from Ceylon and India?" I should say most certainly such an export would canse a reduction of possibly 3 to 5 gold cents per lb, (1½d to 2½d) unless the qnality so pleased as to throw the greater fall on to the Teas from Japan and China. "How do Ceylon greens compare with Japan and Indian greens? If the comparison is unfavourable to Ceylon, will not our teas suffer severely in the event of a large Japan crop?" I have not seen enough Ceylon greens to form an opinion. Those I have seen compare favourably with Japans and Chinas in leaf, but are, in my opinion, too thin in liquor. If the American verdict was the same and the

importations from Japan and China large, there would undoubtedly be danger of a severe fall in Ceylons—which could only be tided over by a liberal cess allowance, until the industry had hit upon the desired quality and colour. For information regarding the method of manufacturing Green Teas, I would recommend application being made to the English and German Consuls at Ningpo, in which district all Green Teas are grown and made. "In Western America beyond St. Louis, is there not still a large continent where Black Teas are consumed and where Ceylons are unknown?" Undoubtedly there are many large cities such as San Francisco and others within a radius of 1,000 miles (Chicago included) where Black Teas are largely used and where the "Thirty Committee" Commissioner has done little or nothing, (excepting at Chicago), but those markets have been and are being exploited by firms in Colombo having Agents there. More might be done by the means at the disposal of the "Thirty Committee" in the country indicated. There is one danger ahead which I would notice. Should the Export to London fall off and become lower than the requirements of that market, an opening would be given to China to send larger supplies of common Black Tea. China can increase or decrease that supply at will, witness the large increase during 1902, in the Export of Oolongs, which excess will have been made from the "Sucy Kut" Congou leaf by which the supply of Black Teas has been curtailed to the extent of 2½ millions of pounds. The fact also that the larger crop of Oolongs has been made out of the leaf usually converted into common Black Tea shows that the manufacture of Oolongs in Ceylon as well as Greens can be as well carried out on low-country estates as on those of high elevation.

FINAL.—In conclusion I would merely add that I have always been of opinion that the money expended by the "Thirty Committee" in the Eastern States in pushing Black Tea has been simply and absolutely wasted, and would have been of far greater use had it been applied to exploitation of the same Tea in Russia.

The Eastern States are the ones which use Oolongs and Green teas, and funds may, I think, still be employed in pushing them there advantageously. A great effort should be made at the St. Louis Exposition to bring Ceylon Greens and Oolongs into notice, whilst at the same time it can do no harm to show also Ceylon Black Teas.

It would be a great pity, I think, to discontinue the campaign in the Eastern States on behalf of Green Teas and Oolongs, as those are the kinds used by ⅞ths of the population of those States, and to cease the effort now would be to destroy what good has already been done.

I do not think that China will be able to compete with Ceylon as regards Black Teas so long as Europeans are prevented from holding land in the interior, and even should that privilege be eventually granted, it is a question how far the China leaf will lend itself to machinery.

The result of an experiment made at Foochow, where a small Factory with Jackson's machinery was erected, was a decided improvement in the appearance of the dry leaf, and a thicker liquor in the cup, but the flavour was destroyed, the taste being mawkish and dull, and the peculiar flavour, which the leaf tried, should have developed was entirely absent.

AMBEGAMUWA PLANTERS' ASSOCIATION.

ANNUAL REPORT FOR 1902—1903.

In presenting this report for 1902 your Committee have pleasure in stating that the Association has well maintained its strength and usefulness during the past year.

The number of votes in the Register is 38, being one less than last year.

The financial position of the Association is as follows :—

EXPENDITURE.	R.	c.
Debit balance from last year... ..	2	95
38 Subscriptions at R7·50 to Parent Association	285	00
Petty Disbursements	124	47
	412	42
38 Subscriptions at 10	380	00
Leaving a debit balance of ..	R32	42

The accounts of the Association were duly audited by Messrs. Wiggin and Blacklaw.

MEETINGS.—During the year there have been five General Meetings, four meetings of the Standing Committee and four meetings of the Local Labour Federation Committee, all of which have been well attended.

MINOR ROADS.—The Inter-District Roads in the District are generally in good order. The District Road Committee grant for 1902 is R355.

A Resolution was passed at a General Meeting held on the 21st November, asking the District Road Committee to have the bridge across the ravine on Binoya Estate near Rozelle Station, put in permanent repair. And your Committee have pleasure in informing you that the matter has been taken in hand by the District Road Committee.

P. B. F. AND N. A. HATTON.—These funds have been well supported by tho Association during the year.

CROP ESTIMATE.—The returns for the district for the official estimate of Tea Crop of 1903 were collected as usual.

The figures arrived at being as follows :—

a	Total acreage in Tea ..	16,026 acres
b	Acreage in bearing ..	14,752 ,,
c	Total tea crop ..	5,587,500 lb.
d	Estimate of Green Tea ...	660,000 ,,
e	Estimate of Native Leaf (included in *c*) ...	325,000 ,,
f	Acreage abandoned ..	24 acres

The total tea crop being ... 388,500 lb. less than last year's estimate, equal to a decrease of 22 lb per acre.

HOSPITAL AND DISPENSARY VISITORS.—On the recommendation of the Association Mr E H Hutchinson was appointed unofficial visitor to Watawala Dispensary.

OBITUARY.—Your Committee has with much regret to record the death of your late Chairman, Mr Oliver Collett who, on several occasions, occupied the office of Chairman and whose keen interest and ability in all Association matters were much appreciated by all.

PREDACEOUS INSECTS AND HOW THEY CATCH THEIR PREY.

THE GOVERNMENT ENTOMOLOGIST'S LECTURE.

The following is the full text of Mr. E. E. Green's lecture on Saturday, July 17th.

The subject of this lecture may perhaps be called a cruel one. Nature in many of her moods, *is* cruel,—from *our* standpoint. But in spite of her apparent cruelty—Nature is always interesting, if we will take the trouble to scrutinise her operations. It is said that every-one likes to know what his neighbour has for dinner. The most popular hour at the Zoo is when the animals are being fed. I propose, therefore, to introduce you to some of our common insects at their meals. I have purposely chosen my chief examples from insects that occur commonly in Ceylon, so that you may yourselves be able to watch their habits—if you wish—and perhaps to find out other interesting traits connected with them.

Insects.—In common with other animals—may be broadly divided into two groups,—Carnivorons and Herbivorous. The carnivorous insects may again be divided into those that prey upon living animals, and those that feed upon dead animal matter. The first of these divisions may be further subdivided into Predatory and Parasitic forms. It is with some examples of the first of these subdivisions that I shall concern myself tonight. And, more particularly, with such as have special organs of prehension for the capture of their prey. As typical examples of such insects, we may take the various species of Mantidae. I have here a slide showing a representative, but by no means complete, gronp of these insects. In several of them you can see the specialised front legs that will be described in detail presently. You will see that they vary considerably in size,—from this small species which is only three quarters of an inch in actual length to this elongated species that measures five inches from snout to tail. Our knowledge of the names of the various Ceylonese Mantidae is very incomplete, So I can refer specifically to a few only. This one, with the ocellated spots on its front wings, is called *Creobroter pictipennis*. It is really

A VERY PRETTY LITTLE FELLOW,

Its front wings are bright green with a gamboge-coloured eye-spot picked out in black. Its hind wings are delicately shaded with purplish grey. This bizarre-looking creature that appears to have bits of leaves attached to its elbows and knees rejoices in the appalling name of *Gongylus gongyloides*. The insect seems to be componnded of bits of twigs and fragments of leaves. But they are all really parts of its body. It is usually of a yellowish green colour, though individuals of a yellowish-brown tint are not uncommon. This form and colouration, while protecting the insect from the attacks of its enemies (birds, lizards, &c.), stands it in good stead in its own hunting operations. The term "hunting" is however scarcely applicable; for the Mantidæ do not usually chase their prey, but stationing themselves in some suitable situation, often near some tempting flower or fruit, they remain perfectly motionless but wide awake, awaiting the advent of some passing insect. The *Gongylus* takes advantage of its resemblance to foliage by establishing itself at the end of the spray of some plant—freqnently close to a flower. From thence it snatches butterflies and other winged insects. I have actually seen one of these Mantises catch a butterfly on the wing, as it was hovering over the flower. The under-surface of the expanded portion just behind the insects head is coloured a delicate pink, and may perhaps itself be mistaken for part of a flower,—a most fatal mistake for the insect that makes it. Observe this slender part between the head and the abdomen. The food must be bitten very small to allow of its passage down such pipe-stem waist.

THE "PRAYING MANTIS"

(*Mantis religiosa*) is so-called from the devotional attitude that it assnmes, its arms doubled and held up in front of face. Needless to say, its mental attitude is by no means devotional. As one writer has punningly remarked, instead of saying "Let us pray" (pray), it is more probably murmuring "Let us prey" (prey). Another remarkable form of Mantis is the *Chaeradodis squilla* which carries a green sunshade over its head. Not that it anticipates a snnstroke. The green shield is more probably for the purpose of disguise,—to make it look more rustic and innocent. The Mantis is one of the most rapacious and callous of insects. It will seize a grasshopper or any unwary insect that comes within its reach and—ignoring its struggles—will calmly eat off all the outlying portions before attacking the vital parts of its victim. It may possibly occasionally pick up some higher game, such as an infantile lizard or frog. I have vivid recollection of a tragedy that occurred in a vivarium in which I had a happy family consisting of several species of lizards and frogs. I rashly introduced a Mantis, one day, thinking that it would support itself on the flies and other small insects that were supplied for the other occupants. Next morning the cleaned skeleton of what had been a small green tree-frog testified to the dangerous nature of the newcomer, which was promptly removed and placed on a creeper in the verandah, where it afterwards itself fell a victim, being caught and devoured by a large green lizard. And now we must examine the special weapon with which the Mantis is provided. I have here a slide showing the front limbs of a small species. You will notice how well they are adapted for their purpose,—to seize and hold a struggling insect. The leg is divided into the nsnal parts. The greatly thickened portion is the femur—or thigh. The thickening is to strengthen the parts and to give attachment to the powerful muscles required for the gripping action. Its inner edge is armed with stout spines, like the teeth of a steel rat-trap. The other jaw of the trap is represented by the tibia or shin. It also has a double row of spines which interlock with those of the femur, and it terminates in a stout claw. The foot proper is represented by these small terminal joints which are usually turned back to be out of the way. They are not of much importance to the insect and are frequently missing, having been lost perhaps in a fight with a neighbour,—or perhaps accidentally eaten by the insect itself, which seems to get along very comfortably without them. This is what is called the raptorial type of leg. The other legs of the Mantis have homologous part , but they are slender and adapted only to walking. The Mantis is predatory throughout its whole life. The baby Mantis when first hatched from the egg, is possessed of these specialized front legs and knows how to use them. This slide shows a young *Gongylus* as it appears when it first steps out into the world. This same raptorial form of front leg occurs in a nnmber of different insects,—often in widely separated families. The Mantidae—just noticed—belong to the family *Orthoptera*, which inclnde the herbivorcus Leaf and Stick insects: the Locusts, Grasshoppers and Crickets: and the Cookroaches. It appears also in the Bug family (*Hemiptera*), the Net-winged family (*Neuroptera*) and amongst the 2-winged flies (*Diptera*). As examples of *Hemiptera* possessing

RAPTORIAL LEGS,

may be mentioned the *Emesa*, which looks like a very thin stick-insect, a veritable skeleton dude, and an allied genus, *Ploiaria*, which simnlates a small "Daddy-long-legs" (*Tipula*). These little bugs capture their prey in the same manner as do the Mantidae; but, while the latter have biting jaws and tear their food to pieces, the bugs have a sharp beak constrncted for sucking, and absorb the juices only of their victims. There are also aquatic bugs, *Ranatara* (sometimes called the "water-mantis"), the water-scorpion (*Nepa*), and the giant water-bug (*Belostoma*). This last insect is common in the Kandy lake, and probably in Colombo also. It measures nearly three-and-a-half inches in length and is proportionately stout. It preys upon small fish, frogs and tadpoles, as well as upon beetles and other terrestrial insects that tumble into the water, gripping them with its strong front legs and driving its cruel beak into their flesh. I have kept them alive in an aquarium for several months at a time, feeding them upon beetles, grasshoppers and cockroaches, the latter insects being especially appreciated. They have well-developed wings and frequently leave the water at night for a short flight. At such times they are often attracted by the electric lamps, and may be picked up in the road in a dazed condition. In the family *Neuroptera*, we have the *Mantispa*, showing the same form of raptorial limb. As its name implies, it resembles the *Mantis* in form and habits: but differs widely from that insect in the natnre of its development. A young *Mantis* is merely a diminutive edition of the adult insect minus its wings. But a young *Mantispa* undergoes a grub stage, and a remarkable grub stage too, for it undergoes what is

called hypermetamorphosis, that is it passes through more than the three normal stages of metamorphosis. When first hatched it is an active little creature with well-developed legs. But soon it settles down into the degraded condition of parasitism in the egg-cocoons of certain spiders, where it assumes the form of a fat fleshy grub and loses the use of its limbs. From thence it passes into the normal pupal stage, and eventually resumes active life as this delicate net-winged little insect that you see before you. It preys upon small flies, catching and eating them in exactly the same manner as does the true Mantis. We find the same form of limb recurring in the 2-winged flies (*Diptera*). It is very noticeable in that remarkable little species the "Telescope Fly" (*Diopsis*), so-called because its eyes are placed on stalk-like projections from the sides of the head. In this insect the femur of the front leg is armed with a row of sharp spines upon which the tibia closes. The *Diopsis* runs about on the leaves of plants in shady places and pounces upon smaller insects that happen to be exercising themselves in the same situations. In another group of flies, the *Empidae*, it is the hind legs that are modified for grasping, and in these we find a somewhat similar arrangement of the femur and tibia of the third pair of limbs. The *Empis* fly often pounces upon its victim and bears it along with it, taking its meal in mid-air. The big "robber flies" (Asilidae) catch and carry, their prey in the same manner, but use their feet only in holding it. Their legs are consequently without any special modification. These flies suck the juices only of their victims.

Amongst

THE WASP TRIBE

(*Hymenoptera*), grasping apparatus is found both on the front and hind limbs. Of the former type, the *Gonatopus* may be taken as an example. In this instance the prehensible apparatus is a modification of the claws of the front-leg to form a strong pair of nippers. This picture was made from a specimen caught by sweeping with a butterfly net amongst coarse grass. Although it figures so large on the screen, the *Gonatopus* is really a very minute insect, only a small fraction of an inch in length. The feeding habits of this insect are not known. In its larval stage it is a parasite on the bodies of small insects popularly known as "frog-hoppers," The eggs are laid on the body of the frog-hopper, and it is in holding on to these acrobatic little insects that the gripping apparatus of the *Gonatopus* is brought into play. In some other parasitic Hymenoptera, *e.g.*, *Stephanus indicus*—the hind limbs are modified in the same way as those of the Empis fly already described. This character is very well marked in a little wasp that breeds in the egg-cocoons of the common Mantis. It is a brilliant little insect with a burnished metallic green body. Its extravagantly long ovipositor is required to allow of the eggs being placed in position in the heart of the cocoon. But little is known of the feeding habits of these minute insects and it is uncertain whether this structure is employed for the capture of prey or solely for grasping the insects in which they wish to deposit their eggs. It can hardly be required for this purpose in the case of the insect that oviposits in the egg-cocoon. I must now bring to your notice some insects in which

THE MOUTH PARTS

are especially modified for reptorial purposes. One of the most remarkable of these modifications is the apparatus carried by the larvae of dragon-flies. The adult dragon-fly is well-known to all of you. One species is perhaps

THE COMMONEST INSECT IN COLOMBO

or, at any rate, the one most in evidence. No-one can have driven from the Colombo station to the Fort without being struck by the sight of the thousands of dragon-flies hovering in the air along the edges of the lake, or resting in long lines on the telegraph wires. The adult dragon-fly takes its food on the wing, its prey consisting of all sorts of smaller winged insects. Those dragon-flies that we see along the lake edge are doubtless growing fat on a plentiful diet of that troublesome Colombo pest of which we have lately heard so much—the Lake-fly. But perhaps very few of you have seen the insect in its larval stage, or would recognise it, if you did see it. The dragon-fly larva lives in the water and feeds upon worms and small aquatic insects, and perhaps picks up an occasional young fish. Some years ago I was present when the stew-ponds at Nuwara Eliya were emptied. Hundreds of young trout fry had been turned into the ponds some months previously: but they had completely and mysteriously disappeared. The drag-net brought up not a single troutlet. But it contained numerous ugly looking larvae which I identified as the grubs of one of our largest dragon-flies. I think it very probable that these larvae were responsible for the disappearance of the young fish. The dragon-fly larva has a broad head with prominent goggle eyes: six well developed jointed legs: and a body that is short and stout or long and slender—according to the species. But they may always be recognised by the presence—on the underside of the head—of an elbowed process, provided with a strong pair of forces at its extremity, and capable of being shot out in front to seize any desired object. Its application reminds one of the lazy-tongs used by our grandmothers to pick up pins or other small objects without rising from their seats. When at rest this apparatus is folded close against the underside of the head, the front part almost completely covering the face of the insect. on which account it is often referred to as the mask. I have here a photographic representation of a young dragon-fly larva with the apparatus retracted: another showing it fully extended: and a third giving a larger view of the head and apparatus itself. It would be difficult—without entering into minute technical details of the mouth-parts of insects in general—to explain the exact relations of this organ, and I will merely say that it consists of a modification of the lower lip (labium) and the chin (mentum) with the labial palpi. The dragon-fly larva is a very common insect and may be dredged up. in a hand-net, from the bottom of any shallow pool or along the edges of the lake. It would repay anyone to keep one or two of these insects in a shallow vessel—such as a finger-bowl or soup-plate—to observe their habits. Drop a fly or a small worm into the water, at a little distance from, but within sight of the larva. You will see the latter creep stealthily towards the object until it is within striking distance, when the extensile pincers will be suddenly shot orward and the victim will be seized, pulled in and promptly devoured. Another most interesting insect—also a member of the family Neuroptera—is

THE APHIS-LION

(the larva of *Myrmeleo*). It is of special interest more from its habits than its structure. It has no extensile apparatus, nor does it run after its prey. It waits until its food actually tumbles into its jaws. To ensure this happy result, the ant-lion constructs small funnel-shaped pits in loose sand or fine earth, in spots sheltered from rain. The ground beneath the eaves of a bungalow or outhouse is an almost sure find for them. At the bottom of the pitfall lurks the little larva, its body completely buried, its head alone exposed—with the sickle-shaped jaws widely extended. There the little creature waits, patiently motionless, until some wandering ant falls headlong into the trap, when it is seized, dragged under the sand and sucked dry. If the ant escapes the first snap of the jaws and tries to climb the sloping walls of the pit, the shifting sand gives way beneath its feet and its discomfiture is completed by a volley of sand jerked at it by the concealed insect. A second tumble to the bottom usually results in its capture. The empty skin of the ant is finally jerked out of the hole and the trap repaired for the reception of the next

unwilling visitor. In this diagram I have endeavoured to shew a section of one of the pitfalls. And here is a photograph of the insect removed from its den. If we examine the weapons with which it is provided, we find that each curved jaw is composed of two parts—the mandible and the maxilla—one of which slides in a groove cut in the face of the other. The two parts combine to form a tube through which the juice of the victim are absorbed. When fully grown the larva constructs a globular cocoon of sand and eventually emerges in the form here shown. It looks rather like a small dragon-fly, but the body is shorter in comparison to the length of wing, and it has clubbed antennae which are not seen in the true dragon-fly. The perfect insect may often be seen flying feebly round the lamp at night, or resting—in the daytime—on the verandah walls. An allied insect with similarly constructed jaws is

THE "APHIS-LION"

—a name given to the larvae of the lacewing flies (*Chrysops and Hemerobia*). This larva—as you may see from its picture—covers its body with the empty skins of its victims, and walks about—a veritable "wolf in sheep's clothing"; though its covering is really more for protective than aggressive purposes, for its victims—the Aphides—are sluggish insects and quite incapable of resisting or escaping from their rapacious enemy. Aphides—as you doubtless know—are the small green or brown plant-lice that crowd upon the young shoots of roses and many other plants. The Aphis-lion calmly establishes itself on the edge of the crowd, picks up Aphis after Aphis, sucks it dry and neatly, adds its empty skin to the trophy of scalps carried on its back. These habits, though unpleasant for the aphis, are of great service to the agriculturist. I have here a photograph of the little animal—un-robed. Mosquitoes are not usually looked upon as friends of man. But we have one species—the largest and most brilliantly coloured representative of the family in Ceylon—that may fairly claim that title; for its larva is carnivorous and feeds entirely upon other mosquito larvae. Its scientific name is *Toxorhynchites immisericors*. It is common in the Peradeniya Gardens, where it particularly frequents the clumps of Giant Bamboo. I have recently been studying its life history—which was hitherto unknown. It breeds in the water that accumulates in the hollow stumps of the bamboo. Though it is popularly termed the 'elephant mosquito,' I think that title must have been gained more on account of its comparatively large size than from its ferocity. I have never been bitten by one myself, and have met only one person who professes to have experienced the bite of this species. In the adult stage, it feeds principally on fruit. I have kept specimens alive in captivity and have watched them sucking the juice of plantains. I have freely offered them my arm on the chance of their wanting a change of diet, but they have never availed themselves of my kindness, though other captive mosquitoes have not been so forbearing. The carnivorous larva of this species carries a remarkable raptorial organ on its head. In the larva of the common mosquitoes [illegible]eles, there is a pair of brush-like [illegible] the front of the head which—by a rapid lashing movement—create a current in the water which brings the suspended food to their mouths. They are termed "whorl organs." In the larva of our *Toxorhynchites* these delicate whorl organs are replaced by two groups of sharp curved hooks, opposing each other. With this apparatus it seizes the smaller larvae of other mosquitoes when they incautiously approach within reach, and holds them firmly while they are being devoured. It is a sluggish insect and progresses through the water with difficulty by a series of awkward contortions. But it does not require any great activity. There is a super-abundance of this commodity on the part of its prey: for the other mosquito larvae are constantly jerking themselves about in the water, and—in the confined space of a bamboo stump—are sure, sooner or later, to run up against the apparently torpid larva of *Toxorhynchites*. In an instant the hooks—which ordinarily lie back on each side of the head—are closed upon the victim. It seldom misses its stroke.

IN THE ANT TRIBE

we have an example of predatory insects that hunt in packs. They might be called the wolves of the insect world. The fierce "Red Ant" (*Œcophylla smaragdina*) scours the country in the neighbourhood of its nests, communicating with its fellows by means that we do not properly understand. With their strong jaws they can overpower quite large caterpillars and other soft-bodied insects. I have recently had bitter experience of the rapacity of another large ant (*Myrmicaria subcarinata*), when a horde of these insects found their way into one of my breeding cages and tore to pieces a number of full-grown silk worms. There is a comparatively small but very active reddish ant, named *Plagiolepis gracilipes*, whose acquaintance you may often have made in your sugar basins. Though decidedly fond of sweets, this species is really very useful in the house, for they are the sworn foes of cockroaches. I have on several occasions watched a cockroach-hunt conducted by these ants. The cockroach, as it hurries across the floor in search of cover, is surrounded by a cloud of skirmishers. They never attempt to grip their quarry. Their aim appears to be to dash in and give a quick bite at the sensitive antennæ of the cockroach and dart back again. They must secrete some very subtle poison, for after one or two tiny wounds, the cockroach turns over on its back in a paralysed condition, when the skirmishers close in and drag away their victim to their nest. This sugar ant is remarkable for its ability to overcome more formidable species of the same tribe, though unprovided with any apparent weapon of offence. Its jaws are small and weak, as you can see from this enlarged photograph of its head. Yet it defeats, in single combat, the ferocious Red Ant whose jaws are powerful enough to cut it in half at a single stroke. It pursues the same tactics just noticed in the description of the cockroach-hunt. Some ants make their hunting excursions in orderly array, like an army, and apparently have recognised signs or words of command—imperceptible to our senses. Of this type is that elongate shining-black ant (Lobopelta species) which is possessed of a powerful sting. I was once watching an army of these ants. They were travelling in column—some 4 or 5 deep. Suddenly the leading files halted; the rest of the column closed up, till they were all packed together in a dense mass—one above the other. When the last straggler was in his place, the secret signal was given, and a combined dash was made to a large fallen leaf lying in the drain. I had seen nothing suspicious about this leaf. But doubtless one of the scouts of the black army had brought word that a large and succulent worm was concealed beneath it. As soon as it found itself discovered, the worm—which was of a slippery and active sort—commenced a violent series of jerks and twists in its endeavour to escape. But soon its entire surface was hidden beneath the thickly clustering ants, and a hundred stings had been plunged into its body. In less time than it has taken me to describe the episode, a procession had been formed and the limp corpse of the worm was being conveyed back to head quarters. But if I were to attempt to describe the remarkable habits of ants in general, I should be wandering from my proper subject, and I should keep you here all night. My allotted time and your patience must both be exhausted. The ways of ants would form a sufficient subject for a separate lecture. It only remains for me now to thank you for the kind patience with which you have listened to my somewhat discursive remarks upon predatory insects.

Correspondence.

To the Editor.

LUCERNE; AND PAPAYA: QUESTIONS FROM FAR PARAGUAY.

Ascension, Paraguay, Nov. 21, 1902.

DEAR SIRS,—Can you advise me of any remedy for slugs that destroy alfalfa (Lucerne)? I have had the leaves eaten off twelve acres by these pests, and no one here seems to know of a remedy; so I hope you will kindly be able to suggest one in the next number of the *Tropical Agriculturist.*

I should also be obliged by your advising me if the milk of the paw-paw has any commercial value, and if so, how it should be prepared for export?—Yours truly,

C. T. M. FEATHERSTON.

Casilla de Correo 63.

[As to the first question, Mr. E E Green is good enough to write:—"The best remedy appears to be dusting the plants thickly with lime—or spreading it on the surface of the ground surrounding the plants."—As to the milk of the papaw, there is a great deal of information in past numbers of the *T.A.*, and our correspondent should see that a "set" of the volumes is filed by the Paraguay Government, or in a local Public Library, for ready reference.—ED. *T.A.*]

THE NEW MEDICINE FOR MALARIAL FEVER.

London, Jan. 1.

DEAR SIR,—I enclose you today an exact copy of a letter I have received from one of the correspondents who read my report in the *Ceylon Observer.* As I only received the letter today, I do not send you the original because I am having some printed copies made of it for distribution in the United States, where they suffer so frightfully from malarial fever, and it was Dr. Beling of the New Jersey State Hospital who first worked at it for malaria in that country. I am sending him out a copy of the report.—I remain yours faithfully,

THOS. CHRISTY.

Prospect Cottage, Bures, Suffolk, Dec. 31, 1902.

Thos Christy, Esq., Dear Sir,—I called at your office on the 25th November, and you were good enough to let me have a bottle of Cassia Beareana. I began on the 26th to take 20 drops in plenty of cold water once a day. I have done so daily, and have kept perfectly free from ague and fever. I find it stimulates and strengthens my nerves, clears my brain, and in fact, I may say, it is many a long day since I have enjoyed such a month of perfect health—no low, morbid feelings, but bright and cheerful; a free and easy feeling as if I had power to hold myself erect. I cannot sufficiently express my gratitude to you for writing to the *Ceylon Observer*; otherwise I might not have heard of this cure. I intended going to Liverpool to see Dr. Ross. I have sent a pamphlet and an account of the effect Cassia Beareana has had upon

myself, to Dr. Wontersz, Govt. Doctor at Nuwara Eliya, as it was by his advice I came home. I only hope he will try it in the hospitals.—I remain, dear Sir, yours truly,

(Sgd.) MARION EDLEY.

REJECTED TEAS FROM MELBOURNE: ACCEPTED IN LONDON.

Melbourne, Jan. 3.

DEAR SIR,—Some prominence was given just before the holidays to the fact that some of the teas, which were not allowed to enter this port, when released and sent to London, were allowed not only to pass in there, without difficulty, but were pronounced by the broker who had charge of them, to be of good quality. It was remarked that "the justice and promptitude shown in London compared very favourably with the harshness and long delay experienced in Melbourne."

I enclose you an extract from the *Age* of Jan. 2nd, reviewing the tea trade for 1902 and also alluding to the position of the

REJECTED TEAS.

[We give the tea "review" on page 556. —ED. *T.A.*]

GAME PROTECTION IN PERAK.

Ceylon Game Protection Society, Jan. 20.

DEAR SIR,—I thank you for your kindness and courtesy in sending me the portion of the Perak Government Gazette on the subject of game protection in the State of Perak. It seems to me that Protection there is to be on a far more extensive scale than in Ceylon and that the fines to be imposed for breaches of the ordinance are far heavier.—Yours faithfully,

THOMAS FARR,
Hon. Secretary, C. G. P. S.

POINTS FROM THE GREEN TEA DEADLOCK IN CEYLON: FOR CESS PAYERS TO CONSIDER.

Jan. 20.

DEAR SIR,—There are one or two points in the green tea deadlock that are worth pointing out to the payers of the cess, who make good teas in connection with the appeal for a further increase of the cess.

I. What class of teas will benefit most by a reduction of exports to the London market? Teas for price.

II. Will good teas improve in values? On past experience—hardly at all.

III. What do these two facts point to? They show pretty clearly that with improved values for "teas for price" it will pay better to pluck coarse upcountry than fine. It has been done in the past and will be done again.

IV. What will the effect of this be? It is very clearly shown in brokers' reports and the recent telegrams to Kandy from the London Association.

Consequently I feel compelled to ask proprietors of estates making good teas to hesitate and carefully consider the position

and not rashly agree to a proposal which will hardly benefit them in the slightest and may prove most harmful to our industry as a whole.

As one making good teas myself, I consider any increase of the cess as a form of the worst "class legislation" because the proposers cannot show that it is for the good of the whole. Past experience shows us this cannot be the case.—Yours faithfully,

INCOG.

CEYLON EXPORTS OF COCONUT OIL TO INDIA.

Colombo, Jan. 22.

Dear Sir,—A few days ago, in an article on Exports for last year with comparisons with previous years, you enquired why Export of Coconut oil to India had dropped off so much, as that country used to be about the best customer of Ceylon. The reason, I understood, to be that an import duty was imposed; which made this an unpaying business to the Chetties who were almost the sole exporters of oil from here to India, and so the business has nearly died out.—Yours faithfully,

JAMES GIBSON.

COMB HONEY IN COLOMBO.

Colombo, Jan. 22.

Dear Sir,—I send you a sample of comb honey from an improved bee-hive I am working.—I am, Sir, C. D.

[We can testify that the comb is very well filled with superior honey of good flavour.—Ed. *T.A.*]

PLANTING NOTES.

A Bacteriological Institute in Siam.—It is stated in the *Semaine Medicale* that in order to give France a manifest proof of its friendly feeling, the Siamese Government has decided " to create at Bangkok a bacteriological institute to be under the exclusive direction of French physicians, and to institute forthwith in connexion with the health department, a service of sanitary works, having at its head a French engineer, and reinforced by engineers, also French."—*British and Colonial Druggist*, Jan. 9.

A Review of the Australian Tea Trade—during 1902 will be found in our daily of today. Traders there have had an adverse year and the causes which are named as having depressed the market, will be read with interest. "Colombo continues to be the main source of supply," the report states, although the imports this year are fully 10 per cent less than last year. Ceylon too has gained ground over India in the past year, the quality of the latter's tea being disappointing. China teas are gradually dropping out. Notwithstanding the fact that stocks are very much reduced the outlook for the year is characterised as poor.

CARDAMOM CULTIVATION: THE CESS CIRCULAR.

The following is the letter that has been addressed to cardamom growers in Ceylon:—

Rangalla, Jan. 12.

Dear Sir,—A Sub-Committee (consisting of Messrs. J Westland, J A Spence, W Reeve Tatham and myself,) appointed by the Committee of the Planters Association of Ceylon, to inquire into the best methods of pushing the sale of Cardamoms in foreign countries, recommend that the following circular be sent to all Cardamom growers with a view to ascertaining what support will be given. To enable the Committee to lay this matter before the Planters Association Meeting to be held on 17th February, an early reply is requested.—Yours faithfully, William Sinclair, Chairman, Sub-Committee.

Circular.

That in view of the large extension in Cardamom Cultivation whereby the supply in the near future is likely to exceed the demand, it is most desirable that means should be adopted to make this product better known in foreign markets. To allow of this being done funds are necessary. It is therefore proposed that all cardamom growers be asked to subscribe 50 cents per cultivated acre, to form a fund for the purpose of pushing and making better known this product.

(Signed) William Sinclair, J. Westland, J. A. Spence, W. Reeve Tatham, Sub-Committee.

A NEW RUBBER VINE.

The U S Consul at Tegucigalpa (Honduras) has been informed of the discovery in the Pijo mountains of a vine growing in an uncultivated state which is said to produce rubber of excellent quality. The vines grow to 100 feet in length, varying in diameter from 4 in. to 2 feet, and they are said to belong to the African family of rubber vines. In Honduras, no one seems to know the name of the vine or the botanical family to which it belongs. The discoverer (Senor Davadi, Governor of the Department of Comyagua) regards it as superior in quality to the Para rubber of commerce, and asserts that his convictions are borne out by the analyses made by American and European chemists.

The vine thrives at great altitudes as well as in the lower valley levels. Such luxuriance of growth has this plant attained that it is quite capable of being cut in commercial quantities. It may be quickly propagated in the rich soil of the Department by means of seedlings, and the growth being so much faster than that of rubber trees, Senor Davadi thinks the quantity of gum obtained would be large. The trees require six years' attention before sapping can begin. It has been proposed to form a company for the exploitation of rubber in the Yoro district, but though the names of several prominent men have been connected with the enterprise, nothing has as yet been done to begin operations.—*Commercial Intelligence*, Jan. 10.

DUMONT COFFEE COMPANY.

A circular has been issued stating that the coffee crop for the current year, owing to the trees having borne a very heavy crop last year which was followed by a severe drought, has fallen considerably below the manager's estimate of 60,000 cwt, the yield only amounting to 4,265, cwt, against 143,395 cwt in 1901. The market price of ordinary Santos coffee has averaged 28s 9d per hundredweight since the selling season began, but the average price realised to date on 15,702 cwt sold on the company's account is 40s 3d per hundredweight. Owing to the unsatisfactory harvest and the low price of coffee, the directors regret no further distribution can be made at present on account of arrears of preference dividends.—*H. and C. Mail*, Jan, 2.

QUININE AND CINCHONA.

Speculation in quinine has again been on a smaller scale this year, the shellac-market having overshadowed it to a great extent, and the latter has proved a more remunerative article. There has been practically no inducement to speculate for a rise in quinine, as the bark-shipments from Java up to November have again been extraordinarily heavy, even out-distancing the figures for 1901. So far the total shipments from January to November have been ;—

1900	.. ..	9,680,000 Amst, lb.
1901	.. ..	11,499,000 do.
1902	.. ..	12,028,000 do.

These figures have completely nonplussed the "outside" market, and various theories have been propounded to account for them. Rumours of a combination among the Java planters have been hinted, and that the output was to be restricted, but as each successive month saw heavy shipments such rumours were naturally discredited. Taking the average unit paid for bark at Amsterdam, we find it is the lowest for the past three years. In January it opened at 7.45c., advancing at three consecutive auctions to 8.65c in May (the highest point), when makers quoted 1s 3d. From this period there was a gradual decline to 4.90c. in August, when makers reduced quinine to 10½d. In August the unit rose to 6.80c, and subsequently declined to 6.25c. this month. There have been fewer fluctuations in makers' quotations, and they close 1d per oz. lower than in January. The top price was 1s 3d (from April to June), but at the end of the latter month a reduction of 2d was made, and by September it was down to 10½d. It was barely a fortnight at this figure, for before the end of the month it stood at 1s 1d, and another ½d added in October brought it up to 1s 1½d.—to-day's price. In the "outside" market spot values close about 2½d lower than at the commencement of the year. The highest price paid was 1s 2d in March and the lowest 9¼d in September, when the makers quoted 10½d. This low figure was merely temporarily, however; and with everybody wanting to buy there was a gradual advance to 1s ½d by the end of the month. From that point it went down to 10¾d in November, and although the market subsequently advanced to 11¼d, the position has an element of weakness in it.—*Chemist and Druggist*, Dec. 27.

COCONUT OIL MEAL.

The coconut palm (*Cocos nucifera*) is found throughout the tropics, and large quantities of the nuts are exported from the West Indies, Ceylon, West Africa, the Pacific Islands etc. Jamaica in 1900 exported coconuts to the value of £41,000 whilst Trinidad's annual output is from twelve to fourteen million nuts, worth about sixteen thousand pounds. The kernel of the nut contains a high percentage of a valuable oil, which is largely used for cooking, illuminating, etc., and as the source of 'nucoline' or coconut butter utilised as a substitute for lard and butter in cooking (see *Agricultural News*, page 53).

Professor A H Church, F R S, in his book on *Food* records the following analysis of the fresh kernel of the coconut :—

	In 100 parts.	In 1 lb. oz.	gr.
Water ..	46·6	7	200
Albuminoids, etc.	5·5	0	385
Oil ..	35·9	5	325
Sugar, etc. ..	8·1	1	130
Cellulose ..	2·9	0	203
Mineral matter	1·0	0	70

The nutrient ratio of this kernel is 1·16. The fresh nut, it will be seen, contains nearly thirty-six per cent of oil, in addition to eight per cent of sugar and 5·5 per cent of albuminoids. In the ordinary process of manufacture the greater part of the oil is extracted and a residue obtained known as coconut oil cake. This substance in common with several other 'cakes' obtained from oily seeds such as cotton seed, linseed, ground-nut, etc., has a high nutritive value.

The following analysis of coconut oil cake are taken from a paper from Mr M E Jappa, *Report, Agricultural Experiment Station*, California, 1895-96, page 113. As a basis of comparison the mean of three analyses of linseed oil cake (compiled from data in the same paper) are also reproduced.

Coconut Oil Cake.

	First sample.	Second sample.	Linseed oil cake. (Mean of three analyses).
Moisture	12·87	14·68	10·72
Pure ash	4·54	4·27	4.67
Crude protein	20·06	19·16	29·55
Crude fibre	11·50	8·55	8·24
Nitrogen free extract [Starch, Sugar, etc.]	40·90	42·81	36·73
Crude fat	10·13	10·53	10·07

The author remarks : 'coconut oil cake meal is another much valued concentrated food, and is finding more favour every year with the dairymen of California. While not rating as high in flesh formers as either linseed or cotton seed meal, it appears in many cases to be more relished by the animals.' Professor W A Henry in his recently published book, *Feeds and Feeding*, gives a summary of an interesting experiment made by the French War Department as to the value of coconut meal for horses. 'The results proved that coconut meal was equal and even superior to the same weight of oats.'—Barbados *Agricultural News*, Dec. 6.

COCONUT EXPORTS CALCULATED IN NUTS.

In our article on page 551, we dealt with the volume and the destination of the principal products of the coconut palm sent out of the island during last year. It has been usual with us to calculate what these exports represent in nuts, in our annual review of the Chamber of Commerce Circular; and the calculation has been found useful both by Ceylonese and by the Europeans who are becoming interested in growing numbers in the coconut industry. The bases of our calculations have been challenged; but absolute accuracy cannot be expected in dealing with averages. The size and weight of nuts differ so widely in different districts, and even in the same district, and also on the same estate at different seasons and from different fields, that one can only use approximate averages. It may be that a closer approximation than ours, of 500 coconuts to a cwt of oil, 250 nuts to a cwt of copra, and three nuts to a lb. of desiccated kernel, may be worked out after consultation with the Managers of the various oil and desiccating mills, and the large owners of chekkus; but as our calculations for several years have been based on the above-named proportions, we adhere to them for purposes of comparison, leaving our readers to vary the computation according to the data within their reach.

Of oil, which continues to absorb the largest number of our coconuts, we sent away last year 512,498, or the equivalent of 256,249.000 nuts, being the largest quantity ever sent to the crushing mills if we except 1892, when the exportation of 550,977 cwt of oil worked out to 275,488,500 nuts. The 374,796 cwt of copra exported last year—the quantity was exceeded by 65,000 cwt in 1901 and by 132,000 cwt in 1898—represents, at 250 nuts to the cwt, 93,699,000 nuts. The record quantity of 16,227,565 lb. of desiccated coconut stands, at three nuts to the lb., for 48,682,695 nuts, or more than half the quantity absorbed for copra! We were certainly unprepared for the result at which we have arrived; and it is proof, both of the excellence of the stroke that was made, when extraction of the moisture of the coconut kernel, while retaining its flavour for purpose of confectionery, was hit upon, and also of the enterprise with which the business has been conducted, that an industry only a dozen years old should be following so close on the heels of copra which was an article of export for generations. But the manifold uses of copra in Europe are of recent discovery, and even as late as 1895, the quantity exported represented only about 26 million nuts, a quantity which desiccation may double during the current year! If we add to the above totals for last year the 12,588,212 coconuts in the shell-exported, we get a grand total of 411,218,907 nuts, or the largest quantity ever sent away. Last year the total exceeded 393 millions, but 1898 (the record year for copra) held the pre-eminent and the influence of the growth of the copra trade and of desiccated kerne may be gauged from the fact that in 1892, the year when we sent away almost 100,000 cwt of oil more than in any succeeding year, the exports calculated in nuts barely exceeded 330 millions. There is one other remark that we have to offer, suggested by the unprecedentedly large quantity of poonac that was exported last year, that its exclusion from our calculations is not quite justified. True, it is the refuse of the copra after oil has been extracted from it; but on the computation of 250 nuts to a cwt of copra, and 3 cwt of copra to 2 cwt of oil, every cwt of poonac should represent the refuse of 750 nuts; but the oil representing 500 nuts, the balance 250 nuts, must be shown in the poonac. In this way, the 217,697 cwt of poonac exported last year must be held to represent 61,924,250 nuts, and would help to raise the grand total to 473,143,157 nuts.

The export figures for the last five years work out as under, and we have added those for 1892, the year for the heaviest exportation of oil, for purposes of fuller comparison :—

	Oil cwt.	Copra cwt.	Dessicated lbs.	Coconuts.
1902	512,498	374,796	16,227,565	12,588,212
1901	453,531	439,865	14,055,493	14,850,781
1900	443.959	362,467	13,604,913	14,995,909
1899	400,979	325,401	13,571,084	11,723,392
1898	435,933	505,277	13,040,584	12 027,714
1892	550,977	134,590	3,849,724	9,717,386

	Oil Nuts.	Copra Nuts.	Desiccated Nuts.	Grand Total including nuts value.
1902	256,249,000	93.699,000	48,682,695	411,218,967
1901	226,765,500	109,966,250	42,166,479	393,749,016
1900	221,979.500	90.616,750	40,814,713	368,406.898
1899	200,489,500	81,350,250	40,713,252	334,276,394
1898	217,966,500	126,569,250	39,121,602	395,685,066
1892	275,488,500	33,647,500	11.549,172	330,402,558

We have excluded the poonac as it does not appear in our tables for the earlier years.

DISCOVERY OF ASBESTOS AND MICA IN VIRGINIA.—Dispersed over a district of 5,000 acres, various asbestos fibres of a thickness of 1½ ft. to 3ft. were discovered. It furthermore appeared that at greater depths (very probably on account of the dampness), the quality of the asbestos is better, without losing its thickness. For the purpose of exploiting these asbestos and mica layers, under the style of the American Asbestos, Co., a company with a capital of 1,000,000dol. has been started, which has secured the concession for the working of a district 4,000 acres wide, and situated about twelve miles south of Bedford. The prices of asbestos in the United States vary between 10dol. and 750dol. per ton, according to the quality and length of the fibre. The resources of the United States of America hitherto consisted of only one asbestos field, otherwise they had to depend on Canada and Europe. The discovery of these new asbestos fields therefore, is of immense importance, especially as the demand for this material is continually growing. As a similar demand for mica is also apparent in the United States, the new discovery is also very important in that respect.—"Manufacturer's Record" in "Gummi-Zeitung."—*India-Rubber Journal*, Jan. 5.

CAMPHOR.

The exports of champhor oil from Japan to various countries from 1899 to 1901 were as follows:—

	1901		1900		1899	
	Quantities.	Value.	Quantities.	Value.	Quantities.	Value.
China	1525	366	386	62	136315	13578
France	25800	3650	—	—	10140	912
Germany	6494	785	83910	17523	297100	36373
Great Britain	17384	2334	44412	8853	68129	5482
Hong-Kong	849663	134400	104990	17012	241581	25556
U.S.A	660842	98325	216570	37753	346387	34404
Other countries	262	71	705	147	274	45
Total	1561970	239931	450973	81350	1100226	116352

[Kin=1·3 lb ; Yen=2*s* 0½*d.*]

The exports of camphor from Japan to various countries from 1899 to 1901 were as follows:—

	1901		1900		1899	
	Quantities.	Value.	Quantities.	Value.	Quantities.	Value.
Australia	23344	32903	41559	47723	12589	12284
Belgium	—	—	8990	8027	116100	71230
British America	16007	26158	4808	6123	1503	1421
British India	512762	552398	187670	208290	126720	96582
China	82502	64389	16374	13895	18217	9863
France	211612	183722	33008	29510	271	257
Germany	627310	532770	87760	64117	287624	192634
Great Britain	899067	949722	358021	429412	47514	29489
Hong-Kong	891565	750603	1141516	1017807	1497114	939219
Philippines	2503	3354	11016	10731	—	—
U.S.A.	896278	810420	1388706	1238971	648588	399276
Other countries	2307	3102	1287	1789	2385	2287
Total	4165757	3904969	3280715	3070695	2758625	1754492

[Kin=1·3 lb; Yen=2*s* 0½*d*]

—*Chemist and Druggist*, Jan. 3.

INDIAN AND CEYLON TEA SHARE VALUES.

IMPROVEMENT MAINTAINED.

From the following figures, compiled by Mr George Seton, of the Indian Tea Share Exchange, it will be seen, says the *Financial Times*, that the market value of the forty-five representative companies registered in the United Kingdom, which had recently risen considerably, remains virtually the same. There have been a good many moderate rises in value, but these have been counteracted by reductions in value, in a few cases of considerable extent. In a few cases, however. dividends have been deducted since the figures were last computed :—

Face value of 45 companies		..	£9,500,000
Market Value	July 1, 1897	(highest point)	£12,000,000
do	Jan. 1, 1902	..	7,000,000
do	July 1, 1902	...	6,225,000
do	Sept. 1, 1902	(lowest point)	6,050,000
do	Oct. 1, 1902	..	6,150,000
do	Nov. 1, 1902	..	6,300,000
do	Dec. 1, 1902	..	6,600,000
do	Jan. 1, 1903	...	6,600,000

As the total share and debenture capital of the one hundred and seventy companies altogether registered in the United Kingdom amount to nearly £19,000,000, the fluctuations of the entir volume based on the above figures, may be thu estimated :—

	£
Face value of (about) 170 English companies	19,000,000
Highest market value, July 1, 1897 ...	24,000,000
Lowest market value, September, 1 1902	12,100,000
Present market value, Jan. 1, 1903, say	13,250,000

This shows a depreciation of, altogether £10,750,000, or of nearly 45 per cent from top-point. Even these augmented figures it may be observed, take no account of the many private-owned estates nor of the Calcutta, Madras, Bombay and Colombo companies, registered with rupee capitals—the total amount of which it is difficult to compute, but in which the depreciation has doubtless been at least as great.

Mr. Seton adds that it appears probable that the advance, amounting to about 10 per cent., which has taken place since September, is now likely to stop there for a little, until it can be estimated, with some degree of accuracy, how the results of working for the year 1902 are likely to pan out, which can scarcely be sooner than the end of February in the case of the Ceylon companies, and March or April for the Indian companies.—*H & C Mail*, Jan. 16.

RUBBER GRASS OR BARK.

A foreign subscriber to *The India-rubber Journal* is very desirous of finding out the names of the firms who are importing from Mexico a grass or bark containing rubber. We shall be extremely pleased if any of our subscribers can help us with information on this matter.—*India rubber Journal*, January 5.

PLANTING NOTES.

Planting in Dominica —100,000 fertile acres, 60,000 seedlings of tropical products delivered to planters in one year, the necessity of having at least £15,000 capital—these are some of the leading facts set forth in the interesting letter we quote tonight, from the Administrator of the Island of Dominica, —which is in area 300 square miles. A previous letter has fetched a number of settlers and Dominica is now a land of much promise.

The Balata Industry in Dutch-Guinea.—The industry is restricted as to place and tapping by strict official orders. In spite of the unfavourable condition of trade during the first five months of 1901, the number of firms enjoying concessions has increased, and, as prices remain satisfactory, everything seems to point to a renewed future of balata. The yield of 1901 has been about the same as in 1900, the Nickerie district alone giving 145,000 kilos. The greatest danger to the industry lies in the killing of the trees through irrational tapping by the workmen. In order to gain the greatest possible quantity of balata, the tree is often not tapped on one side only, as officially wished, but on both sides, which causes it to die off ; very often the trees are even felled.—*India Rubber Journal*, Jan. 5.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Agra Ouvah Estates Co., Ltd.	500	—	—	...
Ceylon Tea and Coconut Estates	500	..	...	—
Castlereagh Tea Co., Ltd.	100	—	100	..
Ceylon Provincial Estates Co. Ltd.	500	550	—	550
Claremont Estates Co., Ltd.	100	—	...	..
Clunes Tea Co., Ltd.	100	65	80	—
Clyde Estates Co., Ltd.	100	50	60	—
Doomoo Tea Co., of Ceylon Ltd.	100	..	—	...
Drayton Estate Co., Ltd.	100	—	...	—
Eila Tea Co., of Ceylon, Ltd.	100	..	40	40
Estates Co of Uva, Ltd.	275	—	300	—
Gangawatte Tea Co., Ltd.	100	—	—	—
Glasgow Estate Co., Ltd.	500	1150	..	..
Great Western Tea Co., Ltd.	500	—	—	250
Hapugahalande Tea Estate Co.	200	150	...	...
High Forests Estates Co., Ltd	500	—	550	..
Do part paid	400	—	..	10
Horrekelley Estates Co Ltd	100	115	..	...
Kalutara Co., Ltd.,	500	200	250	200
Kandyan Hills Co., Ltd	100	..	.	—
Kanapediwatte Ltd.	100	—	—	—
Kelani Tea Garden Co., Ltd.	100	..	32·50	...
Kirklees Estate Co., Ltd.	100	..		—
Knavesmire Estates Co., Ltd.	100	..	50	—
Maha Uva Estates Co., Ltd.	500	—	—	—
Mocha Tea Co., of Ceylon, Ltd.	500	—	800	800
Nahavilla Estate Co., Ltd.	500	250	300	...
Nehoda Tea Co., Ltd.	500	—	—	...
Palmerston Tea Co., Ltd.	500	—	400	—
Penrhos Estates Co, Ltd.	100	—	80	..
Pitakanda Tea Company	500	—	—	—
Pine Hill Estate Co., Ltd.	60	—	—	—
Putupaula Tea Co., Ltd.	100	—	..	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co., Ltd.	100	—	55	55
Roeberry Tea Co., Ltd.	100	90	95	—
Ruanwella Tea Co., Ltd	100	30	—	...
St. Heliers Tea Co., Ltd,	500	..	—	—
Talgaswela Tea Co., Ltd.	100	25	30	—
Do 7 per cent Prefs.	100	—	70	—
Tonacombe Estate Co., Ltd,	500	—	400	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estates Co., Ltd.	500	575	...	—
Uvakellie Tea Co. of Ceylon, Ltd	100	—	85	...
Vogan Tea Co., Ltd.,	100	..	55	55
Wanarajah Tea Co., Ltd.	500	800	—	—
Yataderiya Tea Co., Ltd.	100	..	375	370

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	..	30	—
Bristol Hotel Co., Ltd.	100	—	97½	—
Do 7 per cent Debts	100	..	—	—
Ceylon Gen. Steam Navigation Co., Ltd	100	..	225	—
Ceylon Ice & Cold Storage Co. Ltd.	100	110	—	107½
Ceylon Superæration Ltd.	100	—	—	—
Colombo Apothecaries' Co. Ltd.	100	—	147½	147½
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	...
Colombo Fort Land and Building Co., Ltd.	100	..	90	..
Colombo Hotels Company	100	—	300	300
Galle Face Hotel Co., Ltd.	100	185	...	185
Kandy Hotels Co., Ltd.	100	130	135	—
Kaluganga Nav. Co. Ltd.	70	..	—	—
Mount Lavinia Hotel Co., Ltd.	500	—	300	..
New Colombo Ice Co., Ltd.	100	60	70	70
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	..
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	...	—	...

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	...		
Anglo-Ceylon General Estates Co	100	—	52-57	—
Associated Estates Co., of Ceylon	10	...	1½—2½	—
Do. 6 per cent prefs	10	—	3—6	..
Ceylon Proprietary Co.	1	—	3—6	—
Ceylon Tea Plantation Co., Ltd.	10	—	22½—23½	—
Dimbula Valley Co. Ltd	5	—	5—5½	—
Do prefs	5	—	5—6	—
Eastern Produce & Estate Co. Ltd.	5	—	3¼—3¾	—
Ederapolla Tea Co., Ltd	10	—	5—8	—
Imperial Tea Estates Co., Ltd.	10	...	4½..	—
Kelani Valley Tea Asscn., Ltd.	5	—	3—5	—
Kintyre Estates Co., Ltd.	10	..	4-5	—
Lanka Plantations Co., Ltd	10	—	3-4	—
Nahalma Estates Co.,Ltd.	1	—	nom	..
New Dimbula Co., Ltd.	1	—	2¾—3	...
Nuwara Eliya Tea Estate Co., Ld	10	—	10	
Ouvah Coffee Co., Ltd.	10	—	6½—7½	—
Ragalla Tea Estates Co., Ltd.	10	—	9-11	—
Scottish Ceylon Tea Co.,Ltd.	10	—	10—12	—
Spring Valley Tea Co., Ltd.	10	—	2—5	—
Standard Tea Co., Ltd.	6	—	9¾—10¼	..
The Shell Transport and Trading Company, Ltd.	1	..	2⅞—3⅛	—
Ukuwella Estates Co., Ltd.	25	—	par	—
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¾	—
Do. pref. 6 o/o	10	..	9—9¼	—

BY ORDER OF THE COMMITTEE.

Colombo, Feb. 6th, 1903.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor General*

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch.	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	3·46	4·16
February ..	1·98	2·78	0·63	3·55	4·57	2·02	0·00*
March ..	4·21	0·88	3·71	5·12	6·85	4·52	
April ..	22·81	6·66	15·12	8·71	10·01	11·30	
May ..	5·80	17·73	10·63	6·28	11·89	11 86	
June ..	10·94	9·23	7·83	5·93	9·84	8·32	
July ..	6·15	1·11	6·77	4·52	4·63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·18	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9·25	19·84	20·10	13·00	
December ..	3-05	4·44	5·20	1·70	6·43	6·56	
Total..	103·11	73·48	83·68	75·86	118·70	88·76	4·16

* From 1st to 4th Feb. 0 inches, that is up to 9-30 a.m on the 5th Feb.—Ed. *C.O.*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate	for	Jan.	1903—9½ to 10 mill. lb.
Total	Shipments	Do	1903— 8,000,000 lb.
Do	Do	Do	1902— 9,056,013 lb.
Do	Do	Do	1901—12,617,540 lb.

[Estimate for Feb. 1903—7½ to 8 million lb.]

The Director, Government Cinchona Plantations, Madras—in his Budget for 1903-04, makes provision for the purchase of sufficient bark to yield 12,000 lb of sulphate of quinine, which together with 3,000 lb of sulphate of quinine, from estate barks will bring the total output to 15,000 lb. The cost of the purchased bark will depend on the price of the unit. The number of units to be purchased is 1,200,000 and estimating the price of the unit at 1⅝d the sum required will be R1,31,250.—*M. Mail*, Feb. 2.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Feb. 2nd, 1903.

CARDAMOMS :—
All round parcel, well bleached per lb. R1 20
Do. dull medium do. R1·00
Special assortment, 0 and 1 only do R1·40
Seeds do. R1·00

CINCHONA BARK :—
Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 50c.
Nos. 1 and 2 only per lb. 56c.
Nos. 3 and 4 only per lb. 41½c.

CINNAMON CHIPS :—(in bgs. of 56 lbs. nett. per candy of 560 lb.) R62·50

COCOA :—
Finest estate red unpicked per cwt R45·00
Medium do do do R40·00
Bright native unpicked and undried R35·00
Ordinary do do do R30·00

COCONUTS—(husked)
Selected per thousand R55·00
Ordinary ,, R46·00
Smalls ,, R37·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 18c.

COCONUT OIL—
Dealers' Oil per cwt R15·62.
Coconut Oil in ordinary packages f. o. b. per ton R352·50.

COFFEE.—
Plantation Estate Parchment on the spot per bus. None
Plantation Estate Coffee f. o. b. (ready) per cwt.—R62·00.
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—56c.

COPRA—
Boat Copra per candy of 560 lb. R49·50
Calpentyn Copra do do R52 00
Cart do do do R45·00
Estate do do do R52·50

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot None—Next Sale on 30th March.
Inferior None—Next Sale on 30th March.

FIBRES—
Coconut Bristle No 1 per cwt None
Do ,, 2 None
Do mattress ,, 1 None
Do ,, 2 None
Coir Yarn, Kogalla ,, 1 to 8 R16·50
Do Colombo ,, 1 to 8 R12·00
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R550 00
Ordinary lumps do R550 00
Chips do R350·00
Dust do R225 00
Do (Flying) do R125·00

SAPANWOOD— per ton R45 00

SATINWOOD (Sound) per cubic ft. R5·90—Sale of this day
Do (Inferior) per cubic ft. R4·40— do
Do (Flowered) per cubic ft. R10·70— do

TEA—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	57	44	36
Orange Pekoe do	48	42	34
Pekoe do	43	36	29
Pekoe Souchong do	36	30	27
Pekoe Fannings do	33	30	27
Broken mixed—dust, &c	28	25	25

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1902 AND 1903.

COUNTRIES	Black Tea 1903 lbs.	Black Tea 1902 lbs.	Green Tea 1903 lbs.	Green Tea 1902 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	C'moms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1903. cwts.	Coconut Oil. 1902 cwts	Copra cwts.	Desiccated Coconut lb.	Poonac. cwts.	Coconuts. No.	Plumbago. 1903 cwts	Plumbago. 1902 cwts.
To U K.	6175508	6851329	93448	2405	386	..	386	5949	28588	42788	46 28	26740	8572	800	657043	997	276025	4743	11019
,, Austria	5138	65	...	...	..	..	..	..	..		34500	2217	1209	...	8350	...	..	...	...
,, Belgium	825	7109	...	..	...	...		20	...		5600	834	...	69	...	7006	26910	618	872
,, France	14086	16 89	...	...	..	..	..	10	..		16800	..	...	100	...	...	..	204	...
,, Germany	56887	495 6	.	...	...	.		271	6160	31711	22400	513	20	9568	72700	6057	31720	2722	2144
,, Holland	..	...	..		...	..	..	...	...	..	...	..	...	...	...	..	..	..	...
,, Italy	2939	520	...	..	..	..	...	...	..	5000	..	212	607	...	..	..	..	...	...
,, Russia	312930	612958	...	..	...	...	..	...	...	..	..	..	...	5000	.	..	..	...	..
,, Spain	...	500	..	..	...		...	...	..	21300	8400	.	...	...	11650	..	...	...	...
,, Sweden	6308	10655	..	...	...	..	..	..	..	..	..	...	...	...	3250	..	...	..	...
,, Turkey	1975	401	..	...	..	..	..	...	..	..	...	..	...	..	...	...	..	..	..
,, India	68094	43498	...	...	...	..	...	...	158	..	..	1586	298	...	...	..	..	114	114
,, Australia	1036550	526824	..	...	47	...	47	50	...	...	2240	...	.	..	33323	...	..	..	..
,, America	447460	96841	265348	...	..	.	...	100	...	4000	..	2505	499	...	76500	...	...	14811	...
,, Africa	10369	28714	...	...	...		..	..	...	...	...	..	...	..	..	..	130330	..	...
,, China	354710	140222	..	..	...	...	..	..	1700	...	..	201	...	..	.	..	..	..	304
,, Singapore	15738	7337	...	..	...	...	..	304	...	...	..	..	..	..	...	...	..	...	..
,, Mauritius	5582	960	...	..	..	..	...	..	..	..	..	...	...	..	..	...	...	..	..
,, Malta	18835	7000	..	..	..	...	..	...	..	...	..	..	..	..	...	..	...	...	..
Total export from 1st Jan to 2nd Feb. 1903.	8533964	8404635	358796	2405	433	..	433	6974	52286	140799	136268	34808	11205	15537	862816	14060	465035	23212	14453

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 14th January, 1903.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar & Bombay { White ,,	Dingy to Fair	£5 a £6 12s 6d
Zanzibar & Bombay { Yellow ,,	Fair ,,	£6 a £6 17s 6d
Madagascar ,,	Dark to good palish	£6 5s a £6 17s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality ..	170s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 8d a 1s 10d
	Middling, stalky & lean	1s a 1s 4d
Ceylon.–Mysore ,,	Fair to fine plump ..	1s a 3s 3d
	Seeds .	1s 4d a 1s 5d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish .	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to good bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2¼d a 2½d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 40s
CINCHONA BARK.– lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba }	Good and fine bright	4⅜d a 4½d
	Common dull to fair	4d a 4 5-16d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	92s 6d a 118s
	Middling to fine mid ..	80s a 105s 6d
	Smalls	55s a 62s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	65s a 85s
	Medium and fair	58s a 64s
	Native	50s a 57s
COLOMBO ROOT ,,	Middling to good	10s a 20s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair ..	£13 10s a £18
FIBRE, Brush ,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	36s a 40s
	Small and D's	32s a 35s 6d
Japan ,,	Unsplit	33s a 34s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fine pale in sorts	£10 7s 6d a £16
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	£70 a £8 15s
	Amber and dk. red bold	£5 15s a £8
	Med. & bold glassy sorts	90s a £7 17s 6d
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	25s a 37s 6d
Turkey sorts ,,		27s 6d a 32s 6d
Ghatti ,,	Pickings to fine pale ...	12s a 27s 6d
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ...	18s a 25s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	45s a 75s
	Ord. stony and blocky	9s a 37s 6d
KINO ,,	Fair to fine bright	4d a 6d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	65s a 90s
OLIBANUM, drop ,,	Good to fine white	42s a 47s 6d
	Middling to fair	28s a 42s
pickings ,,	Low to good pale	18s a 26s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 8d a 4s 4d
Assam	Good to fine	2s a 3s
	Common to foul & mxd.	7d a 1s 9d
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	6d a 2s 6d

	QUALITY.	QUOTATIONS
INDIARUBBER (Contd.)		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 2d
	Ordinary to fair Ball ...	2s a 2s 4d
	Low sandy Ball ...	9d a 2s
	Sausage, fair to good ..	3s 2d
	Liver and Livery Ball ..	1s 9d a 2s 8½d
Nyassaland	Fair to fine ball ..	2s 3d a 3s 3d
Madagascar	Fr to fine pinky & white	2s a 2s 6d
	Fair to good black ..	1s 1d a 2s 3¾d
	Niggers, low to fine .	7d a 2s
INDIGO, E.I	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 8d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	2s a 3s 6d
	Ordinary to fair	2s a 2s 9d
	Pickings	1s 7d a 1s 11d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s
	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s 6d a 6s
	Bhimlies	4s a 7s
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s
NUTMEGS— lb.	64's to 57's	3s
Bombay & Penang ,,	110's to 65's	1s 1d a 2s 9½d
	160's to 115's	6d a 1s
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 9d a 4s 10½d
CASSIA ,,	According to analysis	3s 3d a 3s 6d
LEMONGRASS ,,	Good flavour & colour	5¼d
NUTMEG ,,	Dingy to white	1¼d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 1d
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER–(Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	6d a 6¼d
Singapore ...	Fair	6¼d
Acheen & W. C. Penang	Dull to fine	5½d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	{ Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	117s 6d a 120s
SENNA, Tinnevelly lb.	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	
	D's and B's	48s a 130s
	Small ...	
Mergui ,,	Small to bold ..	£7 15s a £10
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta... per cwt.	Mid. to fine bl'k not stony	8s a 10s
Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	18s a 24s
TURMERIC, Bengal cwt.	Fair ...	12s 6d
Madras ,,	Finger fair to fine bold bright	10s a 14s
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger .	10s a 12s
	Bulbs ...	9s a 9 6d
VANILLOES— lb.		
Mauritius ... } 1sts	Gd. crystallized 3½ a 8½ in	7s 6d a 28s 6d
Bourbon ... } 2nds	Foxy & reddish 3½ a 8 ,,	6s a 13s
Seychelles 3rds	Lean and inferior ...	4s 3d a 8s
VERMILION lb.	Fine, pure, bright ...	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	54s a 55s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for February :—

Vol. XIV.] JANUARY--FEBRUARY, 1903. [Nos. 7 & 8.

A USEFUL CEYLON DRUG.

WHAT is known as extract of Jambul is sold by chemists as a specific for diabetes, but few people are aware how familiar a tree yields this drug.

"Jambul" is an Indian name for *Eugenia (Syzygium) Jambolana*, the black plum commonly known as "Ma-dan."

The following information (taken from Dr. Watt's Dictionary) regarding the medicinal virtues of the tree are of interest :—

"The bark is astringent and used in cases of dysentery and the decoction as a tooth-gargle. A vinegar, prepared from the juice of the unripe fruit is an agreeable stomachic and carminative; it is also used as a diuretic. The fresh juice of the bark is given with goat's milk in diarrhœa in children. The expressed juice of the leaves is used alone or in combination with other astringents in dysentery. The powdered seeds have had the reputation in recent years of being useful in the treatment of diabetes."

It is in this last connection that the tree appears to have received recognition in medicine as the source of a useful drug, and we read in the report of a Surgeon of the Indian Medical Department that the powder of the dried stone certainly does diminish the quantity of sugar in the urine very quickly, and, in some cases, even permanently.

We thus see that a familiar tree, commonly found on the sandy soils about Colombo and in the Negombo district, and the seeds of which are a favourite wild berry among children, yields a valuable drug. As a fruit the "black plum" is by no means of a high order, and beyond being consumed *in situ* by children who go a-blackberrying, it is seldom seen within doors except, occasionally prepared, as a sort of sweet salad with lemon juice and sugar, in which form its bright red dye makes it a more attractive looking than it really is. There is an idea that this preparation is wholesome and tends to purify the blood. Apart from this use of this berry, which is the chief food of the pompadour pigeon (batagoyiya) and the use of the bark as a tanning agent, the plant is not considered as a particularly useful member of the myrtle order, to which it belongs together with such fruit-producing trees as the rose-apple, Malay apple, guava, &c.

Mr. W. A. de Silva, who has an extensive knowledge of the uses of our indigenous plants, says of this tree :—"I heard some years ago that the seed of Ma-dan was exported to Europe, and that the fruit was a specific in diabetes." This was no doubt the time that products of the tree began to be examined as medicinal agents.

We are aware that there is a local European firm greatly interested in the commercial development of our neglected vegetable products, particularly those of a medicinal character, and we have no doubt that we shall hear of more of such products appearing under new names and in new and commercial forms among marketable commodities.

The pity is that some of the members of the local medical department, which counts men of acknowledged scientific skill among its numbers,

do not turn their attention to the study of the medicinal virtues of Ceylon plants, when so much can be done through the technical knowledge they possess, to develope the vegetable resources of the island.

OCCASIONAL NOTES.

We have had enquiries as to the English equivalents of the Indian weights in connection with the treatment of cattle, referred to in Indian works. We, therefore, give below the equivalents in avoirdupois weight.

1	Tola..	..	$6\frac{102}{175}$ drs.
5	Tolas	1 chittack	$2\frac{2}{35}$ oz.
16	Chittacks	1 seer	$2\frac{2}{35}$ lbs.
40	Seers	1 maund	$82\frac{2}{7}$ lbs.
$27\frac{1}{4}$	Maunds		1 ton.

According to the *Chemist and Druggist* plants are able to take up arsenic when it occurs in the soil or the manure, and may be present in measureable quantities in the early stages of succulent growth, but in no case is the faintest trace of arsenic found in the fruit or seed of any plant, so that there would appear to be a selective power in plants by which the arsenic, even if present, is rejected from the reproductive organs. Still, there is the possibility of arsenic being consumed where vegetables are eaten in the green state as is lettuce, water cress, and the like.

Professor Marshall Woodrow, late of the Indian Botanical Service, gives the following as the probable Etymology of "Jak," *Artocarpus integrifolia*, in the *Gardeners' Chronicle*:—"That appellation was probably given by our early voyagers from the resemblance between its top outer covering, studded with raised points, and the Jack Coat-of-arms used by soldiers in mediæval times, and it is more probable that after months of salt pork and beef, our sailors enjoyed the rather fulsome flavour of the massive fruit, and gave it the name most familiar to them."

Another Ramie fibre boom is predicted as a result of the invention of the "Faure" decorticator described as a strong and cheap machine suitable for hard work on plantations, and working economically and effectively. The Ramie Congress held in Paris last year passed it as being all that is required. A large demand is expected for decorticated fibre, and the cultivation of the plant is advised. The American and French Governments are pressing its cultivation hard. So writes Mr. H. A. Carter of Manchester to *Capital.*

The comparative strength of our common fibres is given in the following table, from the results of several experiments with a three-strand one-eighth inch cord:—

	lb.
Cocos Nucifera stood a strain of	244
Hibiscus Cannabinus ...	... 290
Sanseviera Zeylanica ...	... 316
Gossypium Herbaceum ...	... 346
Agave Americana ...	... 362
Crotalaria Juncea ...	... 467
Calotropis Gigantea ...	... 552

Sterculia rupestris is the name of the so-called "bottle tree" of Australia, where the stem is said to be invaluable as a fodder during drought. The tree is allied to our Telambu (*S. fœtida*) and Nava (*S. Balanghas.*)

The Japanese system of well boring would appear to be as desirable an introduction to Ceylon as to India. The Kazusa or artesian wells of the Japanese, by which they carry on the whole of their rice cultivation, amounting to tens of thousands of acres, are sunk to great depths at a comparatively trifling cost. A complete working outfit for sinking is calculated to cost about Rs. 200.

The last Veterinary Journal contains the report of the Director of the Pasture-Institute, Annam, on the Epizootic among cattle in the Malay Peninsula. The conclusions arrived at by M. Carrongean are: (1.) The Epizootic is not rinderpest, but bovine pasteurellon or hæmarrhagic septicæuria. (2.) It is manifest in three principal forms: (*a*) subacute or septicæuric, (*b*) acute, with various local modifications, (*c*) chronic. 3. They are all due to the same microbe, viz., an ovoid organism of the germ pasteurella. (4.) The microbe varies in virulency. (5.) The possibility of preventive inoculation is hopeful. M. Carrongean says that the pseudo-rinderpest destroys more buffaloes than oxen, whereas in true rinderpest the reverse is the case, a large percentage of buffaloes recovering. He mentions Younger, Galtier and Nocard as confirming this view, and quotes the last author to the following effect: "A disease that destroys a large number of cattle and but few oxen is not true rinderpest."

According to the *Lancet*, the substance known as Sericin, which forms 20 per cent of mulberry silk and gives to silk material its peculiar and delightful character, has been formed by synthesis; and in this way an important step towards the artificial manufacture of silk has been made.

The *Times of India* has an interesting letter on the Sewage question and the various methods of treating sewage. We learn that the manufacture of poudrette, or night soil mixed with ashes is carried on by a number of Mofussil Municipalities. At Poona the industry brings in an annual income of half a lakh of rupees. At other centres the application of night soil direct to the land in deep or shallow trenches on the Meagher system has been found to answer satisfactorily, and in part of the N. W. the use of

common sullage water of the city has enormously increased the value of land. But the discovery of the bacteriological treatment of sewage has opened out a new field for the Engineer and the practical agriculturist, and the system is being adopted at the Matunga Leper Asylum in Bombay by Mr. C. C. James of the Municipality, who has proved that not only can a high degree of purification be brought about by a very small outlay, but that the resultant effluent is of great manurial value.

Mr. George Weerakoon, Mudaliyar, writing for a fruit of the cho-cho, says:—"I grew the plant 15 years ago, and at one time had several vines bearing no end of fruit. I got it from Hakgala Botanic Gardens, but I do not see the plant in these parts (Matara district). The tender fruit makes an excellent pickle not unlike the English cucumber. Even the leaves are eaten in the form of a *mellun*."

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF DECEMBER, 1902.

1	Monday ...	·30	17	Wednesday	Nil
2	Tuesday ...	·72	18	Thursday ...	Nil
3	Wednesday ...	·48	19	Friday ..	Nil
4	Thursday ...	·87	20	Saturday ...	·48
5	Friday ...	·50	21	Sunday ...	·46
6	Saturday ...	1·66	22	Monday ...	Nil
7	Sunday ...	·05	23	Tuesday ...	Nil
8	Monday ...	·10	24	Wednesday	Nil
9	Tuesday ...	·17	25	Thursday ...	Nil
10	Wednesday ...	·10	26	Friday ...	Nil
11	Thursday ...	·85	27	Saturday ...	Nil
12	Friday ...	Nil	28	Sunday ...	Nil
13	Saturday ...	Nil	29	Monday ..	Nil
14	Sunday ...	Nil	30	Tuesday ...	Nil
15	Monday ...	Nil	31	Wednesday	Nil
16	Tuesday ...	Nil	1	Thursday	Nil
				Total...	6·44
				Mean ...	·20

Greatest amount of rainfall registered in 24 hours on the 6th December, 1902, 1·66 inches.

Recorded by Alex. Perera.

CATTLE AND THEIR FOOD.

Mr. George Weerakoon, Mudaliyar of the Wellabodde Pattu, referring to our remarks with reference to fodder for cattle writes:—"According to the Administration Reports for 1901 there have been 210 cases of cattle stealing in the district, and the Magistrate remarks that prosecutions are uncommon for the reason that cattle are intentionally allowed to stray by their owners. The Government Agent of the Province recommends as a remedy that owners should combine and kraal their cattle. Of the 50,150 head of cattle in the district, a large number are the property of poor villagers who are obliged to drive their animals abroad to find their own food as the owners have none to give them. If kraaling be resorted to, the question arises, how are the animals to be fed?

The straw from the two paddy crops of the year is of course available, and if carefully harvested and stored it keeps well and forms an excellent fodder to fall back on. But, I would suggest that every cattle owner should provide himself with a small extent of grass land laid down preferably under Guinea grass, which is a wonderfully fast growing crop and spreads rapidly. It is known as "ginigiressa," and though (like "Uguressa," *Flacourtia Ramontchi*,) is considered indigenous is really an introduction, no doubt, as its name implies, from Guinea. The scientific name of the grass is *Panicum maximum*."

Guinea grass (also called "Rata-thana" in Sinhalese) is highly valued in India as a food for milch cattle, and is also the chief cattle fodder upcountry. But wherever there is low damp land the cultivation of Mauritius or water-grass should never be overlooked. We have supplied planting stock for cultivation under irrigation in Poona, and are also making a point of introducing it into places where it does not exist, through the agency of School Gardens. The last application is for seed, which it is not easy to procure, for growing in the Gold Coast.

Guinea grass and Mauritius grass are our only cultivated fodders, and when commercially grown under favourable conditions are a source of considerable income to many. Indeed, Guinea grass in the Kandy district and Mauritius grass in the Colombo district are bringing in large revenues to grass farmers.

We have already referred to the different varieties of plants and trees that might be made use of in times of scarcity, but we should like to make some reference to the preservation of grass, which, during the rains, yields a supply of produce larger than the existing demand, so that the total available stock of grass food may be distributed more equally than at present.

Here are some very simple directions how to make good dry grass or hay:—Grass for stacking should always be cut when green and in flower, not later, as then the nutriment in the stalks and leaves will have been exhausted in the production of the fruit. The most convenient and easy method of preparing grass stalking is as follows:—

Cut when green and in flower, tie up in bundles of about 8 to 10 lb. weight and place three of such bundles on their broad ends leaning against each other; by this arrangement the grass will not become damaged by rain, and the central grass of each bundle will ferment and acquire nutritious properties from forming saccharine and starchy matter.

When the bundles are sufficiently dried they may be stacked. Dry grass thus prepared will be found very nutritious and sweet, and animals will eat it readily. It will be nearly as good as the hay made in England and other countries. Proper hay-making requires much practical experience.

If the weather is hot, and sun powerful, grass will be dry enough, as a whole, in 2 or 3 days, and can be then stacked, but it should be stacked in

small ricks, in case of any heating taking place, for if grass be stacked when too green or wet, it will surely heat too much and go beyond the fermenting process of making sugar &c., and will take fire.

A *little* heating makes the grass sugary and gives a very sweet odour, the odour of hay.

THE NEW CURE FOR MALARIA.

The plant affording the root used as the remedy is a small tree from 20 to 30 feet high and having a trunk of 6 inches diameter at full growth. It has been named *Cassia Beareana*, and is therefore one of the leguminosæ, As used in East Africa by the natives, the root is chopped into pieces, each about an inch long, and about a dozen pieces are boiled in a gallon of water for half an hour or so. The result is a red coloured fluid which is partaken of by the patient, either hot or cold, as often as he feels thirsty. Under ordinary circumstances a tea cup full is given every couple of hours. A pamphlet of notes by Dr. O'Sullivan Beare, Vice-Counsul in East Africa, gives full details of the medical virtues of the new drug. We have already written for seeds of the plant, and are also hoping to receive a sample of the fluid extract of the root. Anyone desirous of reading the pamphlet referred to (a reprint from the *Lancet*) could have the loan of it on application to us.

Mr. Thos. Christy of Old Swan Lane, writing to us under date 8th September, regrets that he has no seeds of *Cassia Beareana* to send us, and adds that he has made a consignment of the Fluid Extract to the Colombo Apothecaries Company. This will enable local practitioners to give the new cure a good trial, particularly at places like Kurunegalle, Anuradhapura, and other malarious climes.

LIME AND ITS RELATION TO AGRICULTURE.

This is the subject of a useful paper in the Journal of the Department of Western Australia for December, by Mr. Percy Wicken. That the benefits of lime are little recognised in Ceylon is well known, and of late we have been pleased to have enquiries as to the use of the different forms of lime from more than one land owner, and it is for their benefit and for the information of the rest of our readers that we would quote from the article referred to above.

Lime, as most people know, is the product of burning various substances containing it, such as limestone, shells, coral, etc.

Good limestone contains from 50 to 55 per cent. lime. Such limestone, when burnt, produces the best quality of caustic or quicklime, containing from 90 to 98 per cent of the pure substance. Fresh lime, when removed from the kiln, will weigh from 90 to 95 lb. to the bushel, and when slaked, will make about 3 bushels in volume. Magnesian limestone or dolomite (which is found in Ceylon) varies much in composition, containing from 20 to 80 per cent of the carbonate of lime. The average of such limestone will produce a lime which contains from 70 to 85 per cent of lime, and weighs 75 to 85 lb. per bushel. In slaking the lime will make 2 bushels for one by volume.

Oyster shells contain from 90 to 95 per cent carbonate of lime, and will produce a comparatively pure lime which should contain from 85 to 95 per cent of the pure substance. Fresh burnt oyster shells weigh about 60 lb. per bushel, and slaked so to make 2½ bushels for one by volume.

The quantity of lime taken up by a heavy crop may vary from 101 lb. in a crop of cereals to 90 lb. in the case of a leguminous crop such as clover. This requirement is provided in a great many soils. But it is the chemical effect of lime that gives it its value making plant food already in the soil readily available, through its action in decomposing the mineral matter in the soil. It also hastens the decomposition of organic matter and promotes the formation of nitrates from the humus present. The presence of lime is necessary for the life and action of the nitrifying ferments. After green manuring, it is specially valuable. We thus learn that lime is not a substitute for, but a reinforcement of, manure, and it should be borne in mind that the use of lime must be supplemented with fertilizers.

Lime is of great value where land has an acid reaction, due to the presence of excess of decomposing organic matter yielding organic acids—a condition most noticeable on low wet lands.

The easiest way to determine the need for lime is to get a few pieces of blue litmus paper and place a piece in contact with the moist soil. If the soil is sour it will turn red, and the degree of acidity will be determined by the quickness with which it changes colour and the density of the redness.

Lime also helps to keep off fungoid and insect pests. Clayey soils can stand more frequent and heavier applications of lime than soils of a lighter character, and tends to improve the mechanical condition of such heavy soils. According to their character, soils of the lighter description are dressed with about 2 tons per acre, while cold heavy clays will take as much as 12 tons per acre —such applications being made at intervals of from 5 to 6 years.

It is generally accepted, however, that lighter and more frequent dressings are preferable to heavy dressings at considerable intervals. The best way of applying lime is to make small heaps on the surface at regular intervals and cover these with earth. The moisture in the earth soon causes the lime to slake, and when it reaches the powdery condition it should be spread evenly and harrowed in.

THE MEAT SUPPLY OF COLOMBO.

Dear Sir,—The meat supply in this flourishing city of ours is just as unsatisfactory as it could possibly be. The fact is that cattle in the East are worked in a fashion that will not be tolerated in a western country, and when their work as beasts of burden is done they are requisitioned to supply the craving of the 'inner man'! Is it not shock

ing that we should have to subsist on the flesh of animals that have been well-nigh flayed alive under the rod of the cart driver, their tails twisted out of joint, their necks galled with many a sore? I should like to see bulls classed under two heads: (1) Draught bulls, (2) Bulls for meat, and the one should not encroach on the functions of the other. It may be said that such a regulation will reduce the meat supply. If so, there should at least be a rule to the effect that the cart bulls must have been out to pasture or stalk-fed for a certain period after giving up the yoke and before coming under the pole-axe. An age limit should also be placed on animals brought to slaughter.

In the meat stalls, beef should be labelled so as to distinguish ox meat from buffalo meat. Further, I would have ox meat classified as 1st, 2nd or 3rd quality beef. All this should be done by the meat inspector or whoever has to supervise the slaughter of cattle and inspect meat stalls. For instance, let the prices be regulated something in this way: Ox meat, 1st 20 cts, 2nd 18 cts, 3rd 15 cents. Buffalo meat, 1st 18 cts, 2nd 15cts, 3rd 12 cts. In this way we shall not be at the mercy of the cook and the meat seller.

The question is, are the proposals I have made practicable? That is a question for the representatives of the people, who have or should have the health and well-being of their constituents at heart, to decide. A conscientious officer can do a great deal even without the aid of the Law and the Municipal prophets. I have heard it said that by the enforcement of stringent measures and close inspection, the medical officer of the town of Matale has materially improved the quality of the beef sold there, and that the people do not object to pay a higher price for good meat, seeing that ½ a lb. supplies as much nutriment as twice that quantity of poorer stuff. Cannot the capital city of the Island emulate the example of the little town of Matale?

Yours truly,

A. C.

[We are doubtful whether the classification of animals as suggested by our correspondent is feasible, but there is something in his suggestion regarding the classification of meat; and of one thing we are convinced, and that is that conscientious inspection of cattle and meat can, to a great extent, remedy the evil complained of.—Ed. *A.M.*]

THE JACK (*ARTOCARPUS INTEGRIFOLIA*).

(*Concluded.*)

The jack tree is also useful as a timber tree. The wood is bright yellow when first cut and is hard. It soon turns darker on exposure, however, and when old and polished, compares very favourably with mahogany in durability, beauty of grain, and colour. From India and the South Seas the timber is sent to England, where it is used for cabinet and furniture making, and largely in the manufacture of bush backs. It takes a very high polish, and works up very like satinwood. In India the wood of the roots is used for carving, and small boxes and articles of this wood, after seasoning and being artificially scented (generally by being packed together with sandal wood) are passed off as of this more valuable wood. The principal use of the jack tree in the northern portion of this State would be as fodder, and in this way it would probably prove as valuable as the Algaroba or Mesquit bean tree. The leaves are readily eaten by stock, and it is a tree that will grow in a dry as well as in a hot climate. In some of the dry parts of India it is extensively lopped annually to feed cattle. The fruit also are greedily eaten by all kinds of stock; pigs and calves are very fond of them. The fruit, however, unless allowed to become over ripe and drop, should be split open. As a shade tree in paddocks it is always green and cool.

Like all other artocarpuds, the jack exudes a considerable quantity of viscid milky juice, from which the best bird lime is made in India. This sap is also used, mixed with other material, for caulking small boats and canoes. A yellow or khaki dye is extracted from the wood, bark and roots (and Bernays says, also by boiling the saw dust). As an ornamental tree in the tropical landscape gardening it is in demand, and in farmyards or their vicinity is a grateful as well as handsome shade, and if used for no other purpose adds considerably to the too little used compost manure heap by its shed leaves and fruits.

As a shade for coffee it is popular in some parts, especially steep land, where the soil is a bad retainer of moisture. I have also seen the leaves plaited or pinned together with thorns to make plates for the native's meals of rice, &c. Altogether the tree is thought highly of and considered second only to the bread-fruit in economic value in its native land, where it is one of the few trees left standing and preserved when new scrub land is opened for cultivation.

In India several seeds are often sown together, and the young plants subsequently grafted together into one stem by approach, making a stronger and somewhat quicker growing tree. This is supposed to make the tree come into bearing earlier also, but this is very doubtful. Bernays states that whole fruits are planted for subsequently grafting as above. I have not seen this done, but, if the whole 100 or 200 seeds germinated, the subsequent grafting or inarching must prove a somewhat complicated process. In the same article by Bernays which is about the best I have yet met with on this too little appreciated tree, a method of growing a long stem is described, which I have carried out with some success. By this method of cultivation the seedling jack is made to grow up a hollow bamboo till 2½ to 3 feet high; then the stem which is thin and pliable, is twisted round like a spring or corkscrew—more often in one large circle—on the ground and covered in with earth. This stem grows with the tree, and, if bearing on the stems and branches is discouraged, will often bear on the buried portion of the stem. This procedure is not invariably successful, however. It is an experiment easily made, and the root fruit, if obtained is so vastly superior to others as to be well worth the time and trouble. The first indication of a root fruit is a slight upheaval of

the ground, which subsequently cracks, and before ripening one-half of the fruit becomes visible. The root-fruiting tree is, I think rightly, considered a distinct variety. The seed of true fruit is said to invariably produce true root-bearing stock, which the seed of artificially induced crops will uot do, of course. The jack-tree is said not to bear at all if the roots reach permanent water; but this also is not authenticated. It may be propagated by cuttings, but seed is so readily germinated that recourse to the more troublesome method is unnecessary. The seed, however, quickly loses its vitality, especially upon becoming dry, and so this cause failure to germinate them can be often ascribed. For seed, the ripest fruit should be taken. Fruit that has dropped from the tree and squashed gives good seed for immediate planting, but, should seed be required to despatch even on a comparatively short journey, fruit not quite ripe should be chosen. Some say only fruit from the stem should be taken for seed, but I have raised equally good plants and trees from fruit from the branches.

As stated the seeds germinate freely. Frequently on opening the fruit, especially if over ripe, the seed will be found to have already germinated, and to have a root one or two inches long. The spike will be quite small, however, and possibly only just emerging from the germ. But if this root be broken, and it is very brittle, that seed is lost. The seed which is about one inch long and half an inch in diameter will be found within a small cocoon-like bag inside the edible pulp. This peculiar bag is quite loose, and feels not unlike thin wash leather; it should not be removed either when setting for germination or for cooking. Beneath this again is another thin skin, generally red or reddish, and adhering to the seed itself. In roasting or boiling it readily flakes off like the inner skin of a peanut, which it resembls in colour and texture.

It seldom takes long to germinate, generally showing up in a few days. As may be gathered from the foregoing, the root growth is especially rapid and a plant 6 inches above ground will be found to have quite a foot of taproot. When about the size when plants are usually transplanted, it has often too much root to safely allow to its removal without a great deal of trouble. For this reason it is often advisable to set the seeds in the field, or where the tree is intended to be allowed to grow. The seedling is very hardy, but if planted out where most useful—*i.e.*, in the paddock —will require guarding for a year or two until out of reach of stock, for they will promptly eat it down if they can get at it.

The tree requires a soil fairly free from large rocks or bed rocks rather than a lose soil. I have known them thrive among boulders, but die out even at ten years of age when sheet rock was met with 8 feet below the surface. They do not require rich soil nor heavy rainfall. Once established they draw moisture from great depths to the surface, and, while immediately under them the shade may be too dense for grass, pasture luxuriates in their immediate vicinity. For a hardwood tree it is quick growing, attaining a height of 15 to 20 feet in four years, and usually coming into bearing about that time.—*Queensland Agricultural Journal.*

DISEASES INCIDENTAL TO PREGNANCY AND OF PARTURITION IN THE COW.

(*Continued.*)

ABORTION.

Definition—The expulsion of the fœtus and the fœtal membranes before the natural period. Abortion may be considered under two heads, non-contagious and contagious, and I will just consider the sporadic or non-contagious form. The normal period of utero-gestation in the cow is about nine and a half months, some more, some less, and an abortion usually takes place from the third to the seventh or eighth month. After that month it may be termed a premature birth.

Causes.—These are very numerous and they may be divided into internal and external. Of the internal causes the general health of the cow is of the greatest importance, any contagious or febrile disease in the system of the mother is a cause or factor in bringing about abortion, such as tuberculosis, pneumonia, indigestion, gastric tympany, excitement, nervousness, ergotised food, and of course the infecting bacillus.

External Causes.—Cold and wet, changes of temperature, thunder and lightning, frights, narrow doorways, pressure over the uterus, over-exertion, foul smells, icy-cold water, too much food, putrid stagnant water, sewage, frosted turnips, potatoes or roots of any kind, or rotten roots, mouldy bad hay, &c. &c.

I now come to the contagious form of abortion, and in giving the treatment for the sporadic variety I fancy it would be better to consider the treatment of both together, which I intend doing. This is by far the most serious disease of the two under consideration, and it is due to a special bacillus, which I believe was first demonstrated in the year 1895 by Professor Bang, he having made a series of post-mortems of cases, and also made several examinations microscopically of the liquid between the walls of the uterus and the envelopes of the fœtus. In cases that showed premonitory symptoms of abortion he had the cow killed and the experiments carried out as before mentioned, and in every case that he examined this liquid from the womb of the affected cow he could demonstrate the presence of this bacillus in great numbers, and they were unmixed with any other organisms. So, gentlemen, this surely places the theory of contagion beyond doubt. Professor Bang also cultivated this bacillus outside the animal body. He found that it was not easily cultivated by the ordinary methods, but he succeeded in growing it in blood serum rendered solid by the addition of gelatine and agar, and when it was grown in this medium it exhibited quite remarkable characters, absolutely distinguishing it from any other known pathogenic organism. In subsequent cases Professor Bang demonstrated the same bacillus in the discharges from the uterus or vagina of cows that had aborted. So you see, gentlemen, that contagious abortion is really a disease due to a specific organism. Another way in which its contagiousness has been demonstrated is by taking part of the discharge from an abortive cow and putting

it into the genital passages of a pregnant cow, and in nearly every case the cow will abort some time afterward. I also believe that this bacillus is able to multiply outside the animal body, even in soil, dirt, or manure, and this may go a great length to demonstrate the first outbreak in a herd that was previously free from this disease, and it is sometimes very difficult to know where the contagion comes from in the first case in a herd of cows. But in reality it comes from some source, from an apparently healthy, newly bought cow, or from the land they are grazing on having been previously grazed by some infected cow; or from feeding stuff or fodder imported or brought to the byre from an infected place. There is always a cause for everything that happens in this life.

This bacillus is supposed to gain an entrance by the vulva into the womb, or become absorbed through the mucous lining of the vulva into the circulation (because abortion can be produced by injecting the bacillus hypodermically), it then gets into the circulation, locates itself in its *habitat*, so to speak, and sets up the symptoms that we see terminate in the expulsion of the fœtus and membranes prematurely.

Causes.—The primary cause is of course the bacillus. How does it get there? It is sometimes due to an infected bull, during copulation. Sometimes to a newly purchased cow brought from a tainted herd; this will bring it into a byre that was never known to have a previous case, and generally when one cow aborts there are several if not all in the same house. One reason given for this is the contagious nature of the disease, and if a cow retains the after-birth there is always a discharge of infective material, and this soils the tail and thighs, and by means of the tail the infective material is switched about to the other cows in the same house. It may also be disseminated by the discharges into the gutters running past the other cows. By inserting infective material into the genital passages of a healthy pregnant cow, you will generally have abortion in form fifteen to thirty days. As a rule the cow's health is not much affected; it is purely and simply a disease of an infective nature that affects the vagina and womb, fœtus and fœtal membranes of pregnant cows, mares, and ewes.

Prevention and Treatment.—I intend to make this as short as possible. To consider measures of prevention we must think about what will keep stock in health as well as the measures that are necessary to bring an outbreak to a speedy termination. With regard to the former, every person that buys a cow, is exposed to getting his herd infected. When buying a new cow, isolation for a period is a safe plan. On buying a new stud bull isolate for a time, and disinfect penis and genitals for some time before using him for stud purposes. There is a big risk in keeping a bull for the service of outside cows: he should be disinfected and washed after each service.

To bring an outbreak of this disease to a speedy end there are a great many difficulties which present themselves to us. The first is that for weeks, and probably for months, a cow may be affected, and capable of infecting other cows without presenting any symptoms pointing to her dangerous state. It, therefore, often happens that before the existence of the disease in the herd is suspected and realized a lot of the cows have become affected. A cow is infected before she has aborted, but she is more dangerous after and for several weeks, as she then liberates an army of bacilli capable of infecting all the other cows in the herd. When she aborts, it is a good plan to burn the fœtus and membranes; if this can't be done bury them away from access to cows, and disinfect them before burial, and over the grave put some quicklime.

The cow-house will require to be disinfected often and thoroughly, and the cows therein will also require to have the vagina washed out and tail and thighs, udder, and even up the sides, over the back, &c., in fact as far up as the tail reaches, well sponged or brushed with a reliable antiseptic to destroy the bacilli, and the more thoroughly and frequently this is done the better chance of eradicating the disease. There are various agents that may be used for this purpose; some taint the milk and are not practicable. Sulphate of copper is good to use and does not taint the milk—six ounces to one gallon soft water, also sprinkle the floor and gangway with powdered lime; and as a further precaution the outer genitals, root of tail, and in fact the whole tail, it is well to sponge once a day with a solution of Jeyes' carbolic, or hydrarg. perchlor.

℞	Hyd. perchlor.	ʒiiss.
	Acid hydrochlor.	℥iiss.
	Aqua	Cii. 2 gallons.

This solution is dangerous, and any of it that is left should be buried, and it can't be prepared in metallic vessels, for it corrodes them. This disease in its treatment involves a great deal of trouble and labour. When the number of the cows that have aborted is many and there is no chance of isolating them, the best plan is to put the aborted cows at the lower end of the house, so that the urine does not run past the healthy ones; this will reduce the risk of infection. If a cow aborts this year it does not follow that she will abort next year; in fact, experience shows that it is the exception, not the rule.

In regard to the manure, is it not possible that the abortion bacillus will retain its vitality for a length of time in it? I would recommend in this case that the manure be mixed with a sufficiency of lime and left for a good long time before being put on to land that cows will be grazed on afterwards. I must say that wooden cow-houses, when they get rotten, and without paved gutters, the want of cleanliness, houses badly lighted, badly ventilated, badly drained, and in some cases not drained at all, all militate against the V.S. in stamping-out any contagious disease in this country.

INVERSION OF THE UTERUS.

This is a very serious condition in any female animal.

Causes.—Retention of fœtal membranes, irritation of mucous membranes of the organ at the time of parturition, wounds, scraps, hard calving, injuries during calving, over-feeding, tympany, indigestion, icy cold water to drink after calving.

Treatment.—Now when a cow does put out her uterus, the first thing to do is to get to the case as soon as possible after you have been notified about it. Some farmers know to wrap it up in a damp, hot blanket, and send at once for the V.S., and when he arrives the first thing he should do is to remove the cleansing if necessary. Cleanse the organ, dry it with a cloth, and put some antiseptic and soothing dressing upon it, preferably an oily preparation, and return it by gentle manipulation, and put on a truss or West's uterine clamp, not screwed up too tightly to prevent the animal urinating or to hurt the vulva. The cow generally strains a good deal after this. To combat this we give some anodyne mixture, chloral hydrate, chlorodyne; raise the hind quarters with freshly cut sods. There is some danger of metritis, so a little tr. aconite and a mild laxative will prove very beneficial.

RETENTION OF FŒTAL MEMBRANES; SEPTICÆMIA.

This disease is due generally to cow calving before the natural period, or from debility, weakness, want of blood, and mostly happens in hot weather. Dealers' cows that are "faired" and "trained" are very liable to retain the cleansing, and so are very liable to have septic poisoning.

Causes.—The anatomical arrangement of the uterus in the cow, difficult parturition, abortion. Aged cows retain the membranes longer than young ones as a rule. Contraction of the cervix uteri will prevent expulsion of the fœtal membranes. Cows driven long distances to fairs and trained long distances produces fatigue and reduces the general health of the animal.

Symptoms.—Usually part of the membranes protruding, but if not, there is a certain amount of shifting of the feet, uneasiness, urinating and passing faces often; then there is twitching and curling of the tail. One very prominent and reliable symptom is the tail is carried further off from the body than usual, in a kind of an arched manner. If putrefaction has commenced there will be a dirty, sanious, offensive discharge from the vulva, mingled with shreds of putrid membrane. At this stage there is generally constitutional disturbance, the animal is dull, dejected, appetite lost or bad, respirations hurried, temperature elevated, secretions suspended. The complications that follow this state of affairs are generally septicæmia, metritis, metro-peritonitis, vaginitis, leucorrhea, &c.

Treatment.—If the membranes are not expelled in three or four days or less they are better removed, and the uterus irrigated with a solution of ozophene, chinosol, or suitable disinfectant. There are various preparations that can be used for this purpose—carbolic acid, chinosol, ozophene, Jeyes' fluid, pot permanganate. I find about two irrigations sufficient. If cow strains badly I give anodynes. If in weak health and low of condition, tonic and external antiseptics are indicated. If septicæmia is feared, give plenty external antiseptics, with tonics, stimulants, and good food, easy of digestion and assimilation, and try to keep the animal's strength with milk, eggs, gruel, &c. Sulphites, hyposulphites, sulpho-carbolites, quinine, hydro-naphthol are indicated, and to prevent infection of healthy subjects patients should be isolated, the excreta promptly burned, and covers, &c. used by them disinfected before being used with other cattle.

INVERSION OF THE VAGINA,

Or "showing of the reed," as the farmers call it in this district, is often seen in cattle. The causes are injuries, rupture of the internal bands that hold the organ *in situ*, constipation, protracted parturition, fatigue from long travelling after parturition, abortion, placental retention. Old cows when heavy in calf show it often. Low stand behind, and too much fall for the stand, so that when the cow lies down the whole weight of the calf, stomachs, bowels, &c. are thrown back on the os uteri, and this tends to relax passages and to force out the vagina.

Symptoms.—Generally makes its appearance when the animal is lying, and mostly seen in pregnant cows. The vagina differs in appearance from the uterus, as there are no cotyledons on it, and it is also of less volume with a small round orifice in the centre.

Treatment.—Cleanse and return it after dressing with a little ol. carbolic. This is not a very dangerous affection, although it is sometimes very troublesome. I had a case here a short time ago; this was a prize Kerry cow, and she wore a truss for three months before calving, and she calved here a few weeks ago but did not cleanse; the os contracted very shortly after calving, and I could not remove the cleansing, but I irrigated the uterus with a solution of ozophene 1.30, and she has done well.

LEUCORRHŒA,

Commonly know as "The White," is a chronic discharge from the vagina and womb, of a white flaky colour; sometimes inodorous, at other times of a rusty colour, and muco-purulent, and very offensive.

Causes.—Debility, difficult parturition, uterine excitement, polypus, prolonged irritation of the genital passages, and as a sequelæ to tuberculosis. Sometimes the bull gets balanitis, and gives the cow he serves the disease, and sometimes she aborts.

Symptoms.—Discharge from vulva, which is generally pale, bloodless, and flaccid, in other cases where discharge is flaccid, mucous membrane is rough and reddened and thickened, with stricture of the vagina as an accompaniment; animals so affected are frequently in œstrum, but very uncertain as to breeding, and if they do become pregnant they very often abort. Some constitutional disturbance is usually present, the milk diminished, the appetite very indifferent, and the animal fails in condition.

Treatment.—In the primary stages, cleanliness, frequent injections of tepid water with weak solutions of alum; zinc sulph., pot. permanganate. The administration of a saline laxative, followed by tonics and laxative diet. In secondary or chronic cases, injections of tannic acid, ferri sulph., boric acid, iodoform, or if the discharge is offensive acid carbol. 1·40 or ozo-

phene 1·30 may be used. Internally, mineral tonics, iron or copper, for preference with quinine, with generous laxative nutritious diet, will generally result in a cure.

(*To be Concluded.*)

HANDBOOK ON SERICULTURE.

Through the courtesy of the Under-Secretary to the Government of Bengal, we have been favoured with a copy of a valuable little work entitled, "Handbook of Sericulture," by N. G. Mukeriji, M.A., M.R.A.C., F.H.A.S. of the Bengal Civil Service, and our contemporary at Cirencester Agricultural College.

In his preface the author expresses the hope that the work will supply the want of a reliable book on Sericulture, and give an impetus to the silk industry in India and the British Colonies. He remarks that the principal drawback to Sericultural enterprise everywhere has been, of late years, the wholesale death of silk worms from certain diseases when they are reared on a considerable scale. The author has been employed by the Government of Bengal for nearly ten years in the investigation of silk-worm epidemics, and embodies in his work the information he has derived from actual experiments, confirmed by actual trials conducted successfully and with pecuniary profit by intelligent cocoon-rearers in most of the silk districts of Bengal.

We learn that a Sericultural School has been established in the Presidency with the object of teaching cocoon-rearers how to avoid silk-worm epidemics, and is doing very good work in diseminating the knowledge that was derived from experiments.

The book is divided into four parts: (1) The mulberry and the mulberry silk-worm. (2) Diseases of silk-worms and of the mulberry plant. (3) The commercial cocoons. (4) Manufacture and commerce.

The following information referring to the various kinds of silk-worms is culled for the benefit of our readers :—

All varieties of silk-worms fall under two heads: (1) Those which make reelable cocoons and (2), Those which make unreelable cocoons, *i.e.*, such cocoons as have to be carded and combed like cotton or wool before thread can be spun out of them. All varieties of domesticated mulberry silk-worms and most varieties of wild silk-worms that are found on the mulberry tree belong to the first of these two classes.

The domesticated mulberry silk-worms are the European (1) Silk-worm or *Bombyx mori*, (2) The Barapalu or B. Textor, (3) The Nistari, Madrasi or Canary silk-worm (*B. craesi*), (4) The Deshi or Chotapalu (*B. Fortunatus*), (5) Chenapalu (*B. Sinensis*).

Besides these there is a variety of silk-worm called *B. arracanensis* reared in Burmah, and another called Barapet reared in Assam. These seem to belong to the *B. Textor* variety, and in the Midnapur there is a variety called Bulu or Blue which makes small greenish white Cocoons. These and the Chotapat of Assam seem to belong to the *B. Sinensis* variety. Among wild mulberry cocoons the Theophilus make good reelable cocoons. The Ocinara, Trilocha, and Rondotia varieties of wild mulberry silk-worms spin very inferior cocoons.

Other silk-worms besides those that feed on the mulberry produce serviceable cocoons. Of these reelable are (1) Bombyx lasiocampaolus, (2) Antheroea Jamamai, (3) A. Pernyi, (4) A. Assama or Muga, (5) A. Roylli, (6) A. Mylitta or Tusser proper. All these cocoons may be classed the generic name of Tusser. Other reelable cocoons have also been discovered, but they are so rarely found that it is impossible an industry.

Cocoons that cannot be reeled are mostly useless. Of this class the Endi or Eri are the best, Attacus Atlas cocoons also fall under this group, and they also are spun by castor-leaf-eating silk-worms. The Atlas cocoons contain oralmost ten times as much silk as the mulberry or Eri cocoons, but the silk is not so soft as the latter. *Atacus Ricini* and its wild form *A. Cynthia* are other unreelable cocoons. The Cricula variety of silk-worms produces a cocoon that is made into thread by certain races in Chota Nagpur. There are hundreds of other varieties of inferior silk-worms of which the produce is not used or is even likely to be used. In France a variety of spiders spins cocoons in pear trees, and the silk from these is woven.

Of all the varieties mentioned above the European mulberry cocoons are the best.

A few years ago a good deal was heard about Lasiocampa Otus found in Dalmatia, but the cocoons have not been found to be a superior commercial article.

English cocoons were nearly all originally derived from China. At present the best cocoons are fouud in Italy and France.

The Paipitsan cocoon, the best of the Chinese, is the origin of the white Shanghai of Italy which is recognised as the best of all cocoons. In France a class of cocoons called moricauds (negroes) is spun by a hardy black worm. There are numerous other superior French and Italian cocoons. At Smyrna a Mr. Griffiths has by scientific selection established a superior class spun by very hardy black and zebra caterpillars.

We must here conclude our notice of this very useful work, the text of which is illustrated by pictures and diagrams, and take the opportunity of thanking the author for the valuable information he has placed at our disposal.

GENERAL ITEMS.

The earth-nut or pea-nut (*Arachis hypogæa*) has come to be considered one of the best foods for poultry, whether laying hens or growing chickens, excelling maize, wheat or oats. Unlike the first two it does not over-fatten, and keeps the birds in good health. They are thrown with tops and all, and keeps hens busy all day.

To harden tender shoulders and backs of animals, daily washing of the parts with an infusion of wattle or other tanning bark is recommended as a cheap and efficient treatment.

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The famous "Latakia" Tobacco, known as "Abou-Riha," is so named from the district of Lattakia, in Syria, where the variety is principally grown. The chief peculiarity in its cultivation is that the plants, which are very clcsely planted, are hardly watered at all, and in the process of curing the leaves are made to absorb the fumes of the resinous and scented wood called "Elozr."

———

Among the reports of the Agricultural Department of Queensland we read in that the Manager, State Nursery, Kumerunga, under the head of Bananas:—"Very little has been done beyond preserving the better varieties of these. A number have been distributed to applicants, and a small collection was despatched to Ceylon." These latter, consisting of varieties, were received for the Colombo Stock Garden, where they are doing well.

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The following recommendations given in the *Queensland Agricultural Journal* for getting rid of the black ants, indicates how great a pest it is:—(1) Sprinkle shelves &c. with oil of penny-royal. (2) Wash with Carbolic soap. (3) Dissolve a piece of Ammonia, the size of a hen's egg, in a quart of water, and brush the shelves with it. (4) Pour gasoline into their nests (if outside) and set fire to it. (5) Lay carpet rug strings soaked in corrosive sublimate in their path. (6) Make the following mixture: White lime (slaked) 6 quarts, kerosine oil ½ pint, turpentine 1 wine glass, soft soap 5 lbs., cowdung 3 quarts, water 16 quarts. This latter is for washing fruit trees. The preparation cf these remedies is troublesome enough, but after all we are told that none of them are permanent and will require repeating often!

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The following recipe from the same paper is for making a cheap cooling paint for iron roofing:—Take unslaked lime and slake it with sufficient water to cover it. Stir into it old brine from a salt beef cask or other source, sufficient to give the lime the consistency of oil paint. Strain before using and apply with an ordinary limewash brush. [How would this do for the dreadful Calicut tile in warm weather?—Ed. *A. M.*]

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REPORT ON HEVEA BRASILIENSIS IN THE MALAY PENINSULA.

By Stanley Arden,

Superintendent, Experimental Plantations, Federated Malay States, 1902.

(*Continued from page* 515.)

A*REA of trunk to be tapped* —The latex is present in all parts of the tree, but it is evident from the mere observation that when tapping the greatest yield is obtained from the base of the trunk, and experiments have been carried out with a view to determining the difference in yield at various heights of the trunk.

Table 1 shews the result of tapping five trees with **V**-shaped incisions, commencing at a height of 6 feet and working by stages of 6 inches towards the base. There were three incisions made on each tree at the same level and equi-distant apart.

TABLE I.

		ft.	in.			oz.		Av. per incision oz.
15	incisions at	5	0	from base	gave	1·50	dry rubber	·1
15	do	5	6	do		1·50	do	·1
15	do	5	0	do		1·75	do	·116
15	do	4	6	do		2·50	do	·166
51	do	4	0	do		4·75	do	·316
15	do	3	6	do		4·50	do	·3
15	do	3	0	do		5·25	do	·35
15	do	2	6	do		6·50	do	·433
15	do	2	0	do		7·00	do	·466
15	do	1	6	do		9·25	do	·616
15	do	1	0	do		11·25	do	·75
15	do		6	do		11·25	do	·75

It seemed probable, however, that the "wound effect" might account to some extent for the increased yield obtained from the lower part of the trunk; so his experiment was repeated on the same trees, this time commencing at the base and working upwards to a height of 6 feet. The result was:—

TABLE II.

		ft.	in.			oz.		Av. per incision oz.
15	incision at		6	from base	gave	12·50	dry rubber	·833
15	do	1	0	do		10·50	do	·7
15	do	1	6	do		9·50	do	·633
15	do	2	0	do		7·50	do	·5
15	do	2	6	do		5·50	do	·366
15	do	3	0	do		4·75	do	·366
15	do	3	6	do		4·25	do	·283
15	do	4	0	do		3·75	do	·25
15	do	4	6	do		4·00	do	·266
15	do	5	0	do		3·75	do	·25
15	do	5	6	do		3·00	do	·2
15	do	6	0	do		2·75	do	·183

It will be noticed that in this experiment the yield between 4 and 6 feet was nearly doubled; while the yield from the lower 4 feet of the trunk is about the same as was obtained in the previous experiment.

Taking the results of the two experiments together and stating the yield for three sections of the trunk, we have:—

				oz.		Av. per incision oz.
120 incisions	base to 2 ft. up	gave	78·75	of dry rubber	·65
120	do	2 to 4 ,,	do	39·25	do	·32
120	do	4 to 6 ,,	do	20·75	do	·17

This experiment shews very clearly what part of the trunk contains the largest amount of latex and demonstrates the necessity of confining the attention as much as possible to the first four feet from the base.

Other experiments with similar objects in view were conducted on trees tapped on the herring-bone system: the result of tapping five trees, 3 to 6 feet up the trunk, being shewn in Table III.

In each case the oblique incisions, were 1 foot long and 1 foot apart, there being six such incisions, three on each side of the vertical channel, which was 3 feet long, the wounds being renewed on 14 consecutive days.

TABLE III.

6 trees tapped every (14 days) from 3 to 6 feet up.

Total weight of wet rubber 130⅛ ounces. Average per tree 26·02 ounces.

Table IV shews the yield from the same trees tapped in precisely the same manner, but ranging from the base of the tree to a height of 3 feet.

TABLE IV.

Tapped every day, base 3 feet up.

Total weight of wet rubber 173⅞ ounces. Average per tree 34·77 ounces.

A noticeable point about this experiment is that trees Nos. 7, 8 and 14 gave a better return when tapped from 3 to 6 feet high than when tapped from the base to a height of 3 feet; in fact Nos. 7 and 8 failed to yield at the base after being tapped on 12 occasions or after the whole tree had been tapped 26 times. The inference to be drawn is, that as the experiment was conducted first on the high area, that the latex obtained was in part drawn from the lower portion of the trunk.

I might here incidentally mention that these are the only trees I have succeeded in "draining," and that they look none the worse for it, but after a lapse of 12 months are bearing seeds freely.

The increase in yield at the base of tree No. 19 is very marked, being nearly three times the amount obtained at the higher area, and suggests a more complete communicative system in the lower regions of the trunk.

On the occasion of my next visit to S'tiawar, another experiment was made on the same lines, this time the lower area being operated on first. The trees utilized were of the same age and dimensions as in the previous experiment and care was taken that the incisions, which were renewed on 14 occasions, were of the same length and distance apart.

The result of this experiment is shewn in Table V and VI.

TABLE V.

Tapped every day at base 3 feet up.

Total weight of wet rubber 221¾ ounces. Average per tree 44·35 ounces.

TABLE VI.

Tapped every day, 3 to 6 feet up.

Total weight of wet rubber 195½ ounces. Average per tree 39·10 ounces.

In this case trees Nos. 13 and 26 gave a larger return when tapped at a height of 3 to 6 feet, which is significant considering that in the case of tree No. 26 over 2½ pounds of wet rubber had previously been extracted from the lower three feet of the trunk.

Adding the results of these two experiments together we have :—

140 incisions on 10 trees,	base 3 feet, gave	395⅝	ounces of wet rubber
140 ,,	3 to 6 feet,	325⅝	,,
	By difference	70	,,

The result then is an average of just 7 ounces of wet rubber per tree in favour of the lower three feet of the trunk.

Judging from the results of these experiments I am led to believe that although it appears, at least in some cases, that the latex obtained is drawn from the whole of the laticiferous system, that this is only true to a small extent; otherwise, I fancy the disparity in yield between trees tapped first at the base and afterwards higher up the trunk, or *vice versa*, trees tapped at a height of 3 to 6 feet up the trunk and afterwards at the base, would be much more marked.

This gives rise to the question as to whether it is possible to obtain a maximum yield by confining the operations to any one particular area, having regard to the labour entailed and the injury inflicted on the tree. A glance at the foregoing tables will shew that this does not appear to be the case, for it will be seen that although in one experiment 221¾ ounces of wet rubber were obtained from five trees when tapped within 3 feet of the base, there still remained 195½ ounces which were obtained immediately afterwards by tapping the tree higher up the trunk. But it will also be noticed that in the majority of cases there was no indication of a cessation of flow of latex when the operations were suspended, and it seems quite probable that the whole of this latex might have been obtained by confining the incisions to one of the two areas. This, however, would have necessitated the renewing of the incision on at least 28 occasions, probably more and the result would have been a huge wound, and the life of the tree would have been endangered thereby.

It is inadvisable, as already stated, to make the incisions of an undue length, while if the oblique incisions are placed more than 1 foot apart, the result is a long vertical channel, in which a large amount of latex will coagulate before reaching the tin; so that the method which suggests itself as being expedient is that of making V incisions or small herringbone incisions on various parts of the trunk not exceeding a height of 6 feet.

Unfortunately, experiments in this direction are far from complete owing to the lack of trees of a suitable age, but I append the result of tapping five nine year old trees with V incisions, and the result of an experiment on the same trees, 12 months later, with small herring bone incisions. In the first experiment the two lines forming the V were 6 inches long in each case. There were five incisions made on each tree, ranging from the base to a height of 6 feet, each side of the trunk being utilized, so that in an oblique direction the wounds were about 2 feet apart. The latex was collected separately from each wound, which was renewed on 12 occasions at intervals of two days. The result is shewn in Table VII.

TABLE VII.

Average yield of wet rubber 46·2 ounces. Average yield per tree of dry rubber (including scrap) 28¼ ounces.

A noticeable feature in this table is the yield of tree No. 41 which averaged over six ounces of wet rubber each day the incision was renewed: it will also be noticed that the total yield on the last day was in excess of that obtained on any previous occasion.

The following year the same trees were tapped with small herring-bone incisions. There were three incisions on each tree, the vertical channel being 1 foot long, and the "feeders," two on the left of the vertical channel and one on the right, situated midway between the other two, were 8 inches long 1 foot apart. The incisions were renewed on eight consecutive days, but the latex being required for experimental purposes the weight *per tree* cannot be given. The weight *per day* and the *average* weight per tree of dry rubber obtained is shewn in Table VIII.

TABLE VIII.

TEN YEAR OLD TREES.

Trees No. 41, 42, 43, 44, 45. Tapped by small herring-bone incisions on eight consecutive days.

1st day	..	7½	ounces dry rubber including scrap
2nd ,,	..	8½	,, ,,
3rd ,,	...	11½	,, ,,
4th ,,	...	13¼	,, ,,
5th ,,	..	11¼	,, ,,
6th ,,	..	13¼	,, ,,
7th ,,	...	14¾	,, ,,
8th ,,	...	15	,, ,,

Total weight...95½ ounces.

Average weight of dry rubber per tree 19·1 ounces.

Had the incisions in this instance been renewed on 12 occasions, as was the case in the former experiment the yield would almost certainly have exceeded that obtained by tapping with **V** incisions. As it is, a comparison between the two systems shews that the

first eight renewals of the **V** incisions gave 131½ ounces of *wet* rubber, as against 95½ ounces of *dry* rubber when tapped with small herring-bone incisions. Assuming that the loss on drying was 50 per cent and counting "renewals" as 'incisions' the figures read :—

	ounces	ounces
200 (**V**) incisions gave	131½ wet rubber=	65·75 dry rubber
120	(„)	95 50

As there were five **V** incisions on each tree, and the two lines forming the **V** were each 6 inches long, the exposed surface totalled up to 5 feet per tree. When the same trees were tapped with small herring-bone incisions, the total length of the incisions was 6 feet, regardless of the central channel which was not opened after the first day; so that although the length of incisions in the latter case only exceeded those of the the former by one-fifth, the yield increased by one-third. The fact that the trees were twelve months older at the time they were tapped with herring-bone incisions, probably accounts to some extent for the extra yield obtained when tapped by the latter method.

When compared with the yield from those trees tapped by herring-bone incisions, confined to the lower 3 feet of the trunk this system may be considered very successful. The total length of the incisions was the same in each experiment, *viz.*, 6 feet, but if the yield for the first eight days of the trees enumerated in Table V be totalled up, we shall find that 30 feet of incisions (made on five trees and renewed on eight occasions) gave 105½ ounces of wet rubber (say 52 ounces dry as against 95½ ounces of dry rubber obtained from 30 feet of incisions (on five trees and renewed on eight occasions) made on various parts of the trunk. In short, nearly twice the amount of rubber was obtained from the same length of incisions, when the whole area of the trunk was operated upon, and the cost of extraction therefore reduced by about one-half. This, however, is only the result of a single experiment and the results cannot by any means be considered conclusive. So far as they go they strenthen the supposition that if a maximum yield is to be obtained at a minimum cost, which—assuming the operations are always conducted in the same careful manner—is paramount to a maximum yield with a minimum injury to the tree, tapping must not be confined to any particular area. Other experiments in this direction are in progress and the results will be made known from time to time. One point which has not yet been noticed, is the rapidity with which the wounds heal, when made a considerable distance apart.

(*d*). *Length and distance between the incisions.*—The length of the vertical channel in some of the experiments already alluded to, was 3 feet but incisions of this length are not recomended, the objection being that part of the latex coagulates before reaching the tin, especially in hot dry weather. The length of the "feeders" will depend upon the girth of the tree, but for the same reason it is inadvisable to make them more than 1 foot long even on the largest trees.

When taping young trees, they should be shorter in proportion to the circumference of the trunk, so as to avoid any risk of checking the growth of the tree by preventing a free passage, for the conveyance of the crude sap absorbed by the roots, to the green parts of the plant, there to be elaborated into starch and other organic compounds which supply the essential constituents for the formation of new structures and replace the material consumed during the growth of the plant.

It may be taken for granted, that in a given area, the greater the number of incisions the greater the yield; also that if the same number of incisions be made over an area, say twice the size, the yield would be considerably more; but I do not hold, however, even assuming this to be the case, that it is expedient to make the incisions closer than 1 foot apart, as the extra yield obtained is not in proportion to the extra labour entailed; while on the other hand if the oblique incisions are made more than this distance apart, the result will be a vertical channel of an undesirable length. Further, cicatrization of the wounds is considerably delayed, if the incisions are made too close together, as the amount of growing tissue in their immediate vicinity is necessarily limited.

(2). *The effect of wounding on the flow of latex.*—Perhaps the most important point of all to be considered, is that of taking full advantage of what has previously been alluded to as "wound effect." This phenomenon, which appears to be well known to the natives of Brazil, was first scientifically observed by Mr. J. C. Willis, Director of the Peradeniya Gardens, and is mentioned in a circular issued by the Ceylon Botanical Department*: the result of a series of experiments on the effect of wounding on the flow of latex by Mr. Parkins, being set forth in a later circular, issued by the same Department † and to which I am indebted for many valuable suggestions.

The function of the latex is not yet properly understood, but it is quite distinct from the sap, occuring in comparatively few plants and is probably unessential to the life of the tree. The effect of wounding the tree appears to cause an increased flow of latex towards the injured part, for if the wound be re-opened on the following day, the yield is nearly always found to be considerably in excess of that obtained on the occasion of the original tapping, sometimes three or four times as much. Also, if the wound is opened again on the third day, the yield is found to exceed that of the second, and generally the yield of the fourth day exceeds that of the third and so on.

(*a*). *The number of times the incisions* can be advantageously renewed.

Many experiments have been made with a view to determining the number of times it is advisable to-reopen the wound, but it was found that all trees were not affected in a similar manner, so that it is impossible to lay down any hard and fast rule; for although in some cases the maximum yield has been obtained on the fourth day, in others it was not reached until the fourteenth tapping.

Generally, however, the flow shews a marked increase between the first and second tapping, then a steady increase until the fifth or sixth tapping is reached, afterwards remaining more or less stationary until the operations ceased; in the large majority of cases there were no signs of falling off, even after the incisions had been renewed a dozen times, but by his time the wound had of course become very large and it was deemed advisable to stop operations.

Below I have summarised the results of several experiments, made with a view to ascertaining the number of times the incisions should be renewed. The trees experimented upon were tapped on the herring-bone system, previously described, and the incisions renewed by taking off a very thin layer from each side of the wound with a sharp knife on 14 occasions.

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* Royal Botanic Gardens, Ceylon. Series 1—No. 4.

† do do do —No. 12, 13, 14

The result was as follows:—

TABLE IX.

Shewing result of "wound-effect" on 30 trees tapped on 14 occasions.

30 trees.	1st tapping gave 10 oz. dry rubber.		Average per incision	·33 oz.
do	2nd	16½	do	·55 ,,
do	3rd	26	do	·86 ,,
do	4th	28½	do	·95 ,,
do	5th	36	do	1·2 ,,
do	6th	39¾	do	1.32 ,,
do	7th	37¼	do	1·24 ,,
do	8th	40½	do	1·35 ,,
do	9th	39¾	do	1·32 ,,
do	10th	45½	do	1·51 ,,
do	11th	43¼	do	1 45 ,,
do	12th	48	do	1·6 ,,
do	13th	47½	do	1·50 ,,
do	14th	47½	do	1·58 ,,

It will be seen from the above table that there was a steady increase in the flow of latex until the tenth renewal, and that from then until the operation ceased the yield each day was greater than had been obtained on any previous occasion. It should be mentioned, however, that this was only the case in a few trees, which gave a considerably increased yield on the last four occasions, and that in the majority of cases the yield from the tenth to fourteenth day was about the same as that obtained between the sixth and tenth day.

The difference in yield between the first and second occasion does not stand out so prominently in the Table as it should. This is due to the fact that some of the trees had recently been experimented upon (for owing to lack of material some trees had to suffice for several experiments) so that what is termed a "first tapping" when made on the opposite side of a tree recently tapped, has often given a much larger return than a "first-tapping" made on a hitherto untapped tree.

This, then, all goes to prove what was stated previously, that all trees are not affected to the same degree, and that if advantage is to be taken of the "wound-effect," the incision must be renewed at least eight times. It might, of course, be renewed oftener but the result would be an ugly wound, pre-disposing the tree to disease, and cannot therefore be recommended.

(*b*). *The length of time that should* elapse before renewing the incisions.

Here there does not appear to be the same difference in the behaviour of trees in responding to the wound-effect, and it was generally found that an increased flow was obtainable after a lapse of twenty-four hours. With a view to determining whether any beneficial results followed by allowing the trees to "rest" for a few days before renewing the incisions, some trees were tapped every day, others every third day and others at weekly intervals.

The result of tapping 10 trees by herring-bone incisions on 14 consecutive days is shewn in the following Table.

TABLE X.

TAPPED EVERY DAY.

Total weight of wet rubber 351½ *ounces. Average yield per tree* 35·15 *ounces.*

Table XI shews the yield from 10 trees tapped on the same principle on 14 occasions at intervals of two days. Care was taken that the trees were of the same age and as nearly as possible of the same dimensions and that the incisions were exactly the same length and distance apart: each being measured and marked with pencil before the incision was actually made.

TABLE XI.

TAPPED EVERY THIRD DAY.

Total weight of wet rubber 374 *ounces. Average yield per tree* 37·4 *ounces*

It will be seen that the result is in favour of the trees tapped at intervals of two days to the extent of 22½ ounces of wet rubber, which is equal to about 1 ounce of dry rubber per tree.

The result of tapping 10 similar trees at weekly intervals is shewn in Table XII, the operations extending over a period of five weeks.

TABLE XII.

TAPPED EVERY WEEK.

Total weight of wet rubber 104¾ *ounces. Average yield per tree* 10·47 *ounces.*

Time did not permit of this experiment being carried on longer so it will be necessary to compare the results with those obtained on the first six occasions in Tables X and XI. These are as follows:—

60 incisions made on six consecutive days gave			99½ ounces wet rubber.
60 ,,	at intervals of two days	,,	111⅝
60 ,,	,, one week	,,	104¾

There does not appear therefore to be any great advantage by renewing the incisions at long intervals, and I am of opinion that the response to the wounding is generally, if not always, discernible after the lapse of a single day. Judging from the above figures this, at first sight, does not appear to be the case but a perusal of the foregoing tables will shew that the smaller amount obtained from the trees tapped daily, is mainly due to the inclusion in this experiment of tree No. 20, which gave less than one-fifth the amount obtained from tree No. 2, for no apparent reason. This disparity in the yield of trees growing under the same conditions, and tapped in precisely the same manner, is in some instances most marked and demonstrates the necessity of conducting experiments over a large number of trees, if definite conclusions are to be arrived at. A further experiment was made in this direction; the trees which had previously been tapped on six occasions at weekly intervals, were now tapped on six consecutive days on the opposite side of the trunk, the incisions being of the same length and distance apart as on the former occasions, the result being shewn in Table XIII.

(*To be concluded.*)

ORANGE CULTIVATION.

There are some orange groves planted here within the last four or five years in which we see illustrated almost every mistakes that is to be made in orange growing here, but which may not be mistakes elsewhere, that is, in more temperate lands, with less forcing soils and climate. The first, most common and most serious error is in the planting; the trees have been planted too deeply in the soil, the roots buried until the earth is packed two inches up the stem above the neck of the tree. This is an error in tree planting everywhere, and we have seen it made in the north in forestry in the setting out of firs and in horticultnre in the setting out of orchards of fruit trees, and berry bushes. It is not fatal on light sandy soils, and the trees grow, fruit, and continue to give returns, but they never make a quick, large, or robust growth and are always much subject to the many troubles that affect plants. On heavy soils deep planting is fatal to profit. In our forcing climate and heavy rich soils, where weeds grow rapidly and luxuriously, and there is need of constant hoeing, trees are better planted even higher out of the soil than ever we had experience of before, because,—1st, on accounts of the heavy rains that beat upon the soil, and pack it tight, so that if the earth is packed high round the stems the roots are choked, whereas if the neck is clear of the earth with the top main roots running close to the surface, the water running down the stem, sinks in and follows the interstices, along the roots; thus air, moisture, and drainage pass continually through the soil to every root and rootlet; 2nd, to allow for the constant hoeing of weeds; in doing this there is a continual drawing away of soil along with the weeds,

which are heaped around the outside circle of the tree both actions combining to cause the tree more and more to stand in a hole; then the rains fall and drain off slowly, leaving the ground soggy and when some dry weather sets in, this soil becomes baked hard and sour; 3rd, to allow for the forking or ploughing around the trees, and the ploughing in of the weeds, consequently the raising of the soil. Take the level of a piece of uncultivated land, and when it has been ploughed up and harrowed smooth, take the level again, it will be found three or four inches higher than before. As it hardens it settles again about two inches in six months, only to be stirred up again by further cultivation, and probably the ploughing in of weeds raises it two or three inches further. Anyway the soil is further raised by cultivation, little, but appreciably enough to make a row of orange trees planted on a level with the surface of the field when uncultivated, appear by and by, after cultivation to stand in a hollow. Again after the planting out of a field with orange trees planted at first in holes, drainage is found to be necessary, the earth from the drains is of course flung up in a ridge or scattered around, and the water in heavy rains runs towards the orange trees, more than into the drains. We have done things too casually heretofore and looked at tree planting as if it was a thing that any unskilled person could do, and again, we have learned that the experience of agriculturists tutored in other lands where many of the conditions are diametrically opposed to here, is of little use unless it is adapted to the circumstances prevailing here. Long ago when a boy wandering in the woods, we noticed that the fir tree grown from a cone had the upper part of its top roots clear of the ground so that you barked them when you stepped roughly on them, the wild crab-apple grew the same way, so did every tree in nature grown from a seed. Here you can see the wild orange growing in the same fashion, see too the long holes of the cotton tree ending in roots running along the surface so that you trip over them. It is the nature of trees that are surface feeders to grow like this, and they send out many superficial roots spreading in a fibrous network all along close to the surface, and such trees can grow and thrive in poorer soils, by means of the abundance of their feeders, than trees that send out few roots. The latter are generally deep growers and send down a very long vigorous taproot, and when delicate, like cocoa require a deep, free, moist, rich soil to be at their best. Another error in orange growing is the indiscriminate use of the fork by those who have the mind to cultivate. Cultivation is recommendable, when judicious, the fork is a worthy implement, where there is a head as well as hands governing it. The late Secretary, Mr. George A Douet, had much to do with the bringing of the fork into general use to supersede the hoe in breaking the land we should like to see the rake in common use here, especially for the cultivation of fruit. We see horrible destruction of the feeding roots of orange trees by forking, and damage done that would kill fruit trees in places less richly endowed by nature in climate and soil. Trees over three years planted are hoed, then forked right up to the stem, so that you see big clods turned over matted with broken and wrenched up roots. If this is done in dryish weather, the hot air and wind penetrate right into the root system drying out the broken ends of roots so that if they ever form callus and send out rootlets at the break, it will be a slow business. Altogether, these trees would have been very much better off without such cultivation. Fruit trees grow best in a soft firm soil, and the roots should never be broken unless at the ends where they are growing out, and then the cut should be clean, as from clean cut ends more roots will start out quickly and in healthy condition, than from broken rough edges. Orange trees should be hoed around from the stem to a little further out than the sweep of the branches as it will be found that the roots go out further, often very much further. The hoeings after exposure to the sun and air to kill the weeds, should then in dry weather be raked back to the hoed surface and raked backwards and forwards until the surface is loose. The soil beneath is seldom other than moist in this country, and the raking so loosens the surface while the weedings form such a soft mulch, that the soil will not bake through three months of dry weather which does not often occur anywhere here. At other times when moist weather prevails and the earth is soft, the weedings instead of being piled around to tempt roots to creep up into them should be spaded in so that the ground where the roots will extend may at once be loosened and manured. An annual cultivation like this done in November after the heavy rains are over and the crop is off is most suitable for early bearing trees. The weeds will supply pretty much all the humus and nitrogen necessary, and an application of wood ashes at the same time will provide the necessary phosphoric acid and potash, so that the new roo lets may have abundance of food-material at hand. This slight root pruning done by careful spading at the outside terminus of the root system of fruit trees about November will at once send the sap back into the tree; blossoms will break out in January and by the time the bloom is set, the new roots will be vigorously feeding in the well prepared and fertilized soil, and ready to meet the greatest demands that the swelling fruits may make upon them. The applications of fertilizers may be made if desired when the fruit sets and again when it is nearly full. Forking in fruit groves should only be done to prepare land, and where there are no roots to be wrenched and torn. The rake and the spade are the implements where hand labour is to be used; the former to stir the surface soil beneath the trees, and give young weeds no rest, and the latter to turn over the soil outside the trees. Where horse labour is used, of course the sharp plough will do the cutting of the tips of the roots, and the harrow-toothed cultivator is the best implement for running close to the trees and stirring the soil. The spade and the rake or the plough and harrow cultivator, together with the hoe, which is indispensable for weeding; these are the implements for orange groves. These thoughts are the result of personal practice and wide but minute observation, and the recommendations made are meant to be, and of course, should be, accompanied by the keeping of the trees clean by spraying or washing if necessary, for orange growing in groves. It would be difficult to put such cultivation into practice on scattered pasture-grown trees, though it might pay to thoroughly cultivate these trees. Failing root cultivation, the washing being carried out as given in the report published below, should not fail to be done. Certainly, we were not prepared to believe that the mere cleaning and washing of branches and trunks as done in these experiments, without any cultivation of the trees standing in grass, could have been so quickly responded to in healthy leaf and blossom. But the results in fruiting will be the best test. Anyway, we welcome every idea and practice that will help to put our citrus trade on a better basis. It is pretty much casual and chance at present.—*The Journal of the Jamaica Agricultural Society*.

RECIPES FOR COOKING WEST INDIAN YAMS.

(*From Imperial Department of Agriculture for the West Indies*).

Yams require a deep, rich soil, and under favourabe conditions produce large crops. The following recipes for cooking and preparing yams are issued for distribution in the hope that if carefully carried out, those not already acquainted with this nutritious food may ensure that it is presented to them in an attractive and pleasant form.—D. Morris Commissioner of Agriculture for the West Indies, September 10, 1902.

The 'Yam' so familiar to all classes throughout the West Indies is practically unknown in Great

Britain. Beyond the comparatively small number of people who have visited the tropics few have definite knowledge as to the nature of the plant, or of the wholesome and palatable character of the food it provides.

Although grown throughout the tropics, it is in the West Indies that Yams are to be found at their best and in the greatest variety and abundance. During the time of the year they are in season they form a standard dish at the planter's table, in addition to being one of the staple foods of the estate labourer and, in fact, of all classes throughout the West Indies. The majority of visitors to the West Indies become even in the course of a brief stay, very partial to the yam.

For those who have not visited the tropics the general character of the yam plant may perhaps be best described by saying that it closely resembles in habit the black bryony of English hedgerows. The plants are near relatives and agree in their twining stems and shining heart-shaped leaves. Both, moreover, have and underground tuberous 'root,' but whilst that of the bryony is uneatable, the yam 'root' supplies man with one of the most wholesome vegetables the world affords.

The varieties of yams are legion. Some are distinguished by the names of places whence they were first obtained, others by descriptive names, such as 'horn yam,' 'snake yam' etc. Yams vary greatly in size and appearance. Usually they are covered by a deep brown skin, and their flesh is firm and of various shades of white, yellow, or in some few cases distinctly purple. Some are not more than 6 inches long and one pound or so in weight, whilst other varieties measure 3 or 4 feet in length, 6 or 9 inches in diameter, and weigh 30, 40, 50, or even 100 pounds.

Their cultivation is comparatively simple. The upper portion of a yam called the 'yam head' is put in the ground. It produces fresh leafy shoots, and the new yams slowly form and mature beneath the ground. In Barbados the foliage is allowed to trial over the surface of the ground, whilst in Jamaica, Trinidad, etc., a stout stick is stuck in by each plant up which it climbs, so that a yam patch somewhat resembles a miniature hop field. The different varieties of yams take varying periods to come to maturity. Some kinds are ripe in five months, whilst others do not reach perfection for nine months or even a year.

The following hints prepared by Mrs. J. R. Bovell, are published for cooking yams and presenting them in an attractive form at table.

Roasted Yams.—lay a yam before the grates of the stove or in the oven, turning it occasionally until cooked. Scrape off the outer skin, cut into pieces or mash with butter and serve hot.

Baked Yams.—Pare a yam, put it in the oven and bake until soft, take it out of the skin, mash with butter, put back into skin, cut in pieces and serve hot.

Boiled Yams.—Pare a yam, put it into boiling water, cook until tender, serve whole.

Yam Chips.—Pare and boil a yam until tender. Cut in chips, fry in boiling lard and serve hot.

Yam Rice.—Pare and boil a yam until tender, press through a colander on to a hot dish, shake the colander lightly every few seconds to cause the yam to fall off in short grains like rice and serve very hot.

Yam Rissoles.—Pare, boil and mash a yam, add pepper and salt and, if liked, a little minced parsley, Shape into rissoles, cover with egg and bread crumbs and fry until a light brown.

Yam Border.—Pare, boil and mash a fair-sized yam about two pounds in weight, add to it two tablespoonfuls butter, half a cup boiling milk, one tablespoonful salt, the yolks of two eggs well beaten; beat the mixture until very light. Butter a border mould, pack the yam in it and let it stand for eight minutes. Beat the whites of the eggs to a froth, add salt, turn out yam, cover with the whites and put in an oven to brown. Take from oven and fill the centre with meat or fresh fish heated in a sauce.

Yam *au Choux*.—One pound boiled yam, one boiled cabbage, two tablespoonfuls cream, one ounce butter, with salt and pepper to taste.

Rub the yam and cabbage through a wire sieve, mix together with butter, cream and seasoning. Pile upon a dish and serve with fried croutons of bread around. Serve very hot.

Porcupine Yam.—Two pounds yam, boil and mash with one egg and salt to taste. Shape and roll in beaten egg and vermicelli; fry. Serve hot with parsley.

Yam Fritters.—Pare and boil half a pound of yam until soft, beat lightly with a fork. Beat the yolks of four and the whites of three eggs, add two table spoonfuls of cream, two tablespoonfuls of wine, one dessert-spoonful of lemon juice and half a teaspoonful grated nutmeg beat all altogether until extremely light. Put plenty of lard into a frying pan and drop a table-spoonful of the butter at a time into it, and fry the fritters a nice brown; serve with wine sauce served separately, or only sprinkle powdered sugar over them.

Yam Pudding.—Half a pound yam, two eggs, one lemon, two ounces butter two ounces sugar. Pare and boil the yam and rub it through a sieve while hot. Beet the butter and the yam together and allow the whole to cool. Break the eggs and separate the yolks, from the whites. Beat the yolks until light, add sugar juice of lemon the grated rind and the yam. Whisk the whites to a stiff froth and stir lightly in before baking. Put in a well buttered dish and bake in a brisk oven for twenty minutes.

Yams *en Brun*.—Cut up one pound of yam already boiled and fry a light brown, sprinkle thickly with chopped parsley and shalot or mushroom, pepper, sale and lime juice, and serve very hot.

BALATA GUM IN BRAZIL.

The United States Consul at Para states that attention has recently been directed to the possibilities of the balata fields on the Amazon. A gutta-percha merchant in the Guianas, examining this region about a year ago, found the balata tree growing in abundance near Para, and on the Amazon and its tributaries for thousands of miles. The Brazilians had no knowledge of its gum producing qualities. After persistent effort, he succeeded in interesting persons in the United States and Para, bought a concession, and has lately begun the practical work of producing gutta-percha for the market. As in the case of rubber there is practically no limit to the supply of gutta-percha on the Amazon, and as it can be produced at a fraction of the cost of rubber, it offers a much higher per centage of profit.

The Consul quotes the following report on this subject from Mr. William Gerdeau, who has had a practical experience of many years in the Guianas where he represented American and English gutta-percha importers and managed balata estates:—"Pursuant to your request I submit the following report of my personal investigations of the balata fields of Brazil during my recent explorations of this region: "The balata or bulle tree known in the Brazilian language as the macaranduba, grows in great abundance throughout the Amazon valley but up to this time no attempt has ever been made to introduce the gutta-percha trade in this country. "For more than 30 years this trade has been carried on with immensely profitable results in the Guianas and the Orinoco Valley, but those fields are now almost exhausted and very little gutta-percha has recently been shipped. "It is my opinion that this balata trade can be made to rival the rubber trade in this country, as it can be produced here in unlimited quantities and its quantity is if not better at least as good as the Guiana balata. "I have found the balata trees scattered and in groves, sometimes amounting to forests many miles in extent, all over the States of Para and Amazonas, and I am informed on trustworthy authority that vast

areas of these trees are growing on the Purus and Acre Rivers and other tributaries of the Upper Amazon River. "The method of bleeding the balata tree is entirely different from that used to extract the gum of the rubber tree, and only experienced and expert bleeders can be employed. But on the other hand, these trees yield many times as much sap as the rubber trees, and one man can easily produce as many kilograms of gutta-percha in a day as 20 men can extract of rubber. The trees will average 3½ lb. gutta-percha each, and a competent bleeder can prepare 40 to 50 lb. per day. The gum is first fermented and then dried in the sun, after which it is ready for shipment. "I am surprised to find that this valuable gum, which is so easy of access and so cheaply prepared for market has never become known to the trade here. Many great fortunes have been made in Guiana from this trade, and I believe the time is now ripe for capital to develop the trade here. I found the Brazilians cutting down these valuable trees for firewood and building material being ignorant of their true properties. "Concessions of balata fields of any extent can readily be secured from the Brazilian Government, and private balata lands can be purchased for a fair price. It only requires some capital and practical knowledge of the business to develop one of the greatest industries in Brazil."—*Board of Trade Journal.*

DIEBACK IN COCOA.

It is a very general belief that the alluvial soils along river banks form the very finest areas for the cultivation of cocoa. This is as a rule true, but there may be certain exceptions not generally taken into account, and the rule that wherever bananas grow very easily the same soil is good for cocoa is not an absolute rule at all. They require the same conditions of climate and soil, but cocoa requires more; it should have a deep soil. The banana is a surface feeder, and an alluvium three feet deep, provided there is gravel and free drainge below will suit excellently, whereas clay below does not suit it so well, necessitating elaborate drainage, while on the contrary cocoa does not so much mind a clay below so long as it is not sour but objects more to a gravel. There are some sub-soil to loamy alluvium that are clays; the cocoa thrives there well; other subsoils are sand the cocoa does not object; others are gravels but with plenty of earth, that is a gravelly earth, the cocoa stands this but when there is a bed of pure gravel below, the taproot of the cocoa finds it objectionable, stops growing and dies back, when the top of the trees respond by dying back too. On inspecting a place whereon to grow cocoa, the sub-soil should be a subject of close examination. Another cause of dieback besides the existence of a coarse gravel below, is the too close proximity of vigorous growing bananas. Deep shade is beneficial to young cocoa, but when the plants are well established which is at a year old, it does not do to have them surrounded by dense walls of bananas with the soil crowded with their vigorous greedy roots. The young cocoa, with its taproot striking downward has not many superficial feeders like coffee or oranges, it cannot make a good fight for itself and is often starved. In old banana plantations where there is a large growth and cocoa is to be planted, it is a good plan to plant the cocoa in the line of the bananas and re-plant the bananas between the old rows when the cocoa is two years old. At any rate the cocoa must have light and air, but not direct sunshine above, and plenty of room without severe competition to feed on the soil below. When cocoa trees begin to die back, it often enables them to overcome their weakness by cutting back slightly, and fertilising. This encourages the making of more lateral roots which thus give larger feeding powers.—*Journal of the Jamaica Agricultural Society.*

THE GARDENERS WIL.

WAUKEN, my muse! yer loodest wail,
Lend to proclaim the waefu' tale,
O' a' the ills that do assail
The gairdener's occupation.
If ere by chance ye meet a chiel,
Wi' careworn face an' een that reel,
An' doonbent head, then mark him weel—
His wark is cultivation.

Auld Milton said—I have heard tell
When Adam's curses cam' pell mell,
That maistly on the ground they fell,
As aff his head they glinted.
I weel believe't: the son o' toil,
Wha's lot hae fa'en to till the soil,
For want o' care will never spoil—
His sorrow's never stinted,

Lang syne, when Adam sawed his seeds,
Ere he began his evil deeds,
He ne'er was hathered pu'in' weeds—
Sae says the auld narrator.
But noo, as sune's we tak'a spade,
An' get oor bit o' gairden made,
Gaints us we quickly find arrayed
The very pooers o' natur'.

If even the seasons had the grace
To come in turn an' keep their place,
We wadna' hae sae much to face,
Nor view wi' consternation
In summer, when we look for heat,
We're cursed wi' shooers o' hail an sleet;
An' autumn's early frosts complete
The work o' devastation.

The rain has ruined oor crap o' Peas
The blight has spoilt oor Aipple trees,
Oor grozers covered wi' green flees;
An' then the festive snailes
Did quickly seal oor Cabbages doom;
Sma' wonner tho' we fret an' fume
To see oor best Chrysthan'mum bloom
Nabbed by the forky-tailies.*

Oor foes are mair than mind can grasp—
The grub the weevil, bug, an wasp,
Worms for the Carrot an' the Rasp—
In truth their name is legion.
But, faith, I'll shak' the gairden mud
Frae aff my feet afore I'm wud,
An' quickly pack ilk stick an dud,
An' try some ither region.

Hortus, in the "People's Journal," N.B.

THE USEFUL TAMARISK.

Our readers, who chiefly know Tamarisk as a valuable seaside plant, will be interested in the following account, quoted in a recent number of the *Agricultural Gazette of New South Wales*, of the usefulness of the Tamarisk as mentioned by Dr. Seven Hedin in his work *Through Asia*. The latter author says that in his journey across the terrible sandy desert of Takla-Makan, the last vegetation he saw—that is the plants which euroached the furthest into the desert—were the Tamarisk bushes; and the first he met with again, after passing through the worst of the desert, were the Tamarisk bushes.

"We were now" he writes, "entirely amongst the sand. The last of the Tamarisks which still defied the visitation of death was left behind. There was not a blade, not a leaf to be seen, nothing but sand, sand, sand—fine yellow sand, whole mountains of it stretching over boundless spaces as far as the eye, with the field-

* Earwigs.

glass to help it, was able to reach." After travelling for days and days through similar country, at last, "All of a sudden, Kasim stopped short, gripped me by the shoulder, and with widely staring eyes, pointed towards the east without uttering a word. I looked and looked in the direction towards which he pointed, but could see nothing unusual; but Kasim's eagle-eye had discovered on the verge of the horizon the green foliage of a Tamarisk—the beacon upon which all our hopes of safety were now concentrated. We steered our course straight for the solitary tree, taking the utmost precaution not to lose its bearings. At length we reached it. Our first act was to thank God for bringing us so far safe. We revelled in the green freshness of the tree, and like animals, chewed away at its sappy leaves. It was really alive. Its roots evidently went down to the water stratum. We were now within reasonable distance of open water. The Tamarisk shot up from the top of a sand-due and there was not a yard of flat, hard ground anywhere near it. A strange existence these Tamarisks (Tamarix elongata) lead. Their branches and tough elastic stems, seldom exceeding 7 feet in height, are bathed in burning sunshine, while their roots penetrate to an almost incredible depth, and like syphons suck up nourishment from the subterranean supplies of moisture. In fact, that solitary tree reminded me of a Water-Lily swimming, as it were, on the billowy surface of the desert ocean . . . . I gathered a handful of the leaves, which were not unlike the needles of the Pine, and thoroughly enjoyed the sweet fresh scent they gave off."—*Gardeners' Chronicle.*

RUBBER IN PERU.

PERU (MOLLENDO).—In a recent Consular report it is stated that the rubber industry still occupies a good deal of attention, and although the quantity shipped this year only exceeds last year's output by 15 tons, this is accounted for by the fact that large quantities are being prepared in the interior ready to ship when the dry weather sets in—from the beginning of April. A few remarks on the difficulties that attend this industry may be of interest. From the time of landing here, about 15 days will be occupied in travelling by train, steamer, mule, and canoe to get to the rubber districts. The first range of the Andes has to be crossed at 17,500 feet above the level of the sea before the descent into the valleys can be effected. Sorata, in Bolivia, is the place at which nearly all the roads into the rubber and mining districts converge. The traveller will often be delayed for several days, as all the owners of beasts of burden take advantage f the scarcity of means of transport, and extort the highest possible freights for their animals. Once hwork has been started, the cheaper plan is to buy mules and horses. All supplies have to be carried in, as scarcely anything can be purchased there. However stores are gradually being established on the different claims. The descent is very dangerous in some places, the incline being from 30 to 45 degrees, and the animals often slip and are thrown over the precipices This part of the road, 23 miles in length, takes 12 hours, when Pararani is reached, 4,600 feet above sea-level. From Pararani to Mapiri the road is more practicable, and rubber, Peruvian bark, and coffee plantations are met. Mapiri is the centre of these regions, and from there one strikes off to wherever the claims may be. At least 90 per cent of the travellers fall sick with malarial fevers, more or less intense, although seldom fatal. From Mapiri, Guanay is reached in canoes, or rafts, made of nine sticks fastened with vines; three of these rafts form what is called a callopo, capable of carrying 1½ tons of cargo. The distance is 62 miles, and can be done in one day, going down stream, but coming back it takes three days, the current running six miles an hour. The Indians can only pull at the rate of 1½ miles per hour. From Guanay there are roads that lead to the placer mines on the rivers Tipuani, Covahuira Challana, etc., in which regions gold is found in abundance, but machinery is badly required, especially to dredge the rivers.—*Imperial Institute Journal.*

THE PITCHER PLANT AS A PLANT PROTECTOR.

One of the greatest enemies to Orchid plants in the West Indies is *Blatta americana*—the American cockroach. Numerous are the traps devised and the poisons compounded for the destruction of this insect, and yet it does not appear to decrease in numbers, and regular plans of trapping and poisoning must be adopted by the cultivator if he is to keep his Orchids free from these—almost ubiquitous—enemies.

There are however, natural checks which deserve attention. First among these comes a large spider, commonly though erroneously* known in Trinidad as the "Tarantula."

This spider, with other large species, are very bitter enemies of the cockroach, and assist not a little in preserving the balance of Nature. When it is mentioned that one of these creatures is large enough to capture and kill a full grown mouse—an occurence once witnessed in the Berbarium, and recorded in the *Bulletin*, January, 1895—it is easily understood how the cockroach falls an easy prey to it.

Poultry and larger lizards also feed upon the cockroach. To the barn-yard fowl it appears to be a specially delicate morsel, as is recognised by the negro proverb "When cockroach gib' dance, him no ax fowl."

We have recently observed the help given to the cultivator in the destruction of these depredators by the various species of Nepenthes or pitcher plants. As they assume full development, the Pitchers developed on the end of the leaves become filled with liquid, into which the cockroach is apparently attracted and eventually drowned. The liquid contained in the pitchers is of a similar character to the gastric fluids of the human stomach, and renders any animal-matter fit for absorption by the plant, so that the cockroach is ultimately digested as plant food.

The Nepenthes have been found to be so useful for this purpose that they have been deemed advisable to largely increase the, number of these plants among Orchids, as the damage done by the cockroach has been largely decreased by their aid. The various species of Nepenthes thrive well in the climate of Triniad, and are grown in suspended baskets made of Cedar-wood, in a similar manner to Orchids.—*Bulletin of the Trinidad Botanical Garden, October*, 1902

MANURES FOR VINES.—As a result of numerous experiments recorded in the *Comptes Rendus*, Messrs. Guillon and Gouirand show (1) that on a calcarious soil the effects of the application of chemical manures do not show themselves till after a considerable interval, (2) that potash salts are the most effectual then phosphatic compounds and hastily nitrogenous manures; (3) farmyard manures is highly valuable; (4) chemical analysis of the soil does not give sufficient indication of the kind of manure that should be employed. Experiments followed out during several years are alone capable of guiding the cultivator in his selection.—*Gardeners' Chronicle.*

* Lycosa tarantula, the true trantula, is only found in Southern Europe, and differs in many respects from the West Indian insect, which has been determined as Eurypelma versicolor, Walk., and is sometimes spoken of as a species of Mygale,

VANILLA GROWING AND CURING.

(*Concluded from page 522.*)

GATHERING THE CROP.

Nine months after the flowers appear the beans should be fit to gather. Before this they show the approach of maturity by changing from a dark to a light green, and here very many are harvested when they reach that stage. Many of the beans so gathered spoil in the curing and the balance are always liable to mould when packed.

The bean of *V. pompona* which is not liable to split upon the vine should be left, until it has assumed a distinct yellow tint. It can even be left until the lower end begins to turn brown. Beans gathered in that stage will not spoil in the dying. The plantation should be gone over carefully twice a week and the ripe beans removed singly, being careful to separate the bean at its junction with the stem as the upper end is very easily broken. The practice obtaining here, of cutting off the whole bunch as soon as the first bean shows signs of ripening is a bad one. As several weeks elapse between the opening of the first and last flowers so it is with the ripening of the beans. Consequently when the first bean on the bunch is ripe the latest should not be in a fit condition to pick.

V. planifolia owing to the tendency of the bean to split cannot be left so long on the vine. This must be gathered when the lower part of the bean begins to turn yellow or even when the line up the side of the bean becomes yellow.

CURING.

This is the most important and difficult part of the work of the planter, and if neglected, will render all the previous work abortive. Any one can grow Vanilla but it requires care and experience and constant attention to cure it well. The following are methods which have proved successful with me, and by following them the beginner cannot go far astray, but a year or two of practical experience will be of more service to him than all that can be written. I will first give the methods employed by me in curing *V. pompona* which, however, cannot be applied to *V. planifolia* without incuring too great a loss in split beans. When the beans are first gathered they are taken to the house and spread out, where the sun cannot strike them, six or eight inches deep, upon the floor or shelves, until they turn brown. This takes from one to three weeks, depending upon the state of maturity of the beans, when picked. Beans picked too soon, will sometimes lie for six weeks before turning brown. Those which have been thoroughly ripe when gathered begin to turn brown at the blossom end, those which have been picked before maturity, at the stem end or in the middle. When the beans have arrived at a uniform state of colour (a deep red brown) they can be exposed to the sun. I use wooden trays for this purpose, three by six feet and two inches deep in them. For the first two or three days' exposure it is immaterial whether the beans be covered with blankets or not. They should be turned two or three times during the day, bringing the bottom beans uppermost each time, so that no one part of any bean is exposed for too long a time to the sun. This applies to the whole period of curing and is of the utmost importance. If neglected, some of the beans are sure to be burnt red by the sun.

About three p.m., or whenever rain threatens, before the sun has lost its power, and while the beans are still hot, the trays are removed to the house, stacked one upon the other and covered with blankets. The beans thus retain their heat through the night. At the close of the third or fourth day the beans are removed from the trays and packed while hot into tins and closely covered. (*Here we use old forty pouds biscuits tins for the purpose.*) In these tins they are allowed to remain for a couple of days, when they are again spread on the trays and exposed to the sun as before. Upon being removed from the tins it will be found that the beans have sweated and are covered with moisture, while there will be considerable water in the bottom of the tins. After the first sweating the beans must never be exposed to the sun unless covered with blankets. Some authorities are unanimous in stating that black blankets are essential, but I have never seen a black blanket used. The kind that we almost invariably use are condemned French Army or Navy blankets, and these are of a dark olive green. The heat, dampness and oil of the Vanilla, very quickly rot the blankets which are used for this purpose. From this time onwards these processes are alternated a day in the sun and a day or two in the tins, until the beans are nearly dry. When, however, the beans have begun to shrivel and are soft and pliant, they may be left for a couple of weeks at a time in the tins, without sustaining any damage, only the tins must be kept as nearly air-tight as possible.

As some beans dry more rapidly than others (the best beans always takes the longest time) towards the end of the drying operation, they must be sorted over and the dry beans picked out and this must be done before each exposure to the sun. The bean must not be too dry. It must be of a dark chocolate brown pliable but not "mashy" when rubbed between the fingers. The corrugations formed in drying must show distinctly and not disappear when the bean is bent and drawn over one of the fingers and it should have an oily look and feel. When the beans have arrived at this sorting stage they should never be exposed for too long a time at once to the sun, not for more than half a day at a time and during that time should be turned at least twice. This is to prevent their being burnt by the sun. One thing deserves particular attention, however. The beans must never be spread upon the trays, exposed to the sun, less than one inch in depth. If spread singly the stalk end of some is sure to burn. Another method which I have tried follows the course pursued in the preceding until the beans have lost about half their weight or rather more and have become sensibly wrinkled. They are then spread singly upon frames, covered with wire cloth, thin sacking or netting in a house with plenty of ventilation and allowed to dry there. The frames require looking over every second day, to pick out the dry beans. Either process makes good vanilla. The second is the safer but requires more house room and requires a little longer time. There appear to be many ways of curing *V. planifolia.* Three of these I have tried and will describe. These are, by means of the oven, hot water and exposure to the sun. The object of all is as far as possible to prevent the splitting of the bean. *V. planifolia,* unlike *V. pompona* which seldom splits on the vine, and never after it is gathered, is liable to split during the process of curing and this greatly depreciates its value. Hence more care has to be taken with it, than with *V. pompona.* For all these processes the bean is taken as soon as gathered from the vine, and is not allowed to get brown as is *V. pompona.*

THE OVEN PROCESS.—For this an ordinary brick or stone "bake oven" is requirad, which is heated in the ordinary fashion as for baking. The heat is then allowed to decrease until it reaches a temperature of from 150 degrees to 180 degrees. The right temperature for any particular oven can only be ascertained by experiment. The Vanilla has already been prepared by putting it, carefully laid head and tail, and as far as possible beans of the same length in the same package in packages of one thousand beans, wrapped first in green banana leaves and then in rocking, thoroughly saturated with water and secured tightly around the package. These packages are then arranged in the oven upon a platform of battens, to keep them from touching the bricks and then that is closed and left for from twenty-four to thirty-six hours. The time here is also a matter of experiment as

the capabilities of each oven are different. Upon removal from the oven the beans shonld have become of a uniform light brown colour. They are then spread between blankets and exposed to the snn for six or eight days being rolled up in the blankets at night. At the end of that time they should have become soft and wrinkled and are removed to the honse and spread on frames to complete the drying process. They remain on the frames for about a month,

By Hot Water.—The freshly-gathered beans, in small baskets are plunged for from fifteen to twenty seconds in water on the verge of boiling, that is at a temperature of from 185 degrees to 195 degrees Fahrenheit. They are then allowed to drain for a few minutes, but before the beans can become cold they are put in a pile and allowed to sweat for from twenty to thirty minutes. They are then treated as in the previous process, by exposure to the snn, &c.

BY SUN ALONE.—The fresh beans are spread thinly between blankets and turned several times during the day and rolled up in the blankets at night, for the first two or three days. The after treatment is the same as with the others. In all these process the beans require to be rolled up in the blankets about three p.m., while still hot and packed in some tight receptacle which will retain the heat, until they can be exposed to the sun on the following day. What has been said about the sorting out of the dry beans of *V. pomvona* applies equally to these.

As soon as the dry beans have been picked out they are packed in tins and tightly covered, both to prevent any further drying and to render the ends of the beans as pliant as the rest, preparatory to the measuring, which is the next in order. For this a measuring board is required. The most convenient that I have found is simply a piece of quarter or half inch board, three inches wide and fourteen inches long, with a small quarter inch cleat nailed on one end. From this cleat a scalc of quarter inch interval is marked on the middle of the board from four to elven inches. Neither of these extremes is freqnently used. By drawing the half-inch marks twice as long as the quarter inch and the inch marks as long again, they are more easily distinguished apart. However, even when cut in with a chisel the marks are very soon obliterated by the oil and coloured matter from the Vanilla. The difficulty is obviated and the numbers can always be seen, clear and distinot, by simply marking the scale upon a piece of paper pasted upon a two inch strip of glass so that the scale can be read through the glass and bed the glass, paper side down, in soft putty in a hollow in the measuring board, so that the surface of the glass is level with the surface of the board. No matter how discoloured this may become a rub of a cloth brings out the scale as clear as new. Having his board prepared, the measurer sits at a table with the cleat end of the board next him and (having previously sorted the beans with the blossom ends all one way takes a handful in his left hand, places one of these with the blossom end touching the cleat, holds it there with the left and straightens out the stem end upon the scale and reads its length. Having previously arranged in his mind a place on the table for each size, the bean is put into its place and another measured and so on until all the beans are measured. It is convenient to arrange the work table as shown in the following diagram:—

9¾,	9½,	9¼,	9 in.	Measuring	6 in.,	6¼,	6½,	6¾
8¾,	8½,	8¼,	8 in.	Board.	5 in.,	5¼,	5½,	5¾
				*				
,	7½,	7¼,	7 in.		4 in.,	4¼,	4½	4¾

A good plan for the beginner is to write a label for each size and place these on the table as a guide. In a short time however, nothing of this sort will be reqnired. If one has a large quantity it is advisable to devote a seperate tin to each size. With small quantities, when the day's measuring is finished, th beans are simply tied in large bundles by a strin aronnd the middle and a label of the size is attached to each. These bundles are then packed away together in a tin. With Vanilla as with all other things, the neatness of the package has a great deal to do in aiding the sale, and great care should be taken in the making np of the bundles. It is surprising how different the same beans will appear when carelessly tied and when proper care is taken.

For different markets, different sizes of bundles are preferred. For the French, the beans are tied in bnnches of fifty beans and tied with three strings, one at each end and one in the middle. For the New York market, bunches of from seventy to ninety beans, tied at the two ends only are preferred, and for that of London, bunches of the same size, tied with a single string in the middle. For my part I prefer the bunches tied with two strings. Those tied with one string only, in the middle, look very neat, but if one has many crooked beans, it is almost impossible to make them look neat. Those tied with two strings cause no trouble, and "tell it not in Gath," it is besides possible to conceal a few split beans in each bunch. This is necessary with *V. pompona* as there is but one grade and no market for splits. Of course with *V. planifolia*, where quality tells, I would bnnch all the first olass by themselves and would then tie with one string. To make a bunch, take first sufficient beans to form a moderate handfnl. These will be fonnd to range in number from seventy, for the longest, to ninety for the shortest beans. It is advisable to have the bundles of the same thickness, both for looks and convenience in packing. From this handful select the best and straightest beans (sixteen for a bunch of fifty np to twenty-one for a bnnch of ninety) and lay them to one side. These are to form the wrapper. It will be found that the stem ends of the bean almost invariably turn to one side. In making up the bunch it is necessary that these shonld all be turned inwards to the centre. Thus, holding the bunch in one hand, squeezing and rubbing the beans together, with both hands and frequently tapping the flower end of the bunch npon the table, in order to keep the ends of the beans level, the other end is examined, and all beans, whose ends are seen to point ontwards are turned so that they point to the centre. This being done and the beans again squeezed together, the wrapper beans are put on one after the other nntil the bunch is encircled by them. After again squeezing the bunch and tapping the lower end, a string is tied moderately tightly around the middle, in order to keep the beans in place untill the ends are tied. The flower end is tied first. By tapping this end on the table the ends of the beans are all brought level, when a string is tied fairly tightly around the bunch abont a quarter of an inch up. The bunch is then drawn through the hand, using considerable pressure, from the flower end, watching at the same time that every wrapper bean is straight and in place and then another string is tied about the stem ends. The middle string is then untied and the bundle is finished. This gives a neat bundle.

The string usually used here is common white cotton twine. The best tying material is either Raphia or bast. I use the inner bark of the paper mulberry, soaked for a couple of days in water, and then bleached in the sun. This is nearly as good as Raphia and is cheaper, costing only the labour to prepare it, the "purao" or paper mnlberry being our most common tree. The French method slightly differs from mine. It is a good one when the bundles are to be tied with one string only. By it after selecting the wrapper three beans, others, the straightest, are selected, to form a core and the others placed singly around these, circling round and round them and finishing off with the wrappers taking care always that the stem ends point to the centre. Mine is, however, the quickest and is fully as good when the bunches are to be tied with two strings. Here, for shipping the bunches are

* Operator.

wrapped singly in a paraffine paper, packed tightly in tins holding abont eighty-five pounds each. These are soldered, air-tight and then crated, usually two in a crate, Good Vanilla packed in this way will keep for years. The advantage of wrapping each bundle in wax paper is that in case a bad bean has been packed and becomes mouldy the mould does not extend beyond its particular bundle.

NOTES.

DISEASES.—Vanilla is subject to several diseases, one of which attacks the partially grown bean, causing it to rot and fall off before maturity and another attacks the lower part of the vine, causing it to wither and dry up, while the upper part continues growing although in a partially withered condition until it can send down air-roots when these reach the ground the plant revives. Any beans which were on it at the time however are a loss. I know of no remedy for either, except replanting. The disease which attacks the bean appears to be worst in rainy weather, and in dense shade.

I think that most of our Vanilla is grown in too deep shade. If the ground is kept shaded and cool by a covering of leaves, rubbish or weeds, the vine itself will stand a very considerable amount of sun. Beans grown in the shade are usually longer than those grown in the sun but they do not carry their thickness to the stem end as do the others, and therefore reqnire more care in curing, as the thin end is very liable to burn. In the blooming season I find it advisable to start fertilising the flowers in a different part of the plantation each day. I think that the flowers fertilised in the morning give the best beans, a shower may come up and stop the work when it is only partly finished, or a very heavy bloom may necessitate some flowers being left unfertilised. Hence beginning in different places is likely to make the crop more uniform than if work was begun in the same place every day. A species of slug has been found eating a few of the flowers, but does but little damage. Our worst enemy is a lovely little green dove which eats the buds before they expand. These are natives of Tahiti, and have learned that Vanilla flowers are edible, by some chance, and the knowledge is evidently inherited. The gun is the only remedy. I have seen it stated that the beans have to be dipped in hot water to destroy insects and their eggs and afterwards kept covered with gauze to keep insects from them. I have not found this correct. The reason for dipping in hot water, I have already mentioned, namely, to harden the skin, keep the bean from splitting, and hasten its drying. I know of no insect which attacks the drying or the dry bean. This statement, however, does not apply to the poision of the Vanilla bean, and which some claim is due to a mite living upon the dry Vanilla As to the existence of the poison, I can vouch. As to the cause, I am in doubt; but I incline to think that the poison is a vegetable one, and is inherent to the bean. The sap of the vine is in itself acrid or poisonous, although it is not always noticed. On rainy days or when cutting the vines, either in pruning or making cuttings, it makes itself felt by an irritation and itching of the skin of those parts most exposed to it, the hands and face especially. This, however, does not last for any length of time after quitting work.

The other poison, that of the bean, is different in in its action, and differs also in its action upon different persons. Some few are exempt. On others, myself for one, after constantly handling the drying and dry bean very small watery pustules make their appearance, usually between the fingers and upon the back of the hand. These itch incessantly. In the worst cases, sores break out upon the head, body and limbs, and the itching is intolerable. Lately a remedy has been discovered, and having tried it upon a number of fellow sufferers effecting a cure in every case, it may be held to be a specific. As a boy I used to be poisoned regularly every spring by the poison ivy or oak (*Rhus toxicodendron*), and it appeared to me from the similarity of the symptoms that the remedy used for that, might have an effect upon the Vanilla poison. The lotion is made as follows. Mix equal parts of carbolic acid, glycerine and rose-water, and rub upon the parts affected. The effect is instantaneous, and it at once allays the itching, and in a short time effects a cure. As a preventive, when handling much Vanilla, workers may use Calvert's 20 per cent. carbolic soap for cleaning hands and face, and if this practice is followed, they will seldom be troubled with a renewal of the affection. It is a matter of tradition here that a kanaka, inserted a four inch wire nail in many of his dry beans, thus selling nails at the price of Vanilla and profiting much thereby. This is a most reprehensible proceeding, and one which cannot be recommended. It is, however, recommended to use great care in not getting the beans too dry. Get them just dry enough not to spoil when packed. Every pound of moisture which the beans lose after that point is reached is just so much clear loss to the grower. It is recommended by some to rub oil over the beans when they are dry. The only oil which should be used is that which can be got from split and damaged beans. By rubbing these with a woolen rag in a short time that will become saturated. The good beans can then be rubbed with this and the few occasional drops which come from some of the beans will keep the rag sufficiently oiled. In beans cured in the sun the skin is always oily. Beans cured by the use of hot water or the oven only need the oiling. For first class beans it is worth while resorting to what the French call "dressing.' That is when nearly dry drawing the beans through the fingers, thus straightening them and distributing the seeds and oily matter evenly throught the length of the beans. For the cheaper grades it takes too much labour. Throughout this article I have referred to the fruit of the Vanilla plant as the "bean." This I know is incorrect, but as they are invariably so called, it has been considered best to conform to custom. As regards the cost of making and keeping up a plantation it is not worth while going into figures, conditions being so different in different countries. I may state that in four years from the time of planting on a leased plantation in Tahiti the returns showed on the right side of the balance sheet. The yield per acre is of course variable, depending upon the number of plants grown their age, &c. A plantation will give two hundred pounds of cured beans is a good one, although two hundred and fifty pounds can be grown. After the plantation is made there is work enough on five acres to keep two men constantly employed, besides which extra labour is required during the flowering season, and also for drying the beans. I recommend planting both *V. planifolia* and *V. pompona* in places where labour is limited or hard to get as by so doing, the two varieties flowering at different times, double the area can be handled with the same amount of labour during the flowering seasons. By keeping a record of the number of flowers fertilised the planters can tell very nearly what weight of beans to expect, when the bean matures. I estimate that each thousand flowers fertilised ought to productfive pounds of cured beans. This allows 25 per cent for loss, and I have found this fairly correct. Ordinary beans weigh on the average one pound for each packet of one hundred and fifty beans.

Green beans run at about forty to the pound, and the loss of weight in drying is about seventy-five per cent.

[NOTE BY EDITOR.—It is not quite clear whether the *Vanilla pompona* spoken of by Mr. Mc Farlane is the same as that so known in the West Indies, and wanting an accurate Botanical description it is difficult to ascertain whether it is so or not. It is quite correct, however, as regards the splitting. Our *V. pompona* does not split, but it appears to be a larger plan, and produces a larger bean (triangular in shape) than the one he describes.—*Trinidad Bulletin for August*.]

PLANTING IN PHILIPPINES.

Sir:—I came to these parts early in 1871, with the intention of devoting myself to agriculture and, after two years of inspection and stndy of different districts, finally located in Bangui, (to-day a town in this province, but then scarcely more than a settlement), where soil, temperature and situation fulfilled my aspirations.

I secured from the state 600 hectares of ground which contained soils suitable for growing sugar, coffee, indigo, tobacco, cotton, rice and all the plants indigenous to the country, feeling confident that I should also be able to secure a large portion for those of colder climes.

Many were the difficnlties with which I had to contend, but my courage was sufficiently great to enable me to do so. I canvassed among the farmers and in three years succeeded in collecting 200 colonists together with their families from the various pueblos. The crops to which I devoted my attention at first were: rice, to supply food; cotton, to furnish clothing; indigo, to provide colouring matter; and tobacco, as a luxury. These imperative necessities having been ateuded to, I decided to grow.

COFFEE.

which had from the beginning been my main object, being encouraged thereto by the magnificent results achieved by early experiments. One difficulty presented itself which caused me many a misgiving; this was the slight elevation of the land above sea level; but, taking into account the fact tbat the winds, before reaching the plantation, necessarily crossed a fine forest of magnificient trees and, therefore, had become purified of the elements prejudicial to the growth of coffee I decided to undertake its cultivation.

In four years I succeedsd in planting 600,000 trees, which were the envy of all who beheld them and which promised excellent returns for labour and money expended. In 1889, when the planation commenced to bear fruit, there appeared an insect known as the Bagombon (a species of grub), which entered the plant in a larval condition, leaving no external evidence of its mode of entrance. This insect completely destroyed the inner structure of the plant, though outwardly there was no visible sign of destruction, until the plant had been converted into a limp, serrated stalk, the plant then assuming a yellow colour and having been brought to so weak a condition that the slightest breeze was sufficient to overthrow it. The work of destruction, I have observed, takes a downward course, beginning at the top of the stalk, so that but little is left in a sound condition that wonld enable it to sprout again. This has been the cause of very great loss to me in three or four years, whereas a single crop would have reimbursed me for all expenditnres.

After having replanted a large portion of the land in 1889, another disease appeared, which has not up to the present time been identified, but which destroyed nearly all of the plantations of the adjacent country. On my own plantation I first noticed it in September 1889. It made its appearance in sections and in a manner which greatly surprised me. I at first attributed it to the vast rainfall during the months of Angust and September, but was soon convinced of the serionsness of the matter. The weather improved, and new spots appeared. Then I nndertook a series of experiments in my endeavors to effect a cure, which consumed my savings and proved fruitless. I then solicited the aid of an intelligent person from the Agricultaral School, who might study the disease. They sent an engineer, and he came to the conclusion that the trouble was caused by a fungus or a parasite the remedy against which was either sulphur or sulphate of copper. I experimented with both of these, but with absolutely no result . whatever, due in my opinion, not to the inefficacy of the sulphur or sulphate of copper, but to the fact that this was the season of the year in which the rainfall was greatest, and any work done in the morning was washed away by the rain in the afternoon. Under these conditions and lamenting the continuous great losses, we discussed the possible origin of so fatal a disease and began to snspect (though somewhat tardily) that the almost total disappearance of the first insect which disappeared simultaneously with the appearance of the second evil and which, while troublesome was not injurious, favored the development of the - disease. This coincidence did not occur to me until after the lapse of some time. I endeavoured to act the part of a benefactor and would have succeeded, but for the revolution which destroyed the entire work of thirty years.

Another snbject to which I have devoted much attention is the cultivation of

CACAO,

There being no large plantations in which to study this plant, and the half dozen trees usually affording shelter to the homes of the natives being insnfficient for my purpose, I did not wish to undertake the work of planting on a large scale. I planted some 29 trees at different points, in different latitudes and in various soils. This study caused me so much trouble that I was on the point of abandoning it, but my inclination for the work trinmphed and I succeeded in attaining my object. In 1894 I found myself in possession of the land reqnired; after 18 years of investigation I snceeeded in finding the soil. I planted some 20,000 trees and would have planted as many as 100,000 had I had sufficient fnnds to secure that number. This plantation is a beautiful one and bears well, though not for me, unfortunately. The cultivation of this tree requires conditions which are only to be found in large forests. If the plantations have a somewhat interior location and communication with same be somewhat difficult, it would be necessary in order to defend the fruit against the depredations of monkeys and other two and four-footed animals, to have six guns (impossible to obtain at the present time) and an equal number of men who would be willing to live there, the latter being even more difficult to secure tban the former.

One of the most important considerations in the cultivation of cacao is the selection of seed. Great care must be exercised in this selection, for otherwise while beautiful trees may be grown, they will not bear fruit. This selection should always be made by the person interested and not-entrusted to another, if the owner does not wish to run the risk of failnre.

In my opinion, a plantation of cacao is one of the most profitable undertakings, if the soil be selected with care, permitting the white man to work with comparative comfort in shaded soils.

As is the case with coffee plants throughout the province one may see cacao trees which thrive in the shadow of banana trees or of buildings. Therefore, no hard and fast rule can be laid down governing the point of location; however, as I have said, the pneblo offering the best conditions for its cultivation, is Bangui.

TOBACCO.

The cnltivation of this product was monopolized by the State until the year 1882, when it was declared free. Until that time its cultivation was carried on under the direction of competent persons employed in all the towns by the State, and the ontput for the entire provinces fluctuated between 500,00 and 300,000 bales of a quality superior to that prodnced to-day. After it had been declared free many of the labourers forsook its cultivation and began a custom which soon became a vice,

Commercial honses were not lacking to take the place of the planter, with advantage to the State, when suddenly appeared the great destroyer of Philippine agriculture, the China-man, who received the article, in any form whatsoever, though at the lowest price In view of the fact the planter, having but little need to economise labour, forsook every rule of careful cultivation, simply trusting in Providence to bestow upon him the few pesos he required. The efforts of these commercial houses were frnitless to preserve the quality, if not the quantity; they found themselves compelled to reduce the prices—all of which cause

interest throughout the province in its cultivation to languish. Notwithstanding this, the Chinaman profited by the state of affairs, and proceeded to gather to himself anything and everything in the shape of tobacco.

I cultivated it for some years, long enough to recognise the requirements of its cultivation, but abandoned it when I found that it was utterly impossible to direct the colonists,

INDIGO

This product largely cultivated, the natives simply growing a sufficiently yields well in this province, but it never has been large quantity to enable them to provide themselves with their trousers and shirts. Not so, however, in the neighborhood of Ilocos Sur, where there was a great abundance of this product until the Chinaman—the ever evil-doing Chinaman—commenced its adulteration, resulting in a loss of confidence in the market and a consequent depreciation of the article, until its cultivation.

COTTON.

This is generally grown in soil of poor quality and in a manner leaving much to be desired. The variety is a good one, but the yield very scarce, due to faulty cultivation. Within the last few years it has been grown in greater quantity, but always for domestic use. Now, due no doubt to the importation of fibres from foreign countries, there is constant improvement in its cultivation.

CORN.

Corn is planted in all of the pueblos, but on a small scale, this province being essentially a rice-growing section. Only in times of scarcity of corn in the market, is the crop used for food purposes, it being generally fed to fowls and hogs.

On my farm in Bangui I have experimented with seeds from various countries, which yielded very well for two years; in the third year, however, it began to degenerate, due more to deficient cultivation than to the climate or soil.

SUGAR-CANE.

This is planted in all the pueblos throughout the province in small quantities, though only for vicious purposes, that is, the sap is allowed to ferment with the flowers and leaves of the tree called lama, resulting in a beverage which is preferred to the best qualities of foreign countries. Some planters convert a portion of their crop into panocha, which they send to Cagayan.

The soil, in spite of deficient methods of cultivation, yields much sugar, it being very suitable for growing this crop.

RICE.

This is the most important crop of the province and is planted in moist lands, which abound in all of the pueblos; and even in dry lands it can be grown; if one takes advantage of the rainy season. Different seeds must be used for dry and moist lands, and of these two distinct classes there are again many varieties. This plant is cultivated according to methods acquired during a period of four hundred years, in all of which time there was no human intervention to cause them to relinquish their ancient methods.

Aside from the crops mentioned, there are also grown on a small scale lentils, oton, beneseed, resin and others, of less importance—all for consumption in the interior.

For twenty years the pueblos of Batac, Badoc, Bangui and Sinain have been planting some wheat, which did not yield badly and furnished an excellent quality of this article to the foreign colony in this province until the arrival of flour from other parts, which speedily ruined all chances of cultivating it to advantage.

Now as regards vegetables, tomatoes are grown throughout the entire province and are used extensively by the natives; also egg-plant, amargoso, squash, cucumbers and others. The foreign plants grown are lettuce, endive, pepper, spinach and beet. These latter are used by the foreigneers for food.

On my farm in Bangui I always had a pretty little garden in which I planted Spanish greens, which yielded abundantly. Among others I several times planted large quantities of potatoes and obtained fruit of a better quality than that coming from China: the same with beans, which were of a superior quality whether fresh or dried.

I place myself entirely at your service, and remain.

(Signed), EMILIO A. Y. LALLAVE.

—*The Manila Times.*

FRUIT TREES IN POTS.

A LITTLE OBJECT LESSON.

W. S. CAMPBELL.

The efforts now in progress, in many of our public schools, to make use of portions of the school-grounds for nature teaching and simple experiments in plant growing are greatly to be commended for, doubtless, such work, when properly systematised and carried out cannot but have an important bearing upon our future horticulture, agriculture, and forestry.

With a view to assist such praiseworthy work in a slight degree, as well as to serve as a sort of guide for those readers who may carry out experiments interesting, useful, and at the same time so simple as to be within the scope of anyone, I will give some results, acquired under extremely disadvantageous conditions and surroundings, of fruitgrowing in pots, as well as information as to the methods adopted.

I may say that when I came to live in town, or rather close to town, after having lived all my life on a large area of land, and was confined to a small garden-plot and a miserable back-yard, I felt choked and wretched. The garden was so absurdly small that it seemed hardly worth while to take off my coat to keep it in good order; and it used to make me laugh when I saw the time it took the jobbing gardeners to tidy up the wee gardens of my neighbours. To my astonishment I found that none of the neighbours, performed any gardening work, beyond an occasional watering with a hose.

After a time it occurred to me that I might as well put my few square feet of space to some better use than the usual prim and absurd little cow-pat designs, concocted of echeveria, altemantheras, and suck-like plants, and I may say that I have succeeded to a remarkable degree.

Hundreds of valuable plants, economic and ornamental, have been given away by me to persons in several States of the Commonwealth; and lately I have sent away a vast number of plants of Mr Farrer's introduction, the new Paspalum, *P. virgatum*, which, I think, will prove valuable for cold districts where the famed *P. dilatatum* will not thrive so well.

In this garden, which is generally but designedly in a lovely muddle, are growing a wonderful variety of species of plants such as grasses, saltbushes, fruits in pots, roses, annuals, perennials, bouvardias, cannas—seedlings and otherwise,—dahlias, rice, water-lilies bulbs of numerous varieties, some native plants of New South Wales, straw-berries, violets, nardoo, Japanese roses, seedling roses from Kew Gardens seed, and many other things besides, with seedling grasses, of value for distribution, but which more often than not give this garden an appearance of neglect and wildness.

The soil is naturally poor sand, and I discovered to my disgust that apparently all the rubbish after building such as broken-up slates, stones, old iron, and I do not

know what besides, had carefully been hidden a foot or so below the surface. However, I manage to make the plants grow as I wish without much trouble. My worst enemies are the winds which often sweep like cyclones around here, smashing up everything in a glorious confusion, and the cost of pots to replace those broken often amounts to something serious.

Notwithstanding such little troubles I have managed "fair to middling" as the saying is, with my pot-plants, and I wish to invite particular attention to the fruits in pots, especially to the little peachtree shown in the illustration; indeed, this is chiefly the object of the article.

Fruit in pots are but rarely grown in this State. Occasionally grape vines are shown in pots bearing large bunches of grapes; but this work is a dodge, and not worth describing here. In the countries where fruits in pots are chiefly grown the plants are sheltered generally under glass, and the pots are set in earth, and not infrequently the roots are allowed to grow through the drainage holes into richly prepared soil, which allows a great extension of root.

As this sort of practice did not suit my design, I grew the pot-fruits in the garden, but not plunged in the soil, and I prevented the roots from growing through the drainage holes, my object being to ascertain possibilites of the production of fruit-trees having limited or rather restricted root-areas.

The little peach tree referred to has been grown in a 7-inch pot. The plant when given to me must have been about one year old from the bud, and I had to cut away most of its roots to jam it into a 5 inch pot with a few broken crocks and a little soil. Here it grew as much as I wanted for a year, and then I shifted it to its present 7-inch pot, in which it has been growing for about two years, bearing fruit.

The crop this year, which is shown in the photograph consisted of eight peaches, the average size of each being slightly more than 8 inches in circumference. the total weight of the eight being over 2½ lb. These peaches were beautifully coloured, luscious, and perfect far better than many peaches retailed in Sydney at one penny each at the time.

To ripen the fruit was my greatest difficulty, for I was obliged to keep the plant out of the sight of the numerous youngsters who are constantly passing along the street which bounds my garden, and in whom the instinct to provide themselves with fruit—apparently inherited from our Pithecanthrops or man-ape ancestor, is markedly conspicuous at an early age—and it has been a marvel to me how my peaches escaped detection.

In keeping the plant out of view as much as possible I was obliged to deprive it to some extent of the sunlight so necessary for its proper development and the ripening of its fruit.

Every fruit that set ripened; not a single fruit, strange to say, fell off, and I attribute this to an abundant use of water as soon as the fruits became as large as peas. As may be supposed the evaporation by this plant, growing in a comparatively small pot, was considerable, and it quickly appealed for water, if needed, by its drooping leaves.

Perhaps I have gone ahead rather too fast, for I forgot to describe the potting soil used. This was chiefly sandy loam, vegetable matter, a little charcoal and about a couple of handful of bone-meal. About one part of vegetable matter (old cow-dung for want of something better) to two parts of sandy loam. A better mixture, for anyone who could obtain it easily, would be loam, coarse gritty sand, and vegetable matter composed of rotted leaves. However it will not very much matter what the soil is, provided a good deal of vegetable matter is used in making a potting soil. Vegetable matter is of far more importance for cultivated plants, and particularly so in the field or garden, than is generally imagined, and I feel sure that in the near future a proper appreciation of this important subject will effect a marked change for the better in agricultural and horticultural production in Australia.

But to our pots again. The addition of a little bone-meal will be found of advantage, about a handful or two to the soil required for a 7-inch pot is sufficient. If bone meal cannot be obtained burn some bones and use the ashes instead: you will lose the nitrogen but the phosphate will remain. Whether the bone-meal or burnt bone is used for manure or not, its physical effects are useful, and so is the charcoal broken up into pieces about the size of wheat grains.

When shifting the peach from one pot to another in the winter, I washed its roots thoroughly, and cut about half of them away, and pruned the branches a little. About an inch of broken up pots was used for drainage in the bottom of the pot, a layer of broken up old cow-dung on top of this to keep the soil from washing down, then a little soil on which the peach roots were held, and the prepared soil, rather dry, was shaken in amongst the roots and pressed down well particularly round the sides of the pots, to prevent water and liquid manure soaking through too fast. Potting can be effected very quickly and neatly by anyone experienced in the work, but the operation is not easy to describe. When the potting was completed and the soil well pressed down, the surface of the soil was about an inch from the top of the pot to allow a good quantity of water or liquid manure to be poured in and soak gradually through the soil.

As soon as the peaches began to grow I began to use liquid manure, twice and sometimes three times a week, filling up the inch of space once and sometimes twice at a time after the plant had been watered.

I used a mixture of a handful of nitrate soda, a handful of 'blood and bone' manure, or occasionally fine bone-meal, a handful of sulphate of potash, and three or four handfuls of fowl-dung in an eight-gallon water-can of water. This formed a good sort of stock-pot. I used this liquid diluted at the rate of a gallon of liquid to a gallon of water. Sometimes I did not dilute it at all, when it was freshly made. I think it is better to use nitrate than sulphate of ammonia because the nitrate can be made use of by the roots sooner than the sulphate. Sulphate of potash was used because I found that muriate of potash sickened to death some nice strawberry plants in pots I was making experiments with. It may do as well as the sulphate fruit-trees, and may be worth trying, but I should not advise its application for strawberries except for experiment on a small scale.

I may say that I have found the use of fowl-dung for liquid manure alone most useful, far more beneficial, somehow, than chemical analysis would make one suppose. I used it largely, for many years, for garden purposes, with excellent effect, especially when made into a liquid.

Good liquid manure can be made from the dung of any of the domestic animals, particularly so from that of sheep; and for the growing of plants in pots, such as the peach referred to, one could hardly use anything better. But it is always as well to strain it before use in pots.

The apple shown in the accompanying photograph is eleven or twelve years old. I brought it from Melbourne eight years ago where it was raised from the ground, and I have grown it in a 12-inch pot ever since, occasionally, about every two years, repotting after cutting back the roots rather hard. It flowers well, but in consequence of my confined space and being obliged to keep it close to a fence, and in an unsuitable position, the outside flowers only are pollinated. No other apples are grown in the vicinity, so that the flowers have not the benefit of foreign pollen. Besides this the climate is not at all suitable for apples and I am rather surprised that it bears the excellent fruit it does. I adopt the same treatment for the apple as for the peach so far as the soil, watering, and manuring is concerned. This little tree has been grafted on a blight-proof stock, as well as on a dwarf Paradise stock, and no signs of American blight have ever appeared, but this may be due to isolation to some extent.

To grow dwarf trees iu pots satisfactorily, a good deal of time and patience is necessary, bnt as they grow, and even before they bear fruit, most useful lessons could he taught with their assistance. Other kinds of plants also might he used for nature teaching, and endless interest might he inspired hy a good teacher who can infuse some little enthusiasm into his subjeot.

I should like to add that iu school grounds, where space is available, a few dwarf apples aud pears might easily be grown as garden plauts. Quite a number of varieties could be grown in a small area, if planted ahout 6 feet apart. They had better he grafted on blight-proof as well as dwarf stocks. In order to keep them within bounds, should they give indications of too strong growth, their roots must he pruned, one side or one-half the roots one year, and the other half the next year. The root prnning can be effected by means of a sharp steel spade. A little practice will soon enable any one to root-prune with ease. As for the pruning the heads of the trees, one need only study Mr. Allen's exhanstive articles on the subject, and if he cannot learn all he needs from these, why then he must be a dull person indeed?—*The Agricultural Gazette of New South Wales.*

THE PLANTAIN FIBRE INDUSTRY.

A MADRAS OFFICIAL BULLETIN.

The following are extracts from Mr. Proudlock's interesting "Note on Simple Machines for Extracting Plantain Fibre," just issued by the Madras Government:—

The objects of the present "Note" are (1) to again draw attention to the common plantain as a latent source of an immense quantity of fibre which has hitherto been practically wasted and which might he turned to account by the Indian ryots; and (2) to furnish some information about the two types of primitive machines which are believed to be in common use by the peasants in the Philippine Islands for extracting the fibre of *Musa textilis* (which is the plaintain largely grown there for the productiou of the fibre known in commerce as "Manilla Hemp"), as they are eqnally well snited for extracting the fibre from the common plantain

Although "Manilla Hemp" is yielded by a species of plantain, the fibre is altogether superior to that yielded by the varieties of plantain which are cultivated in India primarily for the sake of their edible fruits. So valuable is the fibre of *musa textilis* that it practically rules the market in white fibres; while the fibre obtainable from varieties of the edible plantain is, as a rule, valued as very little more than half the price of "Manilla Hemp."

The existence of fibre in the common plantain has probably been known in India from ancient times, and its valne and ntility have been hrought prominently to public notice at intervals from time to time. In the early part, and in the middle of the last century, the subject came under the notice of many eminent men in India, foremost among whom was Dr. Forbes Royle who, in his "Fibrous Plants of India," pages 61-90 has given a great deal of valnahle standard information about plantains and bananas and their products; while in this Presidency, Dr. Hunter, among others, seems to have taken a keen interest in the subject. At that time owing to the temporary suspension of the supplies of Russian Hemp to the English market by the ocourence of the Crimean war, the Government iustitnted an enquiry as to the different kinds and relative values of fibres obtainable in this Presidency. The information obtained was interesting and valuable at that time; and it will be found emhodied in "Selections from the Records of the Madras Government," No. XXIII. "Roports on the fibres of Southern India" published in 1856. On page 158, it is stated: The fibre is easily cleaned, but some simple machinery is requisite of the desoriptiou invented by Mr. Underwood or hy Major Maitland, both of which appliances have heen fonnd on trial to he efficient." I have not yet seen any detailed description or plans of either of these simple machines, bnt so far as I am aware, they are not now in nse by the ryots in any part of this Presidency.

Coming down to the present time, it would appear that the maiu reasons why the ryots do not yet make use of the fibre contaiued in the stems of the common plantain are: (1) their general ignorance of its existence; (2) the comparative abnndance of other species of fibre-yielding plants which can be easily and profitably grown by them and with whose fibres and with the means of extracting them they have long beeu familiar; and (3) the want of some simple but efficient machiue or appliance, suited to their means, for extracting the fibre.

The patterns of the two simple machines are shown in diagrams made from the descriptions given in the "Kew Bulletin." Additional Series II, I—Vegetable fibres; and in Volnme IX, Part I, New Series 1891, pages 57-62 of the "Journal of the Agri-Horticultnral Society of India." I especially desire to acknowledge my indebtedness to Mr. A Brown's "Sketch of a knife used hy the Natives at Gnbat, Philippine Islands for extracting the fibre from *Musa textilis*" on page 62 of the journal referred to. The essential principles in Mr. Brown's sketch and in my sketch of machine No. 1 are the same, although it will be observed that the fittings are slightly different in my sketch.

METHODS OF WORK

After describing these two machines in detail Mr. Proudlock contiunes:—

It must not he expected that an ordinary cooly can become really expert at the work of cleaning plantain fibre with one of these primitive machines withont a cousiderable amount of practice. With a view, therefore, to getting a man to become expert at the work he should be kept steadily at it day after day for a month or more on daily wages. As soon as the employer is satisfied that the mau can turn out what he considers to be a satisfactory quantity of fibre per day, he might suggest contract work to his man at so much per pound of fibre. The employer can easily calculate and settle for himself what rate he can afford to offer to his cooly or coolies for the fibre after ascertaining its current market valne.

Planters, zemindars and especially the ryots and villagers who have plantains growing on their estates and in their gardens might, with the aid of these primitive machines very easily and withont much expense obtain all the fibre necessary to make cords and ropes for their own requirements. Should either or both of these patterns of primitive machines ever be adopted by the ryots and villagers, it is probahle that considerable improvements will be effected in them in course of time by engineers or by others of an inventive turn of mind.

The fibre can also he extracted by scraping the plantain strips with a bamboo scraper on a hard smooth board 5' x 6" x 2" precisely in the same way as agave fibre is occasionally extracted from the fresh leaves of the plant by the villagers in the Coimbatore District.*

SUGGESTIONS.

There can be no question as to the vast numbers of plantain stems that are available in this conntry; and it would be a good thing if even a tithe of the enormons quantity of fibre which conld be obtained from them conld be turned to account. The following suggestions are accordingly put forward as been likely, if adopted, to encourage the establishing of an indnstry in the extraction and utilisation of plantain fibre:—

(1) That the professional fibre-cleaners and ryots be visited in their villages and that practical demonstrations be giveu to them, as well as to the pupils o

* *Vide* Bulletin No. 30 "Extraction of *Agave Americana* fibre at Coimbatore."

industrial schools, by trained men in extracting plantain fibre by means of No. 1 machine.

(2) That machines be supplied at practically cost price to those who may wish to buy them.

(3) That competitions be subsequently organised in districts or centres where plantains are largely grown, at which prizes should be offered to the most expert hands in extracting plantain fibre by means of No. 1 machine and also for the best samples of cordage made of the fibre.

(4) That merchants likely to purchase the fibre if it were obtainable in quantity be encouraged to attend such competitions so that producers and purchasers may be brought together in order that a demand for the fibre may if possible be created.

If any real encouragement is to be given for the purpose of introducing the industry among the Indian villagers no half-hearted measures will be productive of much good. It is, therefore, advisable that whatever it is decided to do in furtherance of the scheme should be carefully planned properly directed, and perseveringly carried out in a thorough manner till such time as definite and reliable results are ascertained.

As has already been stated, the fibre obtained from the common plantain is not so strong as that which is obtained from *Musa textilis* the 'Manilla Hemp' of commerce, and it will not therefore fetch anything like the price of the latter. It can, therefore, never compete favourably with 'Manilla Hemp' in the European markets. But, once the natives of India take to extracting and utilising the fibre of the common plantain it is almost a foregone conclusion that an industry in the much more valuable fibre of *Musa textilis** would follow in course of time.

In conclusion, the industry in extracting fibre for cordage from plantain stems after they have each borne their bunch of fruit is more certain to be of local interest and of benefit to the Indian cultivators than it is ever likely to attain any importance as an article of export.

A NEW APPLICATION FOR RAMIE FIBRE.

It has been the fate of Ramie or China grassfibre to have alternately long periods of a smouldering existence and then to burst into a flame of popularity This has been going on for the last hundred years, and notwithstanding that, there can be no doubt as to the value of the fibre, and to its adaptability to a great variety of uses, Ramie cannot yet be included amongst commercial fibres. Quite recently notice have appeared in the *Lancet* and other publications on the application of the fibre for the manufacture of under clothing, a factory having been set up at Carlskrona, in Sweden, special for this purpose. Ramie underclothing is said to be superior to wool, cotton, linen, or silk; further, that it is more durable, is unalterable in its texture, does not shrink, and its properties are unchanged in spite of wear and washing. The fabrics which we have seen are certainly well made, one pattern in particular being so open and withal strong that though the thread itself is not elastic, the meshlike structure makes the material quite elastic—a property that is said to be retained permanently. In consequence of these characters many advantages over other materials are claimed for it, namely, that it does not hinder perspiration but facilitates it and secures complete ventilation, receiving warmth from and returning it to the skin; further, that it is cooling during oppressive heat, and warming in cold weather; and above all, that it 'prevents the germination of diseases. of the skin, rheumatism, &c.' Though the manufacturers are introducing it exclusively for underclothing and hosiery, some of the patterns would seem to have recommendations for ladies' blouses or summer dresses, the pattern being of an open or network character, would look well over a dress of a bright colour. With the view of furthering the use of Ramie we may perhaps say that the English agents for these materials are Messrs. Hall, Nilsen & Co., 47 Mosley Street, Manchester, *John R. Jackson, Claremont Lympstone, Devon,—The Gardeners' Chronicle.*

* The manilla Hemp was successfully cultivated at the Saidapet Farm in 1882-84 and fibre extracted therefrom by scraping the sheaths with a blunt knife by hand. The stems yielded 1 to 2½ per cent. of their weight of fibre. A rope of Manilla Hemp, ½ inch thick sustained a weight of about 500 lb. The cost of extracting fibre by *hand* was of course excessive—C.K.S.

A native gentleman of Valovanur, South Arcot named Venkataramier, states that a specimen of common plaintain fibre has been valued in London at from £25 to £35 per ton. He estimates the production of clean fibre at 1¾ lb. per stem or nearly one ton per acre, and the cost of extracting the fibre by manual labour at R55 and the charges for bailing. transport, freight etc., at R 45. Large profits are possible, if these figures are correct. Certain experiments made at the Saidapet Farm in 1882-83 in extracting fibre from the ordinary plantains showed that the average weight of a plantain stem was hardly 40 lb. and gave not more than 3 per cent. of fibre. The matter is well worth further attention.—C.K.S.

A PLAGUE OF RATS.

Mr. E. E. Fernandez in the May 1902 number of the *Indian Forester* gives an interesting extract from the diary of an Extra-Assistant Conservator regarding damage to trees by rats. Similar damage has been found by me in the Jhalod and Godhra oranges of the Panch Mahals district. The rats here have, however, confined themselves to eating teak bark, gnawing down to the wood. In rare cases they have attacked bamboos; however, where such instances were found I noticed the stem was never nibbled clean through, but only one side attacked; also that the stem was rarely attacked at the butt, but two or three feet up the stem. I so far have found no case in which *Butea frondosa* was damaged. These rats first were reported in June 1901 and soon after that time efforts were made to exterminate them, rewards being offered for every 100 killed. Though about half a million were killed and brought in for reward in the Jhalod range alone, it had little effect in stopping the damage they were doing to crops. They cleared off the best portion of the crops in four out of five of the ranges of this division, causing severe distress throughout the affected areas. They were extremely objectionable in camp, running over and through the tents, especially at night; this one could put up with, had they not at the same time eaten ones boots, carpet and especially every sort of provision not kept in a tin-lined box. These were not the only troubles they gave the public in general; walking became difficult in places owing to one sinking into their holes at every other step, and riding across country became nearly out of the question. About the 1st February 1902 they were noticed to be on the decrease. by the 15th it was only on rare occasions you saw them, and by the end of the month they had completely disappeared. The only thing that can be hoped is that we will be spared from them next year.

R. S. P.

Camp Suliat, Panch Mahals,

7th May 1902.

—*Indian Forester.*

PUSSELLAWA PLANTERS' ASSOCIATON

REPORT FOR 1902.

Your Committee beg to submit to you the tenth annual Report.

MEMBERSHIP.—The number of estates on the Register is fifty. During the year *one* estate has withdrawn and three have joined the Association. There is one private subscription.

FINANCES.—The balance at credit of the Association is R199·41, as compared with R249·99 in 1902.

MEETINGS.—Three general and three committee meetings have been held during the year, at which the average attendance was good.

CROP ESTIMATE FOR 1903.—Acreage in bearing, 21,042; Total crop (Black), 9,555,550; Green tea, 215,000; Native leaf (M.T.), 1,653,500; Native holdings, 5,000; Yield per acre, 438 lbs per acre; Total crops as against 1902, 11,424,050; Acreage in bearing including native, 25,305; Total crop, 11,248,200; Green tea, Nil; Yield per acre, 443 lb. Fifty acres have been returned as abandoned during the past year.

SEASON.—The latter half of the past year has been generally unfavourable for flushing, especially in the higher portions of the district, owing to the unusually continuous and heavy rains of the North-east monsoon. Estimates in many cases, have not been fully realised.

LABOUR.—Labour has been fairly plentiful, but advances show a tendency to increase, and your Committee regrets that the sub-Committee appointed by the Parent Association to consider the Labour question, could not see its way to recommend any alteration in the present laws affecting the relations of employers and employed.

ROADS.—The main and minor Roads in the District have been maintained in good order during the year, and the thanks of the Association are due to the Provincial Road Committee for the grants given towards the up-keep of the latter, and to those members who undertake the supervision of the repairs. The new grant-in-aid cart-road between Ulapane and Riverside has been connected during the past year and is making fair progress.

TOLLS.—The deputation appointed to ask for the abolition of the Gampola Bridge toll was received by His Excellency the Lieut.-Governor in the absence of Sir Joseph West Ridgeway, and the latest advice from the Colonial Secretary (dated 5th December, 1902) is that the matter is still under the consideration of Government.

Your Committee trusts that the final result will be to release the District from a portion of the heavy tax levied on it at present in the form of tolls.

BLIGHTS AND PESTS.—The district has been remarkably free from "Grey Blight, or Rust" during the past year; but your Committee regrets that the "Shot-Hole-Borer" is still very prevalent on some estates, and appears to be spreading. Burning prunings has been tried, but does not seem to have been of much use; at present prunings are being buried with Basic Slag, but it is too early yet to form any opinion as to what this will effect. Helopeltis was noticed on two or three estates round Gampola, but it disappeared without doing any harm.

OBITUARY.—Your Committee desires to express its deep regret at the sudden death of Mr Shelton Agar, an old and valued member of the Association.

(Signed) TOM, HYATT, Hon. Secretary, P.P.A.

		R.
To	balance taken over from Mr Fred Wernham on May 10th, 1902, in Bank	316·39
Do	Five members subscriptions at R12	60 00
Do	Overpaid by one subscription ..	50
Do	Kachcheri order from Chairman, District Road Committee	930·00
Do	Kachcheri order from Chairman, District Road Committee, Kegalla ..	50 00
Do	Kachcheri order from Chairman, District Road Committee, Nuwara Eliya	100·00
	January 1st to Balance	1,456·89

By	Paid Alex. Philip 5 estates subscriptions to Parent Association at R7·50	37·50
Do	Cheque donation to G W Sturgess, Hony. Secretary Society for Cruelty to Animals	10·00
Do	Cheque to Alxe. Wardrop for donation to Victoria Memorial Eye Institute..	50·00
Do	District Road Grants	1,080·00
Do	Stationary, Advertising Clerk, Petties and Postages	79·93
Do	Balance at 31 December, 1902, as per Bank, book at credit of Association..	199·41
	Total ..	1,456·89

RAKWANA PLANTERS' ASSOCIATION

ANNUAL REPORT FOR THE YEAR 1902.

Your Committee have pleasure in presenting their report for the year 1902.

OBITUARY.—Before passing on to the various items of the report, your Committee consider it their duty to record their deep feelings of sorrow at the irreparable loss sustained by the District of Rakwana in the death of Mr Robert Bartrum, of Stubton, which sad event occurred on the 25th September last.

The late Mr Bartrum, who was one of the oldest residents in this district, and one of the staunchest supporters of this Association, will long be missed by his fellow-planters of Rakwana.

REGISTER OF ESTATES.—The number of estates on the roll of the Association for the past year was fifteen (15,) which was an increase of two on that for the year 1901.

NUMBER OF MEETINGS.—There have been four General, and five Committee meetings held during the past year, all of which have been very well attended. The amount of business transacted has been considerable, and the wants of the district have been kept prominently before the Government, with the result that, in nearly every instance, they have been promptly attended to.

OFFICIAL ESTIMATE OF TEA CROP FOR 1903.—The estimate of tea crop for this year is 40,000 lbs. in excess of the estimate for 1902, in spite of a considerable acreage having been abandoned. The acreage to come into bearing is, however, next to nothing, being only 28 acres.

DISTRICT ROADS.—Your Committee have to inform you that all the minor roads in the district, in charge of the Association, have been repaired for the past year, and are in order. An additional vote of R100 was obtained for the Springwood-Elchico road, bringing up the Government moiety to R300. A vote of R67 was also obtained from the District Road Committee for repairing the Stubton Ford, the estates interested contributing a further sum of R33, bringing the amount up to R100. This work has been greatly hindered by wet weather, but is now nearing completion. Your Committee are also pleased to record that the District Road Committee have voted the sum of R335 for the re-construction and repair of all the bridges requiring attention on the Rakwana-Depedene road. The Superintendent of Depedene estate has been entrusted with this work. The lower section of the Rakwana-Bulatota road, from the Rakwana-ganga bridge to the turn-off to the Government bungalow has been, at the request of this Association, taken over by the Public Works Department from 1st January of last year.

GOVERNMENT CART ROAD.—Your Committee are pleased to note that the Government cart road through the district has been maintaind in a due state of efficiency during the past year.

MADAMPA PASS DEVIATION.—Your Committee are somewhat disappointed with the progress already made in connection with this much-needed deviation—only one mile of the road having been made ready for traffic during the year 1902, besides about ¾ of a mile more of earthwork completed. Your Committee hope that now, the most difficult por-

tion of the road having been constructed, more speedy progress will be made with the remaining section, where the work to be done is comparatively easy; and that the entire road will be open for traffic before the close of the present year.

The officials concerned are to be congratulated on the excellent construction of the first completed mile.

Government Buildings.—A palatial set of pioneer lines and an overseer's bungalow have been erected on the Government reserve in Stubton estate. Your Committee fear that this work has been done somewhat at the expense of that section of the cart-road above the Bulatota Pass, which is to be *gravelled* instead of *metalled* from 1st January, 1903.

A new Post Office of ornate and substantial appearance has been built in Rakwana during the past year, and great credit is due to the Provincial Engineer for the expeditious way in which the work has been carried out.

Rakwana Hospital.—The addition to the female ward was completed and opened during the past year, and is found of great use and benefit.

Dr. Wm. C Pieris, the late D. M. O., left the district early in the year, and was succeeded by Dr. T Ohlmus as Medical Officer at the Rakwana Hospital.

Godakawela Field Hospital.—Your Committee regret to state that there appears to be an inclination on the part of Government to close the above hospital and to transfer its patients—mostly cases of "parangi" and malarial fever—to the District Hospital at Rakwana, where it is proposed to erect two separate wards for the treatment of "parangi" cases.

Your Committee have protested strongly against this proposal, and will continue to do so, until Government see the advisability of giving up the idea, and continuing to, either keep up the present Field Hospital at Godakawela, or to build the proposed two new wards at Palawela, which is far more centrally situated.

Annual Certificate:—Factory Machinery Inspection.—Your Committee regret to inform you that no definite reply as yet been received from Government to the resolution on above subject passed at the general meeting of this Association held on July 5th, 1902, which resolution was sent in to Government on the 21st July last. All the reply vouchsafed up to the present has been that "the revision of the new rules" was still "under the consideration of Government."

Railway Extension to Ratnapura.—Your Committee have much pleasure in informing you that the sum of R25,000 has been voted in the Supply Bill of 1903 for the survey of the proposed extension of the Kelani Valley Railway to Ratnapura. The surveyors are already at work, and it is reasonable to suppose that the survey will be completed in about eight months from now, which will be about the time that the last section of the Kelani Valley Railway will be opened to Yatiyantota, so that no delay should take place in moving the plant and engineering and working staff on to the new extension. Your Committee think it would be a graceful act on the part of His Excellency the Governor, and the crowning point to his hitherto uniform progressive policy, to announce to us before he leaves the island towards the end of this year that the Ratnapura Railway has been sanctioned, and will shortly be commenced.

Colombo-Rakwana and Balangoda Mail Service.—Your Committee consider that the thanks of this Association are due to the Postmaster-General for so promptly acceding to their wishes in providing the two districts with a through mail and passenger service to and from Colombo in the one day.

The discontinuance of the Sunday coach, however, is felt to be a great deprivation and inconvenience, but it is hoped that steps will soon be taken to have it reinstated.

Kelani Valley Railway Time-Table.—Your Committee regret that no alteration has as yet been made in the above time-table, in order to enable the coach to leave Avissawella and arrive at Rakwana at an earlier hour than it does at present, and to also obviate the necessity of the return coach leaving Rakwana at such an early hour as 5 a.m.

Your Committee intend to continue to press the matter, and are in hopes that the General Manager will be induced, before long, to make the required slight alteration in the present Railway time-table.

Appointment of Resident Headman at the Village of Ittakande.—Your Committee are pleased to inform you that, at the request of this Association, Government were pleased to appoint a Resident Peace Officer to the village of Ittakande—a very desirable and necessary appointment.

Labour Supply.—Your Committee are of opinion that the labour supply of the district is totally inadequate to present requirements, and regret to note that coolies are not coming in from the Coast as in former years.

There appears to be a tendency on the part of planters to draw their supplies from other estates, and there are some Companies who are still giving out unlimited advances, which tends to demoralise labour, and to discourage legitimate recruiting from the Coast.

Advances.—Your Committee regret that, owing to the scarcity of labour from the Coast, advances have shown an upward tendency, but that, compared with some other districts, the average rate per head is fairly moderate.

Tin-Ticket System.—Your Committee are of opinion that this system is not workable in a district like Rakwana, which is 54 miles from the nearest railway station. When the railway is extended to Ratnapura there will be some chance of the system finding favour in this district.

Weather.—The past year has been an abnormally wet one, and most estates in the district are, in consequence, short of their estimates.

Health.—The general health of the coolies in the district has been fair, and the mortality normal, and there has been a complete immunity from all serious epidemic diseases.

Helopeltis.—It is much to be regretted that this pest has proved very rampant throughout the district during the past year, and that it appears to be increasing in virulence year by year.

Rice.—Rates of rice throughout the year under review, though somewhat high, have been unusually even. The monthly rates laid down by this Association have been adhered to, and accepted by the Chetties.

Cart Hire.—The rates of cart hire to and from Colombo remain the same.

Accounts for 1902.—The accounts for the past year have been submitted by the Honorary Secretary, and your Committee are pleased to inform you that the balance standing at the credit of the Association on the 31st December, 1902, is R177·05.

Outlook for the New Year.—Your Committee are gratified to note the better tone apparent in the tea market, and are confident that, if the warning note *re coarse plucking* lately sounded by the Tea and Produce Committee of the Ceylon Association in London, is heeded by all those concerned—especially Colombo Agents and V. A.'s—a bright future should be in store for the industry.

The increased manufacture of green teas being another factor towards enhancing the value of blacks, and thus restoring the industry to its former position, should be strenuously encouraged.

Your Committee, therefore, consider that Government ought to be asked to come to the rescue in providing the "Thirty Committee" with sufficient funds to make up the deficit in the green tea bonus of 1903—a step which would not only directly help on the planting enterprise, but which would also prove indirectly beneficial to the Colony at large.

DIKOYA PLANTERS ASSOCIATION.

REPORT FOR 1902.

MEMBERSHIP.—There are 79 members on the roll, 75 estates and 4 private subscribers, as against 80 members last year, one estate having withdrawn, being one of a group whose interests are already represented.

FINANCE.—Your Committee are glad to be able to report that the finances are in a satisfactory condition, all outstandings having been paid, and a sum of R7·90 is in hand, as against a debit balance of R57·82 at the end of last year.

The accounts have been audited by Mr Hamlin and certified as correct.

LABOUR.—Whilst as a whole the District has been sufficiently supplied, your Committee would strongly urge on its members, in view of the shortage which undoubtedly exists, the desirability of recruiting fresh labour from the coast, and not relying on their neighbours for their requirements.

LABOUR FEDERATION.—During the year two Committee meetings and one General meeting have been held. The Committee had some serious differences of opinion to arbitrate on, and are glad to say that in each case the parties concerned agreed to abide by the decision of the Committee, which course is to be strongly recommended. A scheme for Local Federation was brought forward and was fairly well supported, but as the required support of 75 per cent of the acreage was not obtained, it fell through.

HOSPITAL.—Your Committee regret that, notwithstanding the urgent claims this District has for a new hospital, during the year under review no steps have been taken to rectify this most unsatisfactory state of affairs, beyond surveying a site for the proposed New Building. It is, however, with satisfaction that your Committee are able to report that the hospital was personally inspected by His Excellency the Governor on January 20th, 1903, who is now fully alive to the pressing need there is of at once taking in hand this most important work. The thanks of the Association are due to His Excellency for giving this matter his personal attention, and it is to be earnestly hoped that before long the District will be in possession of a hospital not only suitable for the purpose it is intended for, but worthy of the requirements of the District.

TIN TICKET SYSTEM AND REGISTRATION OF ESTATES.—This has been working satisfactorily during the year, and, with the few minor improvements in details now being made, will prove to be a still greater boon to Planters. Your Committee would urge all members of the Association to give the system a thorough and careful trial. The registration of estates is now compulsory, whether estates avail themselves of the scheme or not.

DISTRICT AND MINOR ROADS.—The main roads are in good order, having been much improved by widening the bad corners and narrow portions. A sum of R900 has been received and distributed on minor roads which have all been well kept up.

RAILWAY MATTERS.—The improvement—more especially in the Goods Department—which was hoped for in our last annual report, has not been noticeable. Hatton station is however, being nlarged, and is better regulated.

HATTON POLICE MAGISTRATE.—During the year the Government was petitioned to relieve the Magistrate of his work at Nuwara Eliya and Nawalapitiya. The Dimbula, Maskeliya and Ambegamuwa Planters' Associations supported this Association, and Government has now relieved the Magistrate of his Nawalapitiya work, which should lead to less delay in dealing with cases.

POLICE.—The Police appear to have generally done their work both well and efficiently, and it is worthy of comment, that since the establishment of a Guard-room at Kotiyagala, petty thefts, such as fowl-lifting, etc., have practically ceased.

PESTS AND DISEASES.—Your Committee are glad to report that on the whole the District has been free from any serious outbreak of either

NURSING ASSOCIATION.—A scheme by which Superintendents and Assistant Superintendents of estates can now receive the full benefits of the Association, by estates subscribing a reduced sum to the funds, has lately come into forces Your Committee would commend this scheme to all Proprietors and Agents of estates, for whilst by joining they would assist in putting the Nursing Association of Ceylon on a sound financial basis, they would also at the same time provide for the efficient nursing of their Superintendents in time of sickness.

OFFICIAL CROP ESTIMATE.—The returns have been received from all estates except 9 for which an average based on previous returns has been struck. The figures are as follows:—Total tea 29,329 acres; tea in bearing 28,611 acres; estimated crop 13,022,450 lb. This gives an average of 455 lb. an acre, against 465 lb. last year. Your Committee are of opinion that last year's estimate of 13,000,000 lb. owing to the abnormal season was not realised.

OBITUARY.—Your Committee regret the losses to the District caused by the deaths of Messrs R H Tennant and John Fyler.

STATEMENT OF ACCOUNTS.

EXPENDITURE.—To accounts paid on account, 1901, R61·86; 79 subscriptions at R7·50 paid A. Philip, R592·50; clerk for 12 months, R120; advertising R61·78; rent of room, R75; labour federation expenses, R5·25; postages, R36; stationery, R15; telegrams, R1·70; cheque book, commission, etc., R14·55. Total R983 64. Balance in hand R7·90. Grand total R991·54. *District Road Account.*—To amount spent on roads R833; balance in hand R67.—Total R900.

RECEIPTS.—By amount brought forward R4·04; 75 estate subscriptions at R12/50, R937·50 and 4 private subscriptions at R12/50, R50, R987·50. Grand total R991·54. *District Road Account.*—By amount of vote R900.—Total R900.

By amount carried forward as per Bank passbook, R74.90.

"OOLONGS" TEA—AND THEIR MANUFACTURE.

Having sent a copy of the pamphlet concerning Formosa Oolongs to Mr. Fairhurst, he is good enough to write to us as follows:—"I only saw it (the pamphlet) on the morning of the Dimbula Planters' Association meeting when it was too late to alter my paper. I do not suppose that anyone in Ceylon has tried the process indicated in the

pamphlet, and I should imagine that there would be difficulty in so doing and great loss of time, an article of which the Chinese take little account. As the crop of Oolongs in Formosa and China is gathered only three or four times during the season—the bushes yielding nothing in the winter, the loss of time is of far less consideration there than it would be in Ceylon where the gathering of the crop would be continuous. As I said in my remarks—I do not think that Ceylon can successfully imitate the Formosa Oolongs; but I think it can do so as regards the Foochow Oolongs. But as Foochow can largely increase its production of Oolongs, I doubt whether the average price, which Ceylon might expect for its manufacture of them, would be good enough to induce estate to make them. And I also doubt whether Oolongs made by machinery would compete successfully with those made by hand—that, however, remains to be proved and is, I think, worth trying. Since reading my paper I have seen a sample of green tea (young hyson) which, I consider, is an excellent tea, and which is an exact imitation in make, liquor, and aroma, of the China article and will, I think, certainly pay well."

"GOOD CULTIVATION AND DISEASE."

Mr. Carruthers writes with reference to the following paper as follows:—

"A few notes I have jotted down when reading Marshall Ward's recent paper on most interesting experiments with rust on Brome grass—perhaps the *T.A.* would like the *MS.* I want to kill the idea of 'feed up your plants and no disease will come' which makes men allow insects and fungi to go on unhindered."

A recent paper by Professor Marshall Ward, describing the results of some experiments on the relations between some species of grass belonging to the genus Bromus and the rust fungus *Puccinia dispersa* which attacks these grasses, is of wider interest because it throws additional light on the question of predisposition of plants to disease. A belief is very general among horticulturists and agriculturists both in Europe and the tropics that most, if not all, diseases of plants can be avoided by keeping the plants well nourished. This is, of course, true of diseases due to unhealthy conditions. Such diseases as come from starvation, freezing, excess of sun, excess of water, &c., &c., will be prevented if these conditions are not allowed to exist: but these are not the diseases that the farmer and planter most fears. He fears most those of which he does not understand the exact cause; and as he knows well the causes of the evils just mentioned and the way to prevent them he is not troubled, and proceeds to prevent and cure them by giving his plant healthy conditions and plenty of food.

The fact the planter has learned by experience—that by keeping his plants in a high state of health he wards off these "environmental" or "physical cause" diseases—has unfortunately led him to believe that in other diseases, caused by the attacks of specific organisms such as insects, fungi, or bacteria, feeding the plant and giving it healthy conditions, will be of use. While there can be no harm in carrying out this treatment, yet if these are the only measures taken against such diseases as finger and toe, cacao canker, rust in wheat or any other such disease, the effect can only be to prolong the struggle without altering the final result, just as to feed up an animal suffering from the attacks of internal parasites, without removing the cause of the illness, would only bring a temporary appearance of health, if even that. Professor Ward's experiments consisted in starving some of the Brome plants by various methods—chiefly mineral starvation—and by keeping another series in a vigorous state of health by ample nutrition. The plants showed the effects most plainly in their reduced root system, narrow and pale-coloured leaves, and stunted growth, their lack of health. When, however, the healthy and unhealthy plants were both submitted to similar infection of the rust fungus, the fungus grew equally on both strong and weak plants. The starved ones did not, as might be supposed, afford too little food for the fungus and thus be immune to attack, neither did they, as the practical man's belief often leads him to think, fall an easier prey than the well-fed plants. And still further it was found that though the size and quantity of the fungus on the starved grasses was less than on the healthy ones, owing to their obtaining less food, yet the spores formed by the fungus from the weak plants were equally virulent in their capacity of infecting other plants.

The moral of this and much other scientific work on plant pathology is that the motto of the planter should be—not: Keep your plants well fed and tended, to prevent disease—but: Keep your plants well-fed and tended, *in sanitary conditions, and remove chances of infection*—to prevent disease.

J. B. CARRUTHERS.

THE GOLD COAST COLONY.

The official report on the Gold Coast Colony for the year 1901 has been issued as a Parliamentary paper in the series of Colonial Reports [Cd. 788-45]. The revenue from ordinary sources amounted to £471,193 3s. In addition to this must be reckoned grants in aid of £25,000 for the Northern Territories and £197,700 for the Ashanti disturbances. The net increase in the general revenue, exclusive of grants in aid, over the revenue of 1900 was £138,340 19s. Under the head of Customs there was an increase of £68,264 5s 11d, this being attributable to the marked expansion of the colony's import trade. There was a falling-off of £411 15s 5d in the revenue from the Northern Territories which is ascribed to the stoppage of the caravan trade with Ashanti and the failure to obtain the annual supply of trade goods owing to the Ashanti rebellion. There was a total increased expenditure of £110,847 8s 10d; the expenditure on the Ashanti disturbances during the year was £124,392 5s 2d. The Government loan for the Ashanti war, received partly in 1900 and partly in 1901; was £400,000. The total value of exports and imports combined amounted in 1901 to £2,360,760, the highest figure yet reached except in 1899. But whereas in the last few years imports and exports have shown a more or less equal proportion of value, the large total for 1901 is

entirely due to imports, as the exports have shown a conspicuous decline. The United Kingdom claimed 73½ per cent of the imports, and 45 per cent of exports; Germany 10½ per cent of imports 26 per cent of exports and the United States 5¾ per cent of imports and four per cent of exports. Rubber exports showed a marked decrease (224,126) in 1901, which was due in part to the low prices on the European markets and in part to wasteful handling of the rubber vines; with care and attention there is every hope that the rubber trade may revive and its values and quantities regain the standard of former years. Palm-oil and palm-kernels, the other two staple articles of export, also showed a decrease, and the trade in kola-nuts still manifests signs of having been severely affected by the Ashanti rebellion in 1900. Cocoa is the only article of export which showed an increase for 1901, and this amounted to £15,537 in value. A further increase is confidently expected for the current year.—London *Times*, Jan. 1

PLANTING IN DOMINICA.

[TO THE EDITOR OF THE "TIMES."]

Sir,—Two years ago you were so good as to give publication to a letter from me in which I attempted to indicate the advantages offered by the island of Dominica for the profitable investment of moderate capital. Thanks to the kind assistance thus given by you, the island obtained an advertisement from which it has considerably benefited. Over 100 persons, possessing the requisite means, placed themselves in communication with me; and a good number of young men have since gone out to Dominica and have become planters there. I am happy to be able to state that with one exception, who "threw up the sponge," they are all doing very well and appear to be entirely satisfied with their prospects. Several have taken up considerable blocks of the Crown lands, and they are rapidly transforming areas of primeval forest into promising plantations of cocoa, limes, oranges, and rubber. They have already got through the rough part of their work, and are settled in smart cottages and bungalows where the amenities of a decent mode of living are very apparent.

THE NEW ROADS

recently constructed into the mountains and valleys the interior have opened up and rendered accessible many thousands of acres of splendid lands, and there is still room in Dominica for scores of the right kind of men. For the benefit of those who may not have seen the communication which appeared in your issue of September, 1900, I beg that you will allow me to recapitulate, as concisely as I can, a few of the special advantages which are offered by the colony which we are now trying to develop.

THE CLIMATE IS EXCELLENT,

and especially suited to persons who have a tendency towards pulmonary affections. Yellow fever is unknown and malaria very rare. The districts bordering on the leeward coast of the island are rather warm in summer, but in the mountains of the interior and on the windward coast the temperature all the year round is delightful. While it is exceedingly difficult to purchase a plantation already yielding crops of cocoa or limes, there are over a hundred thousand acres of very fertile land in the possession of the Crown which can be purchased for 10s an acre with facilities for payment. There is, at present, no tax on land, and other imposts are very light. There is a good supply of labour at rates varying from 8d to 1s 2d a day, and the population is steadily increasing. The rainfall is abundant and a great number of streams afford water power.

THE FARE TO DOMINICA

by the Royal Mail Company's boats costs £25, return ticket £40 and the journey takes 13 days. There are several other lines of steamers calling at the island and it has frequent communication with the United Kingdom and with America. There is an open market for all the local products, and the trade f Dominica has doubled itself in the last six years. Some idea of the recent extension of agriculture may be obtained from the fact that during last year over 60,000 seedling plants of cocoa, limes, oranges, rubber, vanilla and other products were distributed to planters from the nurseries in the Botanic Station. All these plants were sold below the cost of production, and the Imperial Department of Agriculture is always ready to give advice and assistance to any planter requiring it. The island is now in a sound financial condition, and means have been found to carry out a number of works of public utility. An excellent steamer plies constantly round the coasts; new roads have been made in many directions, and the old ones put in fair order; bridges are being built over the largest rivers, and telephone lines are being extended round the island. A good public library was built and opened last year as a memorial to her late Majesty, and a social club has just been established in Rosean.

THE VALUE OF PROPERTY

is increasing rapidly, and there is every prospect of further improvement. A long period of depression is being succeeded by an era of prosperity; and, instead of that feeling of discouragement which exists in those West Indian islands where sugar is the staple industry, we find in Dominica a cheery and sanguine spirit ready to give cordial encouragement to every scheme that gives promise of working for the good of the island. Owing to its excellent climate, abundant rainfall, fertile soil, and other natural assets, Dominica offers advantages for tropical agriculture which are rarely found combined elsewhere. To men of independent spirit the life of a planter has many attractions, and it is generally conceded by all who know the place that, if its possibilities were more generally known in England, all the unoccupied land now available would very quickly be taken up. To the tourist the island is a source of unalloyed pleasure. It is undoubtedly the most beautiful of all the Antilles. Considering the size of Dominica—about 300 square miles—the scenery is remarkably grand and imposing. The rivers and streams are full of waterfalls and cascades; the mountain sides are clothed with the richest vegetation; luxuriant groves of tree ferns struggle with a variety of palms for the mastery of the soil; and altogether the island is a veritable mine of beauty.

I may add that Dominica has been

ABSOLUTELY UNAFFECTED BY THE RECENT VOLCANIC DISTURBANCES

in Martinique and St. Vincent; and competent scientific authorities have recently expressed the opinion that little or no danger need be feared on this score. If any of your readers care to make further inquiries into the subject of Dominica with a view to becoming planters there, I shall be happy to reply to any inquiries that may be addressed to me, care of Messrs. Grindlay and Co., of 54, Parliament-street, S.W. I would not, however, advise any one to entertain the project of becoming a planter unless he can dispose of a *minimum* capital of £1,500. With many thanks for the space you have been good enough to accord me.—I am,

H. HESKETH BELL, Administrator of Dominica.
December 29.
—London *Times*, Jan. 3.

AN OIL BURNER.

Speaking of the oil burner patented by Mr. Allan Renny, of Penang, our northern contemporary says:—

The question of oil fuel is one which for a considerable period has occupied, and continues to occupy, the attention of locomotive and marine

engineers, ship building firms, and indeed steam users generally. Various forms of burners have been placed on the market, and though considerable efficiency has resulted, there is no reason for believing that finality or anything approaching it has yet been reached. To obtain the fullest advantage which liquid fuel possesses over solid fuels it is important that the burner should provide means for the complete combustion of the oil, and thus avoid the deposit of a solid residue. Mr. Renny claims for his invention that it affords a simple means for the more efficient and economical combustion of liquid fuel for the production of steam, for smelting and for other purposes, and that it overcomes many of the objections attached to oil fuel burners as hitherto constructed. The apparatus consists of a casing fitted with an oil inlet and having two internal diameters with two nozzles attached, one being fitted within the other and forming with the outer casing passages for air, steam, and oil. If necessary it may be worked by air pressure instead of steam, though the latter is stated to be the more economical. We understand that Mr H Cowdell, of the Cradley Heath Boiler Works, Staffordshire, is the English agent for this burner, and that applications have been received from several important firms for permission to adopt it. Under these circumstances there is not the least doubt that the burner will receive the fullest trial, and we trust these trials will bear out the satisfactory results which were obtained during the experiments carried out in this Settlement.—*S F Press*, Jan 21.

THE ANOPHELES MOSQUITO.

A Reuter telegram from Liverpool, dated January 9, says :—"A letter has been received by the hon. secretary of the Liverpool School of Tropical Medicine from the leader of the Sierra Leone expedition of the school, Dr. Logan Taylor (who has been sent on an expedition to the Gold Coast by the school), with reference to the progress of the expedition in Sierra Leone. Dr. Logan Taylor says :—'I am getting a report ready for the school about the Sierra Leone work and will let you have it soon. We had to stop most of the men at the end of August, only keeping on the oiling gang after that. I am well pleased with the work this gang has been doing during my absence, as when I went round to inspect their work I found both in untouched and drained streets a very noticeable absence of anopheles larvæ in places where we used to be able to get any number. This is due, of course, to their not being able to breed owing to the pools being either swept out or oiled regularly. The result of this is, that, compared with the corresponding time last year, in some of the notoriously bad streets, where in a single house we could find as many as six, seven, or a dozen anopheles mosquitoes in the early morning, this year with great difficulty, after searching house after house, we could get one, or perhaps two, adult insects. I can keep on an oiling gang of men and the headman Shaw until the end of February or so, by which time I should be free of the Gold Coast, and am leaving 11 men to peg away at Grassfields District until I return to Freetown. An extra £500 has been put down in next year's estimates for continuing drainage work. The engineers are working at the hill railway, and also at the new waterworks. I may say that since the men of the Liverpool School expedition stopped clearing up yards and emptying out the water containing culex larvæ no one else has taken up the work, and these insects are getting bad again; in fact, the rubbish is beginning to accumulate in the yards just as before, and several of the Europeans were complaining to me of being much annoyed by culex and stegomyia. This means that, unless the Government or the school will keep on the work, the money the school has spent on it will be almost thrown away. My destination now is Cape Coast, where I am to go and take charge of the sanitary work of the town and see that my former recommendations are carried out. The people at Accra have been very kind, and the principal medical officer and the medical department are doing everything to assist me.' "—London *Times*, Jan. 10.

RUBBER PLANTING IN TENASSERIM.

The Rubber Planting experiments in the Tenasserim division by the Forest Department have been continued on an extended scale, 772 acres of land having been cleared and 663 planted with *Hevea* during the past year. The area of the experimental garden has been extended by some 42 acres, and the Kambe rubber plantation, Rangoon, has been taken over by the Forest Department from the Cantonment Committee.—*Madras Mail*, Feb. 4.

"DE INDISCHE MERCUUR."

This excellent and ably edited agricultural and commercial weekly, published by Mr. J. H. de Bussy of Amsterdam, has attained its twenty-fifth birthday, which has been commemorated by the issue of a special number, with an artistic cover, containing a number of contributions by well-known Dutch writers on agriculture with facsimiles of their signatures, a history of the "Indische Mercuur" by Mr. de Bussy, &c., &c., and numerous illustrations. Among the papers is a reprint of the *in memoriam* notice, by Mr. F. W. Van Eeden, of Mr. J. C. B. Moens, formerly the director of the Government cinchona plantations in Java, who died in 1886, and who once paid a visit to Ceylon. We congratulate our contemporary on having reached the quarter-century of its existence, and wish the "Indische Mercuur" a long career of usefulness.

UDAPUSSELLAWA PLANTERS' ASSOCIATION.

REPORT FOR 1902.

P. A. Meeting.—There has been four general meetings held during the year and which have been fairly well attended, the average attendance being about 14, the number of estates on list is 26, being same as last year.

Funds.—The funds of the Association are in a satisfactory condition.

Tea.—The yield for the year has been a fairly average one, though there has been a falling off during the past three months. The district prices have been well maintained and have on several occasions shown stand out prices.

Roads.—The main road during the past year has been kept in very fair order, considering the railway works are being carried on and credit is due to those

in charge for having kept the road open at all times.

Minor Roads.—Generally are in good order.

Postal.—It is to be hoped that Government will give the District a Post and Telegraph office at Ragalla when the railway reaches this point.

Light Railway.—Beyond a certain amount of earth cutting little has been done during the past year, and this Association hope to see more rapid progress in the near future. A connecting road from Maturatta to Brookside is a necessity, if the railway is to receive Maturatta Produce.

Tataparai Scheme.—So far as it has been tried appears to work satisfactorily.

Labour.—Is none too plentiful though in a fairly settled condition, advances are normal.

Rifle Corps.—Has now being formed and consists of 17 members. Range has also been settled upon at Dickson's corner and is now being made.

Conclusion.—Although the prices for the first six months were not so good as last year a very decided improvement has now set in, and it is to be hoped we have heard the last of depression in the tea industry as a decided better tone appears generally both at home and in Ceylon.

NUWARA ELIYA PLANTERS' ASSOCIATION.

REPORT FOR 1902.

The past year has not been an eventful one as far as this Association is concerned, and consequently it has not been necessary to call many meetings.

The number of members who have paid subscriptions individually or on account of estates is 19, as against 18 last year.

The annual official estimate of tea crop for 1903, is as follows :—

	Estates	Total Acreage	Bearing Acreage	E'mated Crop lb.
Nuwara Eliya, Ramboda, New Galway, Kandapola	20	6,720	6,615	3,118,500

—the estimate yield being at the rate of 471 lb. per acre, as against 466 lb. for 1902.

The past season has not been altogether a satisfactory one as regards yield, the main factor in bringing about this result has been the abnormally wet sunless weather during the latter part of the year, coupled with a considerable amount of damage done in certain properties, by frost in the first quarter of the year. The price for high-grown tea has continued to be disappointing

Labour.—During the first half of the year was fairly plentiful, but few estates are as fully supplied as could be wished to meet the demand, which may be expected in the ordinary course during the second quarter of the year.

Increased Advances.—Your Committee regret that owing to the scarcity of labour coming in from the coast, advances are increasing and at the moment stand at rather a higher figure than they did at the same time last year.

The Tin Ticket System and Registration of Estates—has worked satisfactorily during the year, and will prove, we trust, a great boon to planters generally.

Pests and Blights.—Your Committee is glad to report that the district has been free of them during the year.

Health.—The general health of the coolies in this district has been quite satisfactory and there has been complete immunity from any serious epidemic.

Rice—during the year was rather cheaper, but the price is still rather high.

Railway Extension from Nuwara Eliya to Kandapola.—The resolution passed at the last meeting of the Association having been forwarded to Government, Mr. Oliver, the Chief Resident Engineer of the Northern and Udapussellawa Railway extension, was dispatched to meet a deputation of this Association composed of Messrs. W A Mooyart-Denison, C J Bayley and S P Blackmore, with whom were associated the Provincial and District Engineers (Public Works Department) who kindly attended to the invitation of your Committee. The deputation pointed out to Mr Oliver some of the most dangerous places where the railway encroached on the cart-road. These, he proposed himself to have fenced of with wire, and in a few instances to limit projecting corners. In the opinion of your Committee these minor protections are quite inadequate to make the road (the only road of any merit as a drive for residents at the Sanatarium) safe for horse traffic, which it must be made, for local purposes.

Finances.—The finances are in a satisfactory condition. The credit balance is R97·51, as against a balance last year of R85·76.

(Signed) S. P, Blackmore.

PRICE OF RUBBER.

A very determined effort is being made to raise the price of india-rubber. We are favoured daily with all sorts of reports about it, and if we had taken it seriously every time we were told it was "a penny up," we should now be in despair. We hope in the interests of the Trade to have no higher price ; manufacturers do not want 1897-1898 to be repeated.

A meeting is supposed to be held annually which is kept strictly secret of various rubber dealers. The chairman produces a lot of tickets which have got quite faded and black from age and long usage, and taking one at a time, the meeting discusses its chances. The first is headed "flood," and describes how that the rains have been so heavy that the floods have not yet subsided. The rubber gatherers are waiting, but as yet the water covers the earth, and nothing can be done. So much time has been lost that it will be quite impossible to gather sufficient rubber before the rainy season begins again, and a short crop and high prices are inevitable. The next card is quite topsy-turvey. Here the rains have been so slight that the rivers are quite unnavigable. The rubber is there, but getting it down to the ports is the difficulty. The rivers are not likely to rise before the season ends so a short crop, etcetera. The next card is a terrible picture. We would turn from it in horror. It depicts fever-stricken men left to die in misery and solitude, while others are escaping by any possible means from the pestilential land. It would be simply inhuman to expect rubber to be gathered under such conditions. The crop will not simply be short ; it will be a mercy if there be any crop at all. These are the three chief trump cards. There are others of lesser importance, but which have at times come in handy. The shortness of silver does duty occasionally, though that might reasonably be expected to work the other way. If a gatherer has to bring two pounds to get his silver dollar instead of one, there should be all the more rubber. But the card is used all the same. Then the native is getting so well off that he will not work. They have all done duty many times before ; one or other of them has turned up every year, when the crop was 5,000 tons, and when it has got to 25,000 tons. The only one we have any sympathy with is the shortness of silver. We often feel that way ourselves. The meeting drags them all out, considers carefully which is the most likely to be swallowed this year and adopts it. Then, through the whole of the india

rubber manufacturing world, for some weeks nothing else is heard but this. Somehow, rubber buyers always seem to take the bait. They remind us very much of that stockbroker whom one of our contemporaries recently spoke of. The man had a dream; dreamed that he was dead, and had passed to the regions beyond, where, as a new comer he was shown round by an older inhabitant. They came to a place where the fire was terribly hot, but men were walking about in it unharmed. To his inquiry who these were his companions expressed surprise. "Why do you not know them? They are your clients. They are so green they will not burn."

Rubber manufacturing for some years has not been very profitable, and with increased competition and indifferent trade, the outlook is none too bright. The attempt to rig the price of the raw material must be nipped at once or it may do harm. The remedy is easy, in our opinion. Let the larger manufacturers agree that if Pará goes over 3s 6d they will close their works till it comes down. They will not be closed long, and as their chief lines are in things the rival firms are unable to tackle, they will lose no trade by it, They will do themselves and the whole trade a service.—*India-rubber Journal*, Jan. 5.

MR. WILLIAM JACKSON AND HIS PATENTS.

Mr. William Jackson of Tea Machinery fame now informs us that he cannot say much about his new "Planet" Tea Rolling machine, that would be of general public interest at the moment, beyond the fact that his experimental tests in New Peradeniya factory, with this machine, have satisfied him that a satisfactory Roller will be the outcome of his exertions.

Mr. Jackson leaves for England as soon as he possibly can, to have the results of his experiments put into practical form, and hopes to have the improved "Planet" at work in the Island before the end of the year.

His liquid-fuel burning arrangement, as applied to a Paragon Dryer at Labookellie, Ramboda, is giving every satisfaction we hear. This apparatus requires no steam for its use, is very simple and easily handled by the cooly-attendant, and maintains an even temperature of 200 deg. or more if desired, with a consumption of about four-and-a-half gallons Liquid fuel per hour. This includes time for getting up heat when starting, and loss by machine occasionally running empty. The Liquid fuel costs about 12 cents per gallon in Colombo and the actual cost will vary on different gardens, in relation to the cost of transport, but generally speaking the cost per gallon on gardens, within reasonable range of the railway, will be from 20 to 30 cents.

The advantage of this compressed-air system of burning liquid fuel, are clearly set out in circulars that may be obtained from Messrs. Walker Sons & Co., Ltd., or the apparatus may be seen daily at work on the Labookellie Garden, by appointment with the Manager there.

RANGALA PLANTERS' ASSOCIATION.

REPORT FOR 1902.

Your Committee in discharging its duty begs to submit the third annual report of the Rangala Planters' Association.

REGISTER.—The number of subscribers is twenty-one.

MEETINGS.—There have been three general and two committee meetings during the year, at which the attendance was good.

ACCOUNTS.—A statement of the accounts is laid upon the table, shewing a balance of R36 55 to credit.

OFFICIAL ESTIMATES.—The total crop of 1903 is estimated at 2,098,000 lb., out of which 150,000 will be made into green teas.

TEA.—The feeling of confidence expressed in the last annual report was not altogether warranted, and the season has not been so favourable as was anticipated; owing to the inclemency of the weather yields have, with a few exceptions, been less and prices have ruled somewhat lower. The year closes with a firmer and more confident tone.

CARDAMOMS.—The crop for the last year has been the largest secured, being 56,000 lb. over the previous season. The pickings during the latter half of the year were exceptionally heavy, the dry spell of weather in the early part of the year suiting the higher-lying estates. Most of the crop secured from September to December is still in store, and the quantity being large, will add considerably to the exports for 1903, which it is estimated, will slightly exceed last year's outturn. Very little new land has been added to the planted area, only a few acres here and there having been opened up. The cultivation in native lands has quite come to a standstill owing to the fall in prices.

LABOUR.—The labour-supply in the district remain much the same as usual, and whereas some estates are short-handed, others have maintained the labour forces up to requirements. Your committee would recommend special efforts being made to recruit for new districts; with the tin-ticket system and a competent recruiting Agent this seems feasible.

HOSPITAL.—The unofficial Hospital Visitors report satisfactorily on the Hospital at Teldeniya and the Ferndale Dispensary. Their reports and recommendations will be laid before you.

POST AND TELEGRAPH.—The telegraph line was opened to the public in February and has proved a great benefit; but a new Post Office at Teldeniya to combine both the Postal and Telegraphic business is desirable.

LIGHT RAILWAY.—A sub-Committee was appointed to collect statistics in connection with the proposed extension to Teldeniya and the project is under consideration.

POLICE.—The scheme for amalgamating the present Police Forces into one central station at Teldeniya was suggested by the Government Agent; it is hoped that the alteration which promises a more thorough system of patrols in co-operation with the headmen, will have the desired effect of better efficiency.

LABOUR FEDERATION.—No cases have been brought before the General Committee and matters are working harmoniously.

CEYLON PLANTERS' RIFLE CORPS.—The C.P.R.C. has been well supported during the year, and the shooting as compared with the previous year has greatly improved, there being seven marksmen, four extra-efficients, two efficients, and two non-efficients, whereas in 1901, there were one marksman, five extra-efficients, seven efficients, and five non-efficients. It is to be hoped that all new-comers will join the corps. The new drill ground is in a central position, and if possible a new range will be made.

MAIN ROADS.—These have been kept in good order through the year.

MINOR ROADS.—The sums voted by the District Road Committee have been advisedly spent and these roads are much improved.

THE GANGAWATTA ESTATE COMPANY OF CEYLON (LTD.)

REPORT OF THE DIRECTORS.

Acreage :	Tea in full bearing	...	335 acres
	,, partial bearing	...	2 ,,
	,, not in bearing	..	8 ,,
	Grass land	...	10 ,,
	Total	...	355 acres.

The Directors beg to submit their Sixth Annual Report and Statement of Acconnts for the year ended 31st December, 1902.

The total Crop of tea secured for the year, including 12 lb. carried over from season 1901, amounted to 188,135 lb., against an estimate of 170,000 lb. a most satisfactory result in the face of a season, the second half of which has been almost universally unfavorable.

The whole of the crop, save 10,500 lb. on which a safe average is struck, has been sold, in Colombo, and has realised R67,175·94, or an average of 37·82 cents per lb. as compared with 38·62 cents in the previous year.

The yield is 560 lb. per acre.

The cost of production, including 1·98 spent on manure, works out 25 13 per lb as against an estimate of 26 cents. In the expenditure is also included a sum of R1,075·29, cost of repairing the dam, an unexpected item, and of course unprovided for.

92 acres were manured on the Bitterne Division with artificial manure. This completes the first round of manuring the property.

The Working Account shows a net revenue of R23,475 94, to which has to be added a balance from last season of R158 and R2·50 transfer fee. Out of this an interim dividend of 3 per cent has been paid absorbing R5,355. After providing for interest (including interest on mortgage), for Superintendent's Commission, Auditor's and Secretariat Fees, there is an available surplus of R13,947·55, which the Directors propose should be apportioned as follows :—

		R.	c.
To Final dividend of 4 per cent	...	7,140	00
To depreciation Account	..	1,050	00
To Reserve Account	..	4,503	67
To Directors' Fees	..	1,000	00
To Balance to next season	..	253	88
Total	..	13,947	55

The Estimate for 1903 points to a crop of 180,000 lb, expected to cost R47,584·75, including cost of manure R5,180·00.

In terms of the Articles of Association Mr W Anderson retires by rotation from the Board of Directors and is eligible for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

The Directors wish to record the loss they have sustained by the sad death of their colleague, Mr Shelton Agar, since their last Meeting.

KALUTARA PLANTERS' ASSOCIATION.

THE ANNUAL REPORT, 1902.

Your Committee beg to present the annual report for 1902.

MEMBERSHIP.—The number of estates on the register is 28, one less than the number last year.

MEETINGS.—Two General, three Committee, and three Sub-committee meetings were held.

CROP ESTIMATE.—

	Total acreage.	Acreage in bearing.	Total tea crop.
1903 ...	16,692	16,045	6,977,265
	Green Tea.		Native Tea.
	2,206,265		139,500

—139 acres of tea-land were abandoned during the year.

		1902.
Estimated Crop	..	6,970,743
Actual Crop	..	6,672 519

LABOUR.—The supply of the district has been fully good during the year, but more use has been made of the resident Sinhalese than in late years. Recently instances have occurred of the agents of other districts trying to recruit labour from us, and the general feeling at the close of the year was that the force was becoming unsettled, with a more or less general demand for increase of advances, which at present stand at a low average rate per head.

THE MARKET—for low country teas was very weak during the first part of the year, but latterly there has been some improvement, and the present year opens with much brighter prospects.

GREEN TEA.—During the year 1,149,500 lb. of green tea have been made, which have found a ready sale at remunerative prices.

PARA RUBBER.—Several small clearings have been opened, and there are now about 360 acres in the district planted with rubber only, and it is estimated that there are 300,000 trees and plants of various ages growing through the tea.

CROP.—The output of the district shews a very considerable increase over that of the previous years, amounting to 7 tons of cured rubber, against 3½ tons in 1901. The excellent quality of our rubber has been well maintained and although the extreme price realised early in 1901 has never since been obtained prices for Ceylon rubber in London continue to be considerably higher than the average paid for rubber from any other part of the world.

SEED :—There has been a brisk demand for seed and plants during the year. Out of 1,300,000 seeds sold, only 414,000 were sent out of the Island, all the rest were despatched to various parts of Ceylon, the Kelani Valley taking the greater quantity, as well as most of the 460,500 plants, which were sold by various estates.

EXTENSIONS:—Next year some 450 acres will be opened in rubber, and most estates are now planting it more or less generally through the tea. The amount of land suitable for rubber cultivation is not large, so that the output will necessarily be limited.

In view of the great probability of rubber being stolen, a sub Committee consisting of the Chairman, Secretary, and Messrs Tipple & Bagot, was formed in April to consider this question. The matter was referred to the Committee of the Planters' Association of Ceylon and is now in the hands of our Member in Council.

TELEGRAPH EXTENSION TO NEBODA :—Your Committee are glad to be able to report that the telegraph office at Neboda, which this Association has been agitating for since 1893, is to be opened very shortly.

POSTAL ARRANGEMENTS :—The postal service, which year Committee stated in last year's report was most unsatisfactory, has been altered and now gives general satisfaction. The thanks of the Association are due to the Postmaster-General for running the two services as asked for.

PROVINCIAL ROADS :—The very meagre expenditure allowed on these roads has made it impossible for the Department to maintain them in a satisfactory condition. To maintain the roads in even passable order at least double the money is required, and your Committee hope that during the ensuing year more liberal votes will be sanctioned.

DISTRICT ROADS :—The residents much appreciate the work which has been done on the Tebuwana-Anguratota bridle path, but the great proportion of the road is unfit for traffic, three bridges being in an unsafe condition. The minor roads generally are in fair order, but on some, notably the Tudugala-Tebuwana road, over which there is considerable transport of leaf and tea, the amount allowed for upkeep and repairs is quite inadequate.

CRIME.—Your Committee regret to report a marked increase of crime in the district, chiefly in the form of burglaries, highway robbery, cattle lifting &c. Efforts to bring the criminals to justice are but very partially successful, and your Committee cannot think that if a better watch were kept on the movements of numerous bad and doubtful characters, who live in the district without having any visible means of support, much might be done to improve matters.

The C P R C.—Your Committee are glad to report that the Planters' Rifle Corps has been well supported during the year.

The KALUGANGA NAVIGATION COMPANY.—A steamer service under this title has been running between Kalutara and Anguruwatota since April of this year, and your Committe would report the very high appreciation of the district for this great step in transport facility. From the point of view of the shareholders the results have not been at all satisfactory, but the district is to be congratulated on the data and figures of traffic which the 8 mouths' working showed. Under new auspices and on a basis more fitted to obtain traffic there seems no reason why this service should not become permanent and be a success in the future.

FINANCE.—The balance in the Bank at the close of the year amounted to R539·29; there is a further sum of R500 on loan to the Kalutara Cricket and Sports Club.

DOLOSBAGE AND YAKDESSA P. A.

ANNUAL REPORT 1902.

MEMBERSHIP:—The number of subscribers to the Association was 35 including 2 private votes.

MEETINGS;—There were two general and three Committee meetings held during the year.

FINANCE:—The balance at credit was R178·15 plus R5·94 due to the Association by the Nawalapitiya short cut making a total of R184·09.

SEASON:—The past season has not been a good one. Crop has been generally short owing to unfavourable weather and other causes. The market at the same time has been the lowest on record.

THE ESTIMATE OF CROP FOR 1903 is as follows:—

Aveiage in tea	16,316	
do do bearing	15,901	
Black tea	5,907,500	
Green tea	285,000	6,192,500
Native leaf		154,000
Total		6,346,500

This being 389 lb. per acre against 400 in 1901.

LABOUR:—The supply during the year was sufficient on most estates a few only being short. Your Committee is pleased to be able to state that the services of the Federation Committee were not requisitioned.

TIN TICKETS:—Your Committee considers that the Tin Ticket system has worked admirably.

PESTS:—Your Committee regrets that the district has not been free from pests during the past year. Helopeltis appeared on some estates and Borer has doubtless accounted for some of the shortage on others.

RIFLE CORPS:—A section has been formed during the year and a Rifle Range established at Penny-lan.

CEYLON NURSING ASSOCIATION:—Your Committee recommends Superintendents to ask their Proprietors or Agents to allow them to subscribe annually on estate account to this excellent institution.

MATALE PLANTERS' ASSOCIATION.

THE ANNUAL REPORT.

In bringing forward the report for the past year, your Committee has pleasure in being able to state that the position of the Association continues to be satisfactory. The number of estates on the register is 63 against the same number last year; the finances are in a satisfactory condition, the meetings have been well attended and the various subjects discussed have been followed with keen interest.

Following our custom the reports on the different products of the district have been written by members specially interested in each. The position of tea has if anything, improved since last year and ws may add that the Association is satisfied with the manner in which the XXX Committee deal with the interests of our staple. Cocoa is agriculturally in a sound position and prices are better than last year though still rather uncertain. The heavy rains of the last three months of 1902 did a great deal of damage and caused serious loss to what promised to be a very favourable crop, also producing recrudescence of canker. The crop picked for the year, however, was a satisfactory one and probably the largest. the district has ever sent away. The cocoa stealing question is in the hands of the Planters' Association, that body having on the 4th November last unanimously adopted a resolution brought forward by your Chairman. His Excellency the Governor intends to appoint a Commission to enquire into the question. The delay which this will cause is very disappointing and in the opinion of your Committee unnecessary, as the facts on which the Association rests its case, have been put into pamphlet form and can be enquired into at any time. These facts were accepted as establishing a grievance, when a deputation waited on the Lieutenant-Governor on 28th June last, and we were then told that what was necessary to enable Government to take up the case, was a favourable expression of native opinion: that expression of opinion has been obtained. A large and influential deputation of native cocoa growers, headed by Mr Daniel Joseph, waited on the acting Colonial Secretary in September last and obtained a favourable reply. Lists were circulated amongst the native proprietors for signature and were signed by over 600 owners. The following paragrapb headed these lists in English, Sinhalese and Tamil and was drafted word for word by the A G A of Matale, and approved of by him, before the lists were sent round for signature. That paragraph is also word for word the resolution which was passed by the P A on the 4th Nov., last, so that the Planters and A G A of Matale, who has devoted special attention to this question, are at one on this point; and the conditions demanded by the Lieut-Governor have been fulfilled and yet the case has been delayed. Assuming however that a Commission is necessary, it is difficult to understand the delay in appointing one which has taken place since the opening of the Legislative Council, and by which, any legislation is postponed for another year and until His Excellency Sir J. West Ridgeway has left the island. Your Committee can only express its disappointment and surprise. The paragraph referred to is:—

SPECIAL LEGISLATION FOR CACAO STEALING.—"We, the undersigned, are of opinion that the law, as it now stands, is not sufficient for the protection of cacao-proprietors. We would, therefore, respectfully suggest some amendment of the Praedial Products Ordinance, which, while continuing to make the possession of *green* cacao without a satisfactory account of such possession an offence, might also provide against the dishonest possession of *ripe* and *cured*

cacao. We should also be grateful for any protection against 'receivers' which the Government may be disposed to grant."

Your committee is of opinion that the cultivation of Para rubber and coconuts, as being valuable adjuncts to that of cocoa, can be largely extended in this district. The growth of Castilloa rubber in Matale is also very satisfactory.

The unlicensed sale of toddy in this district continues almost unchecked and causes a deplorable amount of drunkenness amongst our coolies, and is a constant incentive to theft of produce from the estates. The A G A of Matale recognises the evil in the last Administration Report of the Central Province and remarks "I have no reason to believe that offences of this kind could be put down except by fresh legislation."

RAILWAY.—Your Committee wishes to thank the General Manager for the alteration of the afternoon train, so as to give an additional train to Colombo in the day. A serious washaway occurred on the Matale line in November last, and caused great inconvenience by the stoppage of traffic. Your Association addressed Government on the subject with the result that the aerial railway lately in use at the Boer Camp will probably be acquired by Government for use on such occasions. Your Committee also hope to see an emergency gang of coolies under skilled supervision, formed by the Railway authorities, to take slips and washaways in hand directly they occur. In accordance with the request of this Association a Goods Shed has been erected at Ukuwela.

POST OFFICE.—Your Association addressed the other Associations of the island on the subject of the extension of hours for postal money order business and received an encouraging amount of support.

LABOUR.—Sinhalese are largely employed in the district, and where they are available it may be said to be fairly well supplied with labour, but the supply of Tamil labour is insufficient. Difficulties between kanganies and superintendents, or between superintendents, are happily few and far between in Matale, so that the labour Federation does not receive the attention that might otherwise be the case.

The C M I AND THE C P R C are well supported in Matale, the number being 11 for the former and 24 for the latter, and efficients are: C M I 11 and C P R C 19.

TEA.—Extensions both in India and Ceylon are very limited, and consumption is increasing in every country. The American demand for our greens is highly encouraging, and the rapid increase in the consumption of our teas in Russia is a most promising nature. The industry appears to be on a sounder footing than it has been for years The yield for 1902 has been somewhat larger than last year, on most estates, owing to the very favourable weather during the early part of the year, and the falling off in yield during the last quartor was owing to the continued wet weather, and there has been no serious drought or pest in the district during the year under review. The rainfall on one estate which might be taken as typical, was at the end of August, only 3·90 inches ahead of last year, but at the end of December was 34·92 inches in advance of 1901. Manuring has perhaps been done to about the same extent as last season, with beneficial results, but it is to be hoped that this will not be overdone, with the tempting prices now ruling for our teas. The style of plucking in vogue on most estates in 1901, has been generally adhered to during the past year, and will, we hope, be continued. Prices ruled very low for the first nine months, but took a welcome turn upwards during the last quarter, and the year closed with fairly good prices, and good prospects for the new year, should the output be kept within reasonable limits. Very little green tea has been made in the district, and we are of opinion that the increase in the tea cess will be very beneficial to Matale.

The comparative figures for the year under review, and for 1903 are as follows;—

	Total, acreage in Tea.	Acreage in bearing.	Balance young clearings.	Estimated Crop 1903 including greens.	Green Tea Estimate.
1902	19,566	17,345	2,221	7,613,215	No returns.
1903	19,459½	18,403	1,056½	8,362,575	148,000
Increase	—	1,058	—	749,360	—
Decrease	160½	—	1,164½	—	—

	Black Tea Estimate.	Yield per acre.	No. of Estates.	Native leaf.	Tea abandoned.
1902	7,613,215	418	79	no return	407
1903	8,214,575	454	80	61,750	330
Increase	601,360	36	1	—	—
Decrease	—	—	—	—	77

COCOA.—The agricultural position has improved in the district during the past year, and it is noteworthy that those estates which suffered first from canker and disease, are now better than they have been before. Those that were attacked late, are recovering, whilst some estates which have only recently been attacked, have their struggle before them. It is satisfactory to know from our experience, that this struggle will in all probability be successful. Speaking generally Forastero has maintained a comparative immunity from disease, and it is probable that as the acreage of red cocoa decreases this immunity will be more marked, as less disease will be harboured on estates, and hybridisation with the weaker variety will not be so frequent. It will be seen, therefore, that a constant importation of a fresh stock of plants from the West Indies, and elsewhere, is very important to maintain the strength necessary to resist disease amongst our trees. At the representation of the Cocoa Committee, Government has arranged for a fresh importation of plants, but this should be made an annual occurrence, so that later on a fresh and healthy supply of seed could be always available The past year promised to be a record one, as regards crop in Matale, and although probably more cocoa has been sent away last year than ever before, the Autumn crop has been a disappointment on some estates. This is entirely owing to unfavourable weather in the North-East Monsoon. Considerably more rain fell in October, November and December than in the preceding nine months of the year, and the consequence was a recrudescence of canker especially amongst the pods, by which the crop suffered very seriously, both in quantity and quality. Prices have been better during the past year, and a satisfactory point is that our Forastero Cocoa is now going readily in consumption in England. Also it is to be noted that a considerable quantity, cwt. 8,641 was shipped East from Colombo, thereby giving our produce another outlet and taking what is probably inferior cocoa off the home market. The acreage of European cocoa estates in Matale is as nearly as can be ascertained 8,465 acres, of which 7,000 are in bearing—that of native owned cocoa is given by the A. G. A., Matale, at 2,250 acres. This is not supposed to be more than approximately correct, and having been estimated by headmen, whose ideas of area are vague, is probably exaggerated. The native cocoa is younger than that on estates, so that even accepting the above as correct, it is a liberal estimate to take 1,500 acres as in bearing. The Railway returns have unfortunately not yet been received in a complete form, but such figures as are available point to an average yield of 2 cwt per acre. Cwt 1,137 were sold to natives by Europeans. Cocoa stealing has been fully dealt with elsewhere, and it is sufficient to point out that the legislation, which the A. G. A., of the

district and the growers of cocoa, both European and native, agree in thinking necessary, is nothing new. By Ordinance 22 of 1886 cinchona was protected in the following manner:—

'Whenever the bark of the branch, root or stem of the cinchona shell be found in the possession of any person who is unable to account for his possession thereof, such a person shall be deemed and judged guilty of an offence and shall on conviction, be liable to the punishments provided for theft of prædial products under section 368." To which lashes might be added. This protection was obtained for the up-country planters by Mr Thomas North Christie, and never pressed unduly on any honest man. Your Committee wishes to point out that the Madras Act has failed, because it is found impossible to exercise sufficient check over the owners of native gardens, and this is precisely the difficulty here. The Grenada Ordinance had to be amended, so as to make it similar to the Cinchona Ordinance mentioned above, with the addition that any person convicted under it *must* be lashed in addition to any other punishment. In fact, it seems, in dealing with such a subject that the protection given to cinchona in Ceylon, is the only feasible protection, as we find the Mauritius Ordinance for the protection of vanilla to be exactly similar. Your Committee recognises and appreciates the efforts made by the A G A, of Matale, Mr Alexander, to suppress cocoa theft, but individual effort is not the proper thing to rely on in such a matter. Officials are changed, then often the previous policy is reversed; as an instance, we quote from the P.A. report of 1895, in dealing with this subject.

"The acting Government Agent, Central Province, has threatened the headmen that unless cocoa stealing is prevented and put down, a force of police will be quartered and maintained at the expense of any village where such thefts prevail." This promise has not been kept. If it had been, it is probable that the demand for special legislation, would not have been necessary.

CARDAMOMS.—Extension among European and native cultivator go on apace, almost every pocket of forest suitable is destined for this cultivation. At present, Matale district alone has probably 2,000 acres under cardamoms, or about 1·5th of the total cardamom acreage of the island. The cardamom estimate for 1902 was 600,000 lb, for the island, but the total crop shipped was 615,922 lb, and a large portion remains to be shipped during the early months of 1903 which will add considerably to this year's crop. The total estimates for 1903 are not likely to be short of 700,000 lb.

COCONUTS.—Coconut planting in Matale is steadily increasing both amongst natives and Europeans, but on European-managed estates they are generally grown as an adjunct to other cultivations, so that it is difficult to give an accurate idea of the area under this product. It is found that a distance of 25' to 30' apart is the most suitable for planting in this district and where trees are in full bearing, the yield has been found to be exceptionally good. There is no doubt that all the lower parts of the Matale Valley are well adapted to this cultivation, which should pay handsomely.

PARA RUBBER—Report by Mr F J Holloway:—The chief points to be cleared up concerning this product are in what soil, and at what elevation can Para rubber be profitably grown:—On Kepitagalla there are trees growing from 500 feet to 1,500 feet above sea level, and on keeping a careful record of yield at the highest and lowest elevation, the result has been that the yield is practically the same, although the trees are smaller in growth higher up age for age. And so to soils, they seem to yield well in most soils, except in a sandy one, where they will not yield anything. As to yield I will quote from my letters to the "Times of Ceylon" and Ceylon *Observer* of Aug. 22nd, 1902:—

Number of trees tapped once...3,903
Dry rubber from 1st tapping ...2,128

or just over half a pound per tree, some of these trees were tapped again and gave equal results, thus making 1 lb rubber per tree per year. Each tree should be tapped twice a year and will yield more as it gets older. Trees tapped were 8 to 11 years old.

And now as to cost of production.

Dry rubber gathered from Jany. to May, best quality 1,302 lb
Scrap ... ... 60 lb equal to 1,362 lb.

Cost of tapping and curing 1,362 lb rubber	R570	63
Transport rail fare, boxes, &c. ..	31	13
Tapping knives, tins, &c. ..	36	60
Total cost in Colombo..	R638	36

on an average cost of 46·86 cts per lb sold at an average price of R2·63 per lb. The cost has been further reduced to 45 cents at end of October, and later sales averaged 3s 11d. The average quantity brought in by a cooly per day was nearly one lb when dry. Seed being plentiful and cheap, it would not cost R7 per acre to plant up this rubber on the suitable portions of existing estates. The exports of dry rubber will probably exceed 12 tons this year. The price of Para rubber has risen from 3s 0½d at the beginning of the year to 4s at the time of writing, but the latter price has only been procured by Ceylon marks—no other part of the world fetching anything within 6d of this price.

CASTILLOA RUBBER grows well all over the lower parts of Matale, and seems to thrive in a dry climate, and on hillsides, as well as in flat and damp situations. On Ambanganga estate, which is devoted to the cultivation of this variety of rubber, the growth is exceptionally fine and promising. As fas as experiments have gone in tapping trees of this variety the yield has been satisfactory, and there is every reason to look for good results.

The Hon. SECRETARY then brought up the following statement of accounts, which was passed:—

1902 December 31st.	R.	c.		R.	c.
By balance from 1901 ..	94	51			
Do 63 subscriptions at R5 ..	315	00	—Total	409	51
To stamps, postage, etc. ...	28	39			
Do printing ..	9	50			
Do stationery ...	45	10			
Do advertising meetings ..	33	75			
Do purchase of one deed box and one minute book	14	11			
Do rent Borron Hall ...	10	00			
Do donation, Hatton Nursing Home ..	20	00			
Do contingencies, viz: coolies' batta, tolls, telegrams and commissions on cash and cheques ..	11	25			
Do balance carried forward to 1903 ..	237	41			
	R409	51			

B H JENKYNS, Hon. Secretary, December 31st, 1903.

Audited and found correct.—J B TENNANT, January 15th, 1903.

MORAWAKKORALE PLANTERS' ASSOCIATION.

THE ANNUAL REPORT.

The following Report of the Committee for the year 1902 was read and adopted on the motion of the CHAIRMAN:—"Your Committee, in submitting the first Annual Report of the Morawakkorale Planters' Association, is able to congratulate you on the satisfactory status of the Association.

SCHEDULE.—The number of Estates on the register amounts to eight.

MEETINGS.—Five Committee Meetings and five General Meetings have been held during the year.

GENERAL.—Your Committee have carefully watched the interests of the district during the year.

FINANCES.—A statement of accounts is laid upon

the table showing R12·65 in hand, which is satisfactory at the end of the first financial year.

CROP.—For 1903 is estimated at 1,255,720 lb. against 1,243,918 lb. in 1902. Acreage in bearing, 3,178 acres at an average of 395 lb. per acre, and 110,000 lb. tea from native gardens. Nearly all estates in the district have fallen short of their estimates; the weather was not nearly so favourable for flush as 1901.

PRICES.—The tea industry has passed through another trying period in its history, but the closing months of the year brightened considerably. While viewing the present position with satisfaction, it is to be hoped that the producers may not be tempted by the temporary rise to adopt a coarser style of plucking. Your Committee would urge Superintendents in this district to continue the same style of plucking which has been in vogue for the past year.

CARDAMOMS.—The area has not been extended to any great extent.

TELEGRAPH EXTENSION—from Rakwana to Deniyaya:—Your Committee record with great satisfaction the sanction, through 1903 estimates, of extending the line from Rakwana to Deniyaya and trust the Postmaster-General will have the work pushed on with all possible haste as this outlying and important district is under great disadvantages in this respect.

POSTAL ARRANGEMENT.—Since the departure on sick leave of the late Postmaster, your Committee have noticed a great improvement. Letters and parcels have been handed over very promptly after the arrival of the mails, which have also come in with far greater punctuality than previously. The new Post Office is nearing completion, but in the opinion of your Committee the cost of the same is rather exhorbitant.

JURY SERVICE.—With reference to this matter a resolution was forwarded to Government pointing out the great hardship entailed on residents in this remote district by their being called upon to serve once every year, and not infrequently twice, at the Matara Sessions. This resulted in the persons liable to serve in Tangalla being added to the list of jurors. In spite of this, however, two members of this Association were summoned to serve twice this year. Your Committee are of opinion that some further action on the part of Government is necessary to relieve residents of this unjustifiably heavy tax on their time and convenience.

GOVERNMENT CART ROAD FROM AKURESSA TO VIHARAHENA—has been in a most disgraceful state for several months of the year. The fault of this road chiefly lies in there being no foundation to it. An extra grant has been passed in Council for R3,000, but your Committee are of opinion it is insufficient for what has to be done. A "Special Report" was to have been made after which they hope a more liberal vote will be allowed.

MINOR AND GRANT-IN-AID ROADS.—In fair order with the exception of the Deniyaya-Hayes Road, which was originally constructed so badly.

MEDICAL ARRANGEMENTS.—Deniyaya Hospital:—It is to be regretted that Government have not thought fit to entertain the suggestion of erecting a Village Ward which, your Committee thinks, is an absolute necessity.

HOSPITAL VISITORS.—Your Committee consider that the thanks of the Association are due to the Hospital visitors for the past year.

LABOUR.—The Labour supply has been insufficient for requirements in some instances.

ADVANCES.—In mostly all cases, may be considered satisfactory, for an outlying district such as this. Your Committee are happy to state advances are on a downward tendency.

PESTS.—With the exception of Helopeltis which has attacked some estates rather severely, no pests have been recorded.

CEYLON NURSING ASSOCIATION AND THE BENEVOLENT FUND.—An appeal on behalf of these having been received, it is to be hoped members of the Association will give them their support.

In conclusion your committee congratulate the members of this Association on the results obtained during the first year.

Signed. E. R. E. Geddes, *Chairman*,
,, Roland J. Trimen, *Hony. Secy*,
,, Edw. C. Anderson, } *Committee Members.*
,, Rodney Mylius, }
,, Geo. Thain Davidson, }

SCIENTIFIC NOTES.

A German newspaper records the following exemplary incident, apropos of a recent act of the Kaiser, in appealing to his people for support in a good work. Dr. Dohrn of Naples, having appealed with little result to the German Minister of Education for financial aid in the extension of his world-famed biological station, sought an interview with the Kaiser. Remarking sympathetically that he could not provide all that Dr. Dohrn desired from his private purse, the Kaiser furnished him with a donation form, headed by himself and a contribution of £1,000, commanding that it should be circulated among the leaders in Berlin society, for return to the Kaiser in person. The result was that within a few days the magnificent sum of £15,000 was subscribed.

A message from the *Times* correspondent at Ottawa states that the promoters of the Canadian Maraconi Company hope by the end of next summer to have a complete system of wireless telegraphy in operation throughout Canada, extending from the Gulf of St. Lawrence to the Pacific Coast.

Mr. Marconi was entertained at a banquet at Sydney on December 30 by the citizens of Cape Breton Island. Reuter reports that in responding to the toast of his health, Mr. Marconi said that when his system of wireless telegraphy was further developed, it would be possible for ships in distress to signal passing ships. The cable companies, when they began, charged pounds per word; they were now down to shillings, and his starting at ten cents might soon lead to a charge of one cent ½d. per word and thus bind England and her colonies more closely together.

The *Daily Mail* states that Sir Ernest Cassel has offered to give £40,000 towards the study and investigation of ophthalmia in Egypt.

Prof. Robert Koch and two assistants, Surgeon Dr. Kleine of the Prussian Headquarter Staff, and Dr. Neufeld, of the Prussian Institute for Infectious Disease, are on their way to investigate cattle plague in Rhodesia. To the Berlin correspondent of the *Daily Mail*, Prof. Koch has remarked:—"I contemplate my mission with more or less misgiving, because the Rhodesian plague is of an absolutely mystifying character. Such symptoms as I have so far examined indicate that the disease is wholly indifferent from any species of rinderpest that has ever come under medical observation. What is peculiarly baffling is that the Rhodesian plague dates only from the late war. The cattle imported from Egypt, Australia and South America which it was supposed would prove immune, have fallen early victims to its ravages, which threaten to denude the entire colony of live stock. While in South Africa, I shall not neglect the opportunity of continuing my tuberculosis experiments with the view of adducing still more positive evidence of my theory of the non-communicability of bovine tuberculosis to human beings, which I, of course, adhere to resolutely."

The outbreaks of typhoid fever at Winchester and at Southampton again direct attention to the possibility of the typhoid infection being spread through the agency of shell fish, in these instances through oysters. Dr. Nash, in a report on an outbreak of typhoid fever at Southend-on-Sea, finds that the incidence of the disease was thirty-six times as great among shell-fish consumer as among those who do not eat shell-fish, and expresses the opinion that if the eating of shell fish were abandoned in Southend, the incidence of typhoid fever would lessen by fully one-half. In the Southend outbreak, cockles were mainly responsible for the spread of the infection.—*Nature*, Jan 8.

In a letter to Wednesday's *Times*, Sir Norman Lockyer states that several months ago he discussed with Mr Shaw, the secretary of the Meteorological Council, the desirability of obtaining information regarding barometric pressures from ships crossing the Atlantic, by utilising wireless telegraphy. It now seems probable that this idea will soon be practically realised, for in reply to an ethergram from Mr Marconi, Sir Norman Lockyer asked for help in this matter, and on January 13 received the following message :—" By wireless telegraphy.—Thanks for suggestion, hope to be able to do so soon, big westerly gale here Monday.—MARCONI." Sir Norman remarks that all friends of Science will be grateful to Mr Marconi for such generous and invaluable assistance which will undoubtedly be of enormous advantage to British meteorology.

An exhibition is being held in London of the results of what is described as a new process for the preservation of animal tissues, by the injection of a fluid, the composition of which is not made public. The process is said to afford a satisfactory method of embalming animal bodies and of preserving museum specimens in a condition closely resembling life. The period which has elapsed since the application of the process to the various preparations exhibited is said by the inventor to range from a few weeks to thirty years.

In a letter from Dr. Logan Taylor, the leader of the Sierra Leone expedition of the Liverpool School of Tropical Medicine, reference is made to the progress of the expedition in Sierra Leone. A very decided absence of anopheles larvæ in places where it was formerly easy to get any number has been noticed, and is due to their not being able to breed owing to the pools being either swept out or oiled regularly. Compared with the corresponding time last year, in some of the notoriously bad streets where in a single house as many as six, seven or a dozen anopheles mosquitoes could be found in the early morning this year, after searching house after house with great difficulty, one, or perhaps two, adult insects alone were discovered. Since the members of the Liverpool School expedition stopped clearing up yards and emptying out the water containing culex larvæ, no one else has taken up the work, and these insects are getting bad again, and unless the Government or the school will keep on the work, the money the school has spent on it will be almost thrown away.

Symons's Meteorological Magazine for December last contains a climatological table for the British Empire for 1901, so far as it can be shown by nineteen representative stations, but it is not claimed that the records quoted furnish more than a few useful samples of the various climates included in the British dominions. The highest temperature in the shade was 110° at Adelaide, in February. A new station has been included, viz. Dawson, where a temperature of 50° in the shade was recorded in December, but the observations are incomplete. The highest mean temperature was 82°·1 at Colombo, and the lowest 36°·4 at Winnipeg. The driest station was Adelaide, mean humidity 59°; and the dampest Colombo, mean humidity 82°. The highest temperature in the sun was 168°, at Trinidad. The greatest rainfall was 114 inches, at Lagos, and the least 18 inches, at Adelaide. None of the extremes referred to can claim distinction as "records," but at individual stations the sun temperatures at London, 139°·8, and at Malta, 162°·9, are the highest observed there, and at London the number of rainy days, 128, is the lowest since these interesting tables were commenced.

The first three parts of the second volumes of the *Records* of the Botanical Survey of India have been issued. Mr J J Wood has compiled a list of plants mainly from the province of Chutiá Nagpur. This part includes a map of the district and two sectional diagrams. Mr Grammie has recorded the results of his investigations into plants used during periods of drought. For the purpose of making bread, seeds of species of Indigofera, Cyanotis and Panicum are used. Other sources of nourishment are the leaves of Amarantus, Rivea and Leptadenia. A systematic enumeration of the species of Calamus and Dæmonorops, by Mr O Beccari, is based mostly on plants growing on in the Malayan Peninsula and the adjacent islands, and only a few species belong to India or Ceylon.

" Tiree marble," with notes on others from Iona, by Mr Ananda K Coomaraswamy. [Now appointed Government Mineralogist for Ceylon.—ED. *T.A.*] The gneiss near Balephetrish has a general south-westerly and north easterly trend, and the limestone occurs in it as lenticles. Descriptions of the varieties of the limestone in this locality are given. The inclusions comprise those of gneiss containing quartz, felspars, hornblende, augite, scapolite and sphene as characteristic minerals, and mineral aggregates, consisting of sahlite, coccolite, scapolite, sphene, apatite, calcite and mica. The contact-phenomena are not specially well displayed. The dynamic phenomina include the rounding of the minerals and the formation of "augen." The carbonates are present as a fine-grained granular matrix. Although there are exceptions, gneiss-inclusions and mineral aggregates have usually been protected from the effects of extreme pressure. The description of minerals includes carbonates, pyroxene, amphibole, fosterite, scapolite, sphene, mica, apatite and spinel. Various marbles are described from Iona, where they are associated with actinolite-felspar schists and others; they are included in the gneiss. —*Nature*, Jan. 15th.

"FOLIAR PERIODICITY IN CEYLON."—Mr. Herbert Wright's paper on this subject which appeared in full in our columns has since been reproduced in "Indian Planting and Gardening" and "West Indian Bulletins"; while abstracts have been given in "Annals of Botany, London" and in several home and Ceylon papers.

GLASGOW ESTATE COMPANY, LTD.

THE ANNUAL REPORT.

DIRECTORS :—Messrs. G H Alston, G C Walker and J G Wardrop.

ESTATE INSPECTOR :—Mr J K Clark, ESTATE SUPERINTENDENT :—Mr R W Kerr.

ACREAGE :

Tea in full bearing ..	..	600	acres
Tea partial bearing ...	..	41	do
Tea not in bearing ..	..	9	do
Grass ...	..	2	do
Jungle, &c ...	...	62	do
Total Estates	..	714	acres

The Directors have now to present their Annual Report and the Accounts of the Company for the past year.

The tea crop secured was 380,500 lb., against an estimate of 400,000 lb., thus showing a shortfall of 19,500 lb., which was due to the continued rain and absence of sunshine during the last 4 months of 1902. The average nett price realised was 44·66 cts. per lb., as against 43·66 cents for the previous season, which may be considered satisfactory.

The amount at credit of profit and loss account for the year's working was R73·902·54. The balance brought forward from last year amounted to R2,251·09 from which falls to be deducted R300 00, being extra fees for the Directors for 1901 working, in terms of the resolution passed on 18th February, 1893.

The sum therefore available for distribution is R75,853·63 and the Directors now recommend that a final dividend of 15 per cent be paid for 1902, making with the Interim Dividend of 7 per cent paid on 5th August last, a total of 22 per cent for the year, and that the balance of R4,353·63 be carried forward to the current year's accounts. It will be noticed that there has been no addition to the capital expenditure and any additions or alterations to machinery or buildings have been paid for out of revenue.

The estimate for the current year is 392,000 lb. Tea on an expenditure of R96,447 00. A sum of R3,000·00 will be required for a new Roller necessary to deal with the increasing crops from the estate. As notified in the circular posted to Shareholders on the 12th ultimo the entire crop has been sold at 50 cents per lb. *f.o b.* Colombo, which may be considered very satisfactory.

During the year under review the Hon. Mr W H Figg resigned his seat on the Board, and the Directors appointed Mr G H Alston to the vacancy.

In terms of the Articles of Association Mr G H Alston now retires from the office of Director, but is eligible for re-election.

Colombo, 28th January, 1903.

UPPER MASKELIYA ESTATES CO., LTD

THE ANNUAL REPORT.

DIRECTORS :—Messrs Jas Polson, W D Gibbon and G H Alston. Estate Superintendent :—Mr L A Wright.

ACREAGE :

31st DEC. 1902.

	Brunswick and Bloomfield.	Caskieu.	Total.
Tea in full bearing	446	207	653
Tea not in bearing	10	—	10
Grass, Timber Trees, &c	62	—	62
	518	207	725

The Directors herewith submit to the Shareholders the Accounts of the Company for the past year.

The Crops amounted to 358,032 lb Tea, being 18,032 lb in excess of the Estimate, and realised a nett average of 38·75 cents which included the bonus granted on the manufacture of Green Tea.

The amount at credit of the year's working is R42,645·85 equal to 12·17 per cent on the paid up Capital of the Company, to which has to be added R1,564 86 brought forward from last year, making a total of R44,210·71 available for distribution.

The Directors now recommend that a final dividend of 7 per cent be paid forthwith, making with the Interim Dividend of 5 per cent paid on the 5th August last a total of 12 per cent for the year, and that the balance of R2 210 71 be carried forward to the current year's working.

The estimate for the present year is 350,000 lb of Tea on an expenditure of R94,885·05 which includes a sum of R11,767 to be spent on Manuring.

The Crop for the current year has been sold by contract as intimated in the Circular issued to Shareholders on the 1st of December last. The Thirty Committee bonus having now been reduced to 4 cents per lb the buyers have to pay the Company 37½ cents per lb of Green Tea.

In accordance with the Articles of Association Mr James Polson now retires from the Board, but is eligible for re-election.

Colombo, 28th January, 1903.

CEYLON PROVINCIAL ESTATE CO., LTD.

THE DIRECTORS' REPORT.

DIRECTORS :—J Paterson, Esq., Edward S Grigson, Esq., F L Clements, Esq.

The Directors beg leave to submit their Report for the year ended 31st December, 1902, together with a Statement of Accounts for the same period.

The Tea Crop secured during the twelve months amounted to 471,617 lb, against an estimate of 510,000 lb and is equal to an average yield of 481 lb per acre from the area in full and partial bearing. In the case of Glassaugh the Crop was fully up to estimate in the matter of quantity, but Brownlow fell short of expectations to the extent of close upon 40,000 lb. The finer or more careful system of plucking referred to in the last Annual Report was continued throughout 1902, and the Brownlow shortage is partly attributable to that circumstance, but chiefly to unfavourable weather in the latter half of 1902.

The Revenue and Expenditure Account shews the year's profit to have been R93,098·14.

The cost of production in 1902 has been 24·65 cents per lb, which includes 1·06 cents spent in manuring, as compared with 25·02 cents and 1·69 cents respectively for Season 1901.

The Crop has sold at an average nett price of 44·20 cents per lb. against 44·10 cents in 1901, and 42·56 cents in 1900.

During the past year the Company's liabilities have been decreased by the repayment of a loan of R20,000 thus reducing the "Loans on Mortgages" item in the Balance Sheet from R127,473·57 to R107,473 57. R10,000 of the sum repaid was set aside from the 1901 profits, and the balance of R10,000 has been met out of the past year's surplus as shewn in the Profit and Loss Account.

Including a sum of R3,144 58 carried forward from Season 1901, the Profit and Loss Account shews a balance at credit of R46,198 68 after payment of an interim dividend of 3 per cent interest on Mortgages, Bonus allowances to Superintendents, and provision made to the extent of R17,500 for Mortgage redemption and depreciation of Buildings and Machinery.

The Directors now recommend the payment of a final dividend of 6 per cent which will absorb R39,960 and make 9 per cent for the twelve months, and that the balance remaining, after payment of Directors' Fees, be carried forward to Season 1903.

There was no expenditure on Capital Account during the past season.

The Estimates for the new season point to a yield of 489,000 lb of Tea, to cost 25·14 cents per lb, inclusive of an allowance of about 2 cents per lb for manuring and burying prunings.

The following is a definition of the Company's properties as at the 1st January of this year:

		Glassaugh.	Brownlow.
Tea in full bearing	...	469 acres	503 acres
Do in partial bearing	..	21 do	— do
Do not in bearing	..	2 do	— do
Total in Tea	..	492 do	503 do
Fuel trees	..	14 do	2 do
Forest	...	— do	33 do
Grass	...	— do	27 do
Scrub and Waste	..	13 do	20 do
		519 acres	585 acres

Mr J Paterson retires from the Board in terms of the Articles of Association, and is eligible for re-election.

The appointment of an Auditor for 1903, rests with the Meeting.

By Order of the Directors.

GEORGE STEUART & Co., Agents and Secretaries.

Colombo, 30th January, 1903.

THE HIGH FOREST ESTATES CO., LTD.

REPORT OF THE DIRECTORS.

DIRECTORS.—Messrs. R F S Hardie, G H Alston, J G Wardrop; Estate Inspector:—Jno. Gordon, Estate Superintendent:—D Lyall.

ACREAGE.

Tea in full bearing	645	Acres.
do partial bearing ..	453	,,
Clearings	15	,,
Wind Belts and Timber Clearings..	94	,,
Grass, Scrub. &c.	48	,,
Jungle and Patna	356	,,
Buildings and Roads	19	,,
Total ..	1,630	Acres.

The Directors have now to place before the Shareholders the Accounts of the Company for the past year

The crop secured amounted to 451,045 lb. Tea, being 22,045 lb in excess of the estimate.

The average nett price realised for the Tea was 42·63 cents per lb. against 46·30 cents per lb. in 1901, and the cost of laying down the Tea in Colombo was 25·14 cents per lb.

The old fields under Tea have been resurveyed, all wind belts, ravines, building sites, roads, &c. being deducted and placed under their different headings, and the acreage given above as under tea is now the correct one.

With reference to the remarks in last years's report, as there is no chance of recovering the Coast Advances referred to, the Directors have now written off R3,678·67 from the amount set aside for Reserve Account.

After writing off a sum of R14,020·63 for Depreciation of Buildings and Machinery, equal to over 1½ per cent on the Capital, the amount at credit of Profit and Loss Account for the year's working is R57,859·89, equal to 6·09 per cent on the paid-up Capital of the Company, to which has to be added the balance of R20,949·21 brought forward from 1901. The Directors now recommend the payment of a final dividend of 3½ per cent, making with the interim dividend of 2½ per cent paid on the 5th August last, a total dividend of 6 per cent for the year, and that the balance of R21,809·10 be carried forward to the current season's accounts.

The expenditure on Capital Account during the past year amount to R26,808·00, for the upkeep of young Tea not in bearing, and for necessary additions to Buildings and Machinery. After completion of the additions and alterations now being made very little Capital expenditure in this direction will be required

The estimate for the current years is 441,000 lb. Tea on an expenditnre of R206,623·56, and R12,701·00 on Capital Account, for completing the additions and alterations, mostly paid for in 1902.

During the year Mr. G B Leechman resigned his seat on the Board on his departure from the Island, and Mr. R F S Hardie was appointed in his place.

In terms of the Articles of Association Mr. Hardie now retires from the office of Director, but is eligible for re-election.

The appointment of an Auditor for the current year will rest with the meeting.—By order of the Directors, WHITTALL & Co., Agents and Secretaries.

Colombo, 28th January, 1903.

THE AGRA OUVAH ESTATES CO., LTD.

DIRECTORS:—Messrs J G Wardrop, G H Alston and Jas. Polson Estate Inspector:—Mr R K Clark. Estate Superintendent:—Mr Wilson Smith.

ACREAGE.

31st December, 1902.

Agra Ouvah.	acres.	Fankerton.	acres.
Tea in full bearing	322	Tea in full bearing	165
Grass and Jungle	9	Timber clearing	20
		Grass, Patana & Scrub	8
Total Estate	331	Total Estate	193

Grand Total 524 acres.

The Directors now have to present to the Shareholders the Account for the past year.

The crop secured amounted to 333,789 lb being 9,961 short of the estimate, due to the abnormal weather experienced during the last few months of the year.

The average nett price realised for the Tea was 45·33 cents per lb, against 45·65 cents per lb in 1901. The cost of laying down the Company's tea in Colombo was 25·46 cents per lb.

The amount at credit of Profit and Loss Acconnt for the year's working is R63,658·09, equal to 16·98 per cent on the paid up capital of the Company, to which has to be added a sum of R2,069·16 brought forward from 1901, making a total sum of R65,727·25 available for distribution. On 5th August last an interim dividend of 7 per cent was paid, absorbing R26,250, and the Directors now recommend the payment of a final dividend of 10½ per cent, making 17½ per cent for the year and that the balance of R102·25 be carried forward to this season's account.

The estimate for the present year is 343,750 lb Tea on an expenditure of R83,904·67, which includes a sum of R5,336 for manuring.

During the year the Hon Mr W H Figg resigned his seat on the Board, and Mr G H Alston was appointed to fill the vacancy. In terms of the Articles of Association Mr J G Wardrop retires from the office of Director, but is eligible for re-election.

The appointment of an Auditor for the current year rests with the Meeting.

U.S.P. ESSENTIAL OILS.—Kremers continues his observations on the proposed volatile oils of the U S P. 1900, his last instalment (*Phar. Rev.*, 1902, 544) dealing with oils of chenapodium and cinnamon. The oil of American wormseed has been little investigated, but observations since the last U S P indicated that the sp. gr. should be lowered from 0·970 at 15° C. to 0·910, and that the oil does not give a clear solution with ten times its volume of 70-per-cent. alcohol. The optical rotation is − 18·55° for 100 mm. The note on cinnamon oil is necessarily more lengthy, and a trifle confusing to those who apply this name solely to oil of Ceylon cinnamon, since the note deals with oil of cassia, which is official in thirteen pharmacopœias, and oil of cinnamon in eight pharmacopœias. The author suggests the inclusion of Ceylon cinnamon oil in the U S P, as it is far superior to cassia oil. He deals fully with the characters of the latter oil, its assay and adulterants,—*Chemist and Druggist*, Jan. 17.

THE NEBODA TEA COMPANY OF CEYLON, LIMITED.

THE REPORT OF THE DIRECTORS FOR 1902.

DIRECTORS:—Messrs Joseph Fraser, Chairman, and Robert Morison, Director; Solicitors to the Company: Messrs. F J and G de Saram: Agents and Secretaries: Messrs. Somerville & Co.

ACREAGE:

Toa in fnll bearing	..	495 acres.
Forest Land, &c.	..	171½ ,,
	Total.	666 acres.

The Directors snbmit report and accounts to end of December, 1902.

The crop secured was 228,597 lb, an increase of 19,550 lb over that of 1901. Gross average sale price in Colombo was 32·05 cts as against 30·34 cts in 1901. Cost of production, including mannring was 24·01 cts, without mannring 20·59 cts.

On the 495 acres Tea the average yield per acre was 461 lb. It is estimated that with medium fine plucking 1903 will shew an increase in this yield, and the estimate has accordingly been put down at 250,000 lb. During the year Factory appliances have been improved by the addition of two large Sirocco Fans, which will, it is hoped, put and end to the trouble and loss hitherto experienced in wet weather.

Profit and Loss Account shews a credit balance on the year's working of R18,071·60. Out of this R2,000 has been written off for Machinery depreciation, and an interim dividend of 3 per cent was paid in July last. The Directors now recommend the payment of a fnrther 3 per cent making 6 per cent for the year, and the carrying forward of the balance to next year's acconnt.

In terms of the articles of Association Mr Joseph Fraser retires from the Board, but is eligible for re-election.

The meeting will appoint an Auditor for the cnrrent year.

By order of the Directors.—SOMERVILLE & Co.,
Agents and Secretaries.
Colombo, 30th January, 1903.

THE AGRA TEA COMPANY OF CEYLON, LTD.

THE REPORT AND ACCOUNTS FOR 1902.

The acreage of the Company's property is a under:—

Tea in full bearing ..	..	321 acres
Tea in partial bearing	..	6 do
Tea not in bearing	..	9 do
Total in Tea	..	336 do
Forest	...	21 do
Grass, Waste Land, &c.	..	10 do
Total area of estate	..	367 acres

The estimated crop for 1902 was 200,000 lb. of tea, and the aotual quantity realised was 197,050 lb., or a deficiency of 2,950 lb. This crop realised R81,532·96, equivalent to 41·38 conts per lb. as against 39·64 cents in 1901. The expenditnre, as shown in the accompanying acoounts, was R52,626·47, or nearly 27 cents per lb., as against 29 cents per lb. in 1901. The expenditnre during the past year includes rather over 3½ cent for manure.

After deduction of R4,000 for Depreciation of buildings and machinery, the profit on working account for the year amounts to R24,183·83, representing about 6 per cent on the value of the property as shown in the balance sheet.

After payments of interest on loans, viz, R5,269·60, the net profit for the year amounts to R17,564·30, to which has to be added the snm of R3,652·88 brought forward from 1901, bringing the balance at credit of profit and loss accouut up to R21,217·18.

During the past year the sum of £500 has been paid to the Standard Life Assurance Co. in reduction of the mortgage, which now stands at £5,500.

In view of the fact that £1,000 has to be fonnd in June next for the purpose of paying the instalment which will then be due to the Standard Life Assurance Co., the Directors do not feel justified in recommending any dividend at the present time. They hope, however, that in the event of the price of tea being maintained during the ensuing year, they may be able to recommend a small dividend, 12 months hence. They therefore propose to transfer R20,000 to the credit of the Reserve Account, thus bringing the total of that Reserve up to R50,000, and leaving R1,217·18 to be carried forward to next season's acconnts.

The estimated crop for 1903 is 205,000 lb. of tea to be produced at 27½ cents per lb., which allows for about the same expenditure on mannring as last year.

In terms of the Articles of Association, Mr Joseph Fraser retires from the Board of Directors, but is eligible for re-election.

The appointment of an Auditor will rest with the meeting

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THE PITAKANDE TEA COMPANY OF CEYLON, LIMITED.

REPORT AND ACCOUNTS FOR 1902.

DIRECTORS:—Messrs. Joseph Fraser (Chairman). Edward C Mitchell and Robert Morison.

SOLICITORS:—Messrs. F J and G De Saram.

ACREAGE:

		Acres.	Acres.
Tea in full bearing ..	..	760	
Tea in partial bearing ...	..	194	
Tea not in bearing ...	..	46	
			1,000
Cocoa and Tea ..	..		12
Cardamoms in bearing ...	..		44
Do not in bearing	..		4
Cocoa in bearing ..	..		50
Fuel Trees ..	..		18
Total cultivated area ...			1,128
Forest and Grass Land ..	..		283
Wast Land and Buildings	..		30
Total area of Estate ..			1,441

The Directors submit their report and acconnts for 1902.

The tea crop seonred amonnted to 430,399 lb. being 42,929 lb. more than last year. The net average price realised was 35·15 cents, whilst the cost f. o. b. was 28·601 oents, including manure and burying prunings, or 22·180 cents exclnsive of these items.

The net profit for the year was R23,297·23, to which has to be added R2,132·22 brought forward from 1901. An Interim Dividend of 4 per cent was paid in July, and the Directors now recommend a final Dividend of 4 per cent, making 8 per cent for the year, and leaving balanze of R629·45 to be oarried forward to next year.

In terms of the Articles of Association, Mr Edward C Mitchell retires from the Board of Directors, bnt, being eligible, offers himself for reelection.

The appointment of an Auditor rests with the meeting.—By order of the Directors, Colombo Commercial Co., Ltd.,
(JOHN G. WARDROP, Manager.) Agents & Secretaries.
Colombo, 27th January, 1903.

HAPUTALE PLANTERS' ASSOCIATION.

27TH ANNUAL REPORT.

Your Committee has the pleasure of laying before you the 27th Annual Report, and in so doing congratulate you upon the continued prosperity of the Association.

The number of estates on the register is 47, the same as last year. Finances are in a satisfactory condition and the meetings (three Committee and three General) held during the year have been satisfactorily attended.

OFFICIAL ESTIMATE.

	Acres in Tea.	In bearing.	Total Crop.	Green Tea.	Native Leaf.	Yield per acre.	Abandoned.
1903	18,710	15,780½	6,194;975	455,000	682,000	392	No return
1902	18,608½	14,806	5,928,565	145,000	487,000	400	173½
Decrease	—	—	—	—	—	8	—
Increase	102½	974½	266,410	310,000	195,000	—	—

SEASON.—The past season has been an abnormally wet one, resulting in a general shortage of output, which should have a beneficial result of prices in the near future.

COFFEE.—Everything points to a further reduction of the acreage under this product, and a corresponding decrease in the crop.

ROADS.—Your Committee regrets the inconvenience the District has been put to by the long deferred erection of that bridge connecting the Leangawela cart road with the Koslande bridle path. The main and minor roads have been kept in satisfactory repair during the year, and your Association's thanks are due to those who have supervised the work. Your Committee hopes that the bridle path, connecting the Ohiya cart road with the Horton Plains road, will be opened to the public at as early a date as possible. The construction of the Haputale-Dambatenne cart road has been sanctioned by Government, and the work is soon to be taken in hand.

LABOUR.—The District has been well, on the whole, supplied, but your Committee regrets that the roving disposition of coolies—so much complained of in other districts—is more apparent than in previous years.

ESTATES REGISTRATION SCHEME.—In the opinion of your Committee this scheme is working satisfactorily and has greatly simplified the importation of labour.

CRIME.—Your Committee is glad to state that the representation made by the Association to Government in June last, regarding the prevalence of crime and drunkenness in the district has not been without effect, and your thanks are due to the Government Agent for the stringent measures taken by him on several occasions. The illicit sale of arrack and toddy still continues, but in a less degree; fines inflicted seem to have little effect on offenders, and, it is hoped, that no efforts will be spared to put a stop to the illicit sale of both intoxicants.

MEDICAL.—The District Medical Officer reports that the general health of both Europeans and natives during the past year has been satisfactory, that there have been no epidemics of any kind, but that the late long period of wet weather has been the cause of an increase in pneumonia and dysentery cases.

VOLUNTEERS.—During the past year sections of the C M I and C P R C have been formed, numbering respectively 14 and 25.

REPRESENTATIVE IN COUNCIL AND CHAIRMAN OF THE PARENT ASSOCIATION.—To these two officials your Committee beg to convey its thanks and appreciation of valuable work done and services rendered.

FINANCES.—The amount shewn at the credit of the Association is R27·58 as against R160·82 for last year. During the year the following donations were made:—Ceylon Nursing Association R50, Victoria Memorial Eye Institution R50, The Society of Prevention of Cruelty to Animals R25.

KELANI VALLEY PLANTERS' ASSOCIATION.

THE ANNUAL REPORT.

MEETINGS.—Five committee meetings and two general meetings have been held during the year.

FINANCE.—The balance to the credit of the Association at the end of December 1902 is R595·34 as against R601·37 last year. Donations have been made to the Memorial to the late Mrs W E Davidson and to the Coronation Celebrations. A detailed statement of accounts is circulated amongst members.

SCHEDULE.—The number of subscribers to the Association is 74 as against 72 in the previous year. During the year two estates have resigned owning to amalgamation (one estate has rejoined and three estates have joined as new members.)

CROP.—The estimated crop for 1903 is 16,707,550 lb. including 5,240,800 lb. green teas. Acreage in bearing is 36,394, or an average yield of 459 lb. per acre. Your Committee view with satisfaction the substantial increase in the green tea estimate, viz, 4¾ million in excess of last year.

LABOUR FEDERATION.—Four cases have been brought before the K V L F during the year. One appeal for readmission has also occupied a considerable amount of time of the Committee. This appeal has finally been allowed. Certain alterations and additions to the local rules, deemed necessary by the Committee in consequence of one of these cases, have been duly passed at a general meeting of the Federation, and your Committee trust that the amended rules will work smoothly.

PRICES.—The prices obtained for black tea have been much about the same as in 1901. Plucking if anything, has been finer, as is shown by the reduced yield per acre. It may be pointed out that the style of plucking in the district is now practically settled in Colombo and London, as there are few estates in private hands. Your Committee view with regret that the action of the London Association in connection with the proposed increase of development of the green tea industry which is now the only solution of the over production problem.

K.V.R.—It is with feelings of the greatest satisfaction that your Committee are able to report the formal opening of the first section of the line in September, for passenger and goods traffic to Avisawella. Your Committee considers that this Association is deeply indebted to the Chief Resident Engineer, and also wish to put on record their appreciation of the tireless energy of the Assistant Engineers, Messrs Edwards, Fraser, Waghorn and Bowen, who, in the face of many difficulties have made it possible for Mr Phillimore to redeem his promise as intimated to you last year. The large passenger and goods traffic already being carried over this section of the line, augurs well for its further success when opened to Yatiyantota, and proves the accuracy of the figures and statistics collected at the commencement. The works on the remaining section of the line, between Avisawella and Yatiyantota are being prosecuted with vigour, and have been practically completed to Karawanella, and the whole line will be finished within a few months, when it is hoped that H.E. the Governor to whose action the realisation of the Kelani Valley Railway has been due, will honour the district by formally opening the line in person. The arduous Polatagama cross-country road will be ready for traffic on completion of the line to Yatiyantota and will form an outlet for the West Dolosbage traffic. In conclusion your Committee are pleased to report that a farther extension of the Railway to Ratnapura is being considered, and that the preliminary survey will be finished within five months.

ROADS.—Continual and heavy rains during the latter half of the year have done considerable damage throughout the district and this has caused much inconvenience. Your Committee cannot help feeling

however that more money is nrgently needed for general maintenance, for the keeping of the roads in a better state of repair. Your Committee have to express their regret, a regret which is doubtless shared by the Director of Public Works, and the Provincial and District Engineer, that the causeway built over the Avissawella river at Algodde has proved an absolute failure. A further cause for anxiety is the N-E approach to the Ruigala Oya bridge.

TELEGRAPHS.—Your Committee are glad to be able to report that the necessity for a telegraph office at Dehiowita has been recognised, and that this important section of the district will no longer be left without rapid means of communication with the outside world.

LABOUR.—There has been a fine supply of labour throughout the year, and the tin ticket system is working satisfactorily. The labour question, however, continues to give cause for anxiety, and it cannot be denied that Canganies and coolies generally are much more inclined to bolt, give notice, and repudiate their debts, than formerly.

PEST.—A Report on Helopeltis in the Kelani Valley has been received from Mr Green with certain suggestions and recommendations. Four estates have been selected to forward to Mr Green, periodically, specimens of prunings. It is hoped that by careful attention to directions this pest may disappear.

COACH SERVICES.—The Yatiyantota-Veyangoda coach ceased to run at the end of the year. An additional coach between Avisawella and Yatiyantota has been started. Your Committee regret that repeated applications for an extension of this service to Kitulgalle have been nnsuocessful. The last communication from the P M G was to the effect that no funds were available for a snbsidy.

C. P. R. C.—The Kelani Valley section of the C P R C which was started last year, has on the whole, been well supported. A good range has been made at Dehiowita, and a marked improvement in shooting may be looked for in the future.

RUBBER.—During the past year one clearing has been opened in this product, and a considerable acreage planted np through the tea on various estates. The cultivation of rubber in this district is still in its infancy but there can be little doubt that it will eventually prove to be an important item in crop returns of the Kelani Valley.

BALANGODA PLANTERS' ASSOCIATION.

ANNUAL REPORT FOR 1902.

REGISTER.—The estates on the roll now number 15 ; there are also 2 private subscribers.

MEETINGS.—Three general meetings were held during the year, the average attendance being 9. The attendance should be improved and I should only be too happy for any suggestion as to longer notices, &c., that would make this better.

FINANCES.—I lay on the table a statement of accounts for the year.

CROP.—The estimate for 1903 is as follows :—

Total acreage in tea	... ...	5,761 lb.
Acreage in bearing	... ..	4,776 lb.
Total tea crop	... ...	2,050,000 lb.
Estimate of green tea to be made	..	409,000 lb.
Estimate of Native Leaf ...	..	11,500 lb.
Acreage of tea land abandoned during the past year	... ..	64 acres.

Average 429 lb. made tea per acre.

This shows an increase of 10,000 lb in crop and 110 acres of tea in bearing. There is, however, to be noted an item of 409,000 lb, green tea as against nothiug last year. This is good and it is to be hoped that some satisfactory solution of the Cess difficulty may be arrived at so as to allow full payments to be made to those who really are helping us out of the overproduction difficulty. The average yield for the district is about the same as last year. I hope that the better prices at present ruling will not tend to coarse plucking being resorted to.

WEATHER.—The season was an abnormally wet one, but none the less suitable for the greater portion of the district—1903 has also been ushered in with plenty of rain, so that possibly we are in for a wet cycle.

ROADS, GOVERNMENT CART ROAD.—This is in excellent order, the gravelling of the less frequented portion being a great improvement. There is, however, one matter which I am bringing up later in the form of a motion and that is the straying of cattle on the road. The thoroughfares Ordinance inflicts a possible £5 fine and I think we should invoke the Government Agent's aid.

BALANGODA-CHETNOLE ROAD.—This road was begun in November and the rate of progress so far is satisfactory. The earth work has been practically completed on the first two miles and the culverts &c. on one. The first two miles should be ready for traffic in June when the third mile will be begun. It has not been touched as yet. There is a sum of R30,000 available for this year.

COURTHOUSE.—The Court has sat in the new Courthouse for most of the year, but it is only a temporary building and I think we should ask for one of those ornate if not palatial buildings that Government, I understand, are favouring the other end of the province with. The session dates have been altered to Tuesdays and Wednesdays in the second and fourth weeks so as to allow the Magistrate to travel by coach. By the courtesy of the District Judge programmes for the first six months have been issued.

POSTAL.—Our thanks are due to the P.M.G. for having so promptly acceded to our request about the alteration of the Mail Service and we are now asking for the coach to run on Sundays as well. The new order of things has so far worked well and the coaches come in to time.

HOSPITAL MATTERS.—I regret that the three improvements urged for some time namely :—(1) The removal of the mortuary, which is situated at present close to one of the wards. (2). A covered way between the kitchen and wards and (3). The laying down of water supply—still remain to be done. I think they are all reasonable and should be attended to without loss of time.

We were deprived of the services of two nurses for a portion of the year, but the staff has now been brought up again to its proper strength.

Mr. Kirby places his resignation before the meeting and you will be asked to nominate some one to serve as Hospital Visitor. Your thanks are due to the Visitors for their services during the year.

LABOUR FEDERATION.—No cases have yet been brought before the Committee, which is eminently satisfactory.

THE TIN TICKET SYSTEM.—I have not heard any complaints in the district about the working

of the system and it seems to me simple enough. At the same time there is no doubt we are short of labour and any scheme to remedy this evil (such as Mr. Westland's) should receive our support. The ruling rate for advances seems to be very high.

RATNAPURA RAILWAY EXTENSION.—You will be asked to pass a vote of thanks to H.E. the Governor for sanctioning the survey of the line and also to Mr. Stiven for his work as Hon. Secretary on the Extension Committee. Surveyors are now at work from four different points and I do not see why the railway should not be sanctioned before His Excellency hands over the reins of Government. My name has been put forward by the Ratnapura and Rakwana Associations as Chairman of the Railway Extension Committee in place of Mr. Wright, who is not in the island, and I have accepted subject to your approval.

RESTHOUSE AT KOTIYAGALA.—I am sorry to say that I do not think we shall get this. We have tried the two P. R. C.'s and finally the Hon. the Colonial Secretary, but have failed. The matter is however on the Agenda paper today and we might have one more try.

CONCLUSION.—I have now gentlemen, to thank you for your support and attendance to me as Chairman of the Association. We are only a small number in this district, so that everybody should make an effort to attend the meetings and make them as representative as possible. I now vacate the chair.

INDIAN TEA ASSOCIATION.

(*From the Report of the General Committee for the year ended 31st December, 1902.*)

The General Committee have now the honour to submit to members their Report for the past year. Mr Lockhart Smith was elected Chairman in place of Mr Ashton; and Mr W Warrington (who had succeeded Mr Brown in March) was elected Vice-Chairman.

AMERICAN AND FOREIGN MARKET FUND.—The subscriptions received during the year for this Fund amounted to R55,564-11-6.—A sum of R52,500 has been devoted to the export bounty on green teas.—The tea rooms at 48, Faubourg St Honoré, Paris, have been also maintained; and work in Italy, Turkey and other European countries has been pushed on as vigorously as the limited funds at the disposal of the Association would permit.—In the early part of the year advertising in America had to be discontinued owing to the uncertainty about funds. The result was that Indian teas lost ground to a certain extent; while Ceylon teas—which have been and are still being actively pushed—made greater progress even than before. Later in the year it was found possible to renew the advertisements which are at present appearing as formerly. Now that the Cess is practically an accomplished fact, it may be confidently said that much more strenuous and sustained efforts will be made in America than have been made in the past. At the present moment it is not possible to indicate the extent to which Indian tea will be able to take advantage of the St Louis Exhibition. But to the General Committee there would seem to be no reason why a portion of the Cess Funds should not be expended on an exhibit; although this is, of course, a matter which the Cess Committee will be called upon to decide. At the same time the existence of the Cess affords no reason why Government should not be asked for financial assistance.—Another opportunity of pushing Indian tea in what is believed to be a promising market, will be afforded by an Exhibition which is to be held at Capetown in November, December, January and February 1903 and 1904. So far but little has been done in South Africa by Indian tea producers. But during the past year an arrangement was made by the London Association with an agent in Johannesburg to sell a minimum quantity of 1,200 half chests of suitable tea in consideration of a bonus of 1½d per lb. The tea was to be bought in Calcutta by Messrs McLeod & Co., who, up to date, have shipped 490 half chests. No information is of course available at present as to the reception the teas have met with in South Africa. But it is stated that the quality of the tea usually sold in the Transvaal is very inferior; and that the price is about four shillings a pound. If this is so, there would seem to be no reason why Indian teas at moderate prices should not find a ready market.

CONSUMPTION OF TEA IN INDIA.—Throughout the year the Indian Tea Markets' Expansion Commission—which was mentioned in the last Report—has vigorously pushed the sale of tea in India. It has been thought that the work of the Commission has been hampered by the sale in the Calcutta bazaars and elsewhere of tea refuse. Large quantities of this commodity are sent to Calcutta; and although a fair proportion is sold to reputable European firms for the manufacture of caffeine, there is no doubt that much is disposed of for local consumption. At the instance of the Committee, Messrs Andrew Yule & Co. have made enquiries into this trade; but without the co-operation of all producers, there does not appear to be any prospect of its being suppressed.

INDIAN TEA IN RUSSIA.—It was stated in the last Annual Report that the Committee were giving attention to the possibility of developing the Russian market. In the absence of funds for advertising purposes, they have since been making enquiries as to the different routes by which Indian tea is carried to Russia. In March they invited the attention of the Bengal Chamber of Commerce to the question. They asked if the Chamber could take any action which might be calculated to promote the establishment of a direct line of steamers between Calcutta and Russian ports. The Committee of the Chamber expressed the opinion that the direct trade between Calcutta and Russia was too insignificant to warrant the establishment of a direct line. Sir Charles Scott, the British Ambassador at St Petersburg had intimated, in an official despatch to the Foreign Office, that if British Navigation Companies were to enter into arrangements with Russian Railway Companies, they could obtain the same reduced rates as the Volunteer Fleet. The Liners' Conference submitted the question to the various steamship-owners, who would, they hoped, make arrangements for assisting the development of the tea trade in Russia. More recently the Committee suggested to the Bengal Chamber of Commerce that an attempt should be made to pursuade the Russian Government to reduce the import duties on tea. No action will however be taken, as His Majesty's Ministers think there is no substantial case so long as the duties do not differentiate against Indian tea,

INDIAN TEA IN AFGHANISTAN.—The Afghan officials to whom reference has been made expressed themselves as being well satisfied with the samples sent to them. But so far it has not been found to be possible to work up the trade to any extent.

INDIAN TEA IN PERSIA.—In their last Annual Report the Committee referred at length to the mission to Persia which had been undertaken by Mr. E. G. Foley. As a result of that mission two or three caravans with fairly large quantities of tea from the Kangra Valley, Dehra Dun, and Calcutta, were despatched by the Nushki Seistan route to Meshed. The reception which was accorded to these experimental ventures did not however justify further efforts. It was only with the greatest difficulty that the tea was disposed of even at the lowest prices. In the case of the caravan from the Kangra Valley no tea was sold for some months, the prices offered being barely sufficient to pay the cost of carriage. Business in Persia is not conducted on cash basis, credits frequently extending for two or three years; and sales of tea at twelve months credit were effected by the Kangra Valley agent with difficulty.

INDIAN TEA IN CHINESE TURKESTAN AND TIBET.—An expression of opinion was invited by Government as to what would be a reasonable rate of duty in Thibet having regard to (*a*) the cost of transit from India to Tibet, and (*b*) the price at which China tea is sold at Lhasa. The General Committee, to whom the point was referred, expressed the opinion that the duty should not exceed that levied on China tea imported into India. At this point the question stands at present, at least so far as Thibet is concerned. The Government of India have not yet given any indication as to whether they can take action in regard to Chinese Turkestan.

CEYLON IMPORT DUTY ON TEA.—The Committee referred in their last report to a representation which they had made to the Government of India upon certain matters relating to this duty. Their main suggestion was of a two-fold nature. Firstly, that the Ceylon Government should be asked to exempt Indian tea from the payment of the import duty of four annas per lb; and secondly that, if necessary, the Indian Government should similarly exempt Ceylon tea from the payment of the five per cent *ad valorem* duty levied in this country. Further, the Committee proposed that, if the Ceylon Government declined to make this exemption, the Indian duty should be enhanced to a protective rate. In June the Government of India intimated that they were not prepared to adopt any of these proposed courses of action. They submitted, at the same time, a statement of the views expressed by the Ceylon Government on the question. From this it appeared that the Lieut.-Governor of Ceylon was unwilling to exempt Indian tea from the payment of import duty. In their representation the Committee had complained of the heavy transhipment charges at Colombo; and had asserted that it was cheaper in the case of teas destined to Russia for example, to tranship at Singapore. The Ceylon Government denied that the charges were high, but they did not controvert the assertion that transhipment at Singapore was cheaper. They further contended that Indian teas competed on actually level terms with all Ceylon teas which are sold and exported without being blended, or made into packets. It was recognised in Ceylon that the object of Indian growers was to obtain facilities for blending in Colombo. This was considered both by Ceylon planters and merchants to be undesirable; their object being that pure Ceylon tea only should be exported from the island. Looking at the question purely from the Ceylon point of view, but little fault can be found with this decision. But the Committee still think it is unfair to Indian growers that Ceylon tea should be freely admitted into India for blending or any other purposes. For if Ceylon will only admit Indian teas under certain restrictions, it is but right that similar restrictions should be enforced in India against the produce of the island. As matters at present stand, however, there is nothing to prevent the sale in India of blended Indian and Ceylon teas; while the sale of such in Ceylon, or their export from Colombo, is debarred. So far the Committee have not reopened the question with Government, but possibly their successors will consider the advisability of making a further representation.

EXPORT BOUNTY TO ENCOURAGE THE MANUFACTURE OF GREEN TEA.—It is with much satisfaction that the Committee record a considerable advance in the manufacture of Indian green tea during the past year.

Before the end of the season the bounty will have been paid upon 720,000 lb. of Indian green tea. When it is remembered that last season the quantity upon which the bounty was paid did not exceed 30,000 lb. the nature of the advance which has been made will be readily perceived. With the advent of the Cess and the consequent possibility of a bounty on a more extended scale, the prospects of Indian green tea would appear to be distinctly good.

ULLAGE AND DEPRECIATION OF TEA.—The following amended rules for dealing with claims for ullage and depreciation of tea were adopted in May by the Indian Tea Association (London) after consultation with representatives of the Conference Liners, *viz*:—

(1) Metal packages.—No ullage to be recognised unless the fastenings are intact, and unless the metal is perforated. (2) Packages country coopered but not Dock coopered.—No ullage to be recognised. (3) Packages country coopered and Dock coopered. Allowance to be one-half of amount of agreed loss. (4) No claims to be recognised for ullage in respect of packages of Fannings, or Dust Tea, which exceed 110 lb. in weight nett of Dust or 120 lb. nett of Fannings. (5) No claims for depreciation in value to be recognised unless ullage amounts to 10 lb. or over. (6) That any such allowance shall not exceed 1*d* per lb. (7) All claims for depreciation to be accompanied by satisfactory evidence of such depreciation. (8) Minimum ullage to be recognised for any package—4lb.

MAP OF THE TEA DISTRICTS.—In their last Annual Report the Committee mentioned that they were arranging for the compilation of a map of the tea districts. The map was published in September last, and shows the position of all tea estates in Assam and Bengal.

ESTIMATES OF THE CROP.—At the last Annual Meeting of the Association the following resolution was unanimously adopted:—"That in view of it having been found to be impracticable to obtain complete returns from producers, the General Committee be instructed to discontinue the publication of figures relating to the outturn of the crop." The practical effect of this resolution

is that the statistics published by the Association are restricted to those of exports. These are issued in a monthly statement, and include the shipments from Calcutta, Chittagong, and Southern Indian ports.

FINANCE.—The total planted area represented by the Association during the year was 359,206¾ acres, or an increase of 13,439¼ acres on that of the previous year. The year's subscription at the rate of one anna per acre amounted to R22,398-14-3. The revenue account shows a surplus of R2,808-6-9, which has been transferred to capital account. The balance in hand on the 31st December 1902 amounted to R38,177-10-3, less sundry liabilities amounting to R850-15-2.—LOCKHART SMITH, Chairman, Calcutta, 31st January, 1903.

KANDY DISTRICTS PLANTERS' ASSOCIATION.

ANNUAL REPORT, 1902.

MEMBERSHIP.—There are 45 votes enrolled on the Register against 51 last year, the decrease being mainly due to the formation of the Kurunegala Association.

FINANCE.—The financial position is satisfactory showing a credit balance R209·74.

TEA.—The past season has been generally unfavourable both in yield and prices, though the returns during the last few months have improved matters somewhat on low-lying estates. The shot-hole borer appears to be on the increase.

The estimates for 1903 are as follows:—Including 1,626 acres at 400 lb. per acre=650,400 lb. Estimated for ten estates which have not sent their returns.

Total acreage of Tea	.. 12,780	
,, Bearing	.. 12,391	
,, Crop	..5,004,050 lb.	450 lb. per acre.
,, Green Tea	.. 684,800 ,,	
,, Native Leaf	555,000 ,,	
Total acreage abandoned this year	.. 203 ,,	

The figures of Green Tea are not, however, considered very reliable.

COCOA.—Crops have been very good, but the continued wet weather prevented estates unprovided with artificial drying apparatus from curing satisfactorily.

Canker continues to do much damage and no really effectual remedy has so far been found. Estimates:—

Total acreage ...	7,592
Do ...	7,166

Estimated crop 17,490 cwt. (2·44 cwt. per acre.) There are about 412 acres for which no estimates have been sent in.

CARDAMOMS.—This industry has increased considerably of late, with the result that prices have fallen very materially, and it is now proposed to raise a cess of 50 cents per acre with the object of obtaining funds to advertise and push the sale of the product.

LABOUR.—Labour has been scarcer this year than it has been for some time past, and advances are steadily moving upwards instead of being reduced, so that the Labour Federation has not been successful in accomplishing what was hoped from it. This Association considers that Mr. Westland's scheme for recruiting labour from the coast should be given a trial.

Mr. HARRY CREASY'S proposed amendment of the Cooly Labour Ordinance has the same end in view of reducing advances, but as the Sub-Committee of the Labour Federation of the Parent Association deprecated further cooly legislation no further action is considered advisable.

CEYLON PLANTERS' RIFLE CORPS.—The numbers of this Corps have increased during the past year, and the total is now 790 against 536 previously.

COCOA-STEALING LEGISLATION.—His Excellency the Governor has stated that he is unwilling to take any action until another Commission is appointed to re-investigate the matter. This Association would respectfully express its opinion that the cocoa planters have already made out a good case, and that their demand is a perfectly just and equitable one, and hope that Government will see its way to yield on the point.

TEA CESS.—The present statistical position of the tea industry is more favourable than it has been for some time past, and the estimates of this season show a probably considerable decrease in the amount of tea to be put on the London market, due largely to the growth of the green tea industry, and this Association is therefore of opinion that it would be inadvisable to do anything at this juncture to check the expansion of the green tea industry, and therefore recommend the increase of the Cess as suggested by the Thirty Committee, on the understanding, however, that the Cess shall not be continued longer than really necessary to put the new industry on a sound footing. This Association does not approve of the proposal that a petition be made for a Government grant.

THIRTY COMMITTEE.—This Association consider it is impossible for those outside the Committee and not thoroughly cognisant with all the details that have been discussed to pass reliable or accurate criticism on its working and decisions, and they therefore recommend that the best course is to elect the best men available and leave them a free hand.

KANDY HOSPITAL.—The Association considers that the medical staff of the Kandy Hospital does not meet the requirements of the district, and that a large staff should be maintained for so important a centre as Kandy.

A vote of thanks is due to the Parent Association for allowing them the use of the rooms in the Victoria Commemoration Buildings during the past year.

ARE MELONS FRUIT?—The other day a man was asked whether a melon is a fruit or a vegetable. This enquiry led to the further question as to what is the difference between fruits and vegetables, any way? For the benefit of those who do not know, the statement is made that fruit is the part of a plant which contains the seed; but the plant itself is a vegetable. Apples, berries, melons, pumpkins, tomatoes, and the like are fruits; cabbages, radishes, beets, greens, turnips, and the like are vegetables, because it is the plant that is eaten, and not merely the part which contains the seed.—*Journal of the Department of Agriculture of Western Australia* for January.

THE NEW PHOSPHATE MANURE,

(From Mr. John Hughes.)

Dundee, Jan. 20.—I am up here to explain at the *annual* meeting of the Dundee Farmers' Club the properties and advantages of the New Manure Basic Superphosphates which has attracted a good deal of attention and has been specially successful in Scotland where the soil is generally deficient in lime and the period of active growth limited to a few months in the year. Already the manufacture has mounted up to over 1,500 tons during the last year alone and during the coming year the demand is likely to be quite double the above figures. Some has already gone out to Ceylon in compound manures for tea, also 100 tons to Jamaica, 50 tons to Adelaide, 20 to Demarara and some to the Cape.

(Editorial Remarks.)

Less than a generation ago the farming ranks provided some of the most unresponsive audiences for the man of science, especially when the subject down for exposition was only feebly in touch with the affair of rent paying. If Mr Hughes, who lectured so clearly and with such hearty acceptance yesterday evening to the members of the Carse of Gowrie Farmers' Club, had made his discovery of basic superphosphate in the eighties, instead of some two years ago, he would have run the risk of being for a time at least a voice crying in the agricultural wilderness. Without a doubt the world is making advances. The constant small rain of educational agencies and the ever-widening stream of knowledge founded upon experimental science must needs liberalise the world and give increasing clearness of outlook to all those who would as much as possible translate thought into action. When Liebig dissolved bones with vitriol in order to make the resulting compound useful for plant life he was probably classed by some as a visionary, but when he was rapidly followed by Sir John Bennet Lawes the world 'caught on,' to use the popular phrase. The super-phosphate by whose means Sir John worked into a handsome fortune is now, however, in some small danger from the 'basic super,' which is nothing more than the old 'super' with enough of added lime to render it alkaline. Already the prospects for the new phosphatic compound are highly favourable. It is making bold headway in the early stages of 'life' without undue puffing and log-rolling aids.—*Dundee Advertiser*, Jan. 21.

ADDRESS ON THE NEW PHOSPHATE.

Mr Hughes, who was most cordially received, began his remarks by referring to the early experiments conducted by the late Sir John Bennet Lawes in treating mineral phosphate of lime with acid in order to make the resulting compound more or less available for plant food. The acid-treated phosphate, or superphosphate as it came to be named, came to be most extensively used, especially for root-growing. Over two years ago Mr Hughes began to experiment with high class superphosphate by treating it with certain proportions of lime, his object being to produce a phosphate high in solubility and with an alkaline instead of an acid reaction. The result was the substance now known as basic superphosphate—a very light, dry powdery substance, occupying fully 2½ times the bulk of ordinary basic slag. In chemical composition the new phosphate contains 25 to 27 per cent phosphate of lime, which, though not soluble in water, is readily soluble in the acid juices of the plant roots. Mr Hughes explained that the new manure contained from 33 to 35 per cent of lime in combination with phosphoric and sulphuric acid. The great advantage of the basic superphosphate, Mr Hughes claimed, is that it is ten times more soluble than slag, the figures being 66·8 against 6·6 per cent. Treating the basic super and the slag with a very weak solution of citric acid, Mr Hughes found than 94 per cent of the former had dissolved against fully 38 per cent of the latter. The soils most suitable for the new manure were those naturally deficient in lime. It was specially useful on peaty and cold stiff soils, and had already proved of great advantage to soils subject to finger-and-toe. As for times of sowing, November till February were suitable, but it could be drilled in along with the crop in spring, a fair dressing being 3 cwts. per acre. Mr Hughes claimed that the new phosphate was a great improvement upon slag in rapidity of action, while its alkaline nature gave it an advantage over superphosphate, especially where land was deficient in lime or given to souring. The lecture, which was of a most practical and interesting nature, was followed with great closeness, and at the end Mr Hughes was heartily applauded.—*Ibid.*

A POT OF BASIL AND MOSQUITO PREVENTIVES.

Mr. A. E. Shipley's interesting article (p. 205) on *Ocimum viride* and its influence on mosquitoes recalled some observations that I made upon the papaw tree (*Carica papaia*) in China. My house, on the bank of the river at Whampoa, near Canton, was singularly free from mosquitoes, though the other houses on the same island were more or less infested with them. A line of papaw-trees, stretched between my house and the river, I frequently watched these trees, yet I never saw a single insect alight on them, though flies and other insects settled in numbers upon the bamboos and banana-plants not far away. In fact, the papaw-trees seemed to keep insects at a distance and to act as a rampart guarding the house from mosquitoes. The probability of this suggestion was considerably strengthened by the increase in the number of mosquitoes entering the house after a typhoon had blown down two papaw-trees and thus made a gap in the row, and by the still further increase when a second typhoon felled another of the trees. I have questioned a number of persons living in the tropics, and one of them stated that he was familiar with the fact that papaw-trees repelled mosquitoes.

That the papaw-tree possesses some curious property—in addition to the notorious proteolytic action of its juice—is suggested by the widespread practice of hanging meat in its shade to render the meat tender. The custom is frequently regarded as a senseless one, but its wide distribution causes one to ask: is it not possible that the papaw-tree should exhale a gaseous product which either repels meat-destroying insects or exerts an antiseptic action on putrefactive bacteria, or, finally, is a volatile ferment? The peculiar relation in regard to temperature displayed by the proteolytic ferment of the papaw juice renders the last possibility less improbable than at first impression.

—*Nature*, Jan. 22. PERCY GROOM.

COCOA IN TRINIDAD.

(*By W J S Tucker.*)

WEATHER.—The weather during the greater part of the past fortnight has been rather too wet for this period of the season but for the past two or three days there has been a change for the better, and, with a continuance of dry weather, it is expected that Sugar making will begin about the middle of present month.

COCOA.—The wet weather mentioned above has interfered somewhat with drying operations, and this will probably affect receipts for the early part of present month, but we look for large receipts from that date onwards. We quote prices today at $12.50 for Ordinary and $12.75 to $13.10 for Estates.

My artificial Cocoa Dryer is used on several estates in the island and thoroughly removed all trouble in drying the cocoa during heavy rainy weather.

PRODUCE SHIPPED TO 30TH DECEMBER 1902.

Years.		Cocoa. lb.	Coffee. lb.	Coconuts. Number.
1899	...	24,743,860	10,880	11,545,880
1900	...	29,465,752	7,220	8,316,256
1901	..	21,137,304	20,880	11,265,876
1902	...	32,123,540	39,900	11,902,156

PROGRESS IN BRITISH GUIANA IN 1902.

The Report on British Guiana in 1901-1902 was issued on Wednesday in the annual series of colonial reports as a Parliamentary paper [Cd. 1,388-2]. In the general review of the condition of the colony, perhaps the most interesting observations are those on the position of its sugar industry. Towards the end of 1901 the price of sugar reached the lowest point ever recorded, but the conclusion of the Brussels Convention has done much to relieve the feeling well nigh of despair that had come to those interested directly or indirectly in the industry.' The crisis is by no means over and a period of struggle must still be looked forward to, but it is confidently hoped that the Sugar Convention will in time restore public confidence in the industry and secure for it the capital which it so much needs. Meanwhile, a scheme of experimental cane cultivation is being worked out and is in process of extension over the sugar estates, where over 6,000 acres are now being utilised for cultivating new varieties. The general area under cane increased from 67,884 acres in 1900 1901 to 72,148 in 1901-1902. The Government of the colony recognizes fully the need of encouraging agriculture of every kind, and a Board of Agriculture has been constituted with the object of promoting the cultivation of the many tropical, agricultural, and horti-agricultural products which can be grown in British Guiaua, the spread of agricultural knowledge, and the improvement of the breeds of live stock in the colony. There has been a steady development of the rice industry since it was first seriously taken up about seven years ago. While the local consumption of rice remains the same, the quantity of imported rice has decreased notably, and the colonial industry seems to have established its position. The cultivation of products other than sugar cane has been greatly furthered by the more liberal land legislation begun in 1890, which has enabled the people to settle on the Crown lands of the colony and take up largely increased areas for development. This desirable movement is still going on. The output of gold during the year—all of which was produced by alluvial working—fell to 101,332oz. from 114,102oz., the figure for 1900 1901. The decrease is attributed partly to the diversion of activity towards diamond seeking and partly to the more or less continued heavy weather. Diamonds to the total weight of 8,227 carats were found during the year, 91,206 stones being registered. In the previous year 4.981 stones only, weighing 740 carats, were registered as found. Maps, accompanied by short explanatory pamphlets prepared by the Government geologist, have been published, and illustrate the general structure of the chief gold and diamond fields of British Guiana. The work of demarcating the boundary with Venezuela was continued during the year. Some 300 miles remain before Mount Roraima, the terminal point, is reached, but as the country now to be traversed is less difficult future progress should be more rapid. The most friendly relations were maintained between the Commissioners of the colony and those of the republic.—London *Times*, Jan. 16.

PLANTING NOTES.

THE SUPPLY OF BALATA—in sight is said to be so great that no fears of a shortage need be entertained for years to come, if the business is properly and intelligently handled. Experts report that there is not a tributary to the Amazon which does not show forests of this tree upon its banks. The importance of this new industry in Brazil may be realised when it is known that the market price of balata is equal to that of the best rubber and the cost of production is less than one-tenth that of rubber. Balata has another advantage in that it does not necessitate the risk of life attendant upon the gathering of rubber. The balata grows upon high ground, as well as on the margins of the swampy streams, where the fevers lurk. It is a common saying in Para that every ton of rubber from the upper river costs two lives. This can never be said of balata, for men work at this industry with no greater risk than usually attends any labour in the Tropics; and four men will gather as many kilograms of balata per day as thirty men can obtain of boracha.—*India Rubber Journal*, Jan. 5.

FRUIT AND ALCOHOL.—The more fruit you eat the less alcohol you will need. In the first place, the amount of water in fruit is considerable. In water melons it is no less than 95 per cent ; in grapes, 80 per cent ; in oranges, 86 per cent ; in lemons, 90 per cent ; in peaches, 88 per cent ; in apples, 82 per cent ; in pears, 84 per cent ; in plums, 80 per cent ; and in strawberries, 90 per cent ; not a fruit in the whole category containing less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important part in diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed ; and fruits would appear to be endowed with a subtle inimitable flavour which is ample inducement to imbibe fluid in this most wholesome form. The question so prominent in most people's thoughts as to what to drink might therefore, on sound physiological reasoning, be answered : eat sound, ripe, juicy fruit. It is noticeable that as fruit enters into the diet the indulgence in alcoholic drinks is undoubtedly very much diminished.—*Exchange.*

Correspondence.

To the Editor.

TRAWLING IN CEYLON.

Jan. 27, 1903.

DEAR SIR,—I see Dr. Gandevia has been writing rather strongly on the trawling question in Ceylon. His first contention that trawlers do not place on the world's market an abundant and constant supply of fresh wholesome fish at a cheap price, is, however, open to doubt. At Grimsby, Hull, and Aberdeen, three, if not the greatest, at least among the greatest trawling centres in the world, the past year has not been attended with the same prosperity as in past years. This is not accounted for by competent writers and experts on the subject as due to a scarcity of fish. Fish were plentiful, but trawlers were too numerous, the supply was too abundant and the prices consequently unremunerative. The picture of thousands of "devastated" villages is, from my little experience, considerably overdrawn; in fact the seven-mile limit to British Trawlers has proved quite sufficient to protect the coast line fishermen at home, and were the Danish and Norwegian Trawlers not permitted (by the North Sea Convention, I think) to lower their beams as close as three miles off the coast there would be little cause to complain. By all means protect the foreshore fisheries in Ceylon, but let the protection be reasonable. Five or seven miles would be ample in my opinion as a reserve for the line fishermen. If the trawlers do not go raking along the spawning beds, I do not think the churning of steamer screws will frighten the fish away. Dr. Gandevia's object is praiseworthy enough, but I do not think Government should, without expert advice on the matter, do anything to crush the life out of a new industry by making the conditions of its prosecution impossible without being thoroughly satisfied that the industry is injuriously affecting the coast fishermen's interest.—Yours, &c. SEER.

SIR,—Dr. Gandevia's letter in one of your numbers, regarding Trawling in Ceylon is deserving of attention. Facts are what is wanted and sayings and assertions are to be taken for what they are worth. Not long ago dead fish was washed ashore, and it was found that the fish caught by trawling was more than could be cured or preserved, and the rest was thrown overboard. Surely this is not a desirable proceeding to destroy fish which could be fished by villagers on the coast. To destroy the food of man for the benefit of a few speculators is not a matter to be encouraged.

In the North-East monsoon there is an abundance of fish near the coast, and most likely it is due to the smooth sea at that time of the year and the abundance of food for fish washed down from land by the burst of the North-East monsoon. If such is the case, it is a pity that fish should be prevented from coming near land by trawling a few miles from the coast.

As we have laws for the protection of land animals by game laws, why should not there be the same protection for fish on the coast, to prevent fish being caught and destroyed because the catch is in such abundance that it could not be preserved. To my mind, trawling should be allowed during the South-West monsoon from April to November, and for the four months from December to March it should be disallowed. This will give the fishermen on the sea coast the benefit they need and the trawler, his share as well.

To allow trawling all the year round, would impoverish the inhabitants along the sea coast, whose trade is in fishing, and also affect the spawning. These are matters which deserve careful attention as it may lead to crime, poverty and to the restriction of a fresh fish diet, and to encourage a badly-cured fish one. The appended extract will show the distress caused in fishing villages when deprived of their living.—Yours truly,

TRUTH.

TROUBLED FISHERFOLK.

London, Jan. 13.—Forty thousand fishermen on the coast of Britanny have been deprived of their means of livelihood, owing to the disappearance of sardines from the adjacent waters of the English Channel and the Atlantic Ocean. Great distress consequently prevails among the residents of the coastal districts.—*Australian paper.*

TOBACCO IN INDIA AND IN CEYLON.

Feb. 4.

DEAR SIR,—I rather like a weed—I mean between the lips, and not on the plantation; but I don't see why I should pay more for a cigar than my brother in India. I found the other day in the *Indian Planting and Gardening*, a protest against the prices put on Indian cigars by the three leading manufacturers there, while their quality has been deteriorating. On that point I do not wish to say anything; but the writer speaks of a box of a hundred Manila or Havana cigars being available for R4·50 to R5, and of Loudres at R6. How is it we cannot get these brands in Colombo at these prices? Is it that the duty here is heavier than in India? Or is it that our shopkeepers have forgotten to alter the prices which they had arranged in combination, when the rupee was worth only thirteen pence? This forgetfulness extended to other articles as well, until some Cash-stores were started. Can no one start cigars at reasonable prices?

SIXTEEN-PENCE.

[Imported cigars pay R1½ per lb. here. In India 5 p.c. *ad valorem*.—ED. *T.A.*]

OVER-PRODUCTION: NOVEL PROPOSAL IN BRAZIL.

Feb. 5.

DEAR SIR.—Enclosed is a cutting from the *Financial Times* of 10th January. What about the over-supply of Cardamoms being treated in some such manner?—Yours truly,

VISITOR.

(Extract referred to.)

TWO BIRDS WITH ONE STONE.—A Committee recently appointed by the Agricultural, Commercial and Industrial Society of San Paulo, in Brazil,

to inquire into the causes of the fall in the price of coffee has just issued its report, in which a number of measures for reducing the output so as to establish an even balance between production and consumption are proposed. In consequence of this report the Brazilian Government now contemplates placing a duty of 20 per cent on all exports of coffee, which is to be exacted in kind. The berries thus taken in taxation will be "denaturised" and sold to the planters as manure. By this means exports will, it is estimated, be reduced by one-fifth, and values will rise accordingly. That the theory will work out so smoothly in practice is another matter. But certainly as a fiscal expedient the proposal is ingenious.

LONDON SALES OF CEYLON RUBBER

London, E.C., Jan. 23.

Dear Sir,—At our auctions today the following lots of Ceylon-grown Para rubber were offered and sold:—

Mark.		*per lb.*
Eadengola	... 3 cases Fine thin biscuits	at...4/2¼
Hatherley	... 1 case Very pale yellow do.	at...4/2¼
Culloden	... 6 cases Fine thin biscuits	at...4/3
Do.	... 5 cases Negroheads	at 3/3 & 3/4½
Clyde Estate	2 small lots Fine biscuits	at...4/2¼
Do.	... 2 small lots Negroheads	at ..3/2
Nikakotua	... 2 cases Fine biscuits	at...4/2¼
Do.	... 1 case Negroheads	at...3/2½

As we think these particulars and prices of Ceylon-grown rubber will be of great interest to many Ceylon planters, we suggest your printing same in your next issue.—We are, dear Sir, your obedient servants,

LEWIS & PEAT, Brokers,

HUNTING IN THE HILL DISTRICTS.

(To the Editor, Local "Times.")

Sir,—You called upon me for an exhaustive reply to Mr. North C Davidson's letter published in your columns some two weeks ago, on the subject of Game Protection and the "Hill Districts." I am afraid I have no time for that, but as Honorary Secretary of this Society, I suppose, I ought to take some notice of his remarks upon the rule prohibiting the shooting of sambur above 4,000 feet elevation, and of the blood-and thunder paragraph about registered packs. The history of this rule which has been exercising the minds and pens of a few people lately, is as follows:—

About four years ago licenses to shoot sambur in the hill country around Nuwara Eliya were issued on such a lavish scale that any common cooly or kangany who applied for one could have it for R3·50. The number of licenses then issued from the Kandy and Nuwara Eliya Kachcheries was very large, and as one license serves for at least 20 persons where coolies are concerned, gang hunting was carried on openly, two, three, and four-days a week! On the Bopatalawa and the Digame Patanas—on the Elk Plains from Black Pool to Ambawella and from Ambawella to the Agra Patanas, on the Rajah Patanas, and in all the open patana and forest within a few miles of Nuwara Eliya, in the Ohiya forests and patana—in Gallagamuwa and all the intervening forest right to the Bagawantalawa estates in Boltumbe and Bambarakotuwa well into the Peak range and the Maskeliya estates, sambur were killed wholesale by estate coolies. It was at that time no uncommon occurrence to see gangs of coolies, aggregating 50 to 60 persons, with dogs and guns, hunting in the Bopats and Digames and other well-known hunting grounds. The results of all this was almost extermination in the tracts of land I have named, and two years ago all the old well-beaten game paths there were grown up and indistinguishable, and hardly a sambur was to be found for miles around. The rule, however, prohibiting shooting, which instructed the different Government Agents not to issue licenses to shoot sambur, eventually made itself felt, and the old haunts are gradually being re-occupied by game. On the Horton Plains and Aldie Patanas, where shooting has never been allowed at any rate for the last 15 or 20 years, and sambur are hunted only by hounds to the knife, a large stock of these animals has always existed and still exists to this present day, in spite of so-called slaughter, and no country has been hunted harder by packs of hounds.

As to the killing of hinds, this has always been found necessary in Scotland's on deer forests; and in England, wherever the wild stag breeds; and a little judicious thinning out in Ceylon is equally advisable. Now, if Government can be persuaded to issue licenses to shoot in the Hill Districts to Europeans only, and absolutely refuse them to all others on any pretext whatever, no harm will be done, and this outcry against the existing rule would cease at once. Fair stalking with the rifle on all the patanas I have named would be quite a legitimate form of sport and would afford much healthy exercise to sportsmen; but it would, I fear, puzzle our game-watchers to determine whether a dead sambur had been fairly stalked or shot over dogs like a hare.—Yours, &c.,

THOS. FARR.

Ceylon Game Protection Society, Feb. 7th, 1903.

Review of the Crude Rubber Market.—Rubber production, says the *India Rubber World*, for January 1, not only is not showing the rate of increase maintained for several years up to 1901, but this year will show a material decline. Meanwhile the rubber manufacture in every country in which it has been established has been active, there having been in no country such business conditions as have lessened the demand for rubber goods except, perhaps, in Germany, where the manufacturers have been able through their growing export trade to off-set any check in the trade at home. There is nothing in the conditions outlined above to point to the limit of rubber production having been reached. On the other hand, facilities for reaching the remoter South American fields are being improved all the while, even if slowly, and the tendency is toward the better conservation of native supplies there. The decreased output from the Congo districts has been due in part to a deliberate policy of the rubber trading companies which, for some time, have seen their earnings suffer through the careless handling of their rubber products, of devoting their energies to the better preparation and more careful shipment of rubber, rather than to getting out the greatest possible quantity. It appears now as if manufacturers would have to adapt themselves to a condition of rubber practically as high priced as at any time of considerable duration in the past, in connection with which no promise exists of an early decline in the cost of the other raw materials which enter into their products.

PLANTING ON THE ANAMALAIS.

We were pleased to learn today from Messrs. Martin and Bannatine, how well the new planting district—fostered by Sir Arthur Havelock when Governor of Madras—is developing. Out of 15,000 acres taken up, about 3,000 have been opened in tea and coffee with cardamoms, cinchona and some rubber. The plantations run from 3,000 feet upwards. A cart road is already right into the district. Calicut is the port; but Madras will have to be utilised for the S.-W. monsoon part of the year. The railway is coming nearer. Mr. Martin's tea of good jât has made splendid growth and a factory is now being built. Not a few still believe in coffee, if only prices would keep up. Cardamoms do well, but get a wintering; and produces expected to be all sold locally. Cinchona trees (from 15 p.c. Java seed) are growing well; and Para rubber in the flats has made growth equal to 6 feet in six months. Altogether therefore, Mr. Martin has reason to be satisfied with the inspection from which he has returned;—nor are the eight Anamalai planters now at work afraid about a labour supply.

GREEN TEA.

We hear of a sample of St. Leonard's green tea, spoken of very highly by an expert, as equal to the very best China of the same class. This is good testimony to the patent process of Messrs. Heath and Wiggin.

COCOS ISLANDS.

WHERE IT IS FASHIONABLE TO DANCE IN BOOTS!

The annual visit to Cocos Islands, which are under the paternal rule of Mr George Clunies-Ross, was paid this year by Mr L H Clayton, district officer at Christmas Island.

Mr. Clayton found nothing of importance to report, but there are one or two very suggestive passages in his remarks. For instance, he tells us of a severe cyclone that visited the islands when all the inhabitants ran into the lagoon up to their necks to escape the falling trees. There seems to be a novel view held concerning the value of boots. The winners of a race were offered as prizes their choice of a piece of serge or a pair of boots. They chose the serge as the men explained that boots were of no use except to dance in!

Mr Clayton visited North Keeling Island where every tree and bush is covered with the nests of frigate-birds, boobys, gannets, terns, &c. The birds are quite tame and have no fear of man. The white tern, Clayton thinks, is the prettiest of all. Mr Ross showed him one of this bird's eggs *in situ*. It had been laid so as to rest between two ribs of a coconut leaf, and was so placed that the swaying of the leaf in the wind did not shake it off. There was no nest of any kind.—*Commercial Intelligence*, Jan. 22.

MOSQUITO BLIGHT ON INDIAN TEA.

Mr. Harold Mann, the scientific Officer of the Indian Tea Association, has left Calcutta to spend six weeks in the tea districts making further investigations into the mosquito blight. Problems in the manufacturing of tea are to be taken in hand on his return to Calcutta. A further monograph on tea soils will be issued shortly.—*M. Mail*, Feb. 13.

PRODUCE AND PLANTING.

It is somewhat curious to notice the way in which fads are ministered to by public caterers. A correspondent informs us that on visiting one of the co-operative stores he noticed on the menu that

TEA COULD BE HAD AT 2D. PER CUP.

This, he presumed, was ordinary Indian and Ceylon tea. China tea could also be had, but this being an article likely to be asked for by faddists, was marked at 3d. Our correspondent asked the distinction between the two, and was told that the China tea was a special scented sort, and very delicate in flavour. This need not frighten producers of Indian tea any more than the advice given by the late Sir Andrew Clark to his lady friends to drink only China tea. For the present day economic reasons prevent the majority of people from indulging in drinks that cost 50 per cent. more than they have been accustomed to pay. It is only right, however, that those who call for special brands should be prepared to pay something extra for the gratification of their tastes.

The *Grocers' Gazette*, commenting on the

A NEW USE HAS BEEN FOUND FOR TEA

according to the British Consul at Bordeaux who reports that he is informed that tea is largely used to colour brandy, the tannin giving the brown appearance like that produced by long storage in oak casks.—With regard to

DISPUTED BIDDING AT TEA SALES,

the "Grocer" says: "Friction has been experienced for some time past at the tea sales owing to certainty as to whether bids of ½d per lb are to be allowed. The present rule is to advance by farthings. Competition, however, for the lower grades of leaf tea is generally very keen, it being the desire of every buyer to get his bid accepted by the auctioneer, and in the shouting that always occurs with active markets, everyone yelling out at the same time, it is difficult for auctioneers to do justice to all bidders, which naturally causes great dissatisfaction. On these occasions a buyer is often prompted to offer ½d per lb. more. Many breaks are divided into two lines, and the buyer then offers a ¼d more and 'drop'; or if the break is in only one line suggests that it should be divided, and he will give a farthing advance and drop which works out the increased equivalent of ½d per lb. This innovation is resisted by some brokers for reasons of their own, and objected to by others on the ground that it is irregular, whilst there are auctioneers who refuse these ½d's at the public sales, but accept them privately. At the Indian auctions last Wednesday a definite ruling was asked upon the subject by more than one buyer, but only the usual stereotyped answer was forthcoming, which means that the matter remains as it did before. It is a great pity that brokers cannot come to a decision among themselves, as the uncertainty engenders a good deal of vexation and irritation between buyers, besides often rendering the sale-room the scene of most disorderly proceedings. But those auctioneers who present a firm front and back their own decisions invariably command attention; it is the vacillators who fail to keep order."—*H. & C. Mail*, Jan. 23.

CEYLON TEA IN RUSSIA.

Our Odessa Correspondent writes:—The Colombo representative of a group of Moscow tea merchants states that the export of Ceylon tea last year exceeded by 2,000,000lb. that of the previous twelve months, and the trade is increas-

ing with marvellous rapidity. In this country Ceylon tea finds a constantly enlarging market, and there is, in consequence, a steady decline in the import of the Chinese product. Several of the leading Moscow merchants, I am credibly informed, have expressed the intention of shortly severing their connections with the Chinese planters in favour of the Cingalese growers.—London *Standard*, Jan. 30.

A NEW METHOD!

We have before commented on the extraordinary statements which appear from time to time in the public Press with regard to rubber. The following paragraph is the richest in humour which we have yet seen. It has started its rounds, and sooner or later will appear in different parts of the world :—"American ingenuity has devised several new methods for getting rubber ready for the market. The milk is drawn from the bark by suction, so that the pure sap is obtained free from the grit, bark, and foreign substances which were always present in such large quantities in the rubber sold by natives. After the rubber milk is obtained the pure rubber is separated from the other ingredients of the sap in much the same way that cream is separated from milk, by a patent process. In the new method introduced and practised by the Americans there is no waste of sap. By the natives half of it is wasted. When the rubber is coagulated it is tied up in bales and shipped to New York, where it sells at from 75 cents to 1 dollar (gold) a lb, and the total expense of extracting it, separating and coagulating it, and shipping it to the Eastern market is not more than 5 cents a lb. This shows enormous profit."—*India-Rubber Trades' Journal*, Jan. 19.

MR. H. H. MANN'S TEA INVESTIGATIONS.

A letter, dated 21th January, from Mr H H Mann, the Agricultural Chemist employed by the Association, stated that he proposed to go on tour on the 9th February, in connection with his experiments against Mosquito blight. Mr Mann also asked the Committee to decide whether, on the completion of this tour, he should work up the soils of the Dooars and Darjeeling Districts, or whether he should continue his work on manufacture. The point was carefully discussed by the Committee, who were of opinion that the investigations into manufacture were the more urgent, and should take precedence over the soils of the two Districts named.—*I. T. A. Minutes*, Feb. 6th.

THE PLANTAIN FIBRE BOOM IN MALABAR.

Calicut, 12th Feb.—A correspondent writes to the *Kerala Sanchari*, the leading vernacular paper in Calicut, to say that a friend of his recently extracted a quantity of plantain fibre and forwarded it to Messrs Eddie and Christy, of London, who valued it at £15 per ton, and also wrote to say that they would give £25 for superior quality of fibre, and were prepared to receive supplies to any extent. Now that a fair start has been made, the opportunity ought to be seized by wealthy Malayalis—and there are several whose ancestral wealth is rusting in disuse—to launch what promises to be a remunerative industry. The plantain tree is about the most familiar feature in the sub-arborescent vegetation of the Malabar Coast, and the raw material for the fibre is to be had in abundance.—*Madras Mail*, Feb. 14.

POPULAR SCIENTIFIC LECTURES.

"THE PECULIARITIES IN ANIMAL LIFE IN CEYLON."

(Special.)

The fifth lecture of the series of Popular Scientific Lectures was delivered in the Ceylon Medical College on Saturday, 14th February, by Dr Arthur Willey, the Director of the Colombo Museum. The lecturer first dwelt on that remarkable peculiarity in the fauna of Ceylon first noticed, we believe, by Sir Emerson Tennent viz :—that Ceylon fauna consisted partly of Indian and partly of Malayan and Australian types and—what was more remarkable—were wanting in types which one would certainly expect to meet; as for instance the hamadryad or king-cobra, the tiger, and the antelope. Afer a brief reference to the Singha or lion in Sinhalese Mythology as being significant of the alien source of the Sinhalese race, the lecturer, with the aid of lantern slides, spoke first of the larger animals such as the leopard, and the various deer found in Ceylon, one species of which, whose headquarters are in Northern India, tradition ascribes as having been introduced by the Dutch, though no record has been found referring to such introduction. He then dwelt on the different lizards including the chamelcon, the rare ceratophora or horned lizards found upcountry, and the false snakes or underground lizards. The next branch to be taken up was that of the fishes when the audience were entertained by descriptions of the burying fish like the "Lula" which lies dormant for a long time in dried up tanks waiting for the next rainy season; of the travelling and climbing fish, one species of which may be found in Mount Lavinia climbing on the top of rocks while another may be met with walking along the wayside or even climbing trees; of the king-crab "the last of the Mohicans," a crustacean of ancient lineage one who can trace an unbroken descent from ancestors living in times long before the advent of that parvenu, Man; and of the erect swimming fish or fish with its dorsal aspect like the back of a razor and its ventral aspect as sharp as the front of a razor—a blunt razor. Dr Willey then turned his attention to those two low marine organisms on the life history and development of which the lecturer may be described as an authority; viz. the Amphioxus and the Balanoglossus. He impressed on his audience the importance of these two organisms lying as they do on the border land between the vertebrates and the lumbricates or earth worms—the highest form of invertebrates; for it is held by most scientists that the evolution of the vertebrates proceeds from the invertebrates through the Amphioxus and Balanoglossus. Dr. Willey here showed some splendid slides of the development of the Amphioxus and Balanoglossus, photographs taken evidently from his own excellent set of specimens. The next subject dwelt on was the Molluscs where the audience were shown some beautiful slides of the Pearly and the Paper Nautilus, the shell of the former of which is to be found occasionally in Trincomalee, though

strange to say only three living specimens have so far been found. The last class to be taken up was the Myriopedes, consisting of the centipedes, of which a specimen of the very venomous yellow and black species was shown on the screen; and of the harmless Millepedes, met with so often upcountry. Dr. Willey also mentioned the existence of a third order belonging to this class (Poropidæ ?) a few species of which are to be found in Australasia and South Africa. This third order was of interest in that it lay between the earth-worms and the centipedes. It was also of special interest to the Zoologist on account of its methods of reproduction; one species resembling the Mammalia in that respect while another was possessed of an enormous nutritive sac which sufficed for the nutrition of the embryo.—It was evident that Dr. Willey is of opinion that this third order may exist in Ceylon though it has not yet been found.—The lecture terminated shortly after 10 o'clock, Dr. Perry proposing a vote of thanks to the lecturer, for the very interesting lecture he had delivered, in which he had in such a short space of time, been able to give them such a fund of information about the peculiarities in animal life in Ceylon.

COCONUT PLANTING.

SIR,—In one of the most fertile islands of the Godavery I own land on which I planted a coconut tope three years ago. The land is very near the banks of the river, whose water is saltish, owing to its proximity to the sea into which it empties itself. The soil is one on excellent black loam and is, in the opinion of all local planters, eminently adapted for the growth of the coconut palm. So far, the plants, too, are thriving admirably, and if everything goes well with them, will yield fruit in three more years' time. A few days ago I paid one of my occasional visits to the place to see how the plants were progressing. Among others of the village who came to see me was an old experienced planter, who told me the following startling story. It seems he has land in another part of the village, very near mine, where, by the side of a large coconut plantation of his, growing and fruiting since his grandfather's time, he planted another some years ago. The plants grew very vigorously till they were just about to bear fruit, when, from some unknown cause, all of them suddenly drooped down their heads, and died within a short interval of each other. He suspected there was something wrong about the soil (which, by the way, was covered with a deposit of white sand, the result of a recent inundation of the river) and which he replaced about a yard deep with a soil and manure believed to be favourable to the growth of the coconut; and planted another tope, which also shared the same fate, having come out splendidly till the time of the promised fruit and perished equally miraculously. Nothing daunted, the old planter tried various means to eliminate the causes of the evil so far as could be conjectured, and successively altered the manure, the water and other things which might influence the health of the plant one way or the other. But with the same unfortunate result throughout. Now he has given up all thought of remedying the evil, which he attributes to parasitic worms sapping the life out of the plant from behind the root. Against this, too, he wished to provide by pouring in kerosine oil, but whether this tended to kill the plant instead of the worm I am not sure. Now, in the interests of all local planters, I write this to you in the hope that you or any of your numerous readers will kindly enlighten me as to what conclusion to draw under the circumstances, and what measures to adopt in order to remedy the evil or effectively prevent it before having to attempt a cure.

9th Feb. COCONUT-PLANTER.

—*Madras Mail*, Feb. 12.

MALARIAL FEVER AND HOW TO PREVENT IT.

A CIRCULAR IN THE NORTH-WESTERN PROVINCE.

Mr. S. M. Burrows, Chairman of the Local Board of Kurunegala, has issued the following circular, at a very opportune time, and it would be well that every recipient do "read, mark, learn and inwardly digest" its invaluable contents, so full is it of wise laws and modern instances. The circular is applicable to all malarial stations, and may, with profit, be adopted by the residents thereof:—

"It is now quite certain that malarial fever is caused by the bite of certain mosquitoes. You cannot catch malarial fever in any other way. How can you avoid being bitten by these mosquitoes?

1. Use curtains (without holes or tears in them) at night to sleep under. They will save you the expense of doctor's bill, and medicines.

2. Empty and throw away or burn all broken bottles, upright pieces of bamboo, empty coconut shells, tins, old buckets, etc., in which stagnant water collects, and fill up all puddles and stagnant pools near your house, and clean your drains. It is just in these places that the dangerous kind of mosquito breeds. If we would all carry out this plan as far as we possibly can, there would be very few mosquitoes left to give us fever.

3. Keep your houses as clean as possible. The mosquito likes dark, dirty corners and shuns light.

4. Take quinine at regular intervals and in small doses, especially during the malarial season (December, January and February). Quinine prevents the fever germs from spreading. It can do you no harm. It can be had for nothing. Why not take it? Everyone in a malarious place like this should take enough quinine to cover a ten cent piece once in ten days even when quite well: If feverish, more frequently. If we all did this, there would be very little fever.

5. Every person with fever should be sent to hospital, if possible. While he remains in the house, the mosquitoes that bite him will bite you and give you fever. Let us all try and act on these simple rules for a year, and see if we cannot make Kurunegala a healthy place."

MALARIAL FEVER.—The circular issued by Mr. S M Burrows and printed in our daily and *T.A.* is well worth the attention of all who reside in feverish districts. Fever has lately been especially trying in and near Anuradhapura, for instance—and this and other places similarly situated will doubtless be glad of good advice.

KURUNEGALA PLANTERS' ASSOCIATION.

ANNUAL REPORT

of the Kurunegala Planters' Association of Ceylon for the year ending February 14th, 1903.

Your Committee have pleasure in submitting the first annual report, and they feel sure that all members of the Association, on perusal of same, perceive that the desirability and necessity for an Association in this district is very obvious, and that the formation of this Association which took place a year ago has already led to beneficial results in the Planting interests.

FINANCES.—Your Committee are glad to be able to report that the finances of the Association are in a satisfactory condition. All liabilities with the exception of cost of recent advertisements have been paid up, there are no subscriptions outstanding, and there is a balance to the credit of the Association of R78·91.

MEMBERS.—There are 28 members on the register—25 estates and three private subscribers—and your committee are in hopes that some more estates in the district, which have not as yet joined, will do so in the coming year.

MEETINGS.—There have been five general meetings and five Committee meetings, and the attendance on the whole has been good.

HOSPITAL.—At an early meeting of the Association it was thought desirable to ask Government to appoint hospital visitors, and Messrs. Scott and Hermon were duly appointed.

LABOUR—on the whole has been fairly satisfactory. There has been trouble on one or two estates, but otherwise relations between employer and cooly have been harmonious and peaceful, and your Committee see no reason why this satisfactory state of affairs should not continue. The advances all over the district (as far as your Committee are able to ascertain) are considerably lower than they were a year ago.

MAIN ROADS—suffered considerably during the last wet weather, but are now being put into good order again as before. A toll on the Kandy Road near Mallawapitiya was removed by Government at the request of this Association, much to the satisfaction of all residents in the district.

MINOR ROADS.—Your Committee regret that they cannot give a good report in this respect, as some of them are in a state wholly unfit for cart traffic; one or two roads near to the town are in a fair state of repair, but beyond that the rest of the district is in a wretched condition. Plank bridges are rotten, culverts are choked up, and in many places no side drains exist at all, and practically no improvement in the way of necessary new bridges, pavings, drains, &c., have been done at all. Your Committee cannot help feeling that the continual change of Government Agents, which has been going on now for the last five years, has had a disastrous effect in this and many other respects regarding the welfare of the province, and they take this opportunity of pointing out the desirability that may arise of publicly discussing this important question, should further changes again take place.

C.P.R.C.—Your Committee note with much satisfaction that a section of the C P R C has been established at Kurunegala, and under the able guidance and command of Mr H E H Hayes has already attained to a very high standard of efficiency, especially so at the range.

POST OFFICE.—Your Committee would call your attention to the wretched little building that is now used as a Post Office, which is wholly inadequate for the work and should receive your attention.

COCONUTS.—Our Association being largely comprised of representatives of the coconut interest, your Committee have much satisfaction in recording another prosperous year for that industry. With the exception of a decline of 65,069 cwts. in copra; a deficit of 2,262,569 in coconuts in the shell, and 6,826 cwts in coir fibre, all the other products reported—coconut oil, 512,498 cwts; poonac, 247,696 cwts; desiccated coconuts, 16,227,565 lb; coir rope, 15,631 cwts.—show an appreciable increase over last year and are the highest during the last 10 years, desiccated coconuts being the highest on record. Our best customer for copra and poonac is Germany; France being next with copra. The United Kingdom takes the bulk of coconut oil, desiccated coconuts and coconuts in the shell. America is our next best customer for coconut oil and desiccated coconuts. India, which last year took 141,139 cwts coconut oil, has this year taken only 64,370 cwts. This great falling-off is said to be due to a tax imposed upon the article in India. Singapore takes 15,354 cwts coir rope, out of 15,631 cwts exported. Prices though not so good as during the closing months of 1901 were fairly satisfactory. Copra ranged from R61 to R63 per candy during the first half of the year; at R56 to R58 from July to October, and during November and December touched R57, the lowest price for the year. Coconut oil varied in the varying prices of copra, and at the end of the year was R4 per cwt., below what it was at the commencement. Poonac was R75 per ton from January to March and stood firm at R80 for the rest of the year. Desiccated coconuts varied from 19 cts. to 22 cts. per lb. Though the fall in prices has been considerable for the last few months, your Committee are hopeful that it is only temporary and will soon rise.

There would seem to be a steady increase, both in Britain and the Continent, of the manufacture of coconut butter, and it is good news that we may shortly expect to see this article manufactured locally. We wish the venture all success, as the demand for coconut butter is sure to increase and be in great request by vegetarians of all creeds. There are rumours that the sensitive plant, which has hitherto been considered a nuisance and source of expense on many estates, is likely to prove a blessing. Being a nitrogen-collecting plant it is being cut down twice a year and buried—with results, it is said, far in excess of what might be expected from its nitrogen-producing propensities only.

Your Committee would advise those who have this plant growing on their property to experiment in this direction with a few acres and report results. The year has been an unusually wet one, causing a deal of inconvenience at times, but upon the whole might be considered favourable for the formation of crop, and the probabilities are that 1903 will be a good year in this respect.

COCOA.—Throughout the district cocoa is doing well and cancer (as far as your Committee are able to ascertain) is not at present causing much anxiety. Crops were fairly heavy and realised on the whole good prices.

OTHER PRODUCTS: RUBBER, PEPPER AND VANILLA.—From the results obtained from various estates it would seem that this district is very suitable for the growth of any of these products and a considerable acreage is now planted and being planted with them.

THE RUANWELLA TEA COMPANY, LTD.

ANNUAL REPORT.

DIRECTORS:—Messrs. G H Alston, J P Anderson and H J Scott.

ESTATE INSPECTOR:—Mr J P Anderson. ESTATE SUPERINTENDENT:—Mr D I Mackenzie.

ACREAGE:

Tea in full bearing ..	..	374 acres
Jungle and Wasteland	..	199 do
Total	..	573 acres

The Directors submit herewith to the shareholders the report and accounts of the Company for the past year. The crop amounted to 180,125 lb of tea, which is nearly 20,000 lb. short of the estimate, but shows an excess over 1901 of 13,825 lb. The shortfall in 1902 is wholly attributable to the continual rain and absence of sunshine during the last 3 months of the year. The average nett price re-

alised was 27·61 cents per lb.; against a cost of production of 23 08 cents per lb. This included the sum of R3,257·16 spent on manuring, or say 1·81 cents per lb. of made tea, and R1,840·16 spent on re-roofing 2 sets of lines with iron, and other repairs to lines, equal to 1·02 cents per lb. of made tea. The Directors regret to state that between 22nd November and 18th December, on which latter date the theft was discovered, 5,044 lb. tea were stolen from the Factory. Every effort is being made to trace the thieves, but up to date without success. It is however anticipated that a considerable proportion of the value, R1,421·40, will be recovered, but in the meantime the Directors have decided to set aside this amount to a doubtful debts account. After making this provision the nett profit for the year amounts to R4,205 82, to which has to be added R2,603·51 brought forward from 1901, making a total of B6,809·33 available for distribution. The Directors now recommed the payment of a dividend of 2 per cent for the past year and that the balance of R1,509·33 be carried forward to the present years' accounts. The crop for the current season is estimated at 200,000 lb. Tea costing 23·25 cents per lb. delivered in Colombo. Owing to the demand for Green Teas, the Directors have considered it advisable to undertake their manufacture. The necessary machinery is now on the estate and it is hoped that the manufacture of Green Tea will be commenced in the course of the next few days. The additional expenditure for this work should not amount to more than R500, which is included in the expenditure of 23·25 cents. per lb. given above. It is also proposed to continue the planting of para rubber on suitable ground. During the year the Hon. Mr W H Figg resigned his seat on the Board, and the remaining Directors appointed Mr G H Alston to fill the vacancy; in accordance with the articles of Association he now retires, but is eligible for re-election. The appointment of an Auditor for the present year rests with the meeting.—By order of the Directors,

WHITTALL & Co., Agents and Secretaries.

Colombo 5th Feb. 1903.

THE KANDYAN HILLS CO., LTD.

ANNUAL REPORT.

Tea in full bearing	..	410 acres
Not in bearing under two years	..	23 do
Reserve and Forest Lands	..	787 do
Cocoa	..	90 do
Total	..	1,310 do

The Directors beg to present their report for the season ended 31st December, 1902, together with a duly audited statement of accounts for the same period. The Tea Crop including Tea made for others amounted to 206,788 lb., and the Cocoa crop reached cwt 141-1-14, whilst the made Tea gathered from the Estate itself was 182,091 lb as against the estimate of 200,000 lb. The total cost of production, including the expenditure of cents 1·42 on manure, was 25·02 cents per pound of made Tea. After paying interest and all other fees and charges their remains a balance of R2 932·48 at credit of Profit and Loss Account, which the Directors recommend should be carried forward. The new Season's estimate of expenditure amounts to R45,036, or equal to 22·51 cents per pound of made Tea on a crop of 200,000 lb, and includes a sum of R1,960 to be spent on manuring or cts 98 per pound. The Cocoa Crop is estimated at cwt 130 against an expenditure of R3,910. In addition to the above, it has been decided by the Visiting Agent and Directors. that a sum of not more than R2,000 should be spent on Castilloa and Para Rubber to be planted partly in a new clearing, which will be opened for the purpose and partly in ravines and other suitable places on the Estate. At the end of September last the Factory on Pansalatenne was totally destroyed by fire, which necessitated arrangements having to be made for the manufacture of the Green Leaf from the Estate in the neighbouring Factories. Whilst the actual loss to the Company was fully covered by insurance, additional expenditure was incurred for manufacture, and the Superintendent was obliged to resort to finer plucking so as not to exceed the capacity of the Factories, to whom he was indebted for the manufacture of his Teas. The shortage in crop as compared with the estimate is thus partly accounted for, as also the increased cost of production, though the deficiency in crop may be attributed mainly to the abnormally wet season experienced during the latter part of the year. The new Factory has now been completed and is thoroughly up-to-date in its equipment, including Fans and the latest improvements. It will be noticed that in the Profit and Loss Account no special provision has been made for depreciation of buildings and machinery, as the Factory has recently been re-erected, but this has been amply provided for by the surplus remaining over from the amount received as insurance against Loss of Income after covering the cost of rebuilding the Factory. Given a normal season the estimated crop should be realized, and is hoped a better class of Tea manufactured with the ample accommodation and machinery now at the disposal of the Superintendent. In terms of the Memorandum and Articles of Association the Hon. Mr J N Campbell retires from the Board of Directors, but is eligible for re-election. It will also be necessary to appoint a Director in place of Mr W Shakepeare who is shortly leaving the Island. The appointment of an Auditor for the current year rests with the Meeting.

MAHA UVA ESTATE COMPANY, LTD.

ANNUAL REPORT.

DIRECTORS :—Messrs. S Bois, Jas. Polson and G H Alston.

ESTATE INSPECTOR : — Mr. Jas. Polson, ESTATE SUPERINTENDENT :—Mr C W Maclean.

ACREAGE :

Tea in full bearing ..	..	618 acres
Cardamoms ..	..	89 do
Fuel ..	..	20 do
Total Cultivated	..	727 do
Jungle and Waste land, &c.	..	231 do
Total of Estate	...	958 acres

The Directors have now to present to the shareholders the accounts for the past year. The tea crop secured amounted to 242.376 lb. against an estimate of 262,000 lb. the shortfall being due, as in almost all districts, to continued rain and absence of sunshine during the last three months of the year. The cardamom crop however exceeded expectations and yielded about 9,600 lb. against an estimate of 9,000 lb. The prices realised for these products were 34·57 cents per lb. nett for the tea, and 83·33 cents nett per lb. for the cardamoms sold; against 34·78 cents per lb. and 1·25 per lb. respectively in 1901. As shareholders are probably aware, the market for cardamoms has been very low during the last twelve months. After allowing for depreciation on buildings and machinery, and estimating at a low rate for the Cardamoms yet to be sold. the amount at credit of profit and loss account for the year's working was R23,042·31, equal to 7·68 per cent on the paid up capital of the Company, to which has to be added the balance of R3,012·17 brought forward from 1901, and R432·47, being under estimated value of cardamoms appearing as unsold in last year's accounts, making a total of R26,486·95 available for distribution. An Interim dividend of 3 per cent was paid on 5th August last, absorbing R9,000, and the Directors now recommend the payment of a final dividend of 5 per cent, making 8 per cent for the year, and that the balance of R2,486·95

be carried forward to the current year's accounts. The estimates for the present season are 287,000 lb. Tea, including 25,000 lb. tea to be manufactured for others, and 10,000 lb. cardamoms, on an expenditure of R72,906·53, in addition to which a sum of R6,600, has been estimated for new Turbine Piping. In accordance with the articles of Association Mr S Bois now retires from the office of Director but is eligible for re-election. The appointment of an Auditor for the current year rests with the meeting.—By order of the Directors,

Whittall & Co., Agents and Secretaries.

Colombo, 4thFeb., 1903.

PASSARA PLANTERS' ASSOCIATION.

THE TENTH ANNUAL REPORT.

Chairman.—Mr J B Cotton; Hon. Secretary.—Mr A V Ryall; Member to D R C and P R C.—W Stewart Taylor.

Committees:—*Passara.*—Messrs. Jas. Duncan, Geo. Kent Deaker, Capt. H Gordon, J J Robinson, W Stewart Taylor, *Madulsima*—Messrs J M Mason and R Webster, *Lunugala*—Messrs J D P Maclean, Channing Esdaile, F Hall and A L Buyers, *Monaragala*—J H Betts and E Liesching.

Thirty Committee:—Capt H Gordon. Kandy Committee:—Chairman, Secretary, G K Deaker and J M Mason. Hospital Visitors, Badulla,—Messrs G K Deaker and J Duncan, *Lunugala*—J D P Maclean and F Hall. Auditor.—Jas. Duncan.

Register.—The number of estates on the Register is 30 (5 less than in 1901, due to amalgamation of estates).

Finance.—The books of the Association are laid on the table for inspection. The amount standing to the credit of the Association (in the Bank of Uva) is R273·43. Last years' accounts were audited by Mr Duncan.

Meetings.—There have been four Committee and four general meetings, which have all been well attended, showing the interest members take in the Association.

Tea Crop.—The estimated tea crop for estates on the Register of this Association for 1903 is 4,032,500 lb. off 8,844 acres in bearing; an average of 455 lb. per acre. This speaks well for the suitability of this part of Uva for tea production. There are still 1,357 acres not in bearing; the last three months of 1902 were very unfavourable for the production and manufacture of tea, owing to the continuous wet and cloudy weather. Your Committee are glad to report a marked improvement in the market, and that the immediate future is bright, as the stock at the end of 1902 was below 1901, and green tea will (if the bonus is continued) relieve the black tea market of 12 to 4,000,000 lb. Your Committee would recommend you to continue to support the cess and they would also urge you to refrain from returning to coarse plucking, which would only land you in the disastrous position (as regards prices) in which you were a short time ago.

Cocoa.—This product has given a fair crop during the year. Your Committee will watch with the deepest interest, the results of the experiments still being made with a hope of checking tho pod and other diseases which caused so much loss yearly.

Rubber.—Some extension of this product has been made during 1902; both Para and castilloa are being planted and on one estate; the oldest Para Rubber tree will be tapped during 1903—the result of which will be watched with the greatest interest by your Committee.

Post and Telegraph.—Your Committee are glad to announce that your efforts to get a Telegraph Station opened at Madulsima are to be crowned with success.

Coach.—The arrival and departure of the coach at Passara has been most erratic and the coach arrangements still have room for improvement.

Water Supply at Mupane.—The well at Mupane has been built after years of agitation, but whether it will be a success or not remains to be seen.

Police Magistrate.—As Government could not see their way (as requested by your Association) to appoint a permanent Police Magistrate for Badulla itself, they consented to have the date published on which the present itinerating Magistrate would be absent from Badulla.

Nursing Association.—Your Committee are sorry to report the proposal to get Agents and Firms in Colombo to allow estates to subscribe towards this worthy institution met with very little success.

Resthouses.—It affords your Committee much satisfaction to report and note the marked improvement in the comfort and cleanliness in the Resthouses generally for which we are indebted to our worthy Government Agent.

Labour.—The supply of this has not been quite sufficient for the requirements of the District, and in consequence the advances have increased to a very alarming extent and the labour is generally restless and unsettled and your Committee view this with not a little uneasiness. Your Committee therefore think that any scheme for recruiting labour in new districts should be strongly supported, for the prospects of a good harvest in our present recruiting districts, and the fact that other countries are also competing against Ceylon in those parts convince your Committee that the Ceylon Planters should no longer rely on the old districts for their labour requirements.

Tramway or Light Railway.—Both the light railways to Kandapola and the Kelani Valley are nearing completion and your Committee hope that His Excellency Sir West Ridgeway will have a survey made (as promised) of a line between Bandarawela, Passara and Badulla before his departure from the Island.

Roads and Bridges.—The bridge over the (Nukkal) river has been completed after hanging fire for two years and it is a great boon during N.-E. heavy rains to the Monaragalla Estates. R6,000 has been granted towards widening and protecting the Madulsima Road and Your Committee hope the officer in charge will not take on the labour required for this work locally. Some of the roads are in fair order, but your Committee think the laying and macadamising of metal is much delayed This should be begun with the first rains in Sept.

His Excellency the Governor.—Your Committee are only echoing the voice of this Association when they say how grateful they were at tho news of our present Governor Sir West Ridgeway's term of office being extended, but they sincerely regret that that term will expire in October. He has always been a friend to the planters (and to Uva especially.)

Passara Rifle Corps.—This was formed in April, but your Committee regret that some members of your districts have not yet joined. They hope, now the range is completed, they will do so. Of the section there were [?] ex-efficient, six efficient, one non-efficient in class-firing which, they think, was very creditable considering they had no range or practice. The adoption of the report was duly moved, seconded and carried.

HIGHER WAGES FOR INDIAN COOLIES IN THE STRAITS.

The Malay Peninsula Sugar Industry Association have nominated Mr Turner, and Mr Boyd of Gula Estate, to represent them at a conference to be held in Singapore to consider a proposed rate of increase in wages for Indian Immigrants. The feeling of the meeting was that, owing to the greatly increased demand for labour throughout the Colony, and the Federated Malay States, a very material increase on the present rate of wages must be faced.—*Singapore Free Press*, Feb. 10.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1903, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900 :—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for October-November delivery 1903, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901 :—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900 :—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castlloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica-Liberian Hybrid.—A highly recommended leaf-disease resisting hardy new variety of Coffee (cross between Arabian and Liberian). New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products :—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902-1903.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in larger quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says :—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to Willam Brothers."

Agents in London :—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Agent in British Central Africa :—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address : William, Henaratgoda, Ceylon.

Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
Henaratgoda, Ceylon.

Correspondence.

To the Editor.

HUNTING IN THE HILLS.

Amherst, Feb. 12.

SIR,—The Hon. Secretary, C.G.P.S., is welcome to call my remarks about Registered Packs and the slaughter committed by them "a blood and thunder paragraph," but why does he not attempt to refute my statements? He goes on to say that since the new law prohibiting shooting at over 4,000 ft. came into force, that is to say in about 3 years, sambur have increased to such an extent that they need "judicious thinning." He admits that he kills hinds on purpose, but defends his action by pointing out that "judicious thinning out" is resorted to on Scotch deer forests. At home there is such a thing as a severe winter and great scarcity of food, and deer forests would soon get overstocked and deer would starve if they were not thinned out; but surely there is no scarcity of food in the hills in Ceylon, so that the Hon. Secretary must consider "judicious thinning out" necessary for some reason not given. Admitting that it were necessary, the merciful plan of thinning out with the rifle, as adopted at home, would surely be better than allowing a large pack of dogs of sorts to kill as many hinds and fawns as they can manage to pull down. I don't think the Hon. Secretary's plan of "judicious thinning out" would commend itself to owners of deer forests at home or to sportsmen in India or elsewhere. From his concluding paragraph, one gathers that the Hon. Secretary prefers to shoot a stag when it is standing to when it is galloping.—Yours, &c.,

NORTH C. DAVIDSON.

DIFFERENT VARIETIES OF PLANTAIN IN THE ISLAND.

Hanwella, Feb. 14.

DEAR SIR,—I shall be glad to know what other useful varieties of plantains are found in the island, beside the following. If any available I should like to have either by purchase or by exchange of plants. I have in possession viz.—1 Kolikuttu, 2 Suwandel, 3 Puwalu, 4 Ratahondrawalu, 5 Embulhondrawalu, (*a*) Sudu Embulhondrawalu, (*b*) Pulli Embul-hondrawalu, 6 Watu Palu, 7 Anawalu, (*a*) Athdath Anawalu alias Supuanawalu, (*b*) Vanduru Anawalu, 8 Hamban Puwalu, 9 Ratu Kotchi, 10 Sudu Kotchi, 11 Marthawalu, 12 Sudu Kannannoru, 13 Kalu Kannannoru, 14 Sura Mondan, 15 Kalu Mondan, 16 Alu Mondan, 17 Bin-hehel, 18 Puspa Kedeli, 19 Navari, 20 Kitela. The first nine varieties are generally used as fruits and the rest as vegetable.

I learn that the Superintendent of Government School Gardens has a new variety from Queensland called the "Cavendish," but how far it will prove successful in our soil is yet to be seen.—I am, yours faithfully, G. E. AMARASEKARA.

DR. WILLEY'S LECTURE AND PECULIAR CEYLON FISH.

Havelock Town, Feb. 19.

DEAR SIR,—In reply to the enquiry in your issue of Monday last:—

The fish called *Amphisile* referred to by your correspondent is certainly not the fish referred to by Ælian. It can only move by swimming in the middle stratum of water, feeds on microscopic organisms and has a minute mouth, the gape of which is reduced to zero. On the face of it and relying solely upon Sir E Tennent's quotation I should have said that the fish described by Ælian was *Periophthalmus*, a goggle-eyed-fish which crawls and hops about the mangrove flats and also, in some places, on the rocks near the seashore. This fish, which has attained a certain celebrity in books of travel, appears to have been left out of consideration by Sir E Tennent.—Yours faithfully,

ARTHUR WILLEY.

PLANTING NOTES.

DESTRUCTION OF THE OLIVE TREES.—The olive trees which in hundreds of thousands have flourished along the Riviera from times unrecorded, are slowly but surely diminishing in number year by year; and many among the older members of the numerous English colonies sincerely deplore their loss, and the consequent disfigurement of familiar hills and valley. In some places they are being cut down wholesale, and large areas of land on the hillsides have been denuded of all their beautiful trees to make room for the cultivation of more remunerative crops, such as carnations, roses or violets; while, alas, the gnarled and revered old olives, numbers of which have been twisted and torn into the most fantastic shapes by the storms and vicissitudes of actually unknown centuries, are rooted up and hacked to pieces to burn in your hotel bedroom at "two francs fifty" a basket! And why must the inevitable destruction go on? because petroleum is a cheaper lubricant than olive oil; and cotton-seed oil, they say, has falsely assumed the name of olive oil, and taken its place in our salads. —*Travel* for February.

A GOOD YIELD OF RUBBER.—Mr Francis Pears, writing from Muar, gives the following information, which is very welcome:—"In case you have not received previous information, I append particulars of the yield of two cultivated Para trees at Gapis Estate, in Perak, reputed to be 25 years old. The tapping was conducted by Mr Baxendale, and extended over two months, and was done evidently with the intention of procuring a maximum yield.

	Tree No. 1.	Tree No. 2.
Girth at one yard from the ground	89 in.	56 in.
	lb. oz.	lb. oz.
Yield of clean rubber, dry	15 12	11 2
Yield of scrap rubber, dry	2 4	1 8
Total ..	18 0	12 10

Tree No. 1 had never been previously tapped, and was worked from three channels, whereas tree No. 2 was worked from two channels only, and was tapped during 1901 and yielded 3 lb."—*India-Rubber Journal*, Feb. 2.

"SOIL BACTERIA AND BASIC SLAG."

INTERNATIONAL COMPETITION : CLOSING IN THREE YEARS.

In order to encourage investigations into the increase of fertility in soils by the action of bacteria and other micro-organisms, under the influence of mineral manures, with special reference to manuring with basic slag, Verein der Thomasphosphatfabriken (Association of Thomas's Phosphate Works) has instituted a competition with prizes amounting to a total of 40,000 marks (£1,950). Scientific essays and experiments conducted by practical farmers will be admissible in the competition. The method of treatment of the subject is left to the discretion of each competitor. The competition is to be open to all, without regard to nationality. The following five gentlemen have consented to act as judges, any of whom will be pleased to give particular information to intending competitors :—Government Adviser Dr L Hiltner, Principal of the Royal Agricultural and Bacteriological Institution, Munich ; Professor Dr Alfred Koch, Principal of the Royal Agricultural and Bacteriological institution, the University, Göttingen ; Professor Dr Remy, Principal of the Institute for Researches and Bacteriology, the Royal Agricultural University, Berlin ; Professor Dr A Stutzer, Principal of the Royal Agricultural Chemical Institute, the University, Königsber ; and Professor Dr H Wilfarth, Principal of the Ducal Agricultural Experimental Station, Bernburg. Competitors are requested to send in their essays written in German to the association not later than February 1st, 1906, by registered post, the envelope to bear a motto in addition to the address. The name of the competitor in each case must be enclosed with the essay, but in a separate closed envelope bearing the same motto on the outside. The latter will not be opened until the judges have made their awards. The address of the association is Berlin, S W, Hafenplatz 4.—London *Times*, February 6.

RAINBOW TROUT OVA.

BATCH BY THE "HAMBURG" A FAILURE.

The batch of 20,000 Rainbow Ova, received by the Ceylon Fishing Club from the Wyresdale Hatcheries, and which arrived in Nuwara Eliya on the 10th Feb. after a delayed voyage out in the N.L.S.S. "Hamburg," have proved a failure as not 8,000 ova out of the big consignment have hatched out, whether it is due to its remaining packed a longer period than usual, or whether it is due to the arrangement made by the Wyresdale Hatchery to get the ova to hatch out earlier than on previous years, it is difficult to say. Ova was not obtainable till the end of March in other years, but this year the consignment arrived as early as the first week in February. The failure of the consignment is a matter of serious concern, as two shipments went bad last year. In our issue of the 16th instant we gave details of the date of shipment and the number of days the consignment had been on the voyage out, together with the further delay caused by the "Hamburg" arriving in port late on Saturday, the 7th Feb. It is to be hoped that the consignment of Brown Trout Ova, which arrived here this week also from the same Wyresdale Hatchery, will give better results.—*Nuwara Eliya Cor.*

TEA AND COFFEE IN SIERRA LEONE.

In a report on Exotic Plants of Economic Interest in the Botanic Gardens at Entebbe, Uganda, Mr J Mahon states he has a number of seedlings of Sierra Leone highland coffee (*coffea stenophylla*) raised from Singapore seed. Tea grows with but moderate rapidity just here. Our rainfall is not great enough. When we have a period of rains it flushes nicely. If its cultivation were carried on here even on a moderate scale to meet some of the local demands it would be necessary to call in the aid of irrigation. Mr Scott Elliot, the naturalist and traveller, seemed satisfied from his explorations in the Ruwenzori country that large areas there offered a fine field for cultivating tea on a large scale.—*London and China Express*, Jan. 30.

A NEW RUBBER VINE.

The U.S. Consul at Tegucigalpa (Honduras) has received information of the discovery in the Pijo Mountains of a vine growing in an uncultivated state which is said to produce rubber of excellent quality. The vines grow to 100 ft in length, varying in diameter from 4 in to 2 ft and they are said to belong to the African family of rubber vines. In Honduras no one seems to know the name of the vine or the botanical family to which it belongs. The discoverer (Senor Davadi, Governor of the Department of Comyagua) regards it as superior in quality to the Para rubber of commerce, and asserts that his convictions are borne out by the analyses made by American and European chemists. The vine thrives at great altitudes as well as in the lower valley levels. Such luxuriance of growth has this plant attained that it is quite capable of being cut in commercial quantities. It may be quickly propagated in the rich soil of the department by means of seedlings, and the growth being so much faster than that of rubber trees, Senor Davadi thinks the quantity of gum obtained would be large. The trees require six years' attention before sapping can begin.—*India Rubber Trades' Journal*, Jan. 19.

WHAT DOES THE WORD "PLANTER" MEAN?

(*To the Editor, Indian Planters' Gazette.*)

Sir,—Will you kindly inform me about the following :—The word *planter* is frequently used both in your own paper and in the daily papers, in a very ambiguous way, and I would like to have the matter explained. Does the word *planter* refer to the *manager*, the *shareholder* or the *proprietor* of an estate ? In short does it refer to the manager or to the owners of the estate. For instance, in your leader in Saturday's *Gazette*, "The planter's kith and kin at home are full of sympathy for him," this cannot exactly refer to the *manager* of an estate, for he gets his pay whether the concern is paying a profit or not. The same sort of reference occurs in Messrs. Brooke Bond's letter ; does "*lack of enterprise* refer to the *managers*, or to the *shareholders* of the estates?

MANAGING PROPRIETOR.

Jaipalguri, 3rd Feb. 1903.

[A tea planter is a man actively engaged in the cultivation and manufacture of tea. He may be a

Managing Proprietor, or a Shareholder in one or more concerns: he may be a Manager or an Assistant. It matters not what his exact position is so long as he is actively employed in growing and producing tea. Because a planter draws a salary is no reason why his kith and kin at Home should not be full of sympathy for him. His bread and butter depends on the welfare of tea. If tea goes to the wall so will he. The word, however, is often used in much too wide a sense, leading to the ambiguity complained of. A planter is a producer, but a *producer* may not be a planter, but only an absent proprietor or shareholder. The terms are frequently used very indiscriminately, and planters are often wrongly blamed.—ED., *I.P.G.*] —*Indian Planters' Gazette*, Feb. 21.

MANURING FRUIT TREES.

The season of the year is drawing on when the man with an orchard transfers the manure from his stables to the roots of his trees, or rather the ground above them. His motive is good, but his method often defeats the end he has in view. Who has not, in rambling through country districts in winter and spring seen a pile of manure heaped at the foot of the trees in the orchards? Yes, heaped as though for all the world the trunk was being protected against frost. The veriest tyro should know, and frequently does know, but is too thoughtless to act upon the knowledge that the feeding roots of the tree are far from the trunk. Why, then, manure near the stem? Spread the dung out as far as, or even a trifle farther than, the extent of the branches, and do not put any within 1 yard of the tree trunk.—*From Cassell's "Gardener" for February.*

CULTIVATION OF YAMS AND JERUSALEM ARTICHOKES.

In a recent issue of your *Journal*, a writer urges the introduction of yams in order to make up for the partial failure of the potato crop in 1902. I feel that it would be folly to attempt such action. In the first place the yam is a tropical species, and would probably only succeed in exceptionally warm seasons, and be then only a fancy dish for the wealthy. It is true there is a hardy variety, which was introduced from China or Japan about fifty years back, *Dioscorea batatas*, and I well remember planting the same. It was shaped like a club, about twenty inches long, and four to five inches in circumference at the thickest part tapering at the top to finger size. This was cut into eight pieces, and planted in April; soon after, a shoot appeared above the ground, like the British *Bryony*, and developed every beautiful marbled heart-shaped foliage, like the Sarsaparilla (six feet to seven feet long). When this foliage was killed by frost, I proceeded to sample the crop, very carefully working around the bottle-like neck, and a heavy job it proved, for the tubers ran down about three feet into the rock, and were so brittle that several snapped like a carrot and some yards of soil had to be moved to get out about eight sets. When cooked they proved to be less tasty than a bad waxy potato. It is evident from these facts that *Dioscorea* was useless as a commercial crop, and of doubtful use even after the cook had expended her butter and condiments upon it; either boiled or fried in slices and browned, it was nauseous. I have not tasted other yams than in the tropics, or come across South American sorts cooked in England, but if Asparagus is cynically called an excuse for wasting good butter, the *Dioscorea* deserves greater condemnation. No doubt my Indian cook could make any root palatable, but an reason in writing, is it to say that as we already have a substitute for potatoes available for the poorest, and not by any means despised by the richest, why waste time, labour, land and cooking, on a useless tuber. I refer to the Jerusalem artichoke (*Helianthus tuberosus*). In this neglected vegetable we have a tuber that will grow in any soil, requires no attention when once planted: any odd corner is good enough for it, no frost injures it in the soil, and it is most prolific. The small tubers being set in rows, two feet apart, will give good results; and naturally where well-manured light soil is given (as for early potatoes), the tubers are larger and less rugged in outline. In cooking it, the outer skin should be taken off—if with a silver knife, the tubers do not turn black—and they are cooked till soft; served with white sauce, they possess a nutty sweet flavour, and go well with any roast meat, or preferably, they are worth a course to themselves, while in a white soup they are delicious and very digestible. I find them always appreciated.

GEORGE BUNYARD,
Chairman of the Friut and Vegetable Committee of the Royal Horticultural Society.
—*Journal of the Society of Arts* Jan. 23.

PEARL-FISHERY IN THE RED SEA.

In the latest report issued by the Foreign Office on the trade of Jeddah and Hodeida for the years 1899-1901, Mr. Consul Devey states that there are about 240 sailing vessels registered by the Jeddah harbour department, and only one or two new vessels are built every year. As to those engaged regularly in pearl fishing, there are now only six at Jeddah, 12 at Leeth, nine at Towel, and about 50 of the Jeheinah tribe near Yambo. The pearl-shell fishery has ever been one of the chief industries in these waters, and it must be understood that on this coast the most abundant grounds affording the better qualities are to be found from Bab-el-Mandeb to a point north of—the Farsan Islands, and going north the shell occurs less frequently, till some way above Yambo it ceases entirely. Nothing has ever been done to foster, develop, or to replenish this fishery as it becomes exhausted by the total depletion of the shallower or more easily reached beds; fishers must go farther and divers dive deeper. More valuable shells are found at a depth of from 16 to 25 feet than at from 12 to 20 feet. Divers rarely venture in the Red Sea to a greater depth than 30 feet unless for some very special purpose and reward, or it may be for what is known as black coral. Unquestionably the west side of the Red Sea is richer and more productive than the east in shells.—*Egyptian Gazette*, Feb 10.

CEYLON CROWS: TOWN BIRDS!

Some time ago we mentioned the plan inaugurated in Selangor, and commanded by the President of the United Planters' Association, for importing crows from Ceylon and letting them loose among the plantations to there destroy the coffee bugs. Mr. J C Pasqual now writes to the *Malay Mail* protesting against the importation of such crows. He declares that the Ceylon birds, being the inhabitants of towns, are unsuitable for plantation life, and will congregate around the abodes of men until they become a crying nuisance.—*Straits Times*, Feb. 18.

Monthly Shipments of Ceylon Black Tea to all Ports in 1902-1903.

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb
January ..	9056013	7720436	612958	323101	151984	127883	* 714247	1738760
February	7455219		919709		121158		1020948	
March ...	8198179		896513		91081		1713916	
April ...	8521388		988698		93198		2081904	
May ..	9638555		238239		80669		2000522	
June ...	12563050		1984976		166479		1828695	
July ..	10724781		1779011		108785		1747960	
August ...	7396614		1065599		208894		1574498	
September	6652202		795315		70262		1857897	
October ..	6559765		360844		79943		1567796	
November	6386229		937757		213619		1033030	
December	9072552		285785		60628		1577381	
Total ..	102,899,489		11,599,953		1,206,140		18,718,794	

			America.		All Other Ports.		Total.	
			1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January	..	..	125795	538166	389215	584321	11050212	11032667
February	..	..	115332		385705		10018071	
March	...	..	566263		311191		11777143	
April	..	..	807390		290137		12782715	
May	..	..	242651		436410		12637046	
June	..	..	403005		714471		17660676	
July	..	...	464858		846036		15671431	
August	...	...	461229		678095		11384929	
September	...	...	563981		688730		10628487	
October	...	...	483085		655827		9707260	
November	...	...	282794		547508		9400936	
December	...	...	558864		626319		12181529	
		Total ...	5,048.137		6,569,644		146194397	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902 lb.	1903. lb.
January ...	64021	95535	..	...	...	3000	...	...
February	24839	...	4420	...	...	...	...	..
March ...	14800	...	24210	...	...	...	..	...
April ...	13676	...	8000	...	...	...	...	...
May ...	70103	...	..	...	...	...	..	...
June ..	87340	...	74225	...	...	...	..	..
July ...	40574	...	..	...	...	...	...	..
August ...	70900	...	..	...	...	...	...	...
September	50771	...	..	...	...	...	...	..
October ...	68679	...	..	...	...	...	...	...
November	48076	...	..	...	...	...	..	..
December	40423	...	..	...	..	...	..	...
Total ...	644,443		127,115				...	

		America.		All Other Ports.		Total.	
		1902 lb.	1903. lb.	1902. lb.	1903. lb.	1902. b.	1903. lb.
January	...	113332	265348	...	..	177353	363883
February	..	26480	...	515	...	56254	..
March	...	62313	...	100	...	101423	...
April	...	53610	...	9165	...	84451	...
May	..	32676	...	3280	...	106059	...
June	...	84184	...	4500	...	250249	...
July	...	194016	...	...	...	234590	...
August	...	105982	...	1600	...	178482	...
September	...	333704	...	6800	...	391275	...
October	...	281168	...	..	...	349847	...
November	...	156653	...	20080	...	224809	..
December	...	365843	...	2240	...	408506	...
Total ...		1,968,456		48,280		2,796,844	

* It is impossible to get the figures for the last month in time for publication; but see pages 638, 639 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Agra Ouvah Estates Co., Ltd.	500	...	...	..
Ceylon Tea and Coconut Estates	500	..	...	
Castlereagh Tea Co., Ltd.	100	95	...	97½
Ceylon Provincial Estates Co. Ltd.	500	550	...	...
Claremont Estates Co., Ltd.	100	..	...	..
Clunes Tea Co., Ltd.	100	80	...	80
Clyde Estates Co., Ltd.	100	..	57½	50
Doomoo Tea Co., of Ceylon Ltd.	100	...	..	75
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	...	55	52½
Estates Co of Uva, Ltd.	500	250	300	–
Gangawatte Tea Co., Ltd.	100	..	..	..
Glasgow Estate Co., Ltd.	500	1175	..	...
Great Western Tea Co., Ltd.	500	...	750	...
Hapugahalande Tea Estate Co.	200	...	...	..
High Forests Estates Co., Ltd	500	500	...	...
Do part paid	400	...	400	-
Horrekelley Estates Co Ltd	100	..	100	...
Kalutara Co., Ltd.,	500	..	375	...
Kandyan Hills Co., Ltd	100	..	.	...
Kanapediwatte Ltd.	100	...	75	75
Kelani Tea Garden Co., Ltd.	100	35	...	..
Kirklees Estate Co., Ltd.	100	110	..	..
Knavesmire Estates Co., Ltd.	100	...	65	..
Maha Uva Estates Co., Ltd.	500	..	...	...
Mocha Tea Co., of Ceylon, Ltd.	500	...	..	..
Nahavilla Estate Co., Ltd.	500	...	..	400
Neboda Tea Co., Ltd.	500	—	..	...
Palmerston Tea Co., Ltd.	500	—	400	—
Penrhos Estates Co, Ltd.	100	—	100	..
Pitakanda Tea Company	500	—	—	—
Pine Hill Estate Co., Ltd.	60	—	50	47½
Putupaula Tea Co., Ltd.	100	—	..	—
Ratwatte Cocoa Co., Ltd.	500	—	—	—
Rayigam Tea Co., Ltd.	100	—	55	..
Roeberry Tea Co., Ltd.	100	90	...	...
Ruanwella Tea Co., Ltd	100	...	60	60
St. Heliers Tea Co., Ltd,	500	..	—	—
Talgaswela Tea Co., Ltd.	100	...	37½	37½
Do 7 per cent Prefs.	100	—	80	...
Tonacombe Estate Co., Ltd,	500	—	—	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estates Co., Ltd.	500	...	650	610
Uvakellie Tea Co. of Ceylon, Ltd	100	80	85	..
Vogan Tea Co., Ltd.,	100	...	60 xd.	..
Wanarajah Tea Co., Ltd.	500	820	—	—
Yataderiya Tea Co., Ltd.	100	..	420	410

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	..	30	—
Bristol Hotel Co., Ltd.	100	—	80	—
Do 7 per cent Debts.	100	..	—	—
Ceylon Gen. Steam Navigation Co., Ltd	100	..	225	—
Ceylon Ice & Cold Storage Co. Ltd.	100	105	...	—
Ceylon Superæration Ltd.	100	—	--	—
Colombo Apothecaries' Co. Ltd.	100	—	150	...
Colombo Assembly Rooms Co., Ltd.	20	15	.	...
Do prefs.	20	...	..	...
Colombo Fort Land and Building Co., Ltd.	100	..	...	90
Colombo Hotels Company	100	—	295	290
Galle Face Hotel Co., Ltd.	100	187½	195	187½
Kandy Hotels Co., Ltd.	100	—	...	...
Mount Lavinia Hotel Co., Ltd.	500	—	300	..
New Colombo Ice Co., Ltd.	100	60	70	—
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	..
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	...	—	...

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	...		
Anglo-Ceylon General Estates Co	100	—	52–57	—
Associated Estates Co., of Ceylon	10	..	1½—2½	—
Do. 6 per cent prefs	10	—	3— 6	..
Ceylon Proprietary Co.	1	—	3—6	—6
Ceylon Tea Plantation Co., Ltd.	10	—	22½–23½	—
Dimbula Valley Co. Ltd	5	—	5–5½	—
Do prefs	5	—	5—6	—
Eastern Produce & Estate Co. Ltd.	5	—	3¼—3¾	—
Ederapolla Tea Co., Ltd	10	—	5–8	—
Imperial Tea Estates Co., Ltd.	10	...	4½..	—
Kelani Valley Tea Assen., Ltd.	5	—	3–5	—
Kintyre Estates Co., Ltd.	10	..	4–5	—
Lanka Plantations Co., Ltd	10	—	3-4	—
Nahalma Estates Co., Ltd	1	—	nom	..
New Dimbula Co., Ltd.	1	—	2¾–3	..
Nuwara Eliya Tea Estate Co., Ld	10	—	10⅛	
Ouvah Coffee Co., Ltd.	10	—	6½—7½	—
Ragalla Tea Estates Co., Ltd.	10	—	9–11	—
Scottish Ceylon Tea Co., Ltd.	10	—	10—12	—
Spring Valley Tea Co., Ltd.	10	--	2—5	—
Standard Tea Co., Ltd.	6	—	11–12	..
The Shell Transport and Trading Company, Ltd.	1	— ..	2⅞—3⅛	— —
Ukuwella Estates Co., Ltd.	25	—	par	—
Yatiyantota Ceylon Tea Co., Ltd.	10	—	5¾	—
Do. pref. 6 o/o	10	..	9–9¼	—

BY ORDER OF THE COMMITTEE.

Colombo, March 6th, 1903.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor General*

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch.	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	3·46	3·16
February ..	1·93	2·78	0·63	3·55	4·57	2·02	4·95
March ..	4·21	0·88	3·71	5·12	6·85	4·52	000*
April ..	22·81	6·66	15·12	8·71	10·01	11·30	
May ..	5·80	17·73	10·63	6·28	11·89	11·86	
June ..	10·94	9·23	7·83	5·93	9·84	8·32	
July ..	6·15	1·11	6·77	4·52	4·63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·18	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9·25	19·84	20·10	13·00	
December ..	3·05	4·44	5·20	1·70	6·43	6·56	
Total..	103·11	73·48	83·68	75·86	118·70	88·76	6·49

* From 1st to 4th March nil, that is up to 9-30 a.m. on the 5th March.—ED. *C.O*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate	for	Feb. 1903—7½ to 8 mill. lb.	
Total	Shipments	Do 1903—	7,750,000 lb.
Do	Do	Do 1902—	7,455,219 lb.
Do	Do	Do 1901—	8,333,266 lb.

[ESTIMATE for Mar. 1903—8½ to 9 million lb.]

A BIG PINEAPPLE.—Can Ceylon equal what is thus told us by "Modern Mexico":—The "father of pineapples," and one of the largest ever shipped from Mexico, was received by the Laguna Chica Plantation Company, of St, Louis, last month, from its Mexican plantation. It was 18½ inches in length, 20½ inches in circumference at the larger end, and weighed 18 pounds. It is claimed that the fruit is as delicate and delicious as any of the smaller kinds of pineapples.

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Mar. 2nd, 1903.

CARDAMOMS:—
All round parcel, well bleached per lb. R1·00
Do. dull medium do. R0·80
Special assortment, 0 and 1 only do R1·20
Seeds do. R0·70

CINCHONA BARK:—
Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON:—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 50c.
Nos. 1 and 2 only per lb. 56c,
Nos. 3 and 4 only per lb. 41½c.

CINNAMON CHIPS:—(in bags. of 56 lbs. nett. per candy of 560 lb.) R60·00

COCOA:—
Finest estate red unpicked per cwt R42·00
Medium do do do R40·00
Bright native unpicked and undried R35·00
Ordinary do do do R30·00

COCONUTS—(husked)
Selected per thousand R51·00
Ordinary ,, R42·00
Smalls ,, R35·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R80·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 17c.

COCONUT OIL—
Dealers' Oil per cwt. R15·00
Coconut Oil in ordinary packages f. o. b. per ton R337·50.—Higher figure paid for April, lower for June delivery.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—R9 50.
Plantation Estate Coffee f. o. b. (ready) per cwt.—None
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—58c.

COPRA—
Boat Copra per candy of 560 lb. R49·00
Calpentyn Copra do do R49 00
Cart do do do R44·00
Estate do do do R48·00

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot None—Next Sale on 30th March.
Inferior None—Next Sale on 30th March.

FIBRES—
Coconut Bristle No. 1 per cwt None
Do ,, 2 None
Do mattress ,, 1 None
Do ,, 2 None
Coir Yarn, Kogalla ,, 1 to 8 R16·50
Do Colombo ,, 1 to 8 R12·00
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R600·00 }
Ordinary lumps do R550·00 }
Chips do R350·00 } Firmer.
Dust do R250·00 }
Do (Flying) do R125·00 }

SAPANWOOD— per ton R45·00—Nominal.

SATINWOOD (Sound) per cubic ft. R5·90—Sales of 26th Jan
Do (Inferior) per cubic ft. R4·40— do
Do (Flowered) per cubic ft. R10·70— do

TEA—	High Grown Average	Medium Average.	Low Grown Average.
	cts	cts	cts
Broken Pekoe and Broken Orange Pekoe per lb	54	51	42
Orange Pekoe do	51	43	37
Pekoe do	48	40	35
Pekoe Souchong do	35	33	33
Pekoe Fannings do	36	32	29
Broken mixed—dust, &c	28	28	27

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1902 AND 1903.

COUNTRIES	Black Tea. 1903 lbs.	Black Tea. 1902 lbs.	Green Tea 1903 lbs.	Green Tea 1902 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total
To U. K.	13318904	14966224	139954	88860	729		729
,, Austria	12358	175					
,, Belgium	20732	8137			2		2
,, France	65 70	55418	1430				
,, Germany	112240	94074					
,, Holland		750					
,, Italy	4229	1760					
,, Russia	323101	1190219					
,, Spain	300	500					
,, Sweden	12594	10755					
,, Turkey	5345	7573					
India	123914	117030	305				
,, Australia	2995035	1735195			139	20	159
,, America	1047971	221857	739186	139812			
,, Africa	52219	70189					
,, China	645061	493808			3		3
,, Singapore	28368	20727					
,, Mauritius	15484	3160					
,, Malta	39285	54750					
Total export from 1st Jan. to 2nd Mar. 1903.	18822508	19052241	883875	228672	873	20	893

COUNTRIES	Cocoa cwts.	Cardamoms lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil 1903 cwts.	Coconut Oil 1902 cwts	Copra cwts.
To U. K.	12801	62853	58674	181176	41933	15866	6750
,, Austria	100		50	43012	5142	1701	4000
,, Belgium	223		5610	22100	1661		569
,, France	161		1000	29400	2098		7775
,, Germany	835	10645	76011	78120	616	1333	29714
,, Holland			1000	11200	203		
,, Italy			17560	22400	612	607	
,, Russia							6500
,, Spain	31		54300	8400			
,, Sweden					211		
,, Turkey							
India		28679	100		2833	10785	
,, Australia	167		100	2[illegible]00	43		
,, America	325		99949		13218	499	
,, Africa		600			204		
,, China		3166			201		
,, Singapore	462	1138					
,, Mauritius							
,, Malta							
Total export from 1st Jan. to 2nd Mar. 1903.	15105	107081	314285	398908	68975	30791	55308

COUNTRIES	Desiccated Coconut lbs.	Poonac. cwts.	Coconuts. No.	Plumbago. 1903 cwts	Plumbago. 1902 cwts.
To U. K.	1905863	997	701390	10552	30709
,, Austria	8350				
,, Belgium	32417	16011	61970	3382	2256
,, France	14000			204	
,, Germany	113730	12141	63920	6861	6863
,, Holland	6500				
,, Italy					
,, Russia				101	
,, Spain	14900				
,, Sweden	3250				
,, Turkey					
India			19100	174	1576
,, Australia	87027			220	25
,, America	155418			38058	17371
,, Africa	16385		224577		
,, China					637
,, Singapore					
,, Mauritius					
,, Malta					
Total export from 1st Jan. to 2nd Mar. 1903.	2358020	29149	1070957	59552	59437

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 11th February, 1903.)

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine .	7d a 8d
BEES' WAX, cwt.		
Zanzibar Yellow ,,	Slightly drossy to fair	£6 10s a £6 15
Bombay ,,	Fair genuine ..	£5 10s a £6 5s
Madagascar ,,	Dark to good palish	£6 7s 6d a £7
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality .	170s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 6d a 1s 10d
	Middling, stalky & lean	1s a 1s 2d
Ceylon. Mysore ,,	Fair to fine plump ..	1s a 3s [illegible]d
	Seeds .	1s 2d a 1s 4d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish .	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to good bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2d a 2¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 40s
CINCHONA BARK.— lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts	Ordinary to fine quill	8½d a 1s 6d
per lb. 2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	5½d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba	Good and fine bright	3⅞d a 4d
	Common dull to fair	3½d a 3¾d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	90s a 115s
	Middling to fine mid ..	70s a 100s
	Smalls	59s a 62s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	65s a 85s
	Medium and fair	58s a 64s
	Native	50s a 57s
COLOMBO ROOT ,,	Middling to good	8s a 14s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair .	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,, ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	34s a 40s
	Small and D's	32s a 34s
Japan ,,	Unsplit	30s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fr. fine pl. in sts.	£10 a £13
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	£75 a £9
	Amber and dk. red bold	£5 15s a £[illegible] 10s
Madagascar,	Med. & bold glassy sorts	95s a £6 15s
	Fair to good palish ..	£4 a £8
	,, ,, red ..	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	2[illegible]s a 37s 6d
Turkey sorts ,,		27s 6d a 32s 6d
Ghatti ,,	Pickings to fine pale ...	12s a 25s
Kurrachee ,,	Good and fine pale ...	27s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ...	15s a 20s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	[illegible]0s a 10[illegible]s
	Ord. stony and blocky	9s a 45s
KINO ,,	Fair to fine bright	4d a 5d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	65s a 95s
OLIBANUM, drop ,,	Good to fine white	42s a 47s 6d
	Middling to fair	28s a 42s
pickings ,,	Low to good pale	18s a 26s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 8d a 4s 3d
Assam	Good to fine	2s a 3s
	Common to foul & mxd.	7d a 1s 9d
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	6d a 2s 6d

	QUALITY.	QUOTATIONS.
INDIARUBBER *(Contd.)*		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 2d
	Ordinary to fair Ball ...	2s a 2s 4d
	Low sandy Ball ...	9d a 2s
	Sausage, fair to good ..	3s 2d
	Liver and Livery Ball ..	1s 9d a 2s 8½d
Nyassaland	Fair to fine ball ...	2s 3d a 3s 3d
Madagascar	Fr to fine pinky & white	2s a 2s 6¾d
	Fair to good black ..	1s 1d a 2s 3¾d
	Niggers, low to fine .	7d a 2s
INDIGO, E.I	Bengal--	
	Sbipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 8d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang	Pale reddish to fine	3s a 3s 6d
per lb.	Ordinary to fair	2s a 2s 9d
	Pickings	1s 9d a 1s 11d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s nom.
	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s a 5s 6d
	Bhimlies	4s a 7s 6d
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s nom.
NUTMEGS— lb.	64's to 57's	3s
Bombay & Penang ,,	110's to 65's	1s 2d a 2s 9½d
	160's to 115's	6d a 1s 1d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 2d a 4s 3d
CASSIA ,,	According to analysis	2s 6d a 3s 6d
LEMONGRASS ,,	Good flavour & colour	5d a 5¼d
NUTMEG ,,	Dingy to white	1¼d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¾d a 1s 1d
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold beavy ..	5⅛d a 6⅛d
Singapore ..	Fair	6d
Acheen & W. C. Penang	Dull to fine	5⅛d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine brigbt bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine brigbt ..	9s a 15s
dust	Ordinary to fine brigbt	4s a 7s 6d
SAFFLOWER	Good to fine pinky .	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	117s 6d a 120s
SENNA, Tinnevelly lb	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	30s a 140s
	D's and B's	
	Small ...	
Mergui ,,	Small to bold ..	£7 15s a £10 10s
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part beavy	15s a 22s
TURMERIC, Bengal cwt.	Fair ...	14s
Madras ,,	Finger fair to fine bold bright	10s a 14s
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger .	10s a 12s
	Bulbs ..	9s a 9 6d
VANILLOES— lb.		
Mauritius .. 1sts	Gd. crysallized 3½ a 8½ in	7s 6d a 28s 6d
Bourbon ... 2nds	Foxy & reddish 3½ a 8 ,,	6s a 13s
Seychelles 3rds	Lean and inferior ...	5s 6d a 8s 6d
VERMILION lb.	Fine, pure, bright ...	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	53s 6d a 54s 6d

THE
AGRICULTURAL MAGAZINE,
COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for March :—

Vol. XIV.] MARCH, 1903. [No. 9.

INTERESTING PHENOMENA IN PLANT NUTRITION.

WE are told in text-books on Botany that in many cases the root hairs, the ordinary absorptive organs of the plant, are replaced by a fungus whose hyphae absorb nutriment in the same way. Such a fungus is termed a mycorhiza which in some cases as in the cone-bearers is ectotropic, *i.e.*, the hyphae do not enter the cells of the root but run between the epidermal cells, while in others as in orchids it is endotropic, *i.e.*, the hyphae enter the cells of the root. There is further the phenomenon, seen in some trees, where the roots are parasitic upon other roots living in the same soil, and are modified in structure to suit this modification of their absorptive functions.

Both these phenomena are very interesting as suggesting the means by which such trees as are dependent to some degree on other organisms for the supply of their food, may have their environments made suitable to their requirements.

Under the conditions in which they grow, it can be imagined that the want of the mycorhiza in the one case or the absence of the companion tree in the other, would result in growth under great disadvantages. The question is to what extent does Symbiosis exist among plants under cultivation, and to what extent could we control the conditions under which the plants flourish?

In an article on the Sandal-wood tree by Sir Deidrich Brandis, we are told that this tree is so to speak a root-parasite, *i.e.*, it has been ascertained by microscopic examination that its roots attach themselves to the roots of other plants. Sir Deidrich mentions the trees for which the Sandal-wood has a special affinity, and concludes that in order to thrive it is necessary that the tree requires its roots to be in intimate contact with the roots of other plants of different orders and structure and organisation. Indian Foresters would appear to have long known, as the result of experience, that Sandal-wood thrives particularly well in company with Casuarina and Lantana. Sir Deidrich is reasonably convinced that this tree takes up a large proportion of its mineral food through haustoria, or sucking organs, from the roots of the plants upon which it depends.

The following questions would therefore seem to be very pertinent in regard to any cultivated plant.—Is the tree furnished with root hairs for taking up nutriment directly from the soil? To what extent are the typical root hairs replaced by haustoria or sucking organs? If at all dependent on other trees, what are the best companions for the tree in question?

It is an axiom in agriculture to give each plant plenty of room, but this latest theory would appear to show that it is not at all unlikely that there is something to be gained by association of plants with one another, provided the right plants are grown together. Indeed, the striking luxuriance of virgin forest vegetation appears to suggest some such explanation, and even hint at a system of natural selection of companions by trees that have never been brought under the control of man. Planters will tell us that some forest trees, irrespective of the lightness or density of the shade which they afford, (and possibly also independent of the density or lightness of the wood—as to some extent indicating the demand

for mineral food from the soil) have most beneficial effects on their cultivated crop. Indeed, certain hard-wood non-leguminous trees are fancied in preference to others that might be expected to serve better for shade. In spite of the reputed value of *Albizzia Moluccana*, no planter who has any acquaintance with this wonderfully fast-growing tree will advise that it be grown for cocoa-shade, but there are those who stick by such apparently objectionable trees as *Alstonia Scholaris* (Rukattana) relying upon their personal experience of its growth among cocoa. The *Erythrinas* are admitted to be as suitable shade trees for cocoa as could be wished for, but there are old-fashioned growers who still stand by the Jack.

We have heard a deal about the advantages of growing Grevillea among tea, and an explanation from a chemical point of view has apparently given satisfaction; but that there may be more than the relation indicated to account for the peculiar beneficial association of different plants, and that a deeper knowledge of biology will probably reveal greater marvels than we have yet known in the vegetable world, is more than likely.

"The science of agriculture," says Sir Deidrich Brandis, in concluding his article, "was many centuries old before the efficacy of the rotation of crops was comprehended. Can it be that we are now to hear of a discovery that will revolutionise the present methods of culture in field and garden?"

It remains to be seen.

OCCASIONAL NOTES.

In the last issue of the *Asiatic Quarterly*, Major Phipson makes a forcible plea for the attention of Government to the problems of rural economy, and enunciates the following principle in support of that plea, namely, It is not enough for Government to maintain peace and security and suppress crime throughout its jurisdiction, since the very fact of its discharging these functions tends to bring about a more or less rapid increase in population; and such increase, if it is not to become a source of danger and disintegration to the State and misery to the people themselves, demands from it the efficient discharge of its economic functions. He holds that the more efficient a Government becomes in the discharge of any one special function, the more pressing the need for efficiency in others, and that better a falling short in all departments than success in one or two. These views, as the *Indian Agriculturist* puts it, are more academic than practical, but, all the same, Major Phipson's arguments have their application.

Mr. G. E. Amarasekara, Planter, of Hanwela, writes to the *Ceylon Observer* of February 23rd:—"I shall be glad to know what other useful varieties of plantains are found in the island, beside the following. If available I should like to secure them either by purchase or by exchange with the following plants I have in possession, viz.—1 Kolikuttu, 2 Suwandel, 3 Puwalu, 4 Ratahondrawalu, 5 Embulhondrawalu, (*a*) Sudu Embulhondrawalu, (*b*) Pulli Embulhondrawalu, 6 Watu Palu, 7 Anawalu, (*a*) Athdath Anawalu *alias* Supuanawalu, (*b*) Vanduru Anawalu, 8 Hamban Puwalu, 9 Ratu Kotchi, 10 Sudu Kotchi, 11 Marthawalu, 12 Sudu Kannannoru, 13 Kalu Kannannoru, 14 Sura Mondan, 15 Kalu Mondan, 16 Alu Mondan, 17 Bin-kehel, 18 Puspa Kedeli, 19 Navari, 20 Kitela. The first nine varieties are generally used as fruits and the rest as vegetable. I learn that the Superintendent of Government School Gardens has a new variety from Queensland called the "Cavendish," but how far it will prove successful in our soil is yet to be seen."—In addition to the "Cavendish," plants of the following varieties have been imported from Queensland for the Government Stock Garden, where they are doing well, but have not fruited yet: Ladies' finger, Sugar, Moka, Borego, Delena, Dacca and Butter.

The first distribution of silkworm eggs to School Gardens has unfortunately not proved successful. A stray egg was hatched here and there, but the worms have not come to anything. The reason for this is that the *ova* did not undergo the necessary refrigeration. Part of the original supply which had been put in cold storage hatched out at Peradeniya and passed through the usual metamorphoses. The supply of eggs secured from these moths will be refrigerated before distribution to schools, so that better results may now be looked forward to. In the meanwhile the mulberry cuttings that have been planted out in School Gardens will have time to develope.

On February 21st the improved box hive kept at the Government Stock Garden was successfully manipulated by the Superintendent of School Gardens, with the help of Mr. H. F. Fernando of the Colombo Museum, a few frames of comb honey were removed, and the hive cleaned out and re-set. The honey, in the opinion of all those who tasted it, was of excellent quality.

We have to thank Prof. Datta, of Sibpur, for a parcel of seeds, consisting of the following varieties:—Soy Bean, Onion, Beta Benghalensis, Buri Cotton (Gossypium herbaceum), Jute (Corchorus capsularis) and tubers of African yams. We have in return, sent at the request of Mr. Datta, the following seeds—Ipomœa Muricata, Amaranthus Gangeticus and other varieties Spinach (2 varieties), Luffa (2 varieties), Capsicum (mixed), Ladies' Fingers, Long Runner Bean, Egg Plant, and a few additional varieties in stock.

We have also to thank the Director-General of Agriculture for India for sending us a package of three varieties of American sweet potatoes that have been found suitable for cultivation in India. The potatoes reached us in fair order, considering the long journey by rail and boat from Nagpur, and many of them were found to have sprouted. The three varieties are named "Virginia," "New Jersey," and "Nancimund." We shall have more to say about them in our next issue.

The seeds of *Dendrocalamus strictu* (the male bamboo) widely distributed from the Royal Botanic Gardens were probably not as fresh as they might have been, and many persons failed to grow them. We are glad to say that a fair number of plants have come up in the Government Stock Garden, and that a few can be spared. According to the Botanic Gardens Circular, the bamboos are useful for rafters, battens, spear shafts, fencing, mamoty-handles, &c.

We are obliged to the Hull Oil Manufacturing Co., Ltd., for a sample of Homco Castor meal containing 10—12 % ammonia guaranteed. The manure besides contains phosphoric acid equal to about 7 % tribasic phosphate of lime, and potash equal to about 3 % sulphate of potash. It is believed that this meal is the most highly concentrated vegetable source of ammonia at present on the market. The quotation for this excellent fertiliser is 12 shillings 9 pence per unit of ammonia per ton, in double bags, c.i.f. Ceylon, but in order to introduce the meal the manufacturers are inclined to take a little less for a trial parcel. The following is Mr. John Hughes' analysis:—

1.	Nitrogenous organic matter	77·64
	Water (lost at 212° F.) ...	10·24
	Oil	2·43
2.	Mineral matter (ash) ...	9·69
		100·00
1.	Containing Nitrogen ...	8·74
	Equal to Ammonia ...	10·61
2.	Containing phosphoric acid...	3 20
	Equal to phosphate of lime	6·98
	Potash	1·59
	Equal to sulphate of potash	2·94
	Lime	·82
	Magnesia	1·24
	Soda	·73
	Insoluble matters &c. ...	2·11

We have to acknowledge receipt of the following leaflets and pamphlets from the Department of Agriculture, Cape of Good Hope:—Poultry, Tobacco Culture, Artificial Grasses and Fodder for Stock, Methods of Locust Destruction, Insect Pests, Methods of Preserving Fish by Smoking, the Velvet Bean, Elementary Principles of Silviculture, Treatment of Worms in Domestic Animals, Poultry Raising, Fowl Ticks, South African Poultry Keeping, Trout Breeding and Stocking of Streams, The Ocean and its Resources, Ants, Diseases of Stock and their Treatment, and Fruit Culture.

From India we have received the following numbers of the Agricultural Ledger series: Composition of Indian Cows' and Buffaloes' Milk, Adhatoda Vasica, Management of Dairy Cattle in India, Dendrocalamus Strictus, Paspalum Dilatatum, Dairy Farming and Dairy Produce, The Indian Aconites, and a pamphlet on the cultivation of Sweet Potatoes in India by Mr. James Mollison.

The exchanges received during the month are: The Agricultural Gazette of New South Wales; The Agricultural Journal, Cape of Good Hope; The Journal of the Department of Agriculture, Victoria; The Station, Farm and Dairy; and Australian Products Journal, Sydney; The Queensland Agricultural Gazette; The Veterinary Journal, Edinburgh.

The Sugar Beet and Swiss Chard so highly recommended by the Himalaya Seed Stores are being grown experimentally in the Government Stock Garden.

METEOROLOGICAL OBSERVATIONS TAKEN AT THE COLOMBO STOCK GARDEN DURING THE MONTHS OF JANUARY AND FEBRUARY, 1903.

January.				February.			
1	Nil	17	Nil	1	Nil	15	Nil
2	Nil	18	Nil	2	Nil	16	
3	·39	19	Nil	3	Nil	17	Nil
4	1·27	20	Nil	4	Nil	18	Nil
5	1·54	21	Nil	5	Nil	19	Nil
6	Nil	22	Nil	6	Nil	20	Nil
7	·60	23	Nil	7	Nil	21	Nil
8	Nil	24	Nil	8	Nil	22	Nil
9	Nil	25	Nil	9	Nil	23	Nil
10	·15	26	Nil	10	Nil	24	·75
11	Nil	27	Nil	11	·16	25	·81
12	Nil	28	1·60	12	·35	26	·80
13	Nil	29	·13	13	Nil	2	Nil
14	Nil	30	Nil	14	Nil	28	Nil
15	Nil	31	Nil				
16	Nil	1	Nil				
		Total...	5·68			Total...	2·87
		Mean...	·18			Mean...	·10

Greatest amount of rainfall in any 24 hours, on the 28th January, 1·60 inches.

Greatest amount of rainfall in any 24 hours, on the 26th February, ·81 inches.

Recorded by ALEX PERERA.

AGRICULTURAL EDUCATION IN THE EAST.

The appearance of another text-book on Indian Agriculture draws attention to the subject of agricultural education in the East. The author, Prof. N. C. Mukerji, is well qualified to write on the subject, having himself been a distinguished student of Cirencester, where he passed with the highest honours, and spent many years in the study of Indian agricultural problems. After considering all the obstacles that stand in the way of agricultural improvement in the East, and the means of removing such obstacles, the author makes the statement that he looks to education in agriculture for the greatest benefit. But unfortunately, as he puts it, "neither the farm labourer, nor the farmer, nor the landed proprietor cares, as a rule, for agricultural education. Agricultural schools in almost every country are crammed either with place-seekers or town-bred men who fancy they can make their fortune by scientific farming." Mr. Mukerji advocates inducing—by the offer of scholarships or otherwise—sons of *bona fide* culti-

vators, who have passed the middle vernacular and normal school examinations, to come for special agricultural training to a central institution and then go back to their respective villages.

In the case of the late Colombo School of Agriculture the prospect of employment under Government—such as is held out to students of the Technical College—was absent, nor were such scholarships available as Mr. Mukerji suggests and are now given to the students being trained as English teachers for the benefit of private schools.

We are, however, doing the next best thing, now that we have no School of Agriculture, and that is, carrying the agricultural propaganda into the heart of the country and working through the best available medium, namely, the village school boy.

To those who say there is no encouragement for the people to grow fruits and other edible products, on the ground that such cultivation has been tried by planters without success, we would quote Mr. Mukerji to the effect that it will not pay the "gentleman," not only because his standard of living is a bar to such success, but also for another reason—"It is by dint of hard labour and frugality that the Indian (and we may add Ceylon) cultivator makes agriculture pay. If a gentleman were to employ labourers and go in for ordinary farming, he will find these labourers (so industrious when working for themselves) sleeping over *his* work and accomplishing very little when pretending to do work actually in his presence."

This is undoubtedly the true explanation of why Paddy cultivation can not be made to pay the "Gentleman Farmer" at the present market price of grain, and the cultivation of oranges and lemons will only pay the native grower.

SILKWORMS AND SILK.

The following is the text of the Government Entomologist's Nature Study lesson on Silkworms, issued in connection with the attempts that are being made to introduce sericulture as a village industry:—

You probably all know what silk is. You must have seen pieces of silk cloth. But I wonder if you know where the silk comes from, and how it is made? Silk is produced by a particular kind of caterpillar that feeds upon mulberry leaves. I will try to describe to you how the caterpillar lives and makes the silk, and how the silk is afterwards spun to be woven into cloth. Later on I will send you some eggs of the silkworm, so that you can rear them up and watch them at work.

We will suppose that you have some of these eggs. They are small round gray little things, flattened on the top, and about the size of the head of a pin. They look very like the seeds of some plant. You must keep them in a cardboard box and look at them carefully every morning. Some day—sooner or later—you will find a number of tiny dark brown caterpillars wandering about the box; and a corresponding number of the eggs will be empty, each having a small round hole at one side, through which the little grub has made its escape. They will be hungry; so you must run away at once and bring in some mulberry leaves. Choose the young and tender leaves from the ends of the branches, as the baby caterpillars cannot bite through the older leaves. You should lay the leaves on a paper tray, and with a small feather you can pick up the little caterpillars and place them on their food. They will stay there quite happily as long as the leaves remain fresh, and will gnaw little holes all over them.

You must be careful to keep the tray in some place where the ants cannot get at the silkworms. You might put it on a table the legs of which are standing in pots of water. The worms will want fresh leaves every morning and every evening, and perhaps in the middle of the day too. If you do not give them enough fresh food, they will become restless and wander away in search of a meal. When you put the fresh leaves in the tray, lay them gently on the top of the old ones. You need not touch the little caterpillars; they will walk on to the new leaves by themselves. Later on, you can take away the old leaves.

You will have noticed that when they first came out of the egg the little caterpillars were of a dark colour and had a rough hairy skin. As they begin to grow, they become paler in colour, and the skin loses most of its wrinkles. But a time comes when the skin, which can stretch only to a certain extent, becomes unpleasantly tight. The silkworm has outgrown its first coat, and must change it for a larger one. How do you think that it manages this? Well, when the skin gets too tight, it suddenly splits along the back, at a point just behind the head, and the caterpillar walks out of its old skin, with a new and larger coat already on its back. Not only has it changed its outside skin, but has at the same time changed the lining of all its internal parts,—its stomach and its breathing tubes. The growing caterpillar provides itself with a new coat, in this manner, four times during its life. For a short time before each change, it becomes sluggish and stops feeding. It should not be disturbed at such times.

When full grown, the caterpillar measures from $2\frac{1}{2}$ to 3 inches in length, and is as thick as a rather stout pencil. It is of a grayish white colour, sometimes with a few blackish markings on the back. You will notice that the part immediately behind the head is considerably thicker and more wrinkled than the rest of the body. This is the part that carries the three pairs of true legs, which are thin, horny and pointed. Further back, you will see five pairs of stouter fleshy legs called the claspers. They use these clasping legs for holding on to the branches of the tree, while the small pointed legs in front are used more like hands. Just above the end of the body is a short fleshy tail or horn. If you look carefully, you will see that the body is divided up into joints. There are thirteen of these, counting the head as the first joint. Look still more closely on the sides of the body, and you will find, on each side,

a row of tiny black rings, one on each joint of the body. You will find it difficult to guess what these are for. They mark a corresponding number of tiny openings into the body, through which the caterpillar breathes. Insects do not breathe through their mouths, but through separate openings, usually on the sides of the body, as in this caterpillar.

As the silkworm grows larger, it will of course require more food, but it will now be able to eat the older and coarser leaves of the mulberry. When they are quite small, a large number of the worms may be kept on a single tray, but as they grow, they will want more room, and must be separated and put on to fresh trays. A convenient way to keep them is to make a framework, with several shelves, on the plan of the above sketch.* Thin bamboos or any straight jungle sticks will do for the posts, and the shelves may be made of split pieces of bamboo laid close together. The paper trays can be placed on these shelves.

The posts of the frame must stand in tins containing water with a little kerosine floating on it. This will prevent the ants from climbing up and eating the caterpillars.

When the silkworms have grown to their full size, which will be in about five weeks' time, they will stop feeding and begin to spin the wonderful silken cases in which they hide themselves for a time before appearing as moths. These cases are called cocoons. You must now hang some bunches of fine twigs above the trays, in such a position that the silkworms can climb up into them and spin their cocoons there. Now, watch one of the caterpillars after it has climbed on to the twigs. You will see it twisting its head about and fastening fine threads of white or pale yellow silk to the twigs all round about it. If you look very closely, you will see the silken thread coming out of a small pointed knob just below the head of the caterpillar. It goes on spinning more and more silk all round itself, until it is quite hidden. And it will go on spinning, inside this covering, long after you have lost sight of it, until it has formed a stout egg-shaped case for itself. The cocoons are quite soft at first, so you must be careful not to touch them for at least a week after they have begun to spin. After that time you may take one of the cocoons and examine it. You will find that the outer part is loose and fluffy. If you pull off the outer part, you will see inside the egg-shaped case that I have told you about. It is very tough. You could not tear it open with your fingers. But it is made of just the same fine silk that you have seen on the outside; only the caterpillar has stuck it together with a kind of gum. Take a pair of finely-pointed scissors and cut open one side of the cocoon. See how soft and smooth the inside of the case is. If only a few days have passed since the cocoon was commenced, you will find the caterpillar still inside it, but very much changed in appearance—quite shrunken and shrivelled. You will hardly recognize it. If you cut open another cocoon later on, instead of the shrivelled caterpillar, you will find a plump, smooth, dark brown object which is called a chrysalis; and just behind it you will see the empty skin of the caterpillar. The skin has been shed, just as on previous occasions, only instead of a caterpillar with a new coat appearing beneath it, this shiny brown chrysalis has taken its place. The chrysalis cannot walk about. It can only wriggle. It has no legs. Nor does it eat anything in this stage. Look at it closely, and notice the marks on it. They faintly show the wings and legs of the coming moth.

* Not reproduced.

Nothing more will happen for about a fortnight. Then, some morning, you may be surprised to see a creamy white moth hanging on to the outside of its cocoon. At the end of the cocoon is a large hole through which the moth has come out. If you can find it immediately after it has come out, you will notice that its wings are quite small. Watch it for about half an hour, and you will see these little pad-like wings steadily growing and spreading out until they have reached their full size. Notice the shape of the moth. It has a small head with two large blackish eyes and a pair of feathered horns or feelers. There are four wings, the front pair with a curved point at the tip, the hind pair rounded. The moth has only six legs, and these legs have been developed from the small horny legs that you saw just behind the head of the caterpillar.

When several moths have appeared, some of them will commence pairing. The pairs should be placed on fresh sheets of paper on the trays. The females will lay their eggs on the paper, and these eggs must be kept to raise new broods of caterpillars. They will not hatch out for several months. When first laid, the eggs are of a pale yellow colour. They gradually darken, until, in two or three days' time, they are slaty gray.

We have now watched the whole life of the silk worm insect from the egg to the moth. But if we want to use the cocoons for making silk, we must not allow the moths to come out. The pierced cocoons are of no use for spinning, though "floss silk" can be made from them. If, then, the cocoons are to be used for spinning, they must be taken, about eight days after they have been formed, and either baked or thoroughly dried in the sun. They may then be packed and sold to the manufactory, where they are converted into spun silk.

Though you will have nothing to do with the further treatment of the cocoons, it may interest you to know what will happen to them.

The first process is known as "reeling." The cocoons are placed in boiling water for a few minutes to soften the gummy matter that binds the fibres together. The loose outer silk is removed, and the ends of the silk fibre are found by brushing the cocoons with a bunch of fine twigs or stiff brush. The fibres of four or five cocoons are then lightly twisted together and attached to what is called the "reeling machine," which gradually winds off the silk from the whole cocoon. As one cocoon is exhausted, the fibre from another one is attached in its place. These four or five fibres from the several cocoons adhere together

and form a single rounded thread which is still, however, much too fine and delicate for use, and several of these threads have to be twisted and spuntogether to form a thicker thread. These are what are used in weaving and from which all the gay-coloured cloths that you know so well are manufactured. The actual weaving is too complicated a process to be described here, but perhaps some of you may have seen native cotton cloths being woven. Silk cloths can be woven in just the same manner.

E. ERNEST GREEN,
Government Entomologist.

September, 1902.

INDIAN PLOUGHS AND WATER LIFTS.

There are many of our readers who will be glad to know what farm implements and machines can be cheaply procured from the neighbouring continent where they have been found useful. The following extract from a review of Prof. Mukerji's work on Indian Agriculture by the *Indian Agriculturist* gives the views of that experienced officer on the subject:—

Among different forms of improved plough preference is given to the Meston, which has recently been invented by the Agricultural Department of the North-Western Provinces, and the price of which is only Rs. 4. It is said, however, to be useless for heavy soils. Of other varieties, we are told: "The Watt's Plough, also N.-W.P. Agricultural Department plough, is stronger and more efficient, but its price is Rs. 7. The Shibpur plough is rather too heavy for ordinary Bengal bullocks, and its price is Rs. 7'8. Both Watt's plough and Sibpur plough can be used for ploughing heavy soils. Jessop & Co.'s 'Hindustani Plough,' 'Seeley's S. S. Plough,' the 'Kaiser Plough,' and the 'Baldeo Plough' of the N.-W. P. Agricultural Department, are other improved ploughs that may be mentioned here. The Baldeo plough, which has also a mould-board like the other improved ploughs, has been actually sold for Rs. 3 each, but it is too light and inefficient, and it is altogether unsuitable for heavy classes of soil. Of the ploughs tried at the Sibpur Farm, the soil of which is very heavy, the Sibpur plough has been found the most effective. It does a little over one-third of an acre a day (8 hours) at the first ploughing, and a little over half an acre a day at the subsequent ploughings. The bullocks should be at least high-class Bengal bullocks. The comparative efficiency of the different forms of water-lift in use is exhaustively discussed, and the following are the conclusions arrived at: "(1) The Don is the best implement for Indian use for small depths (up to 6 ft.), its lifting capacity being 10,000 gallons per hour. (2) Next to it comes the swing basket, which, in the hands of dexterous coolies, will lift about 2,000 gallons of water per hour from a depth of 10 ft. (3) For medium depths, either a double or triple series of Dons, or the lever and bucket lift *tera*, is the best, 500 gallons of water can be raised per hour with *tera*. (4) For great depths, the single and double *mot* and the Egyptian or Punjab pattern Persian wheel are the best. The *mots* will gave about 1,000 gallons per hour, and the Persian wheel about 500 gallons. Considering the cost, the single *mot* is to be preferred to all others for great depths, and to adapt ordinary ring wells of only 3 ft. diameter, and to avoid spilling of water, the bucket can be made to slide up two steel ropes stretched vertically from the bottom of the well up to the beam whence the pulley is suspended."

FERTILIZING BANANAS.

Experimenting on a banana plantation under irrigation, and where bananas have been grown for 12 years, sulphate of ammonia applied alone very quickly gave an impetus to vegetative vigour; the tree grew very large, but produced bunches of very disappointing size relative to the huge plant. On another piece basic slag was applied; this fertiliser is rich in phosphate and lime, the trees were not forced to huge growth as with the sulphate of ammonia, but the bunches produced were very good and well repaid the cost of fertilizing. The bunches were about equal with both fertilizers, but the trees with sulphate of ammonia were the best looking. However, as the basic slag only cost £4 10*s*. a ton and the sulphate of ammonia cost £15 a ton, the best net return was of course with the slag. An application of lime alone did not show any results where two tons and a half were applied per acre, but where five tons were applied the trees at once responded, the stems were stouter than on the rest of the plantation, and seemed very firm with very strong roots, and the fruit was much improved. Further experiments will probably be carried through with simple fertilizers like bonemeal, which contains an appreciable amount of nitrogen, and is especially rich in phosphates; and with cocoanut meal from the Oil Factory, which contains nitrogen, phosphate and potash, but is richest in the first named. Then complete commercial fertilizers may be tried, that is, compounds of the different elements containing nitrogen, phosphoric acid and potash, calculated on the needs of the plants, and the soil as indicated by the first simple experiments with single fertilizers. To get the maximum of crops the soil must be perfectly adapted to the needs of the plant, and the experiments are being carried through at some expense in the hope that a combination will be hit upon that will cause the fields to yield fruit quicker and of a higher grade when, as in the case with fruit-growers generally in other lands, the result may give a good return on the outlay for fertilizing. The soil being already fairly rich in potash as shown by chemical analysis, no experiments have included potash, but in the great majority of soils every fertilizer for fruit trees should be strong in potash.—*Jamaica Agricultural Society.*

THE VALUE OF MANIOC AS FOOD.

In view no doubt of the attention being given (in America as well as in India) to Manioc or Cassava as a food, a useful paper dealing with the nutritive value of the article as such appears in the January number of the *Queensland Agricultural Journal*, from which the information given below is gathered :—

It is generally understood that there are two distinct varieties of manioc, viz., the sweet (*Manihot aipii*) and the bitter (*M. utilissima*), but the difference is believed by many to be induced by the character of the soil.

The so-called sweet cassava is largely grown for human and cattle food, and the starch from it is the source of commercial tapioca. This starch, which is its chief constituent is found to the extent of from 60 to 70 per cent, the Nitrogen from 1 to ½, and proteids from 7½ to 3½ per cent, that is in the dry materials; the higher the percentage of starch, the lower that of nitrogen and proteids; so that the richer the soil, the more nitrogenous matter and less starch. In comparison with wheat and even Indian corn, cassava is inferior owing to the low proportion of proteids.

The most serious point, however, in connection with the use of manioc as a food is the presence of Hydrocyanic or Prussic acid, which, though equally present in all forms, is in the sweet cassava located chiefly in the outer skin and rind. This poison, which makes the root dangerous for food in the natural state, can fortunately be completely eliminated by thorough boiling and after washing, and it is advised that this treatment should be carried out in the preparation of any form of human or cattle food made from it.

According to Dr. Wiley, the well-known American chemist, the amount of Hydrocyanic acid in the roots is relative to the amount of nitrogen contained in them, and as this element varies according to the nature of the soil, the poorer the soil, the less nitrogen and less poison.

It has been found by chemical examination that the dangerous element is on an average found to the extent of 2·04 grains per lb. in the fresh, and 5·39 grains per lb. in the dry material, so that a horse would only need to consume 3 lbs. of the dry or 8 lbs. of the green root, and a man 3 oz. of dry and 8 oz. of fresh material for a fatal dose. So that in the natural state manioc must be consistently avoided.

BY HIGHWAYS AND HEDGES.

It is not, I think, generally known that among native plants we have two species of vanilla, viz., *V. Walkeriæ* and *V. Moonii*. I fancy it is the latter that I have seen between Dandugamuwa and Pannala in the N. W. Province, near Kankaniyamulle, where a resourceful local resident has cured the beans after his own fashion for flavouring his favourite liquor!

———

A notable specimen of *Pithecolobium saman*, the "rain tree," is the one in the Bilhul Oya Resthouse compound, no doubt one of the first plants put down when the tree was introduced into the Island. It is an enormous specimen, and is said to have been planted by some G. A. or A. G. A. of the olden time.

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In some villages, as in the Kalutara district, one sees exposed for sale on the way-side fairly large-sized catkins of what is locally called wel-mal, Siribo, and Ratabulat-wel, botanically known as *Piper Siriboa* (a variety *P. Betle*). These catkins are used for chewing with betel and its concommitants, in order to impart a pungency to them, just as the root of *Kaempferia galanga* (Sin. Hinguru-piyali), the flower buds of *Alpinia nutans* (Rankiriya), and the seeds of the cardamom are used.

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When cutting up the yam called ratala, a bright red dye may be seen just beneath the outer cuticle, imparting to the yam itself, on its outside surface, a purplish tinge somewhat like that of the well-known "Jaffna yam." This dye is readily extracted by metyllated spirits, and on evaporation leaves a sediment. So that it is possible to use the dye for colouring food in place of cochineal, which I have known people object to, owing to its animal origin.

———

Memecylon umbellutum, called in Sinhalese korakaha, is well known as a source of a yellow dye got from its leaves, but I was not aware till lately that the beautiful bosses of bright blue flowers which make this tree so conspicuous an object amid forest flora, are made to yield a blue colouring matter used in Sinhalese paintings.

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A very handsome tree is mas-mora (*Adenanthera bicolor*) next door neighbour to the well-known and common madatiya with its bright red seeds, a favourite plaything with children from its resemblance to red coral, and used also by gold and silversmiths as weights of about 4 grains each. (Roasted madatiya sometimes hawked about for sale is a thing to be avoided owing to its extreme indigestibility). The young foliage of mas-mora, which is coloured pink, is a pretty element in forest vegetation. The tree is common near Matugama.

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In the neighbourhood of Pelmadulla and Rakwana are to be found some of the largest specimens of the *Entada Scandens* (puswel) with its huge polished leathery seeds brought down by streams (along which the climber is generally found) into the sea and cast up on the beach, where it is picked up and used as a toy. This seed (called "Batang" in Sinhalese) is a good instance of seeds designed by nature to retain their vitality, in spite of long immersion while being transported through the agency of water. I have a specimen of the bean 50 in. long gathered near Welandura.

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The leaves of a plant of the Caper family known as Wéla (*Gynandropsis pentaphylla*) emit a strong and by no means pleasant odour,

Though put down as a common weed by Trimen, it is not very frequently met with, and is sometimes searched for in the neighbourhood of Colombo for its medicinal properties, being highly esteemed as a remedy for flatulency. It is generally grown by Tamils near their dwellings. A strange method of employing it as a remedy for hydrocele is said to be by tying a poultice made of the leaves round the upper arm! The leaves are also cooked and eaten.

It is not often one hears of flowers being used for food. The most common instance is that of *Sesbania* (Agati) *grandiflora*, known in Sinhalese as Katuru-murunga, the flowers of which fried in butter with seasoned batter is a tasty vegetable dish. Another flower or rather flower bud, used as food in the villages is *Careya Arborea* (Kahata) also known as the "Patana oak" which yields fibre and tanning bark. I have seen the buds being collected for food along the canal road to Chilaw near Walahapitiya.

DISEASES INCIDENTAL TO PREGNANCY AND PARTURITION.

(A. M. CREIGNTON, M.R.C.V.S.)

Concluded.

METRITIS AND METRO-PERITONITIS.

Definition.—Inflammation of uterus, inflammation of uterus and peritoneum. I shall consider these diseases under two heads—(1.) Simple metritis is the simple inflammation of the organ; (2.) Septic metritis inflammatory action due to the presence of a bacillus in the uterus and in the discharges therefrom.

Causes.—Unskilful and rough usage at calving, injuries, colds, draughts, retention of placental membranes, external violence, septic infection.

Symptoms.—Usually ushered in with rigors, pain on pressure over region of womb. Tumefaction of the vulva, with heat and dryness; then follows a discharge of purulent offensive matter from the vulva, increase of temperature, quick small pulse, increased respirations, grinding of the teeth, secretion of milk suspended, bowels constipated; on passing fæces animal evinces pain: on examination per vaginam, os uteri will be found hot and sensitive; sometimes discoloration is seen on examination per vaginam.

Treatment.—Explore vagina if possible and ascertain if fœtal membranes are away; there may be some shreds left which may be putrefying in the womb. If so, wash out with a reliable disinfectant and antiseptic, give a mild laxative with anodynes, and apply hot water blankets round the abdomen, and see to the general comfort of the animal. If we fear the metritis is of a septic origin, try the administration of internal antiseptics and stimulants with nutritious diet, and thorough irrigation of the uterus and vagina every day at least with suitable antiseptic solution. Some recommend packing the womb, but I have never resorted to this in cattle practice.

POLYPUS IN THE VAGINA.

These are frequent in the cow, attached to the mucous membrane a little distant from the orifice; the shape is generally that of a pear. I removed one weighing 4½ lbs. from the vagina of a cow lately by ligature and excision, and used a simple antiseptic dressing for a few days; the cow did all right.

PARTURITION.

Now, gentlemen, I just wish to say a few words in regard to parturition in the cow. As a rule the messenger that comes for us in these cases is sweating and out of breath, and will gasp out that Mr.' So-and-so wants you to come to a cow that cant calve. After asking a few questions we pack up a few necessary instruments, ropes, and the usual paraphernalia, and proceed with all speed to the scene of action. When we arrive there, and begin to explore the case, we generally find that Mr. Handyman has been there before us, and has spoiled the case and left it, because he could not do it. There are just a few positions that I wish to say a few words about. (1.) Breech presentation. (2.) One fore and one hind limb. (3.) Two fore limbs with head away back. (4.) Twist of neck of womb.

In breech presentation, push back buttocks of calf right as far up and back as you can, then get hold of foot and turn sideways and upwards, and you will get it into passage quite easily. Do likewise with other foot and the calf generally comes away quite easily.

If one fore and one hind you require to be able to judge which way the fœtus will come away easiest. Generally to push back the fore limb is safe practice, as by doing so you have no trouble to look for the head. Then get up the other hind limb and the fœtus comes away with little trouble.

In the case with the two fore legs with the head back, the position is generally the result of long-continued straining of the cow without delivery. If the head cannot be searched by the hand try a blunt hook, and if unsuccessful then try and remove one fore limb, which is sometimes a very difficult job. You should then be able to reach head and get fœtus away. Then as regards twist or torsion of the womb, this generally involves the cow to be thrown and rotated from one side to the other until the twist is undone, and then delivery is usually easily enough accomplished. Some veterinary surgeons recommend jamming fœtus in passages and take it away that way. After-treatment is anodynes if necessary and fomentations if needful.

PARTURIENT APOPLEXY.

This disease used to be very fatal in the cow until Herr Schmidt, of Kolding, found out the pot. iod. treatment. There are a good many theories put forward as to the cause, such as clean milking immediately after calving; by ptomaines, the products of decomposition of food in the stomachs and intestines (but I look upon this as the result, not the cause of the disease); by anæmia of the brain; and by auto-intoxication. I favour this view and believe milk fever is due to some toxic material that gains entrance or is manufactured in the animal economy and thus gaining access to the blood-stream. It may be due to some bacillus, but for that I can't say. By some it is supposed to arise from the liver not

being able to cope with the waste products in the blood during the time of rapidly rising lactation, especially as the liver and in fact all the glands in the animal economy have been in a state of comparative quiescence during the dry period—the light food the animal gets when dry is suddenly altered to stimulating food—and this condition may give rise to the auto-intoxication that produces the symptoms that we all so well know, and the eight principal symptoms have been put before you when contrasting them with puerperal eclampsia, so I will go on to the treatment and sequelæ. This much then can be said of milk fever, that it may be considered a genuine auto-intoxication caused by the accumalation or manufactue in the system of toxic material during the first stages of lactation. This circulating through the blood causes the symptoms of poisoning of the whole system of the animal. In relation to this theory I would point out that only good milkers are attacked, and that those which have been dry for some time are more liable, especially those that have been fed on rich food when dry, and cows that are hardly ever outside the byre. These sort of cattle, after an easy calving, go at the milking in a hurry (as we may say), and arrive at the height of lactation very quickly, and in this way the intoxication occurs, owing to the over-burdening of the liver and kidneys with work. Just as when the air we breathe is polluted with a certain amount of Co2 we show the effects of Co2 poisoning, so, when the toxic material gets to a certain percentage in the blood of the cow she shows the symptoms of poisoning. Of the percentage that it takes I can't say, but this is the theory I hold in regard to milk fever, and upon this I base my treatment, and whether it is a product of casein, neuclein, albumen, or what, I am not prepared to say. Clearly it is the province of our scientists to elucidate such problems, for the general practitioners have neither time, money, nor appliances to do so.

Treatment.—I have tried a lot of remedies in milk fever; I have tried the following injections into the udder and they have proved fairly efficacious.

℞ Chinosol from 40 to 60 grs., according to size and weight of cow; boiled water 2 quarts.

And after milking the cow, clean and disinfect the udder and teats, when about the blood-heat I inject one-fourth into each teat. I also give the following every three hours alternately if the cow can swallow, and if in a weak state I give 4 oz. spt. ammon. arom. in 1 pint cold water, and if she can't I inject with the stomach pump.

℞ Liq. ammon. acet. conc. (1 in 7) ʒii.
Spt. ether nitrosa ℥ii.
Aqua ℥xii.
Then ℞ Whisky ℥iij., or spt ammon. arom. ℥iij.
Aqua ℥xii.

I sometimes use the following injection, which is also very good:

℞	Iodine resub.	grs. iv.
	Pot. iodide	4 to 5 drs.
	Boiled water	2 qts.

To be used as the foregoing. The drenching part of the treatment must be done with great care.

The sequelæ are: mechanical bronchitis from regurgitation of the food, mammitis, metro-peritonitis, from giving drastic purgatives; pneumonia, bruised knees and hocks, fatty degeneration of the muscles of the thighs from bruises, paralysis, choking at drenching. If a cow has tuberculosis in a latent form and takes milk fever she is sure to die. I sometimes empty rectum and bladder, and this sometimes gives the animal relief; I also sheet up the animal well, as there is a tendency to a sub-normal temperature. I have tried stimulating embrocations along the spine when the cow was long in getting up, and when symptoms of paralysis are shown I prescribe doses of nux vomica. A great deal of success lies in the manner in which the cow is nursed. I give the attendants orders to turn the animal every four hours or so, but sometimes they neglect to do this very necessary part of the treatment, with the result that the cows get knees, hocks, &c. bruised, and then when she wants to rise she can't because of the sores and bruised condition of the muscles. There has been more success in the treatment of this disease in late years than before.

Now, gentleman, I think I have taken up your time sufficiently, and I will come to a conclusion by saying that the lot of a country veterinary surgeon has its bright side as well as its dark side. He generally gets his clothes more soiled and is generally not so stylishly got up as his city brother; we have as a rule more dirty work and smaller pay for it, and we must appear in harmony with our work.

I beg to thank you all for your patient hearing, and I trust that my effort will be rewarded by the members all participating in a good discussion.

GENERAL ITEMS.

The following descriptions of methods by which bones may be more or less readily reduced to powder without the aid of a crushing mill deserve quotation: "A simple plan is to pack the bones, layer by layer, with freshly calcined wood ashes in a barrel and keep the mixture moistened for some months. * * * * A quicker method is to boil the bones in an iron or copper boiler with strong caustic lye. The proportion of bones and lye to be used is roughly 15 parts by weight of bones to 5 parts by weight of caustic soda, or 7 parts by weight of caustic potash, dissolved in 15 parts by weight of water. The boiling should be done for two or three hours. But even without boiling, the bones will become disintegrated by being simply kept in the caustic liquor for about a week. Another method of softening bones is by mixing them in heaps with quicklime and loam. A layer of loam 4″ deep is first spread, and on this is put a layer of bones 6″ deep, and above this a layer of quicklime 3″ deep. The layers of loam, bones, and quicklime are repeated until the heap reaches a convenient height, when it is covered all over with a thick layer of earth. Holes are then bored in the heap from the top and water poured down them to slake the lime. The mass will become hot and remain so for two or three months, after which the bones will become friable, and the whole heap may then be mixed up and spread as manure on land."

It is stated that the Government of India have finally decided to organise the proposed Commercial Bureau from the next official year. The Bureau will be independent of all semi-official intelligence bureaus and other agencies which carry on business in commercial intelligence.

Cape Colony has followed the example of Australia in restricting the immigration of Asiatics. The test imposed—that of ability to write English,—will have the effect of excluding a large porportion of Indian traders. Unlike Natal, Cape Colony is not one of the territories to which coolies proceed, so that the newly-imposed rule is not expected to affect the labour market.

From an external source we learn that a syndicate of planters in the Kelani Valley have concluded negotiations for the purchase of 600 acres of land for the cultivation of para rubber at Bulat Kohupitiya, not far distant from Ruanwela, in the Three Korales of the Kegalle district.

According to the general memorandum on the grount nut crop in Bombay and Madras, 1902-03, we learn that in Bombay the total area, according to the latest reports, has risen from 39,500 acres in October to 46,650 in November, but is still less than half of last year's area and of the average, the decrease being due to deficiency of rain. In Madras, where the crop is grown in only nine districts to any appreciable extent, the total area at the end of December was 421,900 acres. This is a considerable increase on the cultivated area of recent years.

The latest addition to periodical agricultural literature is the "Transvaal Agricultural Journal," published under the direction of the Transvaal Government, and edited by Mr. A. R. E. Burton. The journal is for the present issued quarterly.

Mr. Gerard, the well-known chemist and chief of the Paris Municipal Laboratory, pronounces citric acid a prophylactic against cholera. He experimented on the bacillus of both cholera and typhoid fever, and found that in the acid the microbes cannot live. The same competent authority says that 15 grains of citric acid added to a quart of tainted water will effectually destroy all germs of microbes. With this view of the beneficial effects of lemon juice he recommends the drinking of lemonade during the prevalence of any disease or during epidemic. Citric acid is believed to owe its great virtue to its strong affinity for and solvent powers over urea, with which it unites to form a soluble salt. Uric acid is the bane of civilized man, and to this chemical body in some form or other we are most indebted for our various forms of rheumatism, gout, neuralgia, and kindred diseases.—*Agricultural Journal,* Natal.

Here is a new method of planting tomato seedlings:—Make a case of stiff paper with a small hole at the apex. Pass the root of the plant outward through the hole, the stem remaining within the case. Some earth is put round the stem and the plant thus removed is put in the hole in the soil, so that the rim of the case is an inch or two above the surface. The case protects the plant for cut worms and prevents the drying of the earth around it.

When sweet potato and other leaves are attacked by red spider, use kerosene emulsion or dust with a mixture of lime four parts and flowers of sulphur one part. Either will prove successful if used at the commencement of the attack.

A simple home-made liniment says the *Australian Farm and Home,* that is almost magical in effect is composed of kerosene, camphor gum and sweet oil. Into a quart bottle put one pint kerosene, and add as much camphor gum as will disslove, add a little more day by day, shaking thoroughly. Now add half pint sweet oil and shake well, and the liniment is ready for use. Cork well and keep away from children. It is excellent for cuts, burns, bruises, slipperies, sore throat, &c.

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"NEW MEXICO."

IT is difficult to say which is presented in more attractive colours to American capitalists and pioneers, the rich undeveloped resources of the Philippines in the Far East, or the productive wealth of what is now known as "New Mexico." The former has the advantage of being under American law, currency and Government; while the latter has the great attraction of proximity to a grand market close by for all that can be grown, whether coco palms, rubber cacao, sugar or a host of other products. "The silver dollar" is a further attraction to investors in Mexico—labour and all expenses being paid in silver, while the crops can be realised in gold. These remarks have been suggested by the receipt of a copy of a profusely illustrated New York Journal (printed in English and Spanish) entitled "Modern Mexico," from which we learn much of the silver and gold currencies, the buildings (ancient and modern) the railways, irrigation works, the electric trams, the education, the pottery, bull-fights, the legends, sheep and cattle raising; but above all the tropical agriculture in Mexico. The illustrations in the latter show in one group:—oranges, (Mexican oranges sell in New York) banana, coconut, rubber, and plum trees, We do not admire the palms in any of the pictures; but the growth of rubber for 18 months and sugar-cane for 10 months, is phenomenal. "Forest cut ready for burning on San Miguel plantation," points to a Ceylon man being on the scene—perhaps John Darley of the Knuckles as V. A.? In writing about "Money in Coconuts," George D. Coleman of Orizaba gives the most preposterous estimates—figures which show he can have no practical experience beyond a stray group of trees. He writes:—

"A coconut tree will yield from 150 to 250 nuts per year when in full bearing, as every lunar month a new branch of blossoms comes out, and only a hurricane will destroy them. As from three hundred trees to the acre is fair number (I have seen 500 trees in fine condition on an acre), the yield of nuts would be, calculated on the basis of 200 nuts and 300 trees, 60,000 nuts to the acre, which at 1 cent per nut would mean $600. At Tlacotalpam, in the State of Vera Cruz, where there are three small groves, I have been asked *un real*, or 12 cents at retail for one single nut, and in other places I have never seen the ripe and fully developed sold for less than 6 cents each. The half-ripe nut is sold in quantities for half that sum for making the favourite refresco or drink of the hot country. But the owner of the coconut grove who is content to receive 1 cent per nut for the nut on the tree or ground is losing much money."

[One cent of a dollar or ·3 of a rupee is certainly a low price, even for Ceylon.]

Mr. Coleman is supposed to be a traveller who knows something of India and the Philippines and yet what will he say when told that Ceylon, which can boast of the most regularly planted and best cultivated coconut plantations in the world, can nowhere show more than 100 trees per acre, that 70 to 75 is the rule, and that only an ignoramus would dream of planting more than 100 trees. To do justice

to each palm, 75 trees per acre should be the maximum ; and where then has Mr. Coleman seen 5'0 coco palms "in fine condition" on one acre ?! Then again 200 nuts per tree or 60.000 nuts per acre instead of the 3,000 to a maximum of 6.000—which is the heaviest crop per acre in Ceylon—famous all over the world for its coconuts. Verily, if this is the information which our American cousins have to swallow, some enlightenment is required from a Ceylon authority. We do not contradict Mr. Coleman when he says "the coconut needs two things especially—lime and salt ; for,—

"Lacking the first it delays its growing and time of fruitage, and lacking the second, it either remains entirely barren or gives few nuts, and those small and of poor flavour and deficient in oil, the main constituent giving it commercial value. It is a prevalent opinion that the coconut will not thrive except in sandy land and on the borders of the sea. This is due to the fact that the currents of the sea float the ripe nuts for long distances, and then the waves wash them upon some beach, where they sprout and take root. As these beach sands are generally full of shells, as well as salty, these two requisites give a fine growth even in pure sand, but where lime and salt exist in the soil, the better and richer the soil the better the coconut. One of the most luxuriant coconut trees I ever saw grew 100 miles in a straight line from the sea or salt water and in a rich chocolate loam, but the soil contained lime in abundance, and the owners had supplied a sufficient amount of salt."

And we are quite prepared to agree that a "coconut grove" (say of 100 acres) in Mexico is as good as a gold mine, even though we do not believe that, when it is at its very best, more than 500,000 nuts can be plucked in the year. But if these sold at 3 cents of a dollar each (or R90 per 1,000 in our Ceylon currency) the net income should not be less than 10 000 dollars or 30,000 rupees, or £2 000 sterling from the 100 acres which would be quite phenomenal in Ceylon, where such a return would be welcomed from 400 acres of well cultivated palms. So, we can quite see that "New Mexico" under the stimulus of American capital (and if possible, Ceylon experience in tropical products) has a great future before it and we shall be glad to hear again from our New York friends who, meantime, are going to study the *Tropical Agriculturist*.

REPORT ON HEVEA BRASILIENSIS IN THE MALAY PENINSULA.

By STANLEY ADEN,

Superintendent, Experimental Plantations, Federated Malay States, 1902.

(*Concluded from page 588.*)

TABLE XIII.

10 trees tapped every day (6 days).

Total weight of wet rubber 123½ ounces. Averages yield per tree 12·35 ounces.

In nearly every case the yield as slightly better than that when the *same tree* was tapped at weekly intervals, notwithstanding that an average of 10 ounces of rubber had been extracted from each tree immediately previous to this experiment.

The comparatively large yield on the first day is very noticeable and was probably due to the fact that the trees had recently been tapped, a point to which attention has recently been drawn. The result of this last experiment supports the argument that there is little, *if any*, advantage in allowing the trees to "rest" before renewing the incisions.

YIELD.

Most of the points with reference to the yield of latex, the season to tap, the yield at various stages of growth, the time that should elapse before tapping operations are repeated, the age at which tapping can profitably commence, the cost of extraction, and other matters relating to this most important question, need much further investigation, the information obtained up to the present being far from complete.

The season to tap.—The "resting" season of *Hevea spp.* is very short, the trees not being devoid of foliage for more than about 10 or 14 days generally during the early part of February. This, however, is by no means always the case, and it is a common thing to see a tree here and there in the midst of a plantation, absolutely leafless and remaining in this state for two to three weeks although surrounded by others clothed with luxuriant foliage. In the case of young trees, this short "wintering" results in the production of a large number of auxiliary branches, where hitherto a tree of three to four years old consisted of a single whiplike stem 30 to 40 feet high.

Advantage was taken of this short resting season during the early part of the present year with a view to determining whether the different stages of growth had any effect on the flow of latex, the experiments being carried out on the Evlyn estate Selangor. In the first experiment some eight to nine year old trees were selected, whose foliage having turned yellow, was just commencing to fall. After being tapped on eight occasions at intervals of two days, most of the trees began to push forth new leaves, so operations were suspended.

The following table shews the amount of dry rubber obtained per day, from 20 trees tapped on the herring-bone system ; the weather at the time being unusually hot and dry.

TABLE XIV.

Twenty trees, tapped on *eight* occasions :—1st tapping gave 10½ ounces of dry rubber, 2nd, 21¼, 3rd, 24¼, 4th, 23, 5th 22½, 6th 23¾, 7th 25¼, 8th 22¾. Total 173½ ounces of dry rubber,

In the next experiment 20 trees growing on the same estate and as near as possible of the same dimensions, were selected, which were just commencing to push forth new leaves and flowers, which in this species are produced simultaneously. The tapping was on the same principle as in the previous experiment, but was carried on over a period of 24 days, by which time the leaves had mostly attained their full size, and the seeds had begun to form.

The result was :—

TABLE XV.

Twenty trees tapped on occasions gave :—1st tapping gave 17 ounces of dry rubber, 2nd 23, 3rd 20¼, 4th 21, 5th 22½, 6th 14¾, 7th 16¾, 8th 24, 9th 19½, 10th 17¾, 11th 20, 12th 20¼. Total 236¾.

The climatical conditions had altered considerably at the time the third experiment was made, which was during the month of April, rain falling almost daily during the whole time the operations were in progress Twenty trees were again selected and were now in full growth and the fruits about the size of marbles, the result being shown in Table XVI.

TABLE XVI.

Twenty trees tapped on 12 occasions :—1st tapping gave 8½ ounces of dry rubber, 2nd 11¼, 3rd, 14½, 4th 16½ 5th 15½, 6th 15¼, 7th 16¾, 8th 18, 9th 14¾, 10th 17½ 11th 16¼, 12th 16¾, total 181¼.

If the yield of those trees tapped when leafless be compared with that obtained on the first *eight* occasions in the second experiment, when the trees were just commencing to grow, and the third where the trees were in full growth, the result will be found to be distinctly in favour of those trees tapped during the "resting" stage.

The figures are:—

		ozs. of dry rubber
1st experiment eight tappings on 20 trees gave		$73\frac{1}{4}$
2nd	,,	$59\frac{1}{4}$
3rd	,,	116

As this is the result of a single experiment it is impossible to conclude what was the real cause of the increased yield obtained whilst the trees were resting. It possibly might have been due to the difference in the atmospherical conditions or more probably, I think, to the inclusion of one or two trees which for some unknown reason had given a mnch better return than their neighbours, It may be remarked in passing that the results, so far as they go are directly opposed to the theory recently promulgated, as to the effect of tension on the flow of latex; or even if it be accepted that the thickening of the *bast* tissue was nearing completion, and that the tension was therefore approximating the maximum, what is there to account for the decided decrease, only a fortnight later, at a time when the sap was rising in the stem?

The *cause* of the increased or decreased flow, however, does not effect the prodncer to any great extent and seeing that most of the experiments previously referred to were conducted during the months of Jnne, Jnly and August, when the trees were bearing a heavy crop of seed, it would appear that tapping operations might be prosecnted with advantage during all stages of the plant's existence. It is to be hoped that further experiments will bear this out, otherwise, if tapping is to be restricted to certain seasons, the question of labonr will prove a serious problem.

A dry season nevertheless has advantages over a wet one, in-as-mnch as the work is greatly facilitated but the flow of latex is affected to a slight extent, owing to the fact that it dries more quickly on the wound. I have found that by simply removing the coagulated rnbber from the wound an hour after the incision had been made that a further flow of latex occnrred. Though only a very small flow it shews that probably a greater yield would have been obtained previously had not the coagulation of the latex on the wonnd prevented a further exudation. The variations in yield from day to day, of the same tree, noticeable in all the foregoing Tables, are no doubt due to some extent to the prevailing climatical conditions, it having beeu noticed on many occasions; that a larger yield was obtained on a dull, still day.

It is of the ntmost importance to get the tapping finished as early in the morning as possible, and with this object in view all preparations should be made the previous evening, so that a commencement can be made at daylight. On estates where the cultivation is divided between rubber and other products, I would advise that no tapping should take place later than 9 a, m., bnt where rubber is the sole cultivation, such a conrse would probably be found impracticable.

The number of times a tree can be tapped and the length of time which should elapse before tapping can be repeated, depends, I consider, not so much upon the amount of latex extracted at the first tapping as it does upon the injury inflicted upon the tree during the extraction of that latex. It has been seen in the experiments dealing with the area of truuk to be tapped that an eqnal amount of latex was obtained immediately after the first tapping by continuing the operations on the opposite side of the trunk, and although by this means over 5 pounds of dry rubber has been taken from a single nine year old tree, the supply was by no means exhausted, but the injury inflicted must be considered as severe and cannot therefore be recommended. Moreover it is probable that an equal amount of rubber might have been obtained had the labonr expended on this one tree been divided between say four trees, in which case the wounds at the finish would be reduced by three-fourths and consequently would heal up much quicker,

I would lay down as a general rule to follow, that having regard to the welfare of the tree, it is advisable to postpone further tapping until the old wounds are completely healed up. This remark applies more especially to young growing trees, in which case there would be a considerable risk of arresting the growth of the tree, if it be tapped first on one side and then on the other, before the original wounds are completely healed up.

I have found that nine year old trees on which the incisions had beeu renewed on nine or ten occasions had completely recovered, *i.e.,* the wound was quite covered over with new tissue, on the occasion of my next visit, exactly twelve months afterwards, and were therefore ready for further tapping. On the other hand, those wounds which had been renewed 14 or 15 times were far from being healed up and in some cases there was still $1\frac{1}{2}$ to 2 inches of wood exposed even after a lapse of 12 months. Although these trees were again tapped and in most cases a yield equal to that of the previous year was obtained, it was I consider a risky proceeding. Far better work through the whole estate, selecting the best trees and tapping them lightly—renewing the incisions eight or nine times, by which time the trees operated upon first will probably have completely recovered and will be ready for further tapping.

Age at which tapping can profitably commence.—Experiments for the purpose of ascertaining the age at which tapping can profitably commence are necessarily very incomplete as there are hardly auy trees available between the ages of four and nine years. Recently some three-and-a-half and four year old trees growing on one of the largest rubber estates in Selangor, have being tapped, but the results clearly indicate that this is too young. I append the result of tapping 50, three-and-a-half year old trees. These were planted 14' x 14' (222 to the acre), the average girth of all the originally planted trees being 17·51 inches at 3 feet from the ground, and that of the 50 trees selected 21·24 inches. The tapping was on the herring-bone principle and the incisions, which were confined to the first 2 feet of the trunk, were renewed on 12 alternate days.

TABLE XVII.

Result of tapping $3\frac{1}{2}$ year old trees.

Field Number of Tree	Girth at 3 feet from Base.		Total yield of dry rubber in Ozs.	Field Number of Tree.	Girth at 3feet from Base,		Total yield of dry rubber in Ozs.
	ft.	in			ft.	in.	
1	1	10	2·5	87	1	7	1·
3	1	7	1.	88	2	0	2·25
6	1	7	3·	94	1	9	1·25
10	1	8	Nil.	97	1	10	·75
18	1	9	·5	102	1	9	·75
25	1	8	1·	103	1	8	·5
28	1	7	2·	105	1	8	1·
30	2	0	1·25	106	1	9	·75
31	1	11	2·25	107	1	10	3·5
34	1	10	1.75	112	1	8	·75
38	2	1	·5	114	1	8	1 25
44	2	2	1·5	123	1	10	1·25
47	1	7	1·75	125	1	7	1·25
53	1	10	1·25	130	1	10	1·
59	1	9	1·25	131	1	8	1.
65	1	9	1·5	134	1	9	·75
66	1	10	1·	137	1	10	1·25
68	1	9	1·	139	1	10	1·25
69	1	8	·5	141	1	9	·75
70	1	10	1 5	142	1	7	·5
71	1	8	1·	144	1	9	1·
75	1	7	1·5	150	2	1	1·25
76	1	9	1·25	152	1	9	2·25
78	1	9	·75	153	1	10	1·
27	1	10	1·5	161	1	8	1·75

The total yield including scrap(17 ounces) was 77 ounces being an average of 1·54 ,ounces of dry rubber per tree.

Four year old trees.—The four year old trees selected for tapping were all 2 feet or more at 3 feet from the base, the mean girth being 26·65 inches, and that of the whole of the originally planted trees 12·45 inches, the largest tree having a girth of 31 inches at a yard from the ground. The trees were planted 24' x 24' or 75 to the acre and 21 trees were selected from two acres, representing 14 per cent of the total. As in the former case the herring-bone system of tapping was adopted and the incisions renewed on 12 alternate days.

The total yield *per diem* of 21 trees was as follows:—

TABLE XVIII.

Result of tapping 4 year old trees.

June 1902.

Weight of dry rubber in Ounces.

	1	3	5	7	9	11	13	15	17	19	21	23
Total yield per Diem	2·	2·5	2·5	3·5	3·5	3·5	3·75	2·75	3·5	3·25	3·75	3.

Total Yield per Diem	Scrap	Total Yield
	9·75	47·25

Average yield per tree 2·25 ounces.

These trees which are growing under most favourable conditions, are a perfect picture of health and probably equal anything that can be found at this age in this part of the world; and I doubt whether, even in its native habitat, the rate of growth exceeds, or indeed equals tbis, It is apparent, however, that there is very little profit to be made if a tree must be tapped on twelve occasions in order to obtain a yield of 2¼ ounces of rubber.

Seven year old trees.—At S'tiawan there are about 20 trees owned by the natives and, as is usually the case with native cultivation, they have been mnch neglected. They are growing on a dry sandy soil, which is covered with 'Lalang' (*Imperata Sp.*)a vigorous growing grass and although said to be seven years old have an average girth of 26·2 inches only, at 3 feet from the base, which is but sligbtly in excess of the average girth of the four year old trees, referred to above, and even a trifle less than the four year old trees selected for tapping.

These trees were also tapped with herring-bone incisions but the operation was more severe than in the two previous experiments; the vertical channel extending to a height of 4 feet, while the oblique incisions extended half way round the trunk, there being four on either side the vertical channel at distances of 1 foot The incisions were renewed on 12 occasions at intervals of two days, the yield from ten trees being shown in the following Table.

TABLE XIX.

Resnlt of tapping 10 trees 7 year old, 12 tappings every 2nd day,

	Ounces.
Weight when dry	119·75
Scrap	23
Total ...	142·75

Average weight of dry rubber per tree, 14·275 ounces.

The fact that these trees yielded nearly six times the amount obtained from four year old trees, of a similar girth but growing under more favourable conditions, is partly due to the more severe tapping to which they were subjected, but only partly. I think, for I am inclined to regard this as sufficient proof that age is the most important factor to be reckoned with when considering whether a tree is fit to tap or not, and that it cannot be argued that because a tree say ten years old, gives 3 pounds of rubber, that half this amount might be obtained from a tree half the age. As instancing the fact that an annual yield is procurable, it may be remarked here, that although tapped very severely, these same trees, when tapped exactly 12 months later, gave an average return of over 9 ounces of dry rubber per tree. On this occasion the incisions were much smaller and were renewed on eight occasions only; still the yield exceeds that obtained on the first eight occasions at the previous tapping.

Eight to nine year old trees.—Only five trees were available of this age, all of which were tapped on a system previously explained, *viz*, three small herring-bone inoisions to each tree. These trees were also native property, bnt were growing under somewhat better conditions than the trees just referred to having been planted among old coffee trees, whose decayed roots and foliage had provided a small amount of *humus*, a constituent in which this soil was particularly lacking. The mean girth of these trees was 39·8 inches or 13·6 inches in excess of the seven-year old trees growing close by.

The total yield dry rubber per day from five trees is shewn in Table XX.

TABLE. XX

EIGHT YEAR OLD TREES.

Trees 55, 56, 57, 58 and 59. Small herring-bone incisions (three per tree).

Tapped on eight consecutive days:—

1st day 4 ounces dry rubber including scrap. 2nd 7½, 3rd 10½, 4th 11½, 5th 10¾, 6th 12¼, 7th 13½, 8th 13¾

Total Weight 83¾. *Average weight of dry rubber per tree* 16·75 *ounces.*

Considering that the incisions were only renewed on eight occasions this may be considered a very gratifying return, being more than twice the amonnt obtained from the seven to eight year old trees when tapped on eight occasions, a strong argument in favour of good cultivation. It will be rememberd however, that the system of tapping was different, and as this system has always given the best retnrns, the comparison may not appear quite a fair one.

Ten to eleven year old trees.—Tables VII and VIII which were given in the chapter relating to the area of the trunk to be tapped, shew the yield obtained from 10 to 11 year old trees growing under similar conditions. When tapped with V incisions and renewed on *twelve occasions* the average weight per tree of dry rubber was 28¼ ounces. When tapped with small herring-bone incisions, exactly twelve months later, and the incisions renewed on *eight* occasions, the yield per tree was 19 1 ounces of dry rubber. Here again we have a large increase of yield with age, as compared with the 4, 7 and 8 year old trees, a very noticeable point in connection with all these experiments. These trees gave about ten times the yield obtained from the four year old trees, although growing under more adverse conditions, and twice the amount obtained from the seven year old trees with considerably less labonr. The yield from other 10 year old trees will be seen on reference to Tables III, IV, V and VI, the aggregate results being 721·25 ounces of wet rnbber obtained from 10 trees being an average of 72·12 ounces per tree, or after allowing for a loss of 50 per cent on drying 2¼ ponnds per tree.

The largest amount obtained from a single 10 year old tree was 16½ ounces of wet rubber, which when thoroughly dry weighed 5 pounds 6½ ounces. This tree, which does not figure in any of the foregoing tables, was 5 feet 3 inches in circumference, and was tapped with herring-bone incisions, renewed on 14 alternate days.

The cost of extraction of the latex depends firstly on the age and dimensions of the tree operated upon, secondly, on the instrument nsed. Assuming that the trees tapped are eight years old and of good growth, an average of two ounces of dry rubber per day may be relied upon, and with an ordinary pruning knife a coolie can easily tap three trees an hour, or 15 trees a working day of five hours. The remainder of his time would be partly employed by shaving off the rongh bark and getting the trees ready for tapping on the following day, collecting the latex and conveying it to

a central shed to be coagulated, cleauing ont the tins, etc., so that at the rate of 30 cents per day, the cost of collection can be put down at 15 oents psr pound, a fignre liable to modification if improved methods of extraction are forthcoming. The cost however, increases perceptibly wheu trees of a youuger age are worked and in the case of five to six year old trees, where the yield will probably not exceed one onnoe of dry rubber psr day the cost is just doubled and it appears to me to bs very doubtful, whether it is worth while tapping a tree unless an average of at least one ounce of dry rubber per day can be relied npon. With an improved tapping instrument, many more trees conld be gone over, but even then the cost of extracting the rubber from yonnger trees will be considerable, to say nothing of the injury inflicted upon the tree, if the tapping be continned until an appreciable amount has been obtained.

PREPARATION OF MARKETABLE RUBBER.

Coagulation of the latex should be effected immediately after it has been oollected, for if allowed to stand even nntil the following morning, decomposition of the proteid matter will often set in, and the value of the rubber will bs deoreased. This is easily deteoted by the pntrid smell which is given off by the latex, or in the case of prepared rnbber, by the dark colonred blotches, both of which oan be entirely avoided by coagulating the latex immediately it is brought in from the trees. The rubber will then have only a slight, nnobjectionable, characteristic odour, and will be of a light amber oolonr, deeping slightly with age.

The composition of the latex of Hevea, as given by Seeligmann, * is as follows:—

Caoutchouo ..	32 per cent	in solution.
Nitrogenous matter (proteid)	2·3	in solution.
Salts	9·7	in solution.
Resinous matter ..	traces.	
Water, slightly alkaline ..	55·6 psr cent.	

The qnality of "Para" rubber is due to some extent to the very small proportiou of resinous matter contained in the latex. The latex, however, differs perceptibly in the per-centage of caontchouc it contaius sometimes being of a creamy consistency with a yellowish tinge, while that from other trees has a more watery appearance and resembles skimmed milk; bnt as the latex from the various trees is not coagulated separately, this difference iu the quality of the latex does not necessarily result in rubber of different grades. The Brazilian method of coagulating the latex by smoking it, has been described many times and need not be r epeated here. Rubber prepared by this method still commands the highest price of all native cured rubbers in the market, but whether the "Para" rubber so prepared will continue to occupy the premier position when pitted against rnbber coagnlated on more scientific principles is very doubtful. There will probably be a certain amount of conservatism to break down, as is generally the case when a new prodnct makes its appearance on the market, but we may rest assnred that so long as rnbber continnes to be nsed for the manifold purposes it is at present, that it will always command a remunerative fignre; and when prepared free from all foreign matter, and shipped in as dry a condition as possible, the probabilities are that it will eventnally onst the "Para" rnbber of to-day from its present position, for pnrity and freedom from moisturo are what the manufactnrer most desires.

The preparation of the oommercial article is qnite a simple matter, and the oost but slight. The method I have adopted is as follows;—Before tapping, a little wator, about snfficient to oover the bottom of the tin, was placed in each tin, in order to delay coagulation nntil the tins oould be colleoted, which is generally about an honr after the inoision has been made. As soon as the flow of latex has ceased the tins are collected, and their contents ponred into a basin and an equal amount of water added. In this dilute state the latex was strained through a fine muslin cloth and practically all dirt, bits of bark, eto., were thereby removed: the latex is now ready to be treated with soms coagulating re-agent such as acetic, nitric or sulphuric acid, corrosive sublimate, alum or other salts. All thess substances and many others have the effect of collecting the rubber particles, which are suspsnded in a watery fluid, into a solid mass, which can then be pressed and dried.

The coagulating power of the various acids differs considerably, but iu all cases a very small amonnt is required. Parkins gives the following approximate fignres. (*loc.cit.*):—

100 c. c. of pure latex	are	completsd coagnlated by 0·1 gram Sulphnric Acid.
100 c. o.	" "	0·1 " Hydrochlorio Acid.
100 c. c.	" "	0·3 " Nitric Acid.
100 o. c.	" "	0 95 " Acetic Acid.

He also states that "if excess be addsd then coagulation ceases to be complete." This I have found to be the case with many of the acids I havs employed though not so with acetic acid, eveu when ten times, the requisite amount has besn added in which case coagulation took place instantly, so that it was impossible to pour the latex out into flat dishes. The residue, however, was quite clear shewing that all rubber had been extracted. The great thing to remember is that the quantity of acid reqnired depends upon the volume of *pure latex*, and no matter to what extent it is diluted the amount of acid reqnired to bring about complete coagulation remains the same.

In actual practice I have fonnd that acetic acid is by far the handiest to work with, as the range being so considerable, the qnantity required to bring abont complete ooagulation is easily determined without going to the tronble of ascertainiug the volume of pnre latex to be coagnlated.

When the latex had been strained as described above a small quantity—roughly about a tea-spoonfnl to a pint of latex—of acid (acetic) was added, and the whole stirred for a few seconds. If there were no signs of coagnlation a few more drops of acid were added and stirred again, when usually it would gradually assume the cousistency of thick cream, when it was immediately poured out into enamelled plates. The stirring and pouring out of the latex should be done as gently as possible, so as to avoid the creation of bubbles, which bnrst when the rubber is submitted to pressure, giving a roughened appearance to the snrface. Enamelled plates are recommended in preference to tins, as the latter are liable to become rnsty, and are also aoted upon by the various acids.

After a lapse of three or four honrs ooagulation should be sufficiently complete to allow of the rubber now in the form of a thin solid cake and of a pure white colour, bsing taksu out of the dishes and submitted to pressure, so as to express as much of the moistnre as possible. Any kind of pressure may be employed, but something after the style of the old fashioned English wringing-maohine will probably be fonnd as effective and inexpensive as anything that can be devised.

The advantage of adulterating the latex and then coagnlating by some re-agent may not at first sight seem quite apparent, bnt nnless some snch principle be adopted, it will only be found possible to prepare a small per-centage in the form of thin sheets, by far the greater amount coagulatiug in the tins before they are removed from the trees. Snch rubber will be in the form of irregular lumps will be difficult to dry, and will contain a certain amonnt of impnrity no matter how carefnlly the tapping be condncted Moreover, unless some means of assisting coagulation be resorted to, difficulties are often experienced in wet or cloudy weather, decomposition setting in resnlting in a discolonration of the rnbber, an evil odour, and consequently a depreciated valne.

* Seligmann, Le Caoutchoc et la Gutta Percha.

In bright weather rubber prepared by the addition of acid can be dried in about a week or ten days, if placed on a rattan bench where there is a free circulation of air—assuming the cakes are not more than one-eighth of an inch in thickness, but on no account should it be placed in the sun, or the surface will be rendered permanently sticky. The producer, however should render himself independent of atmospherical conditions, by erecting a special house for this purpose. Something in the nature of a tea-withering house would suit admirably; or on those estates where rubber is supplanting coffee, a new use for the coffee-drier may be found Unless some such arrangement already exists on the estate there is no necessity to go to any great expense in this direction; all that is required is a high temperature easily regulated, and a strong current of air with the object of driving out all the moisture as quickly as possible, thereby enabling the producer to realise on his rubber with the least possible delay.

Moulds are very troublesome and in damp weather will sometimes appear in the course of 48 hours, but their growth would be hindered to a great extent and probably entirely prevented if the rubber was kept in a drier, with a strong current of dry air passing through, until ready for shipping.

As compared with other tropical products, it will be seen that the preparation of commercial India-rubber presents very few difficulties, while the cost is comparatively small. Samples of rubber prepared by various methods are being sent home for valuation, and the result together with other remarks touching on this question will form the subject of a further report.

COST OF OPENING AND MAINTAINING A PLANTATION UNTIL PRODUCTIVE.

The following figures represent the cost of opening 500 acres of land, and planting with rubber 20′ × 20′ apart being 108 trees per acre.

	$
Premium on 500 acres at $ 1 per acre.	500
Quit-rent, first year, 50 cents	250
Survey fees, 25 cents per acre	125
Felling jungle, $ 7·50 „ ..	3,750
Clearing up, after burning off, $3 per acre	1,500
Draining, $ 10 per acre	5,000
Roads, $ 1	500
Lining 1·50	750
Holing (holes 1½′ × 1½′) and filling with surface soil, $1 per acre	500
Planting, with stumps from nurseries, 40 cents per acre	200
Weeding, $ 1 per acre, per mensem (9 months)	4.500
seeds, 100,000 at $ 5 per 1000	500
Nurseries, sowing, weeding and watering ..	150
Tools and implements	500
General transport .. ., ..	100
Coolie lines, to house 200 coolies ..	750
Conductor's bungalow	250
Manager's „	750
Conductor's salary, first year, $ 50 per mensem	600
Manager's „ „ „ $300 „	3,600
Contingencies	500
Total cost first year ...	25,275

This represents an average of $50·55 per acre, although these figures are subject to a slight modification, varying with the nature of the jungle to be cleared and the land to be worked. The terms on which land may be acquired are dependent to a certain extent upon the situation and locality, and would not exceed the figures quoted above but, subject to certain conditions, may be had on more reasonable terms. The proximity or otherwise to a town, and the facilities for transport would necessarily affect the estimate for transport charges.

The upkeep for the second, third, fourth and fifth years would be as follows:—

	$
Quit-rent, 500 acres, at 50 cents per acre (4 years)	1,000
Weeding, second year, 500 acres, at 75 cents per acre per mensem ...	4,500
„ third year 500 acres at 65 cents per acre per mensen ..	3,900
„ fourth year 500 acres at 50 cents	
„ per acre per mensem ..	3,000
Upkeep of drains, 75 cents per acre per annum (4 years)	1,500
„ of roads 75 cents per acre per annum	1,500
Supplying vacancies, second year, 50 cents per acre per annum ..	250
„ vacancies third year 25 cents per acre per annum	125
Insect pests 12 per acre per annum (4 years)	4,000
Repairs to coolie lines, second, third and fifth years 125 per annum ...	75
„ to coolie lines fourth year (re-ataping)	150
„ bungalows (2) second, third and fifth „ years, $25 per annum	150
bungalows (2) fourth year (re-ataping)	150
Tools and implement, $25 per annum (4 years)	100
General transport $100 „ „	40
Manager's salary 3,6000 „ „	14,400
Conductor's „ $600 „ „	2,400
Contingencies, insecticides stationary etc., $500 per annum	2,000
Upkeep until end of fifth year ..	39600
Add first year's expenditure ...	25275
Total expenditure ...	64,875

The total expenditure for five years is therefore $64,875, being an average of 55.5 per acre for clearing and planting, and $ 19·80 per acre per annum for upkeep, including the manager's salary. Taking the rate of exchange at 1s· 10*d*.—the average for the last two years *—this is equivalent to £5,946 17*s* 6*d*. sterling, or an average of £11 17*s* 10½*d*. per acre; to which must be added the interest on all money expended. Nothing has been estimated for weeding during the fifth year, as it is anticipated that the trees will give sufficient shade to prevent the growth of any rank growing grasses: the weeds which appear during the fifth and subsequent years will be of a harmless nature and will die out naturally as the shade becomes more dense. If it is considered advisable to weed beyond the fourth year, an additional estimate of 35 cents per acre per mensem should suffice to keep the estate perfectly clean.

Return.—On a good estate it will probably be found that a number of trees will be worth tapping during the sixth year, though lack of *data* prevents me from arriving at a definite conclusion on this subject; but I confidently anticipate a yield during the seventh year at least equal to that obtained from the seven year old trees previously referred to.

Assuming that 50 per cent of the five year old trees give an average yield of 8 ounces of rubber per tree which cannot be considered an unreasonable assumption, seeing that almost twice the amount was obtained from seven year old trees growing under very unfavourable conditions—albeit the tapping was somewhat severe—the yield per acre in the sixth year would amount to 25 pounds of rubber. Taking the selling price in London at 2*s* 6*d*. per pound (which is 1*s* 1*d*. per pound less than has recently been obtained for well cured samples from Ceylon) this would be worth £3 2*s*. 6*d*. sterling; but as there is always a certain per-centage of "scrap" rubber, it will be safer to estimate on an average selling basis of 2*s*., so that the yield per acre during the sixth year may be

* The rate of exchange for the present day is 1s 8¾*d*

valued at £2 10s. From this must be deducted the cost of collection and preparation for market, which should not exceed 20 cents per pound—equivalent to 9s. 2d. per acre, also packing charges, freight and wharfage.

The average cost per acre per annum for upkeep being $19·80 or £1 16s. 3⅗d. sterling, it appears probable that after deducting all expenses in connection with the preparation and marketing of the rubber, that the return during the sixth year will leave a small margin of profit, after allowing for upkeep, including the Manager's salary and interest on the outlay.

This, I am aware does not compare favourably with some estimates which have been published, but it must be remembered that this estimate is based on the assumption that there are only 108 trees per acre; had there been three times the number, the growth during the first four years would probably have been quite as good, and the yield trebled, but I anticipate a far better return from those trees when they attain the age of nine or ten years than from trees planted more closely. This however is a debatable point, and until there is some further opportunity of experimenting in this direction it is useless to attempt to arrive at any definite conclusion.

By the time the trees are six years old, 75 per cent should give an average yield of 12 ounces, which is equal to 56·25 pounds per acre. Valued at 2s. per pound, this gives a gross return of £5 12s 6d. per acre, so that after deducting the cost of harvesting and marketing there is every prospect of a fair return on the capital expended during the seventh year.

By this time the cost of upkeep will have reached a very low figure, while the yield will increase year by year, and should average at least 150 pounds of rubber per acre by the time the trees are nine years old, and probably 100 pounds the following year.

STANLEY ARDEN,
Superintendent, Experimental Plantations,
Federated Malay States.

THE ALOE FIBRE INDUSTRY.

Mr. C. J. Greengrass writes to us from Puttur, North Arcot:—As the plaintain fibre industry seems to be attracting considerable attention just now, perhaps a few remarks on the agave or aloe fibre will not be out of place and be of interest to those who are going seriously into the matter. The varieties of this plant grown to any extent in India, besides those grown for purely ornamental purposes, are the three varieties *A. vivipara*, *A. rigida*, and the species known as the Blue Aloe, to be seen along the Madras Railway. The last named, though producing a fair percentage of fibre, cannot compare in this respect with the other two, *A. vivipara* and *A rigida*. The latter has the shorter leaf of the two, averaging about 2 ft., and as its name implies, is stiffer and harder to manipulate than the leaf of the former. The percentages of fibre in both are about the same, of equal strength, but they differ considerably in length, one being only about half that of the other, an important feature in valuation.

From my experience, I found that the *A. vivipara* is eminently the most suitable for fibre producing. I do not see any of this species about this part of India, but towards the West of India generally it is very common, and is used as fencing by the Southern Mahratta Railway towards Poona and Belgaum. The plant resembles to a very great extent the West Indian variety, *A. sisa lana*, out of which the West Indies are now making fortunes. the only difference being that the latter is somewhat shorter in leaf, and has of only the one terminal spike, and none along the edge of the leaf. as with the former. It is a very hardy plant and takes kindly to all varieties of soil and will thrive on land considered too poor for agriculture. When grown on rich soil the plant becomes somewhat longer in leaf, but the percentage of fibre is less the leaf becoming "fat." A drier soil with an admixture of *moorum* or sand is best suited for it cultivation, for though the leaves produced are not quite so long, as otherwise, it produces more fibre and of a better quality. The plant requires a little looking after for the first year, but after this is well able to take care of itself, producing an annual crop of leaves after about the third year, for about 12 years, when, after it has produced its central stem and shed its bulbules, it decays and dies. The bulbules spring up around the parent stem.

From information gained of the methods of cultivation, in America and the West Indies, of the A. sisalana it would appear that the yield per acre is about one ton of fibre, allowing 10 ft. space between the plants. From my experience of the Indian variety I should say the same remarks apply to it. A sample consignment of fibre sent to Liverpool brought £11 per ton: the cost of manufacture freight etc., was about Rs 100 per ton. The leaves were procured from plant grown as fencing along the S.M, Railway at Poona, and the method of extracting the fibre was the usual primitive one of rotting the leaves in water and beating out with wooden mallets. This injures the fibre considerably, and I have no doubt, worked with proper decorticating machines, the price realised would be much higher, running up, I should say, to about £20 per ton.

The advantages the agave has over that of the plantain tree are many. It grows on any waste land thousands of acres of which may be seen all over the Madras Presidency, and which may be had at a nominal rental, The plant gives an annual crop of leaves for about 12 years, where the plantain tree has to be cut down *in toto* for the extraction of the fibre and, moreover, requires less looking after.

This industry has now been carried on in the West Indies and America for many years past, and large fortunes are being made out of it in exporting the fibre to England and other parts of Europe. Cannot some of this money be converted into rupees instead of dollars? I commend the question to those whose constant wail is the chronic poverty of India, and also to the Indian planters who now regularly meet at there Conference and sadly contemplate, with hands in empty pockets, the darkening aspect of the planting horizon.—*Madras Mail.*

LIFE IN THE ANNAMALAIS.

COMPARISON WITH CEYLON.

The planting region of the Annamalais with the forest belts, Mr. Windle thinks, is about.

50,000 ACRES IN EXTENT.

and of it some 15,000 to 16,000 acres are in private hands the whole of this, however, is not yet opened up. It is possible that further allotments of land would have been purchased readily enough, but Government stopped the further sale of land. The elevation is from 3,300 feet to 4,000 feet. The country is well watered and the rainfall averages about 130 in a year, most of it falling during the south-west and north east monsoons, while good "blossom" showers fall in the intervening periods. The monsoon rains, as in Ceylon are heavy, but without that characteristic feature of Ceylon rains, viz,, wind. The Annamalis may truly be described as

A WINDLESS COUNTRY,

but, notwithstanding this, the weather is fine and cool with an even temperature. The soil as stated before, is exceedingly rich, and analysis have been taken by Mr. Kelway Bamber of Colombo; Dr. VanGeyzel, Government Analyst, Madras; Mr. Hooper, Government chemist, Calcutta; Dr. Layman, Government chemist Mysore, and others, the result of which showed that the place was

EXCELLENT FOR CULTIVATION

of products. In this connection it is interesting to note that Mr. Windle was the first to make up but in the Annamalais. He applied for 2,300 acres by was allowed 1,000 acres. the maximum granted in Government to purchasers, and began opening in

1897 late in the season. He managed to plant about 60 acres in coffee by March 1898, but a jungle fire broke out during an exceptional dry season and destroyed all his labours. However, he planted up during the monsoon weather that year and the result showed the exceptionally good country for coffee. In the season 1900-00 he took his first crop of 1½ tons from the young trees, 40 tons in season 1901-02, and 40 tons in the succeeding season, while the prospects for the coming crop were extremely good. Cardamoms were also doing remarkably well. In facts the place was the habitat of cardamoms, for Mr. Windle had found them growing wild in the jungle. He had opened out 130 acres in cardamoms from 1 to 3 years old and they were getting on famously. Messrs. Martin and Bannatyne, former Ceylon planters, had their cardamom plantations coming on well. Besides coffee and cardamoms, cinchona was another product that appeared to take to the Annamalais. Mr. Windle planted out Ledgeriana variety some 2½ years ago and the trees were quite sound and healthy. They grew extremely well, and it was hard to say which grew better coffee or cinchona. As regards rubber, which was quite a new product, and vanilla, which was given up, Mr. Windle has spoken of them before. Pepper he tried but without success. Roses grew particularly well, as also all flowers, which showed a luxuriant growth, and vegetables. Poultry thrived wonderfully which might be attributed to the absence of disease or pests; jackals, wild cats, hawks, etc., being unknown. The Annamalai hills for climate, soil etc., for growing products was wonderful and there is no doubt, if Government is only willing to sell further allotments.

LAND WOULD BE BOUGHT UP READILY.

The roads, Mr. Windle remarked, were in good condition, but not so well kept as the excellent Ceylon up-country roads. They sent their produce by cart to Podanur, a distance of 60 miles—distance by the way was no consequence to the Indian planter—and thence by railway to Calicut. There was some talk of a railway from Dindigul to Palghat through Pollachi, which was only 15 miles from the foot of the hills. This if sanctioned will prove a great boon. As regards sport, there were elephant and bison in the Annamalai forests, and mahseer in the fine rivers. The only expensive item the Annamalai planter had was felling. It cost Mr. Windle R30 an acre; and sometimes it would cost more according to the nature of the forest There was excellent timber in abundance, both white and red cedar, jak, toon, ironwood, and a little ebony.

LABOUR WAS PLENTIFUL

and easily obtained, and none of the difficulties that beset the Ceylon planter in this direction were experienced.—Local "Times."

ARTIFICIAL NITRATES FROM THE AIR.

The question of manures for keeping up the productive power of the soil must ever be of the first importance to planters and agriculturists. In the composition of all manures an element of the first importance is fixed nitrogen as contained in the various nitrates. But the supply of natural nitrates is limited by a variety of circumstances, and the expense of applying it in the form in which we now procure it is a very considerable item. Nature herself adopts another method of giving the indispensable nitrogen to the soil. The atmosphere consisting of four-fifth free nitrogen is a natural laboratory wherein by the effect of eletric discharges nitric and nitrous acid are formed These being dissolved and washed down by the rain rfom a perpetual fertilising agent quite sufficient for growth under natural conditions. Artificial cultivation however, is a much greater tax upon the soil and Nature's arrangement, admirable for her own purposes, does not suffice under conditions of continual cropping. The drain of material is too great to be compensated in this manner.

The balance of nature is in fact destroyed, and man who is responsible for the destruction must in his own interests set to work to reconstruct more suitable conditions and by applying an increased quantity of the vivifying agent restore the balance. Thus, in the long run, the supplying of nitrogenous fertilisers by the agriculturist becomes necessary. Hitherto he has been dependent on a comparatively limited number of mines, a fact which renders nitrates expensive; but some few years ago Lord Rayleigh showed that the artifical union of nitrogen and oxygen by means of the eletric spark was so easy a thing to effect as to make the method worth trying on a commercial scale. This suggestion has now been acted on by two American inventors—Bradley and Lovejoy—and a company has been formed to work their process. Apart from commercial importance, the new process is of interest from the closeness with which it follows out Nature's method of production.

The apparatus employed consists of a fixed cylindrica metal box, inside which, but insulated from it a second cylinder rotates 500 times per minute. On the surface of each cylinder are six upright rows of metal pieces or "contacts" 23 in each row. These contacts are insulated from each other and each isconnected through and inductance coil to one or other pole of a 10,000 volt dynamo, those on the outer cylinder to the positive pole, and those on the inner to the negative. As the rotation goes on the negative contacts come up to the positive, and each pair then "strikes" an electric arc; as they move away the arcs are drawn out and extinguished, only to be reformed when the next set of negatives comes up. About 40,0000 acres are thus made and destroyed per minute. A steady flow of air amounting to something like 700 cubic feet per hour is maintained through the space between the cylinders The arcs promote the chemical union of the oxygen, and nitrogen and the air leaves the apparatus having about one-fortieth of its mass converted into oxides of nitrogen. It is then conducted to absorbing towers. These are already well known in connection with other chemical industries, so we need only remind our readers that they consist of lofty "stacks" loosely packed with bricks or blocks of coke down which a stream of water is allowed to trickle. The mixed gases entering at the base of the tower meet the falling water, which dissolves out the oxides of nitrogen, forming dilute nitrous and nitric acids, which can be continuously drawn off below, and used for the preparation of the required chemicals.

Sufficient data have not yet been published to allow the efficiency of the plant to be calculated. Possibly the manufactures desire to keep such information to themselves; but there is every reason to expect that the method will bring about a reduction of the cost of nitrates. Such a result would be of incaluable importance, not merely will the agriculturist be helped by cheap fertilisers—though this is probably the most important benefit to be expected—but many other industries will be assisted. To mention one only, the manufactures of sulphuric acid is only practicable on the large scale by the aid of the oxides of nitrogen. These are now derived from nitrate of soda, but it would be a great advantage to obtain them direct from the atmosphere. Even if it were impossible to utilise the new plant, cheaper nitrates would mean cheaper acid, which would be an assistance to nearly every chemical industry. Moreover, if the nitrates can be obtained by the new process in sufficient purity for gunpowder making, the public security will be enhanced by rendering our artillerists independent of the Indian saltpetre mines.—*Indian Planting and Gardening.*

PRUNING FRUIT TREES.

By W. J. Allen.

Pruning is a means to an end. It is not intended in this article to enter into a discussion of the general theories of pruning, which are multitudinous: nor is it possible to give any advise for pruning until one has analysed the subject, and knows the object for which he is to work, and the underlying principle on which his practices must rest. The principles are universal, and the same might also be said of the practices which are primarily the shaping or training of the tree, and secondarily (after this object has been attained), to fruitfulness. Under natural conditions trees are being constantly pruned. Every fall nature strips the trees of their leaves. This is their regular annual pruning. In addition to this, there is a cotinual prnning of buds and branches. If every bud on a tree were allowed to develop, the latter would become a regular bush pile. Those buds which are most favourably situated as regards light get most nourishment, while those less favourably situated become starved and drop off. The lower limbs of trees and those within the crown become weakened, and die from lack of sunlight, then the wind, natures pruning knife, comes along and removes the dead branch. In this manner trees are constantly ridding themselves of useless branches, and the pruning so effected is undoubtedly a benefit to the branches which remain and to the general growth and improvement of the tree.

Orchard trees, by virtue of selection, by hybridisation, and cultivation are in a highly specialised condition, and to be maintained so must receive special treatment. In a sense, the fruit tree is a machine for manufacturing fruit, and intelligent pruning is one of the means by which it can be made to manufacture the most fruit of the best quality in the shortest time, and to keep up the output for the longest possible period. A correct understanding, therefore, of this machine and all its working parts is necessary to its most successful manipulation.

Wickson, in his work on California Fruits, writes :—"One of the first things for the beginner to undertake as he approaches the practice of pruning trees and vines, is to form some conception of the purposes to be served. Imitation is not the foundation of intelligent pruning, though it yields many valuable suggestions. Satisfactory work rests upon a correct understanding of the reasons for each act, and to the attainment of this all study, observation, and experience should tend. Possessing this, one can proceed capably modifying method to meet condition, and producing desirable results. Receive all suggestions, and then go quietly to the tree and study your problem in its shade. The tree is the best revelator of its need. Some of our best pruners are men who were untrained to horticulture before they entered upon their orchard work. Reading discussion, systematic instruction, are all valuable. They save much time and many errors; but recourse to the tree affords the sovereign test of attainment. These may be counted among the practical purposes to be attained by pruning (*a*) Convenience of the grower; (*b*) health and strength of the tree; (*c*) regulation of heat and light: (*d*) attainment of strong bearing wood; (*e*) attainment of size in fruit; and (*f*) promotion of regular bearing."

"On examining the tree, it will be found to be composed aboveground of a trunk from which the main branches spring, which, in their turn, produce laterals, on which the shoots and spurs which bear the fruit are to be found. Taking these points into consideration, one can hardly fail to secure rays of light upon the subject of pruning which seems dark to so many.

"*Convenience.*—Trees which branch near the ground are mostly quickly and cheaply handled in all the operations of pruning, spraying fruit, thinning, and picking. Low trees with obliquely-rising branches are more easily cultivated than any form with horizontal branches, unless the head is carried so high that the teams pass easily under the tree. To do this sacrifices all the other conveniences and economies which actually determine profit, and is really out of the question from a commercial point of view.

"*Health and Strength.*—It is imperative in most parts of this State that the sunshine be not allowed to touch the bark during the heat of the day. This protection is secured even for young trees by low branching. The low tree with properly spaced branches attains superior strength by virtue of thick, strongly knit, short growth between branches, and by its strong, stiff, obliquely-rising growth sustains weight which brings horizontal branches to the ground, and thus even high-headed trees are liable to continually increasing interference with cultivation, and the desperate grower has to raise the head of his tree higher into the air and farther above the profit line while at the same time he renders it more liable to sunburn, to bark binding, and to unthrift by forcing the sap to flow an unnecessary distance and through wood and bark will impede its movement. Besides, a low tree escapes stress by strong winds, which a high tree invites, and at the same time is less able to withstand. Pruning for health and strength of the tree also includes the removal of unthrifty or diseased parts, which are not only an encumbrance to the tree, but many communicate to other parts the cause of their ill condition.

"*Heat and Light.*—The maintenance of strong bearing wood in the lower part of the tree is conditioned upon the proper pruning of the top of the tree. How far the upper levels or the shade layer of the tree can be safely opened depends upon the local climate in each fruit region. The rule must be the higher the summer heat, the denser the tree—the lower the heat the thinner the tree: but everywhere the proper condition of openness must be constantly in view in pruning. Not alone must this be done to maintain thrifty growth below, but it is also essential to the best growth and ripening of the fruit in the lower and interior parts of the tree. Fruit inferior in size, colour, and quality, results in part from lack of pruning to regulate the admission of light and heat, sometimes one, sometimes both, to the shaded portion of the tree.

"*Bearing Wood.*—Good fruit develops on good bearing wood, and good bearing wood is the product of proper degrees of light and heat as has just been urged; but bearing wood in the case of some fruits is new wood, and reduction of old wood for the purpose of forcing the growth of new wood must be constantly in mind. Renewal is more or less a consideration with all trees and especially the securing of strong new wood. This is a point upon which close study of the bearing tree will yield most satisfactory suggestions.

"*Size of Fruit.*—The size of fruit, providing the tree is healthy and vigorous, depends upon the character and amount of bearing wood which the tree is allowed to carry. Removal of part of the fruit burden is done by thinning after it is well set, this labour should always be minimised by antecedent pruning, which adjusts the retention of bearing wood according to the vigour, size and bearing habit of the tree Thinning out of bearing shoots and spurs, when either are clearly seen to be in excess, should be the constant study of the pruner."—*The Indian Agriculturist.*

TURMERIC-GINGER.

Turmeric and ginger may be both profitably grown in Bengal, and like most other root crops are meant for, and are within easy reach of, small capitalists. Turmeric, *Curcuma Longa* requires soil of a rich and friable nature, to which has been added a good percentage of potash. High lands, *not likely to be overflowed*, should be selected for this crop, and should be well ploughed and cleared of weeds, etc. Manure should be freely applied and well worked into the soil. Sweepings of all kinds, poudrette, and ashes specially those *from cowdung cakes* are specially

valuable adjuncts towards fertilizing lands, in which turmeric is to be grown. This crop is often planted on lands, where sugarcane grew the preceding year, and it is considered an ameliorating crop. One of the special features to be noted in nearly every homestead in a Bengal village is the sight of a few clumps of ginger and turmeric plants growing, where ashes and other sweepings are thrown out. The small amount of tubers produced is generally sufficient for the frugal ryot s yearly consumption. Turmerio is often grown nnder the shade, in orchards mango topes and such, but the crops produced cannot be compared to those grown on lands specially suited and prepared for it. The time for planting out turmeric varies a good deal but the best time for doing so is from the middle of April to the end of the following month. Before beginning planting it is advisable to wait until one or two north-westers have passed over, giving a certain amount of moisture to the parched soil. The tubers shonld be put down on ridges a foot or so high and 18 or 20 broad, with intervening trenches nine or ten inches broad. The cutting or sets, *viz.*, small portions of the fresh roots are planted on top of the ridges and about 18 inches apart. Three hundred snch sets will be required for a *bigah* or nine hnndred for an aore of laud. The after-cultivation consists mainly in keeping off weeds and loosening of the soil between the ridges. Irrigation is not generally resorted to for by the time the monsoon rains are over, the tubers are already formed and only reqnire ripening. Turmeric crops usually take ten months to come to matnrity so should be taken np towards the latter part of January, and the plants be allowed to wither and dry np before doing so. When taking up the roots the *kodali* or spade should never be used, but only the digging fork.

The output of turmeric, like most other root crops varies a good deal hut 16 to 18 maunds of fresh roots to a *bigah* or 3,800 to 4000 pounds to an acre of land should be considered a very fair average. The roots are generally sold fresh to the middlemen, but they may be prepared and dried. To do this the roots must first be sorted out into two sizes. *viz.*, the smaller and larger ones, as these latter reqnire more hoiling. After they have been sorted ont, the roots are thrown into large earthen pots filled with water to which has been added an admixture of cowdung and tamarind leaves. The roots are then boiled for two or three hours according to their size and then taken out and spread out to dry. The boiling and drying makes the tubers shrink to half their original size and the loss in weight varies from 30 to 40 per cent. As the outlay required for raising turmeric crops is small, the returns ohtained are generally very satisfactory. The price of turmeric, like most other such staples, varies a good deal according to the state of the crops and the ime of the fear; bnt from R 4 to R 6 *per maund* may e taken as a fair average for the dry roots, and R 2 to R 4 for the fresh ones. The following table will, I think, show that tnrmeric and ginger are among some of the miscellaneons crops that the would-be domiciled Anglo-Indian or Eurasian, may safely and profitably take up.

Expenditure and retnrns from one *bhiga* turmeric

EXPENDITURE.

	R.	A.	P.
Reut for 1 year with cesses	2	3	0
8 ploughs for ploughing and preparing land at 5 annas each	2	8	0
Manuring, including price of manure ..	6	0	0
16 coolies for preparing land at 5 for the rupee	3	3	3
8 coolies for planting at 5 for the rupee..	1	9	9
After cultivation, weeding, etc. ..	5	0	0
Taking np and sorting roots 10 coolies ..	2	0	0
	22	8	0
Profit from one bigah turmeric ..	25	8	0
	48	0	0

RETURNS.

	R.	A.	P.
16 maunds fresh turmeric at R3 per maund	48	0	0
	48	0	0

Considering the small outlay, the returns obtained should be considered very satisfactory, and a great advantage that both turmeric and ginger have over other crops, is that they have practically *no enemies* to contend with, for nothing will touch their pungent and aromatic roots.

Like turmerio, ginger *Zingiber officinal*, may be grown very profitably in Bengal. Soil of an alluvial or loamy nature and heavily manured is the best suited to these roots. Old and well decayed cowdung or stable litter with an admixture of ashes and leaf mould, if available should be well worked into the soil, oil cake is also one of the best manures, I know of for ginger; but should *be on no account applied too freshly*. Ginger, besides potash, require phosphoric acid, so all manures containing the most of such properties, should always be made use of. The land after it has been *extra carefully* ploughed and mannred should be laid out in ridges to facilitate irrigation, in the same manner as preparation is made for planting sugarcane. The best time for putting out ginger is from the middle o Febrnary to April. Pieces of the fresh eud of the rhizome, about an inch or so long, shonld be planted one foot apart. When just planted the tubers should be protected from the sun until they have sprouted, the hest way to do this is to cover them with pieoes of plantain leaves, cut into suitable lengths and the ground should be freely irrigated for the first ten days or so, or until the plants have come up. Subsequent culture consists mainly in irrigating, weeding and keeping the soil open an applying manure once in four months. Like all *Scitaminaceus*, ginger require a very rich soil with plenty of moistnre, and should be planted near enough so as to protect each other bnt not so thickly as to prevent access of light. Like turmeric, ginger takes a year to come to maturity; and though the tubers left undergronnd will rot, they will sprout np again before doing so. With a little care a ginger plantation may be kept going for three years, the bulk of the roots heing taken np, and a few left for the succeeding crops, the second year's outturn is said to be as a rule the heaviest. After the tubers have been taken up the plants should be manured, earthed up and freely irrigated. The average yield per *bigah* is about 10 maunds, and the market value may be taken R 6 as a fair average. Ginger is generally sold in its natural fresh state but it is also sometimes boiled and dried, in which state it is known as *soont*, and as such is greatly valued for its pharmaceutical properties.

Ginger and turmeric are some of the products the smaller capitalist should take up with every chance of making a success of it. The following table of expenditure and returns speaks for itself:—

EXPENDITURE.

	R.	A.	P
Rent for one year per *bigah* with cesses	2	3	0
10 pionghs at 5 annas each	3	2	0
Manuring, including valne of manure ..	8	0	0
20 coolies for prepairing land at 5 for the rupee	4	0	0
10 coolies for planting at 5 for the rupee	2	0	0
After-culture, weeding *cher*	8	0	0
Taking up and sorting tubers, 15 coolies @ 5 for the rupeo	3	0	0
Irrigating	6	0	0
	36	5	0
Profit from one *bigah* ginger ..	23	11	0
	60	1	0

RETURNS.

	R. A. P.
Ten maunds green ginger at R, 6 per maund	60 0 0
	60 0 0

The preliminary cost on raising one *biagh* of ginger crop is far in excess to that for turmeric, but as ginger is a crop that may be made to last for three years, the average cost will be found to be lower, and the return higher at the end.—*Indian Planters' Gazette.*

RECENT EXPERIMENTS WITH SWEET POTATOES.

Sweet potatoes (the enlarged roots of *Ipomea Batatas*) are among the most important agricultural products of the West Indies. As Mr. F. Watt's *West Indian Bulletin*, Vol. I. p. 271 states: 'So far as the sugar-producing islands are concerned the sweet potato occupies the foremost place in the list of home-grown foods and is, probably, next to the sugar-cane, the most important crop grown. . . At present the crop is grown upon the sugar estates as a snatch crop and fulfils a useful purpose; owing to the short time it takes to come to maturity it can be planted after the (ratoon) canes have been cut when the potato crop will be ready for reaping from about December to February. After the crop has been reaped the land may be quickly prepared for a crop of sugar-cane. As the potatoes usually meet with a ready sale the crop is of value to the sugar planter and acceptable to the labourer. Sweet potatoes are largely grown by the peasantry themselves, the ease with which they are propagated, the poor soil in which they will thrive, the small amount of attention which they require, and the short time in which they come to maturity, all commend them to the peasant.' In the case of such a short time crop as the sweet potato it is difficult to obtain reliable information as to the actual acreage under cultivation. For Barbados the question was very fully discussed by Mr. J. R. Bovell in the *West Indian Bulletin*, Vol. I. pp. 204-12. He estimated that there were about 2,600 acres under sweet potatoes in the island as catch and rotation crops on sugar estates, of the annual value of about $100,600 or approximately £21,000. In the islands other than those dependent on sugar, sweet potatoes also form a staple food, being to a great extent imported from those colonies in which the conditions are favourably adapted to their profitable cultivation. The sweet potato is also extensively grown in other parts of the world, for instance, the Azores, S. Africa, and the United States. According to the census return of 1890, the United States produce about 44,000,000 bushels per year. Recently considerable attention has been given to this crop by the Imperial Department of Agriculture and, as a result, a good deal of experimental work has been carried on and more is in hand.

EXPERIMENTS WITH DIFFERENT VARIETIES.

During the last season two sets of experiments were started to test the comparative value of the various varieties of sweet potatoes. These varieties are commonly recognised by local names, often indicative of some distinctive character of the potato, or of its place of origin. They differ from one another amongst other points in the shape, size, colour flavour, and quality as a table vegetable of the root, in the shape of the leaf, in time of maturing, and in keeping power. In connection with the Botanic Station, Antigua, fifteen different varieties—some local, others introduced—were grown in separate plots under the same conditions. The crop from each plot was weighed separately. The full results have already been published by the Department in the *Report on certain Economic Experiments in connection with the Botanic Station Antigua, 1900-1901.* The yields of each variety were calculated in tons per acre, and varied from ·6 of a ton to 4·4 tons. Amongst the varieties which occupied the foremost places were 'Eliza' and two Trinidad kinds known as 'T. 1' and 'T. 2.' respectively. The latter, although beaten by the variety 'Eliza' in actual yield, were superior in shape. The experiments will be continued. Last year the ground was comparatively new, and the variation in the yield of duplicate plots necessitates caution in estimating the relative value of the several varieties. At Barbados a somewhat similar series of plots were laid out, under the charge of Mr. J. R. Bovell, on Waterford Estate. Twenty-eight varieties, mostly local, were obtained and 100 holes ($5\frac{1}{2}$ x $5\frac{1}{2}$ ft.) planted of each. It was hoped that in the present crop season they would have been dug and weighed. A careful comparison was then to have been made as to quality as a table vegetable, shape, keeping power, etc. Unfortunately, during the past season insect pests have been more than usually prevalent on sweet potatoes in Barbados. The experiment plots were ravaged by red spider and other pests and the plants seriously injured. Even under such adverse conditions some useful information was obtained, concerning the comparative powers of resistance of the different varieties.

The field was examined by Mr. Maxwell-Lefroy in the middle of November. The sharp manner in which the plots of the different varieties were marked out owing to their varying powers of resistance to insect attack was most striking. Amongst those which had suffered the most at this time were 'Red Sealy.' 'Hurley,' and 'Caroline Lee.' About a month later many of those which were fairly free from attack in November had been damaged, but to the end 'White Gilkes' (both the three and six months varieties) and all the plots of mixed kinds, maintained their vigour in a surprising matter. From the result of this single experiment, 'Gilkes' and plots of mixed varieties seem to possess more than average powers of resistance to insect attack.

STORING SWEET POTATOES.

The usually low keeping power of the sweet potato is a great drawback to its usefulness. The question is discussed somewhat fully by Mr. Watts in the paper already referred to. The practical result is that shortly after the time of reaping the supply of sweet potatoes exceeds the demand. The greater number of the varieties will not keep long after being dug and they are sold at low prices to clear the ground for the succeeding cane crop. Hence for a brief period food is abundant and cheap. At other times the reverse is often the case.

'These home grown supplies are, as a rule, employed directly as food, little attempt is made to convert them into forms which will keep and thus equalise the supplies which are otherwise irregular: it seems probable that something will have to be done in this direction before much progress will be made in the substitution of locally grown for imported foods.' (F. Watts, *loc. cit.* p. 274.) The concluding words indicate the course which is pursued in equalising the distribution of food throughout the year in those communities which can afford it, namely the importation of foodstuffs, principally from America. Mr. Bovell (*loc. cit.* p. 211) gives the value of such articles imported into Barbados (for the year 1898) as £175,011. Towards this large total, starches, grains and meals of various kinds contributed no less than about £95,000. Most of these could be raised in the Colony. In the other sugar islands the situation is very similar. American food stuffs are largely imported to supply, during certain seasons of the year, the want of local food supplies, although at other times of the year such food materials are produced in the island in excess of the demand. Unsound as this policy undoubtedly is it will probably continue to be pursued until conditions arise which compel attention to be given to the more extensive cultivation of local food stuffs and to methods for preserving them so as to allow the supply to be

regular and uniform throughout the year. The question of the storage of sweet potatoes in a fresh state is one which has attracted a considerable amount of attention in different parts of the world. In the West Indies it has been found that some varieties keep fairly well if left in the ground and dug in small quantities as required. This method has disadvantages and a better one is very desirable. The problem of storing sweet potatoes is discussed in Farmers' Bulletin No. 26 of the U. S. Department of Agriculture entitled *Sweet Potatoes: Culture and Uses*, by Professor J. F. Duggar of Alabama. He says (p. 18) 'There is need for further investigation to determine the best method of storing sweet potatoes, for the losses occuring during storage are sometimes enormous. The conditions in the States are however very different to those obtaining in the West Indies and although it might be of interest to put on record the methods there employed, the contrast in climatic conditions must not be lost sight of.

The best results are apparently obtained by storing the potatoes in dry cellars or rooms, in which the roots are placed either with or without packing of sand, straw, hay, or other dry material. Mr. Duggar in summing up says 'Sweet potatoes during storage should be kept in a dry atmosphere with ample ventilation, and a temperature between 50° and 60° F, except during the sweating period, for which time the temperature recommended by those who use artificial heat is 80° F.' Later (p. 29) he says 'The atmosphere of the storage room should be kept dry. The condensation of moisture on the roots affords conditions favourable to decay.' The essential points for success by this method of storage, namely perfectly dry conditions and a comparatively low temperature, are almost impossible to obtain economically in the West Indies where the air usually contains a very large amount of watery vapour, and the temperature is higher than in northern latitudes.

DESSICATED SWEET POTATOES.

Setting aside the possibility of keeping the whole potatoes in a fresh condition, it remains to be seen whether any other economical method is feasible. Mr. Duggar describes two modes of preserving sweet potatoes for use as a table vegetable. He says (*op. cit.* p. 25) 'Uncooked sweet potatoes may be sliced and then dried either in the sun or in evaporators. They are prepared for the table by soaking and baking. Dried sweet potatoes were exhibited among the products of Japan at the Colombian Exposition. Their preparation is described as follows:—"Cleanly washed potatoes are placed in a suitable basket and immersed in boiling water for a short time: when taken out of the basket they are cut into thin slices and spread over mats and exposed to the sun for two or three days. In order to make a superior quality, the skin of the potato is peeled off before slicing." As an indication of more recent developments it may be mentioned that a company has been lately started in New Jersey, America, with a capital of $1,000,000, to make flour from sweet potatoes. The early results are reported as being very successful, and it is proposed to erect mills all through the sweet potato growing region. The more important States in this region are North and South Carolina, Georgia, Texas, Alabama, Mississippi, Virginia and New Jersey.

PREPARATION OF MEAL.

The remarks above, based on the irregularity of the supply of food throughout the year, apply with especial force to Anguilla, one of the Leeward Islands, situated about mid-way between St. Kitts and the Virgin Islands. Sweet potatoes are grown in Anguilla and are usually very abundant during one short season of the year. The peasants exhaust their stock during the two or three months following crop time, and for the remainder of the year are practically reduced to living on pigeon-peas (*Cajanus indicus*) and any other chance food plant which is capable of withstanding a six months' drought. The possibility of preserving the potato in a palatable form is of the greatest importance to the peasantry of the island. The experiments recorded below are, to a large extent, the outcome of a request for information and advice made by Dr. J. Numa Rat, Magistrate of Anguilla, to the Department. Great credit is due to Dr. Rat for the trouble taken by him in the interests of the island.

EXPERIMENTS IN ANGUILLA.

In November 1899, Dr. J. Numa Rat requested advice from the Department as to a good method of preserving sweet potatoes. He was recommended to try slicing and drying, as described above, this process having been found to give satisfactory results in various parts of the tropics. *Early Experiments.* In May 1900, Dr. Rat forwarded a box containing sweet potato meal which had been prepared in the following manner:—The potatoes were peeled and grated, the pulp squeezed in a cloth and then dried in the sunshine for two or three days. The dried pulp was sifted and the coarse parts powdered in a mortar. By this method twenty pounds of unpeeled potatoes gave one pound of meal, that is, a return of only five per cent. The potato used for the early experiments was a variety known in Anguilla as 'Hug 'em fast.' The cost of preparation was about 1*s.* per pound. One obvious objection to this method is the great loss of material caused by squeezing the wet pulp. This point was noted by Dr. Rat, and is emphasized in the following remarks by Professor A. H. Church, F.R.S., author of *The Food Grains of India*, etc., to whom a sample of the meal was submitted. Professor Church says: 'The method of preparation involves much loss of that one constituent which one can spare least—namely, the proteid or albuminous substance . . . The expressed juice of succulent roots and tubers usually contains much soluble vegetable albumen.' A subsequent analysis of the meal by Professor Church confirmed his anticipations. The meal was found to be deficient in flesh-forming nutrients. 'The ratio of nitrogenous matter to digestible carbohydrates being 1 : 24.' Previous analyses of whole sweet potato roots had yielded the more satisfactory ratio of 1 : 13.

The detailed figures of Professor Church's analysis of the Anguilla meal are as follows:—

	per cent.
Water	12·6
Albuminoids and proteids* ..	3·6
Digestible carbohydrates	77·6
Oil or Fat	0·6
Fibre	3·5
Ash or mineral matter†	2·1

Professor J. P. d' Albuquerque, Island Professor of Chemistry at Barbados also analysed a sample of the meal with very similar results.

Later Experiments.—In order to avoid if possible the loss occurring in the previous method, Dr. Rat prepared some more meal by grating the sweet potatoes and sun-drying the pulp without subjecting it to pressure. This method was found to be a practicable one. The yield of meal was from fifteen to twenty per cent. of the original weight of the roots instead of only five per cent. as in the earlier method. A variety called the 'Dominique' was used instead of the 'Hug 'em fast.' The labour entailed being the same as before, but the yield four times as much, the cost of production was accordingly reduced to one quarter, namely, 4d. per pound of prepared meal. The meal so prepared was analysed by Professor Church. Its composition was found to be very similar to the former sample, but strangely enough it did not contain quite so much proteid matter. 'The results' Prof. Church says 'tend to show that the variety "Dominique" is inferior to "Hug 'em fast" in this respect.'

* Calculated by multiplying the nitrogen by 6·25. By the phenol method 3·5 per cent was found.

† Of this ash 0·12 was phosphorus pentoxide.

EXPERIMENTS AT ANTIGUA.

At the time when the question of converting sweet potatoes into meal came into prominence owing to the necessities of Anguilla, Mr. Francis Watts, the Government Chemist for the Leeward Islands, obtained information from Mr. Spooner of Bendals' estate in Antigua, concerning some experiments which he had previously carried out in this direction. Mr. Spooner's attention was drawn to the subject in 1898, when sweet potatoes were exceptionally abundant. The main points in Mr. Spooner's method were as follows:—

The cleaned potatoes were cut into slices, about 1/16 of an inch in thickness. The cutting was at first done by hand but later an old chaff cutter, temporarily adapted to the purpose, was employed with very good results. The slices were spread out on galvanised wire netting and quickly dried in the sun, until quite brittle. This state was reached in six or eight hours, when conditions were favourable. They were then stored in old flour barrels until sufficient had accumulated to be worth grinding, for which an engine on the estate was utilized.

The yield of meal by this method was 40·63 per cent. of the original weight of the potatoes; one ton of roots yielding 910 lb. of meal. Mr. Spooner estimated the cost at £4. 9. 7. per ton of meal, that is to say approximately ½d. per pound. Several tons of meal were made and used with great success for feeding mules and stock. The labourers ate it readily, and Mr. Spooner says that he personally found it a palatable and satisfactory form of food. It kept well, provided the slices had been thoroughly dried before being ground, but losses were incurred when for any reason, the slices were left at all leathery instead of being perfectly brittle. The meal made from such leathery slices quickly became tainted and spoiled. It is important to note how by the use of simple machinery the cost was reduced to such a low figure as ½d. per pound. The preparation was analysed by Dr. Voelcker who reported: 'The meal is well dried containing only 12 per cent. of water and should keep perfectly well. It contains practically 10 per cent. of sugar, with 67 per cent. of starch and digestible carbohydrates, 5 per cent. of nitrogenous or protein matters with a not inconsiderable portion of mineral (bone-producing) matter. The percentage of indigestible (woody) fibre is very small.

Dr. Voelcker's complete analysis is as follows:—

	per cent.
Moisture	11·99
Nitrogenous matter*	5·12
Oil	1·19
Sugar	9·90
Starch and digestible carbohydrates	67·01
Indigestible (woody) fibre	1·89
Mineral matter (ashy) †	2·90

* Containing nitrogen 0·82.

† Including sand, 0·03.

The comparatively high percentage of nitrogenous matter in this sample is noteworthy. This is the element which is lacking in the dietary of many of the West Indian natives, and of which so large a proportion was lost by the Anguilla mode of manufacture. From the above facts it will be seen that it is possible to produce from the sweet potato a meal which is palatable, digestible and cheap. It is essential that the potato should be quickly and thoroughly dried and then reduced to meal. By this treatment the greatest amount of nutritive material is retained. For such a locality as Anguilla it is important to determine whether a meal can be made at crop time and stored for use during the period of drought. To this end it is essential to know: (1) The food value of sweet potato meal, and (2) its keeping qualities.

FOOD VALUE.

In a perfect diet the ratio of the albuminoids or nitrogenous matter to the digestible carbohydrates and sugar together should be about 1 : 4¾. This relation is spoken of as the 'nutrient ratio.' The above analyses of sweet potato meal show that its nutrient ratio is low. The first sample of Anguilla meal gave a ratio of 1 : 24, and in the later samples it was even less. In the Antigua meal the ratio was much higher, about 1 : 15. In an analysis of fresh sweet potatoes, recorded by Prof. Church in his book on *Food* the ratio is given as 1 : 13. Specimens of a Barbados variety analysed by Professor d'Albuquerque gave as low a ratio as 1 : 50. This deficiency of the meal in proteid matter can easily be counterbalanced by supplementing it with such a food substance as pigeon-peas, which are rich in nitrogenous constituents, in common with the seeds of many other leguminous plants. In pigeon-peas the nutrient ratio is about 1 : 3. As has already been stated these peas are grown in Anguilla, in sufficient amount in fact to be an article of export. They are one of the staple foods during the dry season. Taken alone however they are not beneficial, containing too large a percentage of proteids in proportion to their carbohydrate and sugary contents. In conjunction with sweet potato meal they would make a good diet, capable of sustaining the inhabitants during the season of scarcity.

KEEPING QUALITIES.

Some of the meal prepared by Dr. Rat was sent to the Head Office of the Department at Barbados, in tins, and after about twelve months' ordinary storage was perfectly sweet and good. Mr. Spooner's testimony as to its keeping powers has already been given. There appears therefore to be no doubt that the meal, carefully prepared, will keep good for several months—a sufficient time to serve the immediate purpose of the people of Anguilla.

EXPERIMENTS IN PROGRESS.

In June of the present year (1901) the Department obtained for use in Anguilla a grinding mill and a vegetable slicer. During the coming crop season these will be tried, and it is hoped that an impetus will be given to the establishment of a regular industry in sweet potato meal, the importance of which to people situated as are the inhabitants of Anguilla, it is difficult to over-estimate.

OTHER USES OF SWEET POTATOES

Another method of preservation, namely, canning sweet potatoes has been tried on an industrial scale in America. Mr. Duggar says o(*p. cit.* p. 25 'Within recent years sweet potatoes have been canned in a few localities. In 1893 a factory in Mississippi canned about 1,000 bushels using three-pound cans which sold in Chicago at 95 cents per dozen delivered. A bushel of sweet potatoes was sufficient for fifteen cans. Farmers were paid 40 cents a bushel. This firm expected to can about 8,000 bushels of sweet potatoes in 1894.' Such a method whilst of interest is hardly likely to be of practical importance under present West Indian conditions. Besides furnishing an important portion of man's diet, in many warm countries, sweet potatoes are very useful as fodder for cattle and stock. Both roots and vines (foliage) may be employed to this end. Mr. Duggar, in the pamphlet already referred to, compares the relative food-values of corn and sweet potatoes. His results are expressed as follows:—

Relative Food Value of Corn and Sweet Potatoes.

	Dry Matter.	Protein.	Nitrogen free extract & fat.
	lb.	lb.	lb.
100 lb. Corn contain	89 1	10·5	75
300 lb. Sweet potatoes contain	86,7	4·5	75·3

'Thus three pounds of sweet potatoes afford almost as much dry matter, quite as much carbonaceous material, but less than half as much protein, as is contained in one pound of corn. By using one-half pound of cotton-seed meal or one pound of cow-peas (seed) for every ten pounds of sweet potatoes this deficiency is fully supplied.' In the West Indies at present sweet potatoes are not usually regarded as a regular food for horses and cattle but rather as a special diet in cases of illness, etc. Mr, Spooner's testimony to the value of the meal as a food for stock has already been given. In the want of more exact data it would appear not improbable that it might be possible to utilise locally grown potatoes, peas, etc., as fodder for horses and stock in place of much imported corn. In England there is a certain demand for sweet potato meal for the manufacture of glucose. One firm has intimated its readiness to take as much as 1,000 tons per month, provided the price does not exceed about £6 per ton, delivered in London. This price it will be noted is very little more than 3⅝*d.* per pound including freight, etc. Even if the meal could be produced as cheaply as by Mr. Spooner in Antigua at ½*d.* per pound, it seems probable that it would be more useful and remunerative to the people in West Indies to prepare it for their own use rather than for export at such rates.

It is interesting also to note that, owing to the failure of the orange industry in St. Michael, the famous St. Michael orange is no longer to be found in the English market. Many of the former orange growers have turned their attention to the cultivation of sweet potatoes. A large portion of the crop is utilised in making spirit, which is shipped to Portugal and employed in fortifying wines, etc.

SHIPMENT TO EUROPE.

Another possible method of desposing of the surplus supply of sweet potatoes has been suggested. This is shipment to Europe. In May last the initial steps were taken to secure the introduction and establishment in favour of the vegetable in the home markets. To this end a circular letter was sent to several important firms, whom it was thought might be able to co-operate. The Department offered to supply them for a certain period, with fortnightly barrels of sweet potatoes entirely free of cost. The firms were requested on their side to give the potatoes away in small lots, or to sell them at nominal prices with the understanding that after say eight or ten weeks they should undertake to receive and sell a few barrels per month and sustain a regular trade in the article. The matter was actively taken up by two firms, and since October regular shipments of sweet potatoes have been made.

One great difficulty to be encountered in attempting to introduce a new vegetable is lack of knowledge as how best to cook it. To obviate this the Department prepared, with the kind assistance of Mrs. J. R. Bovell, a pamphlet entitled *Recipes for cooking Sweet Potatoes from the West Indies* which was issued as No. 6 of the Department's Pamphlet Series in July 1901. It contains fifteen different ways of preparing the vegetable for table use. Copies have been widely distributed with the potatoes. The Department has been fortunate in securing the hearty co-operation of several of the planters of Barbados in this matter, as also of the Royal Mail Steam Packet Company, who have agreed to carry the barrels of potatoes free of cost during the early stage of the experiment.

It remains to be seen how much demand there is for them in England. Supposing the trade to grow, many points as to the best modes of packing, the best varieties for transporting, etc., will require to be solved. The Army and Navy Auxiliary Co-operative Supply, Limited of London have regularly contributed valuable information concerning the condition in which the potatoes have reached England.

Preference has been already expressed in England in favour of small, red potatoes. One important point to remember is the comparative ease with which the sweet potato can be bruised. It therefore demands careful handling.

The experiment has been commented upon in several of the English papers, and the following notice appeared in the West Indian Committee's Circular for Nov. 12, 1901:—

'With a view to popularising this vegetable in the United Kingdom Dr. Morris, the Imperial Commissioner of Agriculture for the West Indies, has arranged to send over by each mail for the present a few barrels of sweet potatoes. Samples of these potatoes with full culinary recipes may be obtained from Messrs. James Phillips & Co., 4, Fenchurch Street Buildings, E.C. Members of the Committee will greatly assist in the encouragement of what may become an important minor industry by bringing the sweet potatoes before the notice of their friends who have not had the advantage of sampling them in a 'tropical country.'—*Journal of the Imperial Department of Agriculture for the West Indies.*

MEXICO'S VEGETABLE PRODUCTS.

MOST OF THE KNOWN PLANTS AND TREES OF THE WORLD FOUND IN THE REPUBLIC.

Owing to the great range of latitude included within the borders of Mexico, as well as the extensive variations in altitude, the vegetation of all zones, from the frigid to the torrid, is to be found. More than 10,000 plants have been analysed and classified, and many yet remain awaiting the work of the scientist. In Mexico trees grow at an altitude of 13,054 feet and herbs at 13,715 feet.

Mexico is the land of striking contrasts, which is especially demonstrated in its vegetation—voluptuous growth varies with bare deserts, often within a short distance. There are luxuriant virgin forests, where the ground is overshadowed with creeping plants and brushwood and the branches are perfectly covered with parasites; near the coasts these forests are often as swampy and impenetrable as the jungles of India. There are immense prairies, thickly covered with grasses and fragrant blossoms; there are white alkali deserts, rocky and sandy plains, where nothing but the curious cacti and agaves grow. The traveller who enters Mexico from the North during the winter, over the Central plateau, is at first disappointed, and thinks it the country of sand-whirls and cacti, but even a few hours' ride to the east or west would change this idea. In a couple of hours you can be transferred from pine forests to palm groves. Most luxurious is nature in the hot and temperate zone of Mexico, especially in sheltered valleys, in the ravines and on the banks of the rivers. In the cool zone the gigantic Mexican cypresses, covered with Spanish moss or orchids demonstrate the productive power of the soil, competing with the giant chestnut trees of Sicily and the redwood or mammoth trees of California. Stately trees are the ahuacates, mangoes, amates, ashes, eucalyptus, palms, etc., curious trees are the "weeping tree," the "phosphoric tree," the "caustic tree," the "claw tree" and the "sensitive plants." The principal agricultural products are according to quantity: Indian corn, wheat, barley and Mexican beans, further straw, sugar, sisal, hemp and ixtle; cotton, garden beans, rice, vetch, chick-peas and potatoes. Indian corn and Mexican beans are the principal food, red pepper the principal condiment of the people.

The productiveness of certain plants is wonderful; Indian corn, for instance, yields in certain cases up to 800 times, wheat as much as 110 times. Corn and wheat of Mexico are of the finest quality. In some parts of the country two and three crops can be harvested in one year. The most productive plant is probably the banana, one acre of these plants being able to sustain

about forty persons; the most productive, however, is the century plant, which furnishes the drink (pulque) fiber, food, fuel, etc. This enormous productive power of certain plants is the reason why the Indians cultivate but a small space of land.

In the following table Emil Riedel gives an index of some of the most useful and interesting plants arranged alphabetically, according to their Mexican names, with English equivalent, scientific name, classification and some curious items:

Acelga, beet, Betta vulgaris cycla, Salsolaceas.

Ahnacate, Persea gratissima, Laurineas: In four varieties in warm and temperate zones; nutritious fruit; principal harvest, April-June; wood for timber.

Ahnehnete or Sabino, Mexican cypress, Taxodium distichum, Coniferas: Grows to gigantic size, as in Chapultepec, Popotla, Texcoco, Atlixco and Oaxaca (Santa Maria del Tule). The latter, admired and described by Humboldt, has a circumference of 170 feet and a height of 124 feet. These trees are very often covered with Spanish moss or with orchids.

Ajonjoli, beneseed, Seasamum orientale, Sesameas Oil plant, introduced from Africa.

Alacle or hulnar, Malva scoparia, Malvaceas: Textile and medicinal plant.

Algeria, oily grain (Sesameas): Seeds used by the Indians for candy and oil.

Alfalfa, Medicago sativa, Leguminosas.

Algodon, cotton, Gossypium herbaceum and arboreum, Malvaceas: A native plant, cultivated in herbs and trees in many varieties, especially in the northern states of Coahnila, Durango, Chihuahna, but also in Vera Cruz, Colima, Yucatan, etc.; generally sowed from March to June, harvested from September to December.

Alpiste, canary seed, Phalaris canariensis, Gramineas.

Amate, shady tree of the hot zone, whose green fruit is eaten by the Indians.

Anil (the Aztec "Xiuhquilipitzahuac"), indigo, Indigofera tinctoria, etc., Leguminosas: A native dye plant of hot zone for blue color, especially in Chiapas, Oaxaca, Colima; sowed from December to May; article of export declining in importance.

Anis, anise, Pimpinela anisum, Umbelliferas; introduced from Egypt, article of export.

Anacahuite, Cordia Boissieri, Borragineas; Native medicinal plant.

Anona, custard apple, Anona veticulata and glabra, Anonaceas.

Arbol de fierro, iron wood, Robinia: Cabinet wood.

Arbol de hule, caoutchouc tree, Castilloa elastica: Native tree of hot zone.

Arbol de las manitas or Macpalxochitl, claw tree, Cheirstemon platanoides, Bombaceas; Venerated tree of the Aztecs, grows in Valley of Toluca and Oaxaca; is medicinal.

Arbol del Peru, pepper tree, Schinus molle, Terbintaceas: Introduced from Peru; furnishes gum, medicine, etc.

Arrayan, myrtle, Myrtus arrayan, Mirtaceas: Furnishes fruit and medicine.

Arroz, rice, Oryza sativa, Gramineas: Introduced by conquerors, cultivated in warm zone, best in Morelos; sown in March and April; harvested in September and October.

Arvejon or Alverjon, vetch, Pisum sativum, Leguminosas.

Biznaga, Mammillaria manimama and parvimama, etc.: Cactus used for preserves.

Cacahnate or Mani, peanut, Arachis hypogae, Leguminosas: Native plant, planted in March and April, harvested in October and November; beans eaten roasted.

Cacaloxochitl, "raven flower," Plumiera alba and rubra, Apocinaceas: Beautiful Mexican flower of the hot zone; used for medicine and preserves.

Cacao (from the Azteo "cacahuatl") cocoa, Theobroma cacao, Buttneriaceas: Native tree in hot zone of seven varieties, in Tabasco, Chiapas and Colima; bears fruit after five year for twenty to thirty-five years; harvested from November to January; important article of export. The Aztecs used the beans as money.

Cacomite or Oceloxochitl, Tigridia pavonia, Irideas: Nutritious root, food for the Indians, toasted tastes somewhat like the chestnut.

Cafe, coffee, Coffea arabica, Rubiaceas: Introduced from Africa at the end of the eighteenth century; grows in elevated places of hot zone, in Vera Cruz (famous Codoba,) Michoacan (famous Uruapam) Colima, Chiapas, Guerrero, Oaxaca, etc., generally cultivated under the shade. Tree begins to bear fruit after the second year for fifteen to over twenty years. The "Mocha" is select fruit of the same trees. Two harvests yearly, first and best in June and July, second in December and January.

Calabaza, pumpkins or gourds, Cucurbita melopeo, Cucurbitaceas: In many varieties, flowers and fruit very popular food; the calabaza trompeta, guaje or acocote, Lagentaria vulgaris, is used as instrument for the extraction of pulque.

Camote, sweet potato, Batatas edulis, Convolvulaceas: A native plant growing in many varieties in temperate zone, with white, yellow or red roots; planted from March to May, harvested from August to October; finest and largest are the yellowish roots of Queretaro; in Puebla and Morelia the white root is used to prepare a very fine preserve.

Caoba, mahogany, Switenia mahogoni, Cedrelaceas Cabinet wood, exported.

Cana de azucar, Saccarum officinarum, Gramineas: Cultivated in three varieties since middle of sixteenth century in hot and temperate zones. The molasses furnishes alcohol (refino) and brandy (aguardiente).

Canafistula, purging cassia, Cassia fistuloides, Leguminosas: Medicinal.

Capulin, American cherry, Cerasus capollin, Rosaceas: Native fruit tree in temperate and cold zones, cabinet wood.

Cardo, garden artichoke, Dipsacus fullonum, Dipsaceas.

Cardo santo, holy thistle, Circium mexicanum, Sinanterias: Medicinal.

Carrizo (cana veral), reed grass, Arundo donnas, Gramineas.

Cascalote, Coesalpima coriaria, Leguminosas: Medicinal.

Cassahnate, Ipomea arborescens, etc., Convolvulaceas.

Cedro, cedar, Cedrela odorata, Meliaceas: Medicinal gum and timber.

Cedro blanco, white cedar, Cupressus Lindley—Cedro de la Sierra, mountain cedar, Chamœcyparies thurifera: Timber.

Ceiba or Pochote, silk cotton, Eriodendron anfractuosum, Bombaceas; Native tree of the hot zone, medicinal.

Cevada, barley, Hordeum vulgare, Gramineas: Introduced by the conquerors, next to Indian corn and wheat, the most important grain, cultivated in temperate and cool zones, generally sowed November to January: harvest in spring; produces as much as twenty-four times.

Chavacano, apricot, Armeniaca vulgaris, Rosaceas.

Chayote, Sechium edule, Cucurbitaceas: Several varieties, a vine which produces a green or white vegetable, the green kind is thorny and boiled tastes like calabash.

Chia, lime-leaved sage, Salvia chian, Labiadas Mexican condiment for drinks, etc.

Chicozapote or zapotillo, Zapota archas, Sapoteas: Fruit tree of hot zone.

Chile, Cayenne or red pepper, Capsicum annum, Solanaceas: Principal condiment of the Mexicans, in many varieties, used fresh and dried.

Chirimoyo, Anona chirimolia, Anonaceas: Fruit tree of hot zone.

Cidra, citron, Citrus medica cedra, Auranciaceas: Introduced from Asia.

Ciruelo del pafs or atoyaxocotl, Mexican plum, Spondias myrobolanus, etc., Terebintaceas; in many varieties, in temperate and hot zones.

Comino, cumin seed, Cuminum, Umbelliferas : Production in 1880, $23,500.

Copaibo, copaiba, Terebinthina copaiferæ, Leguminosas: Furnishes medical balsam.

Copalillo, Elaphrium copalliferum, etc., Rutaceas: Mexican gum-tree; the gum of this tree was the incense of the ancient Mexicans.

Coquito de aceite, oil-palm, Elaeis melanococca: Palm of the hot zone ; produces oil, article of export.

Ebano, ebany, Diospyros ebenum, Ebenaceas ; Cabinet wood.—*Modern Mexico*.

(*To be concluded.*)

NUTMEGS AND CLOVES.

CROP PROSPECTS IN THE EAST INDIES.

Through the kindness of Dr. H A A Nicholls, C M G, of Dominica, we are enabled to publish the following important communication received by him from his London agents Messrs. Boddington & Co.

'We have received through the London Correspondent of an Amsterdam house the following :—" In our last Dutch auctions high prices were paid for all kinds of nutmegs and mace and everything was sold with a good demand. The advance has already partly discounted the bad outlook of nutmegs during the next few years but certainly to a small extent only. The low prices ruling during the last few years have been the cause of a decrease in the production which has fallen off more and more on Banda Island since 1901 and feel sure that the effect of it will be more acutely felt in 1903 and during the next few years, as not only is a small and late crop expected on the Banda Island in 1903 (November instead of May to June) but it is anticipated that the crop will not yield more than one third of the average quantity on account of the drought from which the East Indies have suffered throughout this year. Beside this, the quality of nutmegs and mace will be poor. Considering that values ruling at present are only one third of what they were in 1872 in which year nutmeg prices in Holland reached 215c.* for 110's to 115's, and taking into account that the consumption is increasing steadily and will continue to do so independently of the price, it seems that present values are ripe for a further advance."

" The Amboyna clove crop is also reported to be affected by drought and it is a total failure and will not yield this year more than 200 piculs † against 6,000 last year." '—*Agricultural News*, Feb. 14.

* Presumably reference is made to the Dutch coinage. 100 Dutch cents=1 guilder=1s 8d.—[ED A N.]
† 1 picul or picul=136 lb. avoir., nearly.—[ED. A N.]

GOVERNMENT QUININE FACTORY, NEDIVATAM.

(*To the Editor, "Madras Mail."*)

Sir,—The following case may interest cinchona growers who have supplied this factory with cinchona bark and those who may contemplate doing so. For twenty years the bark from a well known estate near Ootacamund has been analysed in England and found to contain 2½ per cent and 3½ per cent respectively of sulphate of quinine in its natural and renewed barks. For the first time in the history of this estate it sent a consignment of about 30,000 lb in three lots to the Nedivatam factory. The owner of the estate accepted the departmental rules. Shortly after the bark had been delivered Mr Standen informed the supplier that his bark only contained, natural 1·48 per cent and renewed 2·55 per cent sulphate of quinine. On hearing this astonishing result the supplier sent a sample of natural bark, which had been obtained from the Nedivatam factory sample bag, to Dr. Schulten of Calcutta, for analysis. Dr. Schulten certifies that it contains 2·25 per cent sulphate of quinine, and upon this basis the renewed bark would contain 3·25 per cent which practically confirms the English analysis of 20 years. This was represented to Mr Standen, who replied that he had submitted another sample to Mr. Hooper for analysis from the same sample bag, and that the second analysis worked out nearly 0·25 per cent. worse than the first. Your readers may not be aware that the samples sent to Mr Hooper by Mr Standen are not cinchona bark in its original quill or chip state but merely so much disintegrated powder, which it is impossible for any public analyst to say was a genuine or manipulated sample of bark. In this case the loss to the supplier is about 1 per cent. of sulphate of quinine on 30,000 lb. supplied at 1½d. per unit, which represents about R2,000. Now, Sir, this is a very serious matter. If this was an isolated case it might be capable of explanation, but it is no exaggeration to say that the whole District is seething with discontent, and it is difficult to meet the supplier who does not feel that he has been made the victim of an *appalling mistake* of the factory. It may be remembered that when Government opened the Nedivatam factory it was with the avowed intention of assisting growers to obtain the rates ruling in the London market without incurring the formidable expenses of sending the bark Home. The previous crop from the same estate has just been sold in England as follows :—

Natural bark, 4½d. per pound ; renewed bark, 5 3-8d. to 6½d. per lb. It was analysed by T R Vizey and certified to contain, natural 2·48 per cent and renewed 3·42 per cent. sulphate of quinine, and the brokers' account sales show that the bark was all round richer than the analysed samples.

There is no question that it pays better to send bark (even the poorest) to London than to sell it to the Government quinine factory at Nedivatam ! The only alternative cinchona growers have is to open a small quinine factory of their own. For some years past the Government factory has been practically run with supplies from private growers, yet large profits have been made. The actual process of manufacture is mere child's play. What cinchona growers want is a quinine factory of their own on the co-operative supply system where they can go and see their barks worked up, and what is more to the point, get the full value of what their barks contain. The following table compares the results of bark from the above estate when sold in England and when sold at Nedivatam :—

Sold in England.		Sold at Nedivatam.	
Analysis	Price obtained	Analysis	Price obtained
Natural 2·48	4½d per lb	Natural 1·48	2d
Renewed 3·42	5⅜d to 6½d per lb	Renewed 2·55	3d

ANOTHER VICTIM.

—*M. Mail*, March 30.

EGGS.—Over five millions pounds worth of eggs are now annually imported into England, but not one half of these are used for culinary purposes. The calico Print works use over 40,000,000 eggs a year, photographic establishments use millions of dozens, and wine clarifiers 10,000,000 dozens in the year ; bookbinders, kid glove makers, and leather finishers use them in abundance, as well as other trades. The general public appear to have but little knowledge of the magnitude of the numbers wanted for practical commercial uses, apart from those of food, though in the latter respect not a few of the figures are absolutely startling ; as an instance one of the London clubs alone contracts for more than 100,000 eggs a year.—*Agricultural Gazette of New South Wales*, March.

H E KNAVESMIRE ESTATES CO., LTD.

The Directors have the pleasure to submit the Balance Sheet and Profit and Loss Accounts duly audited for the year ended 31st December, 1902.

The surplus on Revenue and Expenditure account is R23,546·80, to which has to be added the balance R2,979 96 carried forward from season 1901.

The Profit and Loss Account after providing for Depreciation, Irrecoverable Coast Advances and Superintendent's Commission and other charges shows an available balance of R18,560·29, out of which the Directors propose to pay a Dividend of 4 per cent. That will absorb R16,600 and leave, subject to the payment of Directors' fees, a sum of R1,960·29, which it is proposed to carry into the current season's accounts.

The Profit earned represents a return of R48·45 per acre on the area of Tea in bearing as against R56·72 per acre in 1901.

The Crop secured from Estate Leaf was 279,661 lb. or 20,339 lb. under the estimate. The Plucking area was 486 acres, and the yield per acre 575 lb. of made Tea. Had the last four months of the year been up to the average with regard to weather, the full estimate should have been secured, but total want of sun stopped the bushes flushing freely. The total quantity of Tea dealt with amounted to 316,435 lb., which included 36,774 lb. made from bought leaf.

The Tea sold to end of December was 292,200 lb., the net proceeds of which equalled 27·62 cents per lb., leaving unsold 24,205 lb., which has been estimated to produce 31·75 cents per lb.

Including the cost of Tea made from bought leaf, the twelve months' crop was put on the market for 20·48 cents per lb.

The Company's property on 31st December, 1902, consisted of:—

Tea in bearing	..	486 acres
Tea not in bearing	..	30 do
Jungle	...	73 do
Buildings & Waste land	...	5 do
Total	...	594 acres

The question of Green Tea manufacture has been under consideration, and the Board is making arrangements to have the necessary plant installed as soon as possible.

The Crop expected in 1903 is 300,000 lb. of made Tea, and the Estimate cost is 20·66 cents per lb. The Expenditure Estimate provides for the upkeep of 30 acres of unproductive land as also for the purchase of Green Tea making machinery, and allowance has been made for starting manuring on a small scale.

The Royalty payable to the Company by the Syndicate which leased the right to work Plumbago on the Estate has not yet been recovered, but all the mineral has now been realised and the small amount coming to the Company will shortly be available. There has been no mining in progress during 1902.

In terms of the Articles of Association Mr Payne Gallwey retires from the office of Director, and is eligible for re-election.

The appointment of an Auditor for 1903 rests with the meeting. By order of the Directors,

George Steuart & Co., Agents & Secretaries.

Colombo, Jan. 13, 1903.

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THE KELANI TEA GARDEN CO., LTD.

Following is the report submitted at the annual meeting at noon today, the minutes of which are held over for Monday :—

REPORT OF THE DIRECTORS.

ACREAGE :

398	acres	Tea in full bearing	
10	,,	,, ,, ,,	1899
14	,,	,, ,, ,,	1900
422	,,	,, ,, ,,	
313	,,	reserve	
11	,,	Ravines, Waste, and Grass.	

Total 746 acres

The Directors beg to submit to the Shareholders of the Company the Accounts for the year ending 31st December, 1902, duly audited.

The Crop for the year amounted to 151,145 lbs. of made Tea as against the estimate of 200,000 lbs realising R43,325·15, or an average nett price of 28·66 cents per pound, and in addition to the above 112,420 lbs. of made Tea was manufactured for others, making a total of 263,565 lbs. made tea dealt with in the Factory.

The expenditure, exclusive of items under Capital Account, amounted to R44,662·79, equal to 25·98 cents per pound of made Tea, and included R2,901·99 spent on manuring representing 1·92 cents per pound made Tea.

The balance at credit of Profit and Loss Account after providing for depreciation on Building and Machinery, interest and other charges, and including the amount R6,807·30 brought forward from the previous year is R8,178·36, which amount the Directors recommend should be carried forward to next account.

The result of the year's working has been most disappointing, the crop falling short of the original estimate by 48,855 lbs. This shortage may be attributed to an unusually severe attack of Helopeltis affecting some 203 acres of the Tea in bearing, and also to an exceptionally wet and sunless North-East monsoon.

During the year arrangements were made with the proprietor of Kiriporuwa Estate for the manufacture of his Teas under a contract extending over two years, and to enable the Superintendent to cope with the additional leaf in the Factory, two Davidson's Sirocco Fans were erected in the withering lofts. This expenditure has already been more than recouped by the profit on outside leaf manufactured during the past season.

The estimate for the current reason is 200,000 lbs. made Tea to be delivered in Colombo at a cost of cents 22·72, which includes R3,358, or the equivalent of cents 1·68 per pound to be spent on manuring.

In the terms of the Memorandum of the Articles of Association, Mr. Shakspeare retires from the Board, and as he is leaving the island does not seek re-election. It is proposed that Mr. E R Waldock be elected in his place. Mr. Hoseason also wishes to retire from the Board, and it is proposed that Mr. C L Davis be elected in his place.

The appointment of an Auditor rests with the Meeting.—By Order of the Board of Directors,

Carson & Co., Agents and Secretaries.

THE TEMPLESTOWE ESTATE CO. OF CEYLON, LIMITED.

REPORT OF THE DIRECTORS.

DIRECTORS :—Messrs H G Bois and F W Bois.

The Directors have the pleasure to submit their report and accounts for the year ending 31st December, 1902.

The Tea Crop amounted to 193,250 lb., which was short of the Estimate by 26,750 lb., and 957 lb. of Cinchona bark were also harvested. The heavy shortage in the tea crop is much to be regretted, but is in accordance with the experience of a large number of estates during 1902. The Tea cost 28·08 cents per lb. and netted 38·57 cents as against 27·57 cents and 38·11 cents for 1901. The increased cost can be mainly attributed to the shortness of crop and the price realised for the tea may be considered very satisfactory in view of the state of the tea market during the season.

The acreage of the Estate now consists of :—

479½	acres Tea	5 years old and upwards.	
28½	do	4	do
56¾	do	3	do
6	do	2	do
110	do	Forest.	
342¼	do	Chena and Patna.	
1,023 acres.			

The profit on the year's working after paying interest on the mortgage for £4,500 and other loans, is R15,963·38 which includes the balance brought forward from last year of R1,591·30. The Directors recommend that this should be disposed of as follows :—By the payment of the Dividend on the Preference shares absorbing R6,516·00. By the payment of a Dividend of 3 per cent on the Ordinary Shares absorbing R4,926 00. By transferring to Depreciation account R4,000·00. By carrying forward a balance of R521·38. Total R15.963·38.

The estimate for season 1903 provides for a crop of 210,000 lb. at a cost of 26·36 cents per lb. exclusive of capital expenditure.

Mr F W Bois who was appointed a Director in the place of Mr G F Walker, retires in accordance with the Articles of Association, but being eligible offers himself for re-election. Mr Guthrie who was appointed Auditor for season 1902, died before undertaking the audit, and the Directors appointed Mr F M Simpson in his place. It will be necessary to appoint an Auditor for season 1903.

THE COLOMBO BRICK AND TILE CO., LIMITED.

REPORT OF THE DIRECTORS.

DIRECTORS:—Messrs. G W Suhren, W Shakspeare, and E M Shattock.

The Directors now beg to place before the Shareholders the Statement of Accounts of the Company's working for the year ended 31st December, 1902. The Works were taken over on January 3rd, 1902 and the first few months were occupied in repairing and overhauling the Plant &c , and in getting everything in readiness for the New Brick Machinery which had been ordered from England. This machinery arrived at Works in August but the Works were ready for a steady start at end of July. From that time forward until the end of the year, however, the weather was so abnormally and consistently wet that it was found quite impossible to obtain an adequate supply of clay from the pits to keep the works going. Consequently the monthly output of Bricks from August to December was extremely small and the Works were therefore carried on at a loss. It will be seen from the Accounts that the amount at debit of Profit and Loss Account is R10,473·17. Great efforts were made to maintain the brick outturn but it was found that the incessant rains prevented any possibility of profitable working. Other difficulties which had to be contended with were the irregular supply of labour and firewood, but it is hoped that these have now been overcome, and as, since the beginning of the year, fine weather has prevailed a start has been made with regular work. No fees to Directors have been included in the accounts and it remains for the meeting to decide whether the Directors are to receive any remuneration. In accordance with the Articles of Association the Directors retire and it will be necessary for the Meeting to elect a new Board. It will also be necessary for the shareholders to arrange as to the further carrying on of the Secretarial work.

THE CEYLON GAME PROTECTION SOCIETY.

REPORT FOR 1902-3.

I once more place before the members of the Ceylon Game Protection Society my annual Report and its chief feature will I think be its brevity. Not that the Society has been idle or that interest in its work and responsibilities has flagged, but thanks to the steady and consistent co-operation of Government—the work before us except the matter of appointing watchers diminishes each year. I do not say that it need or should diminish, for importation and acclimatisation of deer, antelope and wild guinea fowl might easily and beneficially occupy our attention, but with the limited funds at our disposal our scope is confined to the protection of the animals we already possess around us. Nor do I say that protection is in any way adequate. In spite of restrictions imposed by Government by the prohibition for the last nine years of the export of hides of sambur and spotted deer and the recent prohibition of the export of horns, the slaughter of those animals continues and exists far beyond the limits of expediency. The difficulty of dealing with this evil in a sparsely populated country presents a problem to this Society and to Government far more difficult of solution than landowners in the British Isles have to face, and I would ask, has poaching come anywhere near being abolished there?—in Ireland for instance where a Game Protection Society exists—our Bete Noir is the itinerant moorish trader, the game butcher. It is he who subsidises the villager, it is he who takes his carts into the low country forests, it is he who supplies the hide and horn markets, and it is he who carts back to us of dried meat into the populous villages of the more civilised villages. He does not do much shooting himself, but he is the robber who by means of a few handfuls of rupees which probably do not reach the hands of those who have earned them, takes away the meat out of the mouths of the villagers and, in the form of stud horns of deer, part of their legitimate means of substinence. During the year under review the export of cut horns of sambur and spotted deer was prohibited by proclamation for a period of two years dating from September 1902, and it will be for the Society to watch whether any marked diminution in this export takes place. The period appears to me to be too short to effect its object, and horns being imperishable will be stored against the possible withdrawal of the prohibition. In addition to this many hundred of deer horns having all the appearance of stud horns with the occasional exception of a fragment of bone being attached are undoubtedly the horns of shot animals or "cut" horns. As the horn reaches perfect maturity and the season for its annual studding approaches it may be wrenched or knocked off its base of bone and so pre-

vent the appearance of being naturally stud. In the course of a hunting run stags have known to knock their horns off against trees. This proclamation, therefore, welcome as it is to the Game Protection Society, will hardly act as a serious deterrent to slaughter for trade purposes, for there is always the meat of the carcase as well. I am indebted to the Hon. the Collector of Customs for the following return of export of sambur and spotted deer horns during 1901 and 1902:—Taking the average weight of a pair of antlers of the two species to be two pounds (2 lb), the export of 1,238 cwts during these two years represents the product of 69,328 stags. I will not attempt to calculate the number of hinds killed in the same period. Statement showing the exports of Deer and Sambur horns for the Island of Ceylon (Colombo) for the two years 1901 and 1902.

Continues to which exported	Horns 1901 Quantity			Deer 1902 Quantity			Horns 1901 Quantity			Sambur 1902 Quantity		
	cwt.	qr.	lb.	cwt.	qr.	lb.	cwt.	qr.	lb.	cwt.	qr.	lb.
United K'gdom	540	3	24	450	0	9	844	3	6	787	2	27
British India	0	1	20	0	1	16	0	0	0	0	0	0
Germany	0	0	0	0	3	0	0	0	0	0	0	0
Total	541	1	16	451	0	25	844	3	6	787	2	27

H M Customs, (Signed) H L Crawford,
Colombo, 6, Jan. 1903. for Principal Collector.
No. 9. H M Customs, Colombo Jan. 6th, 1903.

Sir,—With reference to your letter of the 28th ultimo, I have the honour to forward a return of the export of horns during the years 1901-1902, and to state that no horns have been shipped from our ports since 1899.—I am Sir, your obedient servant (Signed) H L Crawford, Principal Collector.

To Thomas Farr Esq., Honorary Secretary. Ceylon Game Protection Society.

The Game Sanctuaries—are doing good and when the Food Supply in these runs short, the game will overflow into adjacent forests and here the Society should exert itself to afford protection by means of watchers. I dealt with this subject fully in my last report and since then no further developments are to be recorded beyond an improved Water Supply by means of drains in the proposed Puttalam Sanctuary and a considerable restriction in its area (112,000 acres to 75,000 acres) (37,000 for villages.) In the Hill Districts the amount of good that has been accomplished by the refusal of shooting licenses to Tamil coolies and squatters about Nuwara Eliya together with an organised system of watchers is very marked, and where a year or two ago sambur had practically ceased to exist the old Game Paths again Show signs of use. We have been fortunate in having the sympathy of his Excellency the Governor as well as that of the Government Agents of the adjacent Provinces and as a Society for the Protection of Game we have reason to congratulate ourselves upon the results of our efforts.

The New Ordinance No. 11 of 1901, to amend Ordinance No. 10, of 1891, has now become law and if applied in prosecutions with common sense and discretion; it should be of very material assistance in bringing to justice those persons who although in search of game, are not caught redhanded in killing for by its terms, pursuing or attempting to pursue, capturing or attempting to capture game are made punishable offences. It will, however, be necessary to prove that these persons are in pursuit of game and not of monkeys and pigs.

Branch Societies—appear to be in a fairly flourishing condition, judging by the reports of the two energetic Honorary Secretaries of the Nawalapitiya and Haputale Branches. Mr. P R Shand informs me that he has some 40 members on the list, and Mr. Ormiston some 26 members. Considering how favourably Uva residents are situated with regard to sport it is a matter for surprise and regret that the number of members is not far greater. During the year I have received from the Honorary Secretary of the Nawalapitiya Branch a sum of R26·25 being 25 per cent of subscriptions collected by them in 1901, whilst from the Honorary Secretary of the Haputale Branch I have received nothing, but have on the other hand disbursed R20 collected by myself in the form of subscriptions, as well as R115 to pay a game watcher in Uva. There is one more subject of a general nature which I must briefly allude to in this report, and that is the inadequacy in my opinion of the fines and penalties imposed in Ceylon in cases of breaches of our Game Ordinance. Through the courtesy of Mr. John Ferguson of the *Ceylon Observer* I have received a copy of the Perak Government *Gazette* in which I notice an enactment in the Federated Malay States to provide for the protection of wild animals and birds. The penalties range from five dollars in respect to birds up to 500 dollars in respect to big game. During the year 1902, two meetings were held, one a general meeting on April 2nd, and the other a general committee meeting on the 20th September, at the former the following Committees were elected.

General Committee: Sub-Committee.—A Resolution giving Honorary Secretaries of Branch Societies control over the subscriptions collected by them to the extent of three-fourths thereof with the proviso that annual accounts be rendered to the Honorary Secretary of the Parent Society was carried. Mr. P R Shand, the Honorary Secretary of the Nawalapitiya Branch, has kindly complied with this proviso and sends us the following very satisfactory balance sheet E together with a cheque for R45, and a list of members numbering 46. The Balance Sheet E referred to.

Balance Sheet for 1902. Dr.

To	balance brought forward ..		R43·83
,,	Subscriptions 1902	R180	
	25 per cent to Parent Society ...	R45	135·00
			R178·83

Balance Sheet for 1902. Cr.

By	paid watchers ..	R58·75
,,	Legal fee in prosecuting case	21·00
,,	Stamps ..	4·65
,,	Balance ..	94·43
		R178·83.

Whilst upon this subject I would point out that the establishment of these branch societies tends to impair the strength of the Parent Association financially. Subscriptions are necessarily diverted from it, but at the same time the principle is very sound and fair in most respects. There is, however, another side to the question and it is my duty to draw attention to it. Sportsmen in search of big game in Uva and other areas protected by funds from the Parent Society do not hesitate to seek for their sport in those localities, although they may have contributed but an infinitesimal sum towards protecting them. I would, therefore, appeal to the Hon. Secretaries of these branches not to adhere too closely to the rule giving them the right to three-fourths of their collections, but to err if possible on the side of liberality. I anticipate a falling off in revenue this year owing to the above cause and I trust too much will not be expected of the Parent Society financially.

Proxies.—It was decided that proxies were not desirable at Game Protection Society meetings owing partly to the fact that the non-attendance of members were bad enough as things were, and partly to the fear that by their means resolutions might be carried which might affect the prestige of the Society in the eyes of Government. By this it was intended to be understood that certain members who seldom or never attended meetings might in

ignorance of the previous history of any question at issue, upset any annual measures that had been decided upon after mature consideration by those active members whose attendance was regular and continuous; and as the status and usefulness of the Society depends much on its consistency in its relations with Government there would be the fear of loss of influence in that quarter. The rule prohibiting shooting sambur and spotted deer in the Hill Reserves was again brought up and the following resolution was carried.:—"That the present rule prohibiting all shooting of game above 4,000 feet should be altered in accordance with the resolution passed at last meeting, viz.—"That when registered packs are hunted, the killing of sambur be confined to stalking with the rifle at any elevation and to killing with the knife and hound." At the General Committee meeting held on the 20th September which was but poorly attended, Messrs C C Wilson and M J Kenaway were added to the Committee. At the same time correspondence with the Hon the Colonial Secretary on the subject of shooting in the Hill reserves and conditions to be attached to game licenses was submitted with a copy of conditions proposed by the Hon. Secretary. They were as follows.—1. Shooting at night and netting are prohibited. 2. This license is not transferable. 3. Hunting by men in gangs carrying sticks or guns, with or without dogs, is prohibited. 4. Shooting elk and spotted deer within the Hill reserves above 4,000 feet is prohibited, except with the permission of Government in writing. The only modes of hunting elk and spotted deer within such reserves, is hunting with dogs, to the knife and killing with the rifle. I greatly regret that through inadvertence on my part the words "above 4,000" instead of at any elevation were inserted in condition No. 4. This was most unfortunately not noticed at the meeting. I say unfortunately because it has given rise to some discontent as well as charges of want of *bona fides* on the part of the committee. It certainly on the face of it appeared that the committee had acted in an arbitrary and unwarrantable manner, in upsetting a resolution passed at two general meetings, and I took upon myself the whole onus of this inadvertence and trust that the explanation will be accepted in the same spirit in which it is made. However, the following letter from the Hon. the Colonial Secretary will show that the conditions proposed by all were not acceptable to Government in their entirety and it will now be competent for me to propose that the words at any elevation be substituted for above 4,000 feet:—

No. 017338—Colonial Secretary's Office, Colombo, 28th October, 1902.

Sir,—With reference to your letter dated 27th ultimo, submitting for approval conditions proposed to be noted on the back of licenses to kill game, I am directed to state that there is no objection to conditions 1 and 2 being endorsed on the license the sections of the ordinance 12 or 10 of 1891 and 11 of ordinance 10 of 1891 under which these rules are framed being inserted in brackets. I am to point out that condition "3" cannot be adopted, as there would be legal difficulty in exactly defining the term gang and in distinguishing a gang from a legitimate shooting. In condition "4," it will be necessary to insert "sambur" for "elk," and it is suggested that the condition may read thus:—"This license does not authorise the holder to shoot or attempt to shoot sambur or spotted deer at any place above the elevation of 4,000 feet, otherwise than stalking with the rifle when the holder has obtained permission in writing from the Government Agent for the purpose. —I am to invite you to be good enough to reconsider the rules and to state that on your furnishing me with revised rules to obviate the difficulties pointed out, they will be considered by Government.—I am, Sir, your obedient servant,

E. R. Cumberland, for Colonial Secretary.

Thomas Farr, Esq., Hon. Secretary, Ceylon Game Protection Society, North Cove, Bogawantalawa.

The meeting requested the Honorary Secretary to endeavour to ascertain from the Government Agent, Sabragamuwa how the two watchers of the Meda and Kadawatte Korles were being employed and to obtain a return of cases instituted. The following letter in reply to the Government Agent, Sabragamuwa and the annexed return of cases were received by me in due course:—

No. 141. Nov. 10, 1902.

In reply to letter from Government Agent, Sabragamuwa.—The two watchers are employed in the Kadawatte and Meda Korale under my own supervision. They are for the most part engaged in going about the country lying between the Walaway on the North and East Balangoda and Welegepola on the West and Atskalan Korale on the South where game is plentiful and where years before elk and spotted deer used to be killed by the hundred. This being dense jungle with small villages situated here and there watching is rather difficult. But it is a fact admitted that killing game is certainly reduced by nine-tenths from what is was five years back. I do not as a rule prosecute at the instance of the watchers alone when I do get information I hold an enquiry and get the chance to work up the cases. The watchers presence in the District act as a prevention to a great degree. (Signed.) S. D. Mahawalatenne.

Return of cases instituted under the game protection Ordinance.

No, 20,747 6th June. 1901, killing game without license S. D. Mahawalatenne, R. M., M Dingirihamy fined R5.—No. 20,884 5th July, 1901, killing game without license S D Mahawalatenne, R.M. Mudalihamy and 2 others acquitted and discharged.—No. 22,362 12th October, 1901, having meet of game during close season S D Mahawalatenne, R.M., M Mothahamy accused under concealment.—No. 22,580 8th November, 1901, killing an elk without license S. D. Mahawalatenne, R. M., V K A Kiri Menika accused discharged.—No. 22,579 8th November, 1901, killing an elk without license S. D. Mahawalatenne, R. M., accused discharged.—1902 nil.

Taking into consideration the circumstances revealed by the letter I considered myself justified in discontinuing the services of those two watchers forthwith. It will be noted that no cases have been instituted since November 1901, and the presumption is that the villagers in those two Korales, are such beformed characters that to watch them further would be to insult their respectability. Owing to the close season for game in the Eastern Province having been attended without reference to this Society. I was requested to approach Government upon the subject, and received the following reply from the Hon. the Colonial Secretary:—

No. 017337. Colonial Secretary's Office, Colombo, October 6th.

Sir,—In reply to your letter of the 27th September, 1902, I am directed by His Excellency the Lieutenant-Governor to inform you that the Game Protection Society will be informed before any alteration is made of the proclaimed close season in any Province. —I am Sir, yours obedient servant (Signed) A Clayton, for Colonial Secretary.

Thomas Farr Esq., Honorary Secretary, Game Protection Society.

The Government Agent of the Eastern Province has since kindly furnished me with the following particulars:—

No. 336. Batticaloa Kachcheri, Sept. 13th, 1902.

Sir,—Referring to your letter dated 6th instant I have the honour to inform you that the close season for deer in this Province is from 1st June to 31st August for the current year. Please see my notice dated the 11th March last in Government *Gazette* No. 5838 of 22nd idem. It is the same as that for the Southern Province and was declared by one under Section 13 (1) of Ordinance 10, of 1891, No close season is provided for the shooting of Elephants or Buffaloes under the Game Ordinance of 1891. Govern-

ment notification dated 15th November, 1900, in Government *Gazette* No. 5735 of 16 idem regulates the rotation of districts for the issue of licenses for the Capture of Elephants.—I am, Sir, your obedient servant (Signed) S Haughton, Government Agent, Eastern Province.

The Society at this meeting through their Committee expressed its appreciation of the Government Proclamation prohibiting the export of sambur and spotted deer horns, and duly recorded its thanks. It will be noted that no mention is made in this report of elephants or buffaloes, but from all I can learn the destruction of these animals is upon a very limited scale and previous reports have dealt thoroughly with the subject. I annex my balance sheet which I think explains itself. It brings the accounts up to the date of this meeting with the exception of these subscriptions for 1903 viz. R15 and Mr Shand's cheque for R45 from the Nawalapitiya branch. There is a credit balance in the Mercantile Bank of India of R1,839·26—irrespective of the two items just mentioned viz. R60—which after two years expenditure is in excess of the balance taken over by one or two years ago, by R44·77 plus R60 subsequently received.

BALANCE SHEET 1902—1903.

Balance from last year R2,026; Donations R130 Fines R375; Government Subsidies R405; Subscriptions R620; Interest R37·70. Total R3,222·45.

By paid Game Watchers R879; Forest Peons Game Watchers R158; Uva for Hon. Secretary Hapntale Branch R115; 4 Snbscriptions from Uva Residents R20; Stationery Stamps and Commissions R69·89; Advertisements R76·40; Legal Fees &c. R27·50; 100 Copies Report for 1901-1902 R35·40; Balance R1,839·26. Total 3,222·45.

MATURATA PLANTERS' ASSOCIATION.

FIRST ANNUAL REPORT: 1902,

Register.—The number of estates on the register is now 16 against 17 last year (1902). Wellakelle and Ellamnlle estates have been made into one.

Meetings.—Three general meetings were held during 1902, at which most members were present.

Finances.—There is a balance of R13·10 to the credit of the Association.

Acreage and Tea Estimates.—4,810 acres in tea; 4,758 acres in bearing; estimate 1,700,000 lb. Black Tea for 1903: equal 357 lb. tea per acre. The manufacture of Green Teas has not been tried in the district.

Crop and Prices.—Generally this district has not had a bad year, as regards crop; the shortage was less than in most districts. Prices have been scarcely so well maintained, as in former years.

Roads.—The district minor roads in Maturata have never been famed for their excellence. The natural configuration of the district and original bad traces are chiefly responsible for this. The best has been done with the money available. Four new bridges have been built and two have been renewed. Another bridge is urgently required on the Mandara Nuwara-Ellamulle Road. The road from Allacolawewa to Padiapalella is a constant source of expense and trouble; land-slips and subsidences are of frequent occurrence, but as this road is by far the most important in the district, it must always be kept in good order. It is hoped that Government will construct a first-class metalled cart road from Brookside to High Forest, at an early date. The erection of Sign-posts is a matter of urgent necessity, and your Committee are desirous of obtaining a special grant from the D R C for this purpose.

Hospital.—The new Maturata Hospital was opened on March 1st, 1902, and from that date to December 31st, 261 in-door patients and 2,975 out-door patients were treated, which figures show how necessary this Hospital was.

Postal.—The work of the Post-master at Maturata has given satisfaction throughout the year.

Police.—Your Committee consider that the establishment of a branch station in the neighbourhood of High Forest, worked from Ragala, with a guard-room and a regular system of Police patrol, will meet the requirements of the district.

Labour.—This can scarcely be said to be in a satisfactory state. A general restlessness is apparent, and advances appear to be rising.

Tin Tickets.—This scheme works satisfactorily, but very few coolies came in from the Coast to this district during 1902. Your Committee would recommend special efforts being made, during 1903, to recruit labour from the Coast, with the aid of Tin-tickets. New districts must be tapped, and a special Recruiting Agent established.

C.P.R.C.—The local section consists of 12 members. A Rifle-range has been completed on the Government Patanas adjoining Gonakelle estate.

General.—Your Committee regret the apathy of certain Superintendents in the district, who have not supported or joined the Association, and consider that such show a great lack of public-spiritedness.

F. G. Harvey, Hon. Secretary.

HEWAHETA PLANTERS' ASSOCIATION.

ANNUAL REPORT

as follows, which was adopted.

Membership.—The number of estates on the register is 9 as compared with 7 in 1902.

Finance.—The balance to credit of the Association at the end of the year is R309·70 as compared with 263·33 at the end of last year.

Crop Estimate for 903.—The official returns received show 9,142 acres in tea and 8,852 acres in bearings. The estimated crop is 3,909,800 lb, including 16,000 lb. of green tea, giving an average yield of 427 lb. per acre. The foregoing figures do not include 535,500 lb. of green leaf from various native gardens, the acreage of which it is difficult to estimate.

Season.—The tea crop was short owing to the unfavourable weather during the latter part of the year, but in several instances estimates were obtained. The prices generally have been fair.

Main Roads—The main road from Peradeniya to Deltotta, especially from the 17th mile post downwards as also the main road from Kandy to Hangurankette leave much room for improvement, and your Committee trust these roads will have more attention in the near future. Your Committee would once more urge upon Government the desirability of joining Upper and Lower Hewahetta districts by joining the cart roads ending at Loolecodera and Rahatnugoda.

Telegraph.—Your Committee have much pleasure in recording the opening of the Deltotta Telegraph office, which has proved a great boon to the district, and they trust that Government will shortly extend the service to Upper Hewahetta.

Hospital.—The working of the hospital has generally been very satisfactory, but your Committee would specially urge on Government the necessity of a waiting-room for outdoor patients being built at once, as during the S.-W. monsoon the only accomodation at present is an open verandah, which is open to the full force of the wind and rain.

Labour.—Continued scarcity of labour causes much anxiety and your Committee would like to see Mr Westland's scheme given a fair trial.

Police.—Your Committee regrets to have to report that illicit sales of arrack and toddy are still carried on with impunity in the district, and the Police seem to be quite incapable of coping with the evil.

C.P.R.C.—The C.P.R.C has been well supported during the year, and it is hoped that more will join in the new year. The keenness of members in Rifle shooting has been well maintained.

THE HORREKELLY ESTATES CO., LTD.

REPORT OF THE DIRECTORS.

Managing Director :—Mr C E H Symons. Directors: —Mr F J de Saram, Hon Stanley Bois, Mr F W Bois, Hon F C Loos and Mr Fred Dornhorst. Secretaries : Lewis Brown & Co.

The Directors have pleasure in submitting the accounts of the Company for the year ending 31st December, 1902, which they trust will be considered satisfactory. The sum of R5,997·23 has been written off as depreciation on buildings, plant and machinery, and the 1903 manure account has been reduced to R5,000 by transfer of R3,884·68 to "1902" Estate expenditure. It has been decided to place R15,000 to a Reserve Fund Account, and the Shareholders will be asked to approve of the Directors' investing the sum so reserved upon the security of immovable property. The balance available for distribution (including R899·51 brought forward from 1901) is R44,002·45, from which the Directors recommend payment of a dividend at the rate of 10 per cent which will absorb R400,000, and leave R4,002·45 to be carried forward. The working of the estate for the years 1900, 1901 and 1902 compares as follows :—

	1900.	1901.	1902.
Expenditure on Est. and in Colombo office	R35,761·59	R39,756 93	R43,098 52
Number of Coconuts produced	1,502,298	1,439,218	2,146,825
Quantity of Coir Fibre made Ballots	22,592	24,876	21,209

Two Directors—The Hon Stanley Bois and Mr F W Bois retire by rotation, and are eligible for re-election. The Shareholders have to appoint an Auditor for 1903. The current year's prospects are favourable.—By order of the Directors, Lewis Brown & Co., Secretaries.

Colombo, 31st January, 1903.

THE UDABAGE COMPANY, LIMITED.

REPORT OF THE DIRECTORS

335 acres in full bearing
164 ,, 4½ years old

499 acres cultivated
641 ,, reserve suitable for Tea and Rubber

1,140 acres more or less.

The Directors beg to submit to the Shareholders a statement of the accounts duly audited for the year ending 31st December, 1902. The crop secured amounted to 218,763 lb. made Tea as against an estimate of 240,000 lb, and realised an average of cents 34·65 per pound nett including the Bonus on Green Teas as against an expenditure of R52,936·66 or cents 24·08 per pound. Of the total crop 215,180 lb was manufactured into Green Tea and 3,715 lb into Black. The crop results for the year were somewhat disappointing, owing in common with other estates in this district to the abnormally wet season experienced, and yield was in consequence affected. The estimate for the current year is 250,000 lb of made Tea to cost cents 23·18 per pound, and it is proposed to spend a sum of R1,022 on manure during the season. The increase in crop necessitates an extension to the Factory, and the provision of a Down-Draft Sirocco involving an expenditure estimated at R6,600. In terms of the Memorandum and Articles of Association of the Company the Hon. Mr J N Campbell retires from the Directorate, but is eligible for re-election. The appointment of an Auditor for the current year rests with the Meeting.

BATTICALOA PLANTERS' ASSOCIATION.

ANNUAL REPORT.

The third annual report was as follows :—

Your Committee has pleasure in submitting the third annual report and in so doing congratulates you upon the satisfactory position of this Association.

The number of estates and voters on the register has increased during the year. As regards finances there is an appreciable balance to the credit of the Association.

During the year three meetings have been held.

Obituary.—It is with deep regret that your Committee records the death of Mr J J O'Dowd, who joined this Association from its commencement and was one of its most valued supporters. A donation has been made from the Association funds towards the proposed memorial brass to be placed in the R C Cathedral.

Coconuts.—The crops for the year have been up to the average, and the weather throughout the latter end of the season has been such as to justify hopes of a fair crop during 1903.

The price fetched by copra during the year has been far above the average, and in July a highwater mark in prices was reached—one hardly hoped for by the most sanguine of us.

Pests.—It is satisfactory to be able to report a decided check in the spread of the caterpillar pest. As much trouble as ever has been experienced in dealing with both black and red beetles, and until the native garden owners are either persuaded or compelled to attend to the proper beetling of their trees, the pest is not likely to decrease.

Paddy.—The *minmari* crops were good owing to the timely rains; the kalum velami crops were up to the average and good prices were realised.

Ward for Paying Patients.—Though in January, 1901, we were informed that H. E. the Governor had instructed the Director of Public Works to submit a plan and estimates for this work, and though provision was made in the annual estimates for 1902 for construction of same, January 1903 sees us with no signs of a ward. We are informed by Government that the money voted "had to be utilised for other more urgent works." That a sum of money voted for an urgent want of such vital importance as this is to the residents of the district, should be used for another work (we believe in the Western Province) is most unjust.

Roads.—On the South Road the Periya Motuwanne and Mohidee Tandu causeways have at last been finished. The causeway at mani has been commenced and is likely to be completed during 1903. This Association ventures to hope that the most important bridge over the Randany Odai at the 32nd mile post, which when in flood cuts off all communication from the south, and which bridge was washed away as far back as December, 1901, will have the earnest attention of the P W D, and that instructions will be given that every effort be made to ensure its completion as soon as possible. Special attention might be called to the Batticaloa-Kalkudah road, which, owing to the very heavy traffic, is generally in an unsatisfactory condition.

Mail Service.—This Association regret that the motor-car service has met with such misfortune. Our thanks are due to the Postmaster-General for having so promptly substituted a through horse-coach service.

C. P. R. C.—During the latter end of the year a section of this corps was formed, and, considering the short time of enrolment, is in a high state of efficiency.

BADULLA PLANTERS' ASSOCIATION.

ANNUAL REPORT.

Your Committee have pleasure in submitting their report for the year 1902—the 19th since the formation of the Association.

MEETINGS.—During the year three General meetings and three meetings of Committee have been held. There have also been two meetings of the sub-Committee on minor roads.

MEMBERSHIP.—There are 46 estates registered on the roll of membership against 48 in 1901. There are also two private members against the same number in the previous year.

FINANCE.—The books and accounts of the Association are laid on the table for the inspection of members. The balance at credit of the Association at 31st December, 1902 amounts to R36·61 cents.

TEA.—Crops generally in the district have been well up to estimate. The weather throughout the year was favourable, and the rainfall good and well distributed.

THE SOUTH-WEST MONSOON was late in setting in, and tea in consequence flushed very finely in June and July. However, though leaf was abundant, much of the fine flavour and quality characteristic of the tea from these districts during the dry months from June to October was absent, and there was less fine tea sent from the districts this year than usual.

THE TEA CROP for 1903 is estimated at 7,080,975 lb. and 91,000 lb. from native gardens. The acreage under tea is 17,458 acres, of which 15,829 acres are in bearing; the yield per acre on tea in bearing is estimated at 447 lb.

LABOUR.—Labour has not been quite so plentiful in the districts generally, and advances have been rising considerably. More coolies from the coast are required, and your Committee would be glad to see immigration encouraged to the fullest extent.

TIN TICKETS.—This system has worked well and will, your Committee believe, be of great service to the planting community as well as to the cooly.

MAIN ROADS.—The principal roads have been kept in good order, but on some roads, notably the Madulsima Road up to the 11th mile, the quantity of metal laid down is scarcely sufficient to maintain the road in good order for a year. The traffic on this portion of the road has increased considerably of late years.

MINOR ROADS.—These have been kept in a fairly good state of repairs, but more liberal votes are in some cases required for the improvement of these important roads, the bridging of stream and other works. A new road has been cut to connect the minor road at Kudnoya with the bridge at Badulla. This will be of some service to the Badulla district, but your Committee regret that Government was unable to grant the bridge across the Baddullu-oya at the ford on this road.

Your Committee are urging upon the Provincial Roads Committee the necessity of constructing bridges across the streams at Pilpola and Nahavilla, and they hope that these will be made before the close of 1903.

NEW TELEGRAPH OFFICE.—Your Committee are pleased to report that a sum of R20,000 has been included in the estimates for 1903 for the opening of a telegraph office at Madulsima. This will be a great boon to the district interested.

RAILWAY EXTENSION.—In December last a resolution was passed by your Association asking Government to survey a light line of railway from Bandarawela to Badulla and Passara. Your Committee feel that these important districts should no longer be left without the benefit of a railway through them. Many of the estates are from 40 to 50 miles from the nearest station, and the heavy cost and uncertainty of transport form a severe handicap upon the tea enterprise of Badulla, Passara, and Madulsima. Your Committee sincerely hope that Government will be pleased to carry out this survey, and that the railway will be constructed at no distant date.

OBITUARY.—Your Committee records with much regret the death during the year of Mr Norman Rettie and Mr F G Hoste, both esteemed members of the Association.

In conclusion your Committee are pleased to think that better times are in view for the tea industry of Uva, and that with a continuance of the same careful system of plucking, which has always been characteristic of these districts, a bright future is before the planting enterprise of Badulla and Madulsima.

COCONUT PEARLS.

The following extract is taken from *Chemical Studies of the Coconut with some notes on the changes during germination.* By J A Kirkwood and William J Gies, reprinted from the Bulletin of the Torrey Botanical Club, 1902, pp. 321-359, and issued as No. 26 of the Contributions from the New York Botanical Garden for June 1902 :—

Within the nut there is occasionally found a small stony substance of a bluish white colour, a kind of vegetable bezoar, called in India *calappa*, which is eagerly purchased by the Chinese, who ascribe great virtues to it as a sort of amulet to preserve them from diseases. The cause of its formation in the nut is unknown.

According to Harley and Harley these pearls, like those of molluscan origin, appear to consist almost entirely of calcium carbonate, with water and organic matter in smaller proportion. Riedel, quoted by Harley and Harley, states that in 1886, while in North Celebes he found a pearl in the endosperm of the coconut. One such pearl was pearl-shaped in form and 28mm. long,

We are greatly indebted to Dr. D Morris, C M G, Imperial Commissioner of Agriculture for the West Indies, for the following very interesting quotation from a letter to Dr. MacDougal :—

"More than two hundred years ago Rumph, an eminent botanist in the East, sent as a present to the Grand Duke of Tuscany a ring in which a coconut pearl had been set. Further, Rumph himself described coconut pearls in his great work with considerable minuteness and gave illustrations of two of them. One was perfectly round, the other was oval or egg-shaped. Travellers in the Philippine Islands have heard of coconut pearls, but seldom or ever have seen them. The natives, it is said, keep 'coconut stones' as charms against disease and evil spirits. The Rajahs, we were told, highly prized them and wore them as precious stones. It was only a few years ago that real coconut pearls were at last brought to England. One is now at the Museum at the Royal Gardens at Kew, brought by Dr. Hickson. It is almost egg-shaped, perfectly white, and composed almost entirely of carbonate of lime. It has, in fact, a somewhat similar composition to the pearl of the oyster, and yet there is little doubt it is a purely vegetable product" (See Harley and Harley : *Proceedings of the Royal Society of London*, 43, 464, 1887-11.—*Agricultural News*, Barbados, Jan. 3.

TOBACCO IN JAFFNA.

The planting of tobacco has been completed in all parts of the District. The area under cultivation is annually on the increase and the cost of labour and manure is almost double of what it was about half a dozen years ago. But the demand for this tobacco in the Travancore market which is the only one outside Ceylon is not so great as it was some years back.—"Hindu Organ," Feb. 8.

PRODUCE AND PLANTING.

A correspondent who has had an opportunity of observing the development of this slight

MOVEMENT IN FAVOUR OF CHINA TEA,

which has extended from the Westend to the suburbs, and is almost accepted as a domestic creed by a few of the second-hand devotees of fashion, mentions an incident which recently came under his notice. One of these champions of China tea recently offered her cook some choice tea from the Flowery Land as an especial treat. It was the real thing, and too exquisite for ordinary consumption, but as it was the cook's birthday the occasion was considered a suitable one for astonishing the kitchen by a display of taste, and some of the "real tea" from China was presented amidst a flutter of excitement. Never doubting that a sensation had been created, the donor in due time asked her servant how she liked the delicacy, expecting a reply indicative of the enthusiasm she had sought to arouse. But in the kitchen the taste runs on something with a fuller flavour. The humble recipient of the gift, instead of becoming ecstatic over it, had to confess that in the kitchen they could not drink the delicacy because its flavour suggested "smoked hay." This was both ungracious and unappreciative, for doubtless the tea was of a delicate and subtle flavour, but it serves to show some of the difficulties attending the regaining of a lost trade, and it is also evidence that the present generation of tea drinkers are oblivious of the past fame of China teas, and are content with the teas which the gods in the form of the blenders send them. It may be very dreadful from the point of view of the self styled epicure, but it is clear that before China tea again finds favour with the masses the consumer will have to acquire a taste for it, and so long as the blenders continue to exercise their skill and succeed in pleasing the majority there is not likely to be any feverish desire on the part of the consumer to take his China tea neat except at a few ladies' clubs or gatherings where they possess profound knowledge and taste, or imagine that they do.

We take the following from "Tea, Coffee, and Sugar" of New York: "The position of

TEA IN THE UNITED STATES

is so strong and the consequent activity so intense that there is probably no other line of business endeavour in the land in a condition so satisfactory to itself. Certainly, no one hears of anyone going out of the tea business, as in coffee, for instance, according to rumour, and the envy of the coffee men is often heard. A 'slump' by this time has often been prognosticated, but with 8-10ths of the stock sold, leaving only 2-10ths to do a half year's business in, this seems improbable. The tea men have disposed in the main of their stock, and it is up to the consumer to pay the bill. Here he should not grumble very much, if at all, for on effecting the purchase of his favourite leaf he will find it cheaper, even though only a little. Thus he will not feel he should stint himself in tea drinking, and the largely increased stock of tea in the land should find its way into the teapot, making room for the 1903 crops. An oddity and at the same time a somewhat portentous sign is the presence of England in our own market a purchaser of tea. The Englishmen even outbid us in our fancy bidding, and the fear is that they will leave us no tea of the kind so much liked here —the greens. The market is certainly being complicated and into unusual strength, and that too from a source that has been a fretful complainant of a plethora of tea of Colonial growth. Surely this world is one of strange and unexpected compensations, and if the consumer does not object too hard, why, as they say, 'let her go Gallagher.'"—With reference to

THE DEATH OF MR NORMAN LAYTON

should be noted that on the assembling of the members of the tea trade at the opening of the auction last week, Mr W T Wilson (of Messrs Gow, Wilson, and Stanton) said: "Since we last met in this room death has claimed one of the most respected men in our trade. I refer to Mr James Norman Layton, who died on Thursday, January 22. I am sorry that fate has so decreed that I should be the first to occupy this chair today, as I feel sure that there are many gentlemen who will be following me who are far more eloquent, and therefore better able to extol the many virtues of this most estimable gentleman. I understand that Mr. Norman Layton has had a career in the tea trade extending between fifty and sixty years, and, speaking for the latter half of that time, I know, from personal experience, that he has made none but friends. Gentlemen, when I say that he was a just and honourable man, a friend to his fellow-workers when in trouble or distress, and a perfect gentleman in the highest sense of the term, I feel that I have but inadequately expressed the views and sentiments we all hold of our dear friend Norman Layton." It was the wish of all present that a letter should be sent to the widow and family of the deceased gentleman, expressing the deep sympathy felt for them by the entire trade in their sad bereavement. This was accordingly done.—*H and C Mail*, Feb. 6.

COFFEE GROWING IN NEW SOUTH WALES.

A new industry is now started in New South Wales, and one that should prove very profitable—coffee growing. It is an industry that might be well gone in for in the northern portion of this state, where it might do well, as there is a good summer rainfall. The coffee plantation in New South Wales is at Walbin Island, on the Clarence river. This year the harvest is about 40,000lb. of berries. The trees are now about ten years old, and yield about 50lb, of berries per tree, or about 15 lb. of the prepared article. The trees begin to give a return at about four years old.—*Western Mail*, Feb 14.

TEA COMPANY MEETINGS.—Several Tea Companies held their annual meetings on the 21st Feb., and in some cases at any rate the results for the past year were not up to expectations. The Kelani Valley Tea Garden has had a very disappointing year and was no less than 48,855 lb. short of the original estimate of crop. This was due to a very severe attack of Helopeltis affecting some 203 acres of the tea in bearing and also to the unfavourable character of the N.-E. Monsoon. No dividend was declared but R8,178·36 was carried forward. The Knavesmire Company Ltd. had three bad months but were able to declare the same dividend as last year, namely four per cent. Green tea is to be started here and with the prospects of rubber the future of the company looks encouraging. The Templestowe Company Ltd. also, in common with many other companies, experienced a shortage in crop but were nevertheless found at the end of the year with R15,963·38 for disposal. Of this R651,6·00 went in the payment of a dividend on the Preference shares, R4,926 00 in the payment of a 3 per cent dividend to the ordinary shareholders. R4,000 was transferred to Depreciation account and a balance of R521·38 has been carried forward. The dividends of these companies, with those of last year, for the purpose of comparison, are:—

	1901.	1902.
Kelani Tea Garden Coy.	0	0
Templestowe Coy.	3	3
Knavesmire Coy.	4	4

THE DONNYBROOK TEA COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

The Directors beg to submit a Statement of Accounts for the year ending 31st December 1902, duly audited.

ACREAGE.

	Donnybrook	Mitford
Tea in full bearing	112 acres	37 acres
Tea in partial bearing	40 acres	108 acres
Tea not in bearing	—	7 acres
	152 acres	152 acres

304 acres cultivated in Tea
4 acres forest
67 acres Chena, Patua and Waste land

Total... 375 acres

The Crop secured amounted to 146,199 lb of Green Leaf as against an estimate of 200,000 lb. Of this 126,244 lb was sold as Green Leaf realising R8,205·75 while the balance was manufactured in the Norton Factory and sold in the local market, viz. 4,989 lb made Tea, at an average price of 38 cts. per lb. nett. The balance at Debit of Working account after providing for Legal expenses, Visiting Agent's fees, and all other charges, amounts to R3,531·60, which amount has been tansferred to Property Immovable. The estimate for Crop season 1903 is 50,000 lb of made tea to be produced at a cost of 37·02 cts. per pound, and the result of the year's working, estimating the Crop to nett 32 cents per pound is likely to show a loss of R2,510, for which provision will have to be made. In terms of the Memorandum of the Articles of Association of the Company Mr G P Fuller retires from the Directorate but is eligible for re-election. Mr Shakspeare who is leaving the Island also retires and does not seek re-election. The appointment of an Auditor for the current year rests with the Meeting.

KIRKLEES ESTATE COMPANY, LTD.

THE REPORT OF THE DIRECTORS.

Directors:—Messrs. G H Alston, John Gordon and Hon. Mr. W H Figg.

Estate Superintendent:—Mr. J Armitage Ogden.

Acreage: 31st December, 1902.

Tea in bearing	..	435 acres.
Do partial bearing..	..	13 „
Tea clearings	..	10 „
Timber and Cardamoms	..	129 „
Grass and uncultivated land	..	140 „
Total	..	727 acres.

The Directors now have to present to the Shareholders the accounts of the Company for the past year. The Crops secured amounted to 175,591 lb. Tea, including 6,996 lb. manufactured from purchased leaf, and 2,887 lb. Cardamoms. The nett price realised for the Tea was 36·34 cents per lb., as against 34·18 cents in 1901, and the Cardamoms sold realised 83·10 cents per lb. nett. After providing for depreciation of buildings and machinery and paying the 7 per cent dividend on the preference shares, the profit on the year's working amounted to R12,024·48, equal to 12·02 per cent on the paid up Capital of the Company, to which has to be added the balance of R976·47 brought forward from 1901, less R140·79 over-estimated for produce unsold at the end of that year. There is therefore available a sum of R12,860·16, out of which the Directors have decided to set aside a further sum of R500 to the coast advance reserve account as a provision for doubtful debts, and out of the available balance of R12,360·16, they now recommend the payment of a final dividend of 7 per cent, making with the interim dividend of 3 per cent paid, on 5th August last, a total of 10 per cent for the year, leaving a sum of R2,360·16 to be carried forward to the current sum of R2,360·16 to be carried forward to the current season's accounts. The only expenditure on capital account during the past year was R392·50 for the purchase of ac. 9 : 3 : 38 : land. The estimated crop, this year are 165,000 lb tea and 3,000 lb cardamons on an expenditure of R46,300. In terms of the articles of Association, Mr G H Alston now retires from the Board, but is eligible for re-election. The appointment of an Auditor for the current year rests with the meeting.

THE VOGAN TEA COMPANY OF CEYLON, LTD.

Directors:—Messrs R W Harrison, V A Julius and E M Shattock.

The Directors now beg to submit to the Shareholders their Report and Accounts for the year ended December 31st, 1902. The Estimate of crop on Vogan and Iddagodde was 400,000 lb. of Tea, while the actual quantity secured was 362,355 lb., the shortfall being due to the abnormal absence of sunshine experienced during the last four months of the year. From bought leaf 15,231 lb. were also manufactured, making a total of 377,586 lb. which cost to place in Colombo 23·48 cents, and realized a nett average price of 32·92. Included in the Expenditure is a sum of R1,700·99, which has been spent in the upkeep of the Rubber clearings, and in laying down Albizzia nurseries. On Stamford Hill and Barkindale the crop for the year was 100,752 lb against an Estimate of 100,000 lb., the Tea costing, after deduction of profit on manufacture of outside leaf, 22·88 cents in Colombo, and realizing a nett average price of 38·13 cents. The following table, shewing the crop, cost and average price realized for the past five years, is appended, and will no doubt be found of interest.

	Crop.	Cost.	Price realized.
1898			
Vogan and Iddagodde ...	353,837 }	20·22	34·00
Bought leaf ...	30,929 }		
Stamford Hill and Barkindale ...	100,712	25·53	43·90
1899			
Vogan and Iddagodde ..	386,609 }	20·15	36·81
Bought leaf ...	2,523 }		
Stamford Hill and Barkindale ..	95,286	22·17	45·30
1900			
Vogan and Iddagodde ..	462,399 }	21·40	30·34
Bought leaf ..	20,268 }		
Stamford Hill and Barkindale ..	107·474	23 42	39·94
1901			
Vogan and Iddagodde ..	334,448 }	26·62	32·23
Bought leaf ...	15,383 }		
Stamford Hill & Barkindale ...	82,640	29·90	42·20
1902			
Vogan and Iddagodde ...	362,353 }	23·48	32·92
Bought leaf ...	15,231 }		
Stamford Hill & Barkindale ..	100,752	22·88	38·13

After payment of Interest on Debentures and all other charges, the amount of profit earned is R41,834·55 to which must be added the balance of R120·10 brought forward from the previous year, making a total of R41,954·65 available for distribution. This amount the Directors recommend should be apportioned as follows:—

	R.	c.
By the redemption and cancelment of 20 Mortgage Debentures of R500·00 each absorbing	10,000	00
By the payment of a Dividend of 4 per cent for the year	28,000	00
By the payment of a bonus to the Vogan Superintendent of ..	500	00
By the payment of a bonus to the Stamford Hill Superintendent of ..	500	00
By placing to Depreciation Account..	2,500	00
By carrying forward to next Account..	454	65
	41,954	65

Rubber continues to make satisfactory growth, and it is proposed to plant up a further 15 acres in this product during 1903. The acreage of the Company's properties is as follows:—

	A.	R.	P.
VOGAN AND IDDAGODDE.			
Tea in full bearing over 4 years ..	658	3	33
Tea in partial bearing under 4 years	119	0	10
Tea under 2 years old	25	0	0
Rubber	10	0	0
Reserve	515	1	38
	1,328	2	1
STAMFORD HILL AND BARKINDALE.			
Tea in full bearing	220	0	0
Total Acreage..	1,548	2	1

In terms of the Articles of Association Mr. R. W. Harrison retires from the Board of Directors, but being eligible, offers himself for re-election. It will also be necessary to elect an Auditor for 1903.

UNION ESTATES COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

DIRECTORS:—Messrs W D Gibbon, F L Clements, G H Alston. ESTATE INSPECTOR.—Mr W D Gibbon. ESTATE SUPERINTENDENTS.—HAYES GROUP: Mr R J Trimen. DEA ELLA: Mr W L Vanderslott.

ACREAGE.

	Tea in full bearing.	Tea in partial bearing.	Cocoa.	Cardamoms.	Total Cultivated.	Grass Jungle and Waste Land.	Total.
Hayes Group	509	3	...	30	542	1,669	2,211
Dea Ella	243	..	81	..	324	162	486
	752	3	81	30	866	1,831	2,697

The Directors submit herewith to the Shareholders of the Company the Report and Accounts for the past year. The Crops secured on Dea Ella were 65,606 lb Tea, 162 : 3 : 17 : cwt Cocoa, 21,173 Coconuts and small quantities of Vanilla and Pepper; the Tea realized 30·81 cents per lb and the Cocoa sold R34 04 per cwt nett as against 30 69 cents and R33·15 respectively in 1901. The crops from Hayes Group amounted to 253,787 lb. Tea and 1,741 lb Cardamoms realizing nett 27·45 per lb Tea and 81·20 cents per lb Cardamoms sold, as against 30·71 cents and R1·14 respectively in 1901. The shortfall in tea crop was due to the very unfavourable weather experienced on both Estates during the last four months of the year and to attacks of Helopeltis on some of the lower fields on Hayes Estate, which seriously affected the crop there. Every step is being taken to deal with this pest. The amount at debit of Profit and Loss Account at the end of 1901, R830·55 was reduced by R450·08 realized in excess of the estimated value of balances of crops then unsold, leaving R380·47 to be brought forward to debit of 1902 accounts. To this must be added the balance of R1,688·74 loss on 1902 working account. The only Capital expenditure during the past year has been the instalments due for the construction of the Hayes Road amounting to R6,776·07. There is now only one further instalment of R3,291·21 due on 30th June, which will complete all expenditure on this Account. The Estimate for 1903 is 323,820 lb Tea, 180 cwt Cocoa, 30,000 Coconuts and 2,000 lb Cardamoms, on an expenditure on Working Account of R91,509.99. During the past year the Hon Mr W H Figg resigned his seat on the Board of Directors and the vacancy has been filled by the appointment of Mr F L Clements. In terms of the Articles of Association, Mr W D Gibbon retires from the Office of Director, but is eligible for re-election. The appointment of an Auditor for the current year will rest with the Meetin,

THE COLOMBO TEA TRADERS' ASSOCIATION.

INCREASED SAMPLING ALLOWANCES; THE WEIGHT OF PACKAGES, AND FALSE PACKING.

The Annual General Meeting of the Colombo Tea Traders' Association was held at the Chamber of Commerce Rooms on Feb. 27th. The Hon. Mr. Stanley Bois, Chairman of the Association, presided, and there were also present:—Hon Mr J N Campbell, Messrs G H Alston, J G Wardrop, A Thomson, A H Ayden, H J Scott, J H Adams, S Brown, A Prideaux, W Shakspeare, E R Waldock, G Croll, A W Willis, S O Jones, A F West, O M Aste, F M Mackwood, W Somerville, H M Waldock, W E Keell, W P Ampenoff, A O'dell Figg, W E Mitchell, A R A Heath, H B Phillips, Gordon Frazer, A H Barber, H E Day, Seymour P Jeffery, Dyer, A O Rainnie, D Edwards, H Walthew, C W Booty, Alexander Fairlie, A E Lubbock, L O Leefe, C M Wright, G A Ginn, E Webb, E B Walker, W E Drury, J Lochore, R Davidson, W R Sands and W Bartleet.

The minutes of the previous meeting were read.

THE ANNUAL REPORT.

Your Committee have now pleasure in presenting to you their Report and Accounts for the past year.

MEETINGS.—Three General Meetings have been held during the period under review, the first being the usual Annual General Meeting, a report of which appeared in the local press, on the 28th February last; the second being an Emergency Meeting on 30th May to discuss the operation of the increase in the Cess, which was to become law on the 1st June; and the third also an Emergency Meeting on the 9th December, to decide the dates of the two last Sales of the year. Your Committee have, in addition, met frequently to consider several matters of interest which have been brought to their notice.

PROSECUTION OF MELBOURNE TEA IMPORTERS.—This incident, which has been ventilated in the local press, was directly dealt with by the Chamber of Commerce, with whom, however, your Committee have kept closely in touch. From correspondence which the Chamber has had both with the Ceylon Government and the Melbourne Chamber of Commerce, it would appear that the prosecutions referred to were the immediate effect of a Custom's Ordinance which is open to criticism, rather than of an arbitrary interpretation of such Ordinance by the Melbourne Minister of Customs. The Australian and Colombo Tea Trades are in sympathy on this question, and it is to be hoped that further efforts to secure an amelioration of so stringent an Ordinance will meet with success.

PATENT PACKAGES.—The Agents of Austialian Mail Steamers have been approached with the object of securing an alteration in the Bill of Lading. Instead of the weight of a package being limited to 100 lb. nett, it is suggested that it should be 130 lb. gross, thereby removing a disability from patent packages, which are constructed to contain over 100 lb. nett. The proposal was referred to your Committee, but did not meet with its support.

SAMPLING ALLOWANCE.—Owing to the increase in the number of buyers and the larger demand for samples for foreign countries, there is a feeling that the small samples now being distributed in the Fort are insufficient, and a suggestion has been put forward that the sampling allowance should be increased from 3 to 5 lb. A resolution to that effect forms part of the business to be brought forward at the annual general meeting

False Packing.—A flagrant case of false packing, which was fortunately discovered before shipment, was brought to the notice of your Committee lately, who decided upon legal action if such could be pursued with any hope of success. The lawyers were, however, not encouraging, with the result that two further measures will be introduced at the general meeting, intended to protect the Trade against a recurrence of false packing or cognate malpractices.

Green Teas.—A noteworthy feature of the past year has been the increasing demand for Ceylon Green Tea which has been greatly stimulated by the high prices ruling in America for China and Japan Teas. While 2,796,844 lb. were exported during 1902, it is estimated that over 10 millions will be shipped this year; and there is every probability that, in future; Green Teas will become an important factor in the Tea Trade of Ceylon.

The total exports for the year were, as per Chamber of Commerce Returns:—

	1901.	1901.
United Kingdom	103,543,932	105 734.570
Australia	18,718,794	20,641,134
Russia	11,727,068	9 653,896
America	7,016,593	4,502,131
Other Countries	7,984,854	5,767,237
Total	148,991,241	146,299,018

Totals for 1900 and 1899:—

1900	148.431,639
1899	129,894,156

The following figures show the quantity offered locally in public sale for the last four years, with the average prices obtained for complete invoices sold:—

1899	38,377,318 lb	Average	38 cents	
1900	47,681,826 do	do	34	do
1901	51,044,000 do	do	33	do
1902	55,835,478 do			

The following formed the Committee for 1902—The Chairman of the Chamber of Commerce (*ex-officio*). Buyers.—Messrs Tarrant, Henderson & Co.. Messrs Rodewald & Heath, The Trading Co. (Successor to A G A K & Co.), F F Street, Esq. Sellers.—Messers J M Robertson & Co., Messrs Whittall & Co., Messrs Bosanquet & Co., Messrs George Steuart & Co. The number of members belonging to the Association is 45, same number as in the previous year. The accounts for the past year made up to 31st December, 1902 and submitted to you duly audited, shew a credit balance in hand of R1,564 34. Mr J A McGillivray deserves the thanks of the Association for his voluntary audit.

THE CHAIRMAN'S SPEECH.

The Chairman said:—In rising to move the adoption of the report and accounts for the past year I do not need to detain you long, fortunately, because there is a considerable amount of business before us today. A retrospect of the past is always interesting, but it is the future towards which our eyes continually turn and it is with great satisfaction I am able to congratulate the Trade generally and producers, and sellers in particular, on the improved prospects of the tea trade, though I am sorry Reuter has not enabled me to announce the eightpenny average. We should soon be getting it as it is now in the immediate vicinity and, perhaps, before long we may be able to top that figure even. The report before you first treats of the question of the

PROSECUTION OF MELBOURNE TEA IMPORTERS,

which was a matter which the Chamber of Commerce and also this Association has had before them, and it has been thoroughly ventilated in the local press. From a perusal of the voluminous documents sent us in connection with the case, it seems evident that in the wording of one of the local Acts, tea was pronounced as unfit for human consumption if it contained anything over 8 per cent ash. The tea in question was alleged to have contained 8½ per cent ash and consequently there was no course but to put it out and that was done. I think we can depend on the tea dealers of Melbourne taking all the necessary steps. The Chamber of Commerce and this Association have not, however, lost sight of the matter and will act as they see best. It is a delicate question to interfere with the fiscal arrangements of any Colony, or appear to interfere with them. As regards the

PATENT PACKAGES

notice of a special resolution has been given for discussion at this meeting and I will not anticipate discussion on the matter. I would only say with regard to the resolution that there are various difficulties in the way when we bear in mind that the object of the steamship Companies is strictly to limit the amount in a tea chest to 100 lb net, and this resolution does not adequately provide for that difficulty. That will no doubt be fully discussed. A similar remark might also be applied to the question of

SAMPLING ALLOWANCES

in regard to which a special resolution will be brought forward. I think, however, there can be no doubt this resolution is brought forward in conformity with the growing requirements of the trade. There seems to be no doubt that the quantity sent to each buyer is inadequate to enable him to arrive at a fair valuation of the tea and in these circumstances, speaking as a seller, I would be prepared to agree to an increase in the quantity, but whether that increase should be from 3 lb to 5 lb remains to be seen. As regards the paragraph in the report

"FALSE PACKING"

there is also a special resolution to be brought forward to deal with the matter, and I do not need to anticipate discussion on the matter.

GREEN TEAS.

The growth in the trade has been most marked and most satisfactory. It is regrettable—I think this is a matter I referred to at last annual general meeting of the Association—that we do not seem to get the figures from the Customs to tally with the amount on which cess is paid by the Planters' Association, and I can only suppose that it is due to the carelessness of Firms, exporting clerks, or some other reason. The difference between green and black tea is not mentioned in the Bills of Lading, and I would ask you to assist us in getting accurate figures in by seeing that your subordinates discriminate in the Bills of Lading between Green and Black Tea.—Proceeding next to deal with the

TEA EXPORTS FOR THE YEAR

the Chairman said:—We exported 2 million less to the United Kingdom and 2 million less to Australia, but against this we sent 2 million more to Russia, 2½ million more to America and 2 million more to other countries. Taken in conjunction with the considerable increase over last year in the local sales is very gratifying. The local sales in Ceylon were during 1902, 6½ million lbs. above that of 1901 which was in turn 3½ millions in excess of 1900. It is evident we

have to congratulate ourselves on the very healthy state as regards the local market and I trust its extension will continue as, I think, it doubtless will if justified by the results obtained by those offering tea locally. As regards

YOUR COMMITTEE

the voting papers have just been opened by the Committee in virtue of rule 8, and have resulted in the election of the following :—Buyers : Messrs Rodewald and Heath, the Russian Trading Company (Mr Ampenoff) ; Crosfield, Lampard & Co ; Mr F F Street. Sellers : Messrs J M Robertson & Co. ; Messrs George Steuart & Co. ; Messrs Whittall & Co. ; Messrs Bosanquet Bros. which, I think, is substantially the same Committee you had last year.

THE ACCOUNTS

are of the simplest description and leave no comment for me except to point out their satisfactory condition. The last matter—or practically the last matter dealt with is the

NUMBER OF MEMBERS BELONGING TO THE ASSOCIATION,

which is 45 and, I am glad to say, there are six further firms which have been elected at last meeting of the Committee making in all 51 members. On looking into the constitution of the membership of this Association—I took the trouble to analyse the constitution this morning—I find there are 5 brokers, members; 16 firms, who are solely and simply buyers ; 9 firms solely sellers and 15 firms, who are both. Now I have no hesitation in saying the bulk of these firms are interested, both buyers and sellers are interested, in every stage of the tea planting industry of Ceylon. It nevertheless occurs to me that we might with great advantage to ourselves

BROADEN THE BASE OF OPINION

on which this Association rests and on which it formulates the requirements of the trade ; and I would suggest as the best means to this end that we should invite the Chairman of the Planters' Association and the Planting Member of Council to become in future as *ex officio* members of this Association. I am sorry this did not occur to me in time to put it forward as a resolution today at this meeting, but I throw out the suggestion now as I feel it would strengthen our hands materially and keep us better in touch with opinion upcountry. On the other hand it would enable our upcountry friends to keep in touch with the conditions of the trade in Colombo and prevent many misunderstandings arising—which, although, I am glad to say, we have successfully avoided them in the past, we wish to give every facility for avoiding in the future. I need hardly point out, gentlemen, that we owe our

PRESENT POSITION IN THE MARKETS OF THE WORLD

to the unity, combination and to the heartiness with which every one—from the producer and seller to the buyer and distributor—has worked together in the past to put the Ceylon tea trade at the head and front of the tea trade of the world and I feel sure everything we can do to assist this policy will be of the greatest service to the trade in the future. With these few remarks, I beg to move the adoption of the report and accounts for the year ended December 31st, 1902. (Applause.)

Mr S P JEFFERY—(of Messrs Lipton, Limited).—I have much pleasure in seconding the adoption of the report and at the same time congratulating the Chairman and Committee on the satisfactory year that has just passed. (Applause.)

THE GENERAL COMMITTEE.

The General Committee was formally appointed, the names of which were given by the Chairman in his opening speech.

TEA TRADERS' HOLIDAYS.

The CHAIRMAN :—The next item on the agenda is the question of the Tea Traders' Holidays for the present year. It is proposed in accordance with our usual practice for the past year or two, to omit the sales on 15th April and 30th September. On December 16th the sale will be held as usual and a supplementary sale on December 18th, closing the catalogue on the 14th and making the first sale of the new year on 5th January, the catalogue to close on 30th December at 4 p.m. If you recollect some little time ago we decided that these dates should be settled at the general meeting, and I trust that if you have any objection to these proposals of the Committee—they are merely proposals—you will take this opportunity of putting them forward.

Mr DRURY—(Messrs Forbes and Walker)—Mr Chairman, in connection with these holidays, I would like to suggest that we revert to the system of the holidays being settled by the Committee—with the exception of one point—the December holiday. At X'mas last year a great deal of trouble arose which is still fresh in the minds of us all. I think, the Committee arrange the holidays, it will be much more satisfactory.

The CHAIRMAN—said that these dates were fixed now in order that they might be advertised well in advance. There was some trouble last year in the December holiday, but that was due more to a mistake in regard to the closing of the catalogue. There was also the question of writing home, because if there was no sale their home houses would required to be informed and it might save telegraphing and other expense. The Committee would have no objection to undertaking the responsibility but at the same time it was discussed in a general meeting and considered these holidays should be fixed at the general meeting.

Mr. ALSTON—(Messrs Whittall & Co.)—seconded the suggestion of the Committee as put forward by the Chairman.

The CHAIRMAN :—I take it you are seconding the original proposal. Mr. Drury, previous to that being seconded, made a suggestion which I believe is to be an amendment—that the matter should be left to the Committee. If nobody seconds that, it falls to the ground and we deal only with the original motion.

No seconder to Mr. Drury's amendment being forthcoming the original motion was put to the meeting and carried.

INCREASED SAMPLES.

The CHAIRMAN :—Before calling on Mr. F. F. Street to propose the resolution standing in his firm's name I would like to read the following letter received from the Planters' Association :—

The Secretary, Colombo Tea Traders' Association Colombo.

Dear Sir,—Your letter of the 16th instant having been duly read and considered at a recent meeting of the Committee of the Planters' Association of Ceylon, I now write to ask you to bring under the notice of your Association the annexed copy of resolutions passed on the subject of the resolutions to be brought forward at the annual general meeting of the Colombo Tea Traders' Association.—I am, dear Sir, yours faithfully, A. Philip, Secretary to the Planters' Association of Ceylon.

Kandy, Feb. 23rd, 1903.

(*Resolution referred to.*)

"That as regards Resolution 4 in the advertisement notice of the meeting of the Colombo Tea Traders' Association the Committee of the Planters' Association considers that the value to be deducted from the sale proceeds should not exceed the present charge. (II). That as regards Resolutions 4, 5 and 6 the Committee of the Planters' Association considers that in their present form they appear to be detrimental to the interests of the Producers."

Mr J. H. Adams—(Messrs F. F. Street and Co.)—with your permission I should like before moving the motion to alter the increase to read from 3 lbs. to 4 lbs.

The Chairman:—I suppose the Association will have no objection to permitting the mover to substitute 4 lbs. instead of 5 lbs?

Mr. J. H. Adams—then moved the motion standing in the name of Mr. F. F. Street, which amended read as follows:—

"That in view of the increased number of buyers and the demand for extra samples for foreign markets, it is desirable that the sampling allowance for big breaks be increased from 3 lbs., as at present, to 4 lbs."

In doing so he said that since the resolution had been published there had been a lot of discussion on the matter and he thought sellers generally had come to the opinion that 4 lb. would be quite enough for the trade but at the same time they allowed that 3 lb. was hardly a sufficient quantity to give adequate samples. In Calcutta the sample was ½ lb. and he believed buying brokers got 1 lb. each. In London they got larger samples and in China they used to get 1 lb. At the present moment in Ceylon there was never a sample left after the sale for the buyer or for other firms who wanted to send a sample away.

Mr. S P Jeffery—(Messrs. Lipton, Ltd.)—in seconding the motion, said that he thought from the resolution passed at the Committee Meeting of the Planters' Association that they were inclined to overlook the fact that all the tea sold on the local market contained absolutely net weight. He had some experience in re-packing and his experience was that if there was a gain it was on the wrong side. With regard to tea packed for London he thought it was the custom to pack a little for what weight may be lost. His chief reason for supporting the resolution was, however, that the sample they got as buyers was in his opinion too small and he thought that was the opinion of many others. A large sample looks much more attractive, and he thought if they had larger samples to value the teas on, it would be in the producers' favour. On looking at a large sample they were inclined to see the tea in a better light. It is very difficult to get a sample of tea after the sale. He had often tried to get a sample to offer where he thought he could get orders and he had to leave it because he could not get samples big enough to offer to customers. That was his chief reason and he strongly supported the resolution. He hoped both sellers and buyers would see it was to their interests to support it.

Mr. Drury—at some length, explained the system of distributing samples and showed the sizes of the tins and the sizes of the packets in which the samples were contained. The brokers drew 3 lb. of tea and they distributed in large breaks 37 samples and in small breaks 39 samples in the trade. They were distributed in this way. 20 of the buyers sent round tins of this sort (showing one) some larger and some smaller. These buyers expected these tins to be filled and for 18 buyers who have no tins they sent samples in paper. The complaint was that if only these 3 lb were to be used they could not fill these tins. In fact some of them are only half filled, and that was where the complaint arose. If filled, 3 lb. would not even go round. That meeting could fix on a standard size of sample or fix a limit. He would suggest a size of box—that used by Messrs Crosfield, Lampard & Co. They could have 38 samples out of the quantity allowed if that box was adopted. A large sample looked better than a small one and it was most certainly to the interests of the seller and also to the interests of the buyer that larger samples be allowed. He would strongly support this motion that 4 lb be drawn and they could get a sample that would please everybody. After they bought, they could get a sample to send to their constituents and a sample which could be used for pushing tea in the various parts of the world, which was a very necessary thing indeed.

THE VIEWS OF THE P. A. REPRESENTATIVES.

The Hon. Mr J N Campbell—said he was not altogether satisfied with the demonstration made by Mr Drury. Of course, he did not put his opinion against Mr Drury's or any of theirs; but he thought the trade hitherto had been supplied by the brokers in Colombo with a sample such as was sufficient and if all the brokers had supplied similar samples he did not think that agitation would have ever been brought before the Association. He perfectly agreed that a good sample ought to be given to the trade and if it was actually necessary that more than 3 lb should be taken he personally had no objection; but the question was "Who is to provide this sample?" Hitherto the seller had borne the whole of the cost of the sample supplied to the trade. Some years ago there was no such deduction made from the invoice as was made now, and that in a way without consulting the producer. When he said "without consulting" the producer he meant that apart from consulting him in that Association the producer was not invited to express his opinion and the result was that buyers received a sample of 3 lb which was paid for by the seller. A further allowance of 1 lb was asked from them, but he wanted to know what became of the 3 lb they already supplied. At present they gave about 100,000 lb to the trade per annum in sampling allowances and now 33,000 lb were asked for the same purpose. He thought it would be only fair that the buyer would be willing to take his share of that responsibility and in future that they (the producers) should be limited to the 3 lb and if further sampling allowance was necessary, the 1 lb or ½ lb—as he was told by some was sufficient—should not be

deducted from the invoice. The buyer, he proceeded, invariably got more than the nominal amount of the invoice. Beside that he got his proportion of the samples drawn amounting on an average to a fortieth part of 100,000 lb. a year, so that it was perfectly reasonable the buyer should allow them 1 lb. against the 3 lb. they were willing to allow. He would ask them to allow him, to add the following words as a rider to the motion :—

"And that the value to be deducted from the sale proceeds shall not exceed the present charge."

That was the view taken by the Planters' Association and as one of their representatives there he was bound to bring it forward. But it was also his own opinion. With these few words he begged to move that rider which he had just read and he asked them in all fairness to the producer and seller, who was not so largely represented there as the buyer to give that their earnest consideration.

Mr E Webb—supported Mr Campbell's rider. With regard to extra sampling allowance he thought there was no doubt that more was required by the trade. He had been a couple of years in Mincing Lane himself and knew what was required for a sampling allowance. He thought the brokers should have something to hold over for show. He did not see why the buyer should not bear some of the charge of the sample. As a rule the buyer did not get more than the actual amount of the invoice. He thought that everyone, in order to prevent loss in weight, put in a little more than the actual amount and counting what the buyer annually drew from other samples, he did not think, it would be any unreasonable charge on buyers to let them be responsible for the extra samples.

Mr A R A Heath—(Messrs Rodewald & Heath) —said he would like to point out the fact that in London they had a pound draft given to them on all teas sold whereas in Colombo they got nothing whatever, but the sample given by the broker and the small sample they got after buying tea. Planters were very anxious to encourage that market, and, therefore, he did not think it was at all an unreasonable suggestion that they should get this sample given them to judge by and also to send samples away to customers. At present in London the buyers got a pound, but here there was nothing at all, and he had many claims for short weights from Australia &c. He was sure there were many buyers there who could bear him out in that. He did not think the present resolution was at all an unreasonable one.

Mr Jeffery :—I should like very strongly to endorse the point about the draft on teas given in London.

The Chairman :—I am afraid you cannot speak a second time on the same subject except by way of explanation.

Mr Jeffery :—I was not going to speak except to endorse Mr Heath's remarks.

Mr G H Alston—said that it appeared to him as in the way of every other business, the sellers gave samples of his produce to the buyer. For the trade it was the same. Of course, it was brought forward as regards the London trade that they had to put back a return, but that was not really a return for, in addition to that, 1 lb. was allowed. After the lucid explanation given by Mr Drury of the amount required to give a fair sample by which buyers could judge tea he did not think sellers should grudge them that sample.

The Chairman—said with regard to the weight of teas offered in the local sale he had there a letter before him which arrived at the last Committee Meeting, but not in time for any resolution to be brought forward in connection with it. The letter was from Messrs. Tarrant Henderson & Company who stated :—

The Chairman, Tea Traders' Assosiation, Colombo.

Dear Sir,—For some time past we have noticed that the packages of tea offered for local sale, particularly under initial marks, are very often of very inferior wood and the tea on examination proves to be badly fired and is frequently short in weight.

We shall be glad if you will circulate this letter with the object of eliciting from other buyers if their experience is the same as our own, and if this is so would ask the Association to endeavour to take such steps by making this known publicly, as will improve matters.—Yours faithfully,

Tarrant, Henderson & Co.

Colombo, 13th February, 1903.

Proceeding the Chairman said it was an advantage to have that before them, so that if such a state of things existed they might do something hereafter to remedy it. He would also like to state—though it might not be absolutely in order it appeared in an interesting manner on that subject that a letter had been received from Mr Edgar Turner, who was a member of that Association. He says with regard to this particular question :—

In your rules and regulations corrected to March 1896, I find 39 members, corrected to April, 1902, 43 members (including 3 up-country members who do not draw samples), so that we do not see the necessity of increasing the sample allowance. You may remember that the sampling allowance when initiated was not liked by the sellers, on the ground that in a few years the trade would be asking for more and more.

Our fears were justified, and unless the movers of resolution No. 4 can show strong reasons for the increase it will cause dissatisfaction.

Should, however, it be the general wish of the trade, and they show the necessity of the increase in the seller's interest I trust it will be on a sliding scale. Say all breaks of 300lb. and under 1lb. samples be drawn, and samples seen at selling broker's office.

2 lb.	allowance up to	...	800 lb.
3 ,,	,, ,,	...	1,200 lb.
5 ,,	,, over	..	1,200 lb.

This sampling allowance he thought—he was subject to correction by the mover of the resolution—was intended only to apply to breaks of 1,000lb and over.

Mr. Adams—signified that that was so.

The Chairman proceeding said the amendment suggested by Mr Campbell and seconded by Mr Webb would read :—

"That in view of the increased number of buyers and the demand for extra samples for foreign markets, it is desirable that the sampling allowance for big breaks be increased from 3lb. as at present, to 5 lb. and that the value to be deducted from the sale proceeds shall not exceed the present charge."

The amendment was first put to the meeting when there voted for it only the mover and seconder.

The original motion was then put and declared carried.

A Member—asked if the style of sample suggested by Mr Drury was to be agreed upon. He thought it would simplify matters for the Brokers if it were adopted now. The tin, Mr Drury had shown them, was he thought generally considered a good one.

The Chairman—replied, he thought that was a matter that might safely be left to the Committee. It was a matter that could not very well be determined at a general meeting.

FALSE PACKING.

Mr. Gordon Frazer—(Messrs. Gordon Frazer & Co)—moved the following resolution standing in his firm's name :—

"That no teas may be put up for sale at the Chamber of Commerce Sale-rooms except through members of the Colombo Tea Traders' Association. Other teas may, however, be offered on sale provided that they are guaranteed by the selling Broker as first hand teas on Garden Account, or provided that they be first bulked and repacked in the store of a *bona fide* member of the Association and there remain pending delivery."

He said that his experience in regard to a lot of tea purchased by him at the sale on 21st January made him consider the steps of which that resolution was the effect and he thought when they heard what these experiences were they would agree with him that some such thing as was provided by that resolution was absolutely essential for the credit of shippers, the good name of Ceylon generally and the tea estates of the Island particularly. Briefly the circumstances were these. At the sale on 21st January he purchased 18 chests of tea, containing 1,780 lbs. The sample on which this purchase was made was a tippy, well made broken pekoe. Some of the packages were opened in his stores and the tea appeared perfectly up to sample, but by what he might term a dispensation of Providence that tea was required for blending and it became necessary to turn up the whole of it. This turning up displayed a most flagrant example of false packing. For the first 4 inches from the top of the chest the tea was perfectly the same as the sample, but underneath was the mixture of cheap souchong and dust. A deliberate fraud was attempted. The packages were treated in the same way at the bottom so that in the event of the chest having been opened the wrong way up the fraud would not have been detected. Now he asked them what would be the effect on the kind of an American or colonial buyer, if that tea had been opened by him in that condition. His credit in that quarter would receive a severe shock and also the credit and good name of Ceylon through him would similarly suffer. They could not tell how many cases like this had actually gone through and he thought that to think that was a singular case would be assuming too much. He might also tell them that instead of 1,870 lbs. the actual contents of these chests was only 1,820 lbs. That showed the disease, now for the remedy. The Committee of that Association obtained legal advice on the matter and the advice so obtained was such that no action was taken. It was considered difficult to secure legal proof. It, therefore, behoved them to take some steps for the protection of individual shippers and Ceylon tea estates and the reputation of the trade in the Island generally and he thought that resolution the best way of meeting the difficulty. They would observe that tea sold on garden account was, in no way, affected by that resolution. If they adopted that resolution they did so as much on behalf of the estate proprietors as the merchants whose interests in that matter he considered, were identical. (Applause). Personally he did not think they should do much to encourage mixed lots of tea, once they had passed the hammer, to make their appearance on the catalogues again. He did think buyers should have some guarantee as to where the lots they purchased were packed. In the case of estate teas they knew they were packed in the estate factories and with that guarantee they were perfectly satisfied, but in the case of other teas they had no such guarantee. That was the reasons for the resolution, and he did not think its terms were too strong. Another advantage it would have was that it would make the disposal of stolen tea more difficult to those exploiters of this particular branch of the tea trade in Ceylon. (Laughter). He remembered one fine day a cart-load of tea going a missing between the Colombo godowns and his stores. Unfortunately they knew that was not an unique case. From all points that resolution was calculated to benefit both producer and seller and both in their own individual interests and for the credit of Ceylon which they all prized so highly, he moved that resolution which he strongly recommended to their support. (Applause).

Mr. Hercules Scott—(Messrs. Bosanquet & Co)—said he had much pleasure in seconding the resolution. He was extremely sorry to hear from the letter read by the Chairman that the Planters' Association Committee had passed a resolution that resolutions 4, 5 and 6 were opposed to their interests. He could assure the representatives of the Planters' Association present that in seconding that motion, he had done so he considered more in the interests of the producer and the sellers than he had in the interests of the buyers. He could not see anything opposed to the producers or the sellers or anything that put the slightest resolution upon them. (Hear, hear.) He spoke approvingly of the terms of the resolution and the advantages it offered and concluded by stating that they had not brought forward that resolution except with the idea that it was in the best interests of producers. (Hear, hear.)

Mr. E Webb—said he did not see any objection why that motion should be opposed by the producer. It seemed in their interests.

Hon. Mr. J N Campbell—said that as the name of the Planters' Association had been mentioned he might explain that when their resolution was passed the second part of the motion before the meeting had not been published. Very naturally they objected to the first part of the resolution by itself because that would confine the sale to the Tea Traders' Association, but with the addendum they had now added, he did not think the Planters' Association would object. He would like to ask what was a *bona fide* member? He did not see the difference between a *bona fide* member and an ordinary member of the Association. (Laughter.)

The Chairman:—I don't think the mover of the resolution will have any objection to those words being deleted.

Mr. Gordon Frazer :—Not at all, Sir.

The Chairman—said that before he put the resolution to the meeting he thought it was only

fair he should read to them a few remarks from a letter which had been sent to them by Messrs. J T de Saram and D B Seneviratne who were native buyers, in that market. Proceeding the Chairman quoted largely from the following letter :—

A PROTEST BY NATIVE BUYERS.

63, Maliban-street, Pettah, Colombo. 16th Feb. 1903.
F W Waldock, Esq., Secretary,
Colombo Tea Traders' Association, Colombo.

Sir,—On behalf of the native sellers and buyers who patronise the Weekly Tea Sales held at the Chamber of Commerce, allow us to take objection to the suggested introduction of certain new rules forming the subject of the 5th and 6th Resolutions to be proposed at the Annual General Meeting of the Colombo Tea Traders' Association to be held on the 27th inst. We humbly beg to submit that if the proposed rules be passed and adopted by your Association they will involve great hardships on native sellers and buyers of Tea, and such rules will not in any way improve the Tea market, nor will they on the other hand be conducive to the benefit of the European Tea grower or planter.

As far as we could see, the adoption of these rules will only benefit the Broker, who will have to be paid an extra commission for buying Tea at the Chamber of Commerce Tea Sales for native dealers. The other alternative allowed for the native seller is that their Tea should be bulked and repacked in the stores of a *bona fide* Member of the Colombo Tea Traders' Association, which would be an expensive process as far as the native seller is concerned, and ultimately the benefit accruing from this will also result only in the advantage of the European Storekeeper. The native dealer has to sell his Teas cheaper than his European brother, and that he should be mulcted in extra brokerage or commission as a result of these rules coming into force would be very unfair and would absorb altogether the little profit he makes. These rules would therefore be an infliction principally on the Colombo Tea Traders' Association, on the native sellers and buyers, and they appear to be framed with the object of restricting natives dealing in Ceylon's staple without any justification whatever for so doing. A good proportion of the Teas purchased by the natives at the auction sales are used for local consumption. The local retail dealers get their supplies of Tea from those who purchased at the Tea sale of the Chamber of Commerce. And under the new rules, Tea for these dealers could only be obtained at an extra expense. This would be an unnecessary additional tax on the local consumer. Finally, we beg to submit that there is no necessity for the innovations contemplated. It has been the custom for many years for natives to offer and buy Teas at these Sales. The conditions of sale which now obtain at these Sales have not been found wanting—wanting in the sense as to make any invidious improvements affecting the native dealer only. If these rules have been suggested by any other motive, such as the prevention of fraud and deception in the packing and bulking of Tea by the *native seller only*, we beg to state that the 7th clause of the existing conditions of sale is quite ample to meet the case, and that under this clause any Tea not properly offered could be rejected. We beg to inform you that a copy of this letter has been sent to the Chairman of the Ceylon Chamber of Commerce and for the reasons already urged, and for other reasons, we trust that the proposed rules will not be passed by your Association towards which end we solicit your co-operation by duly presenting this letter before the meeting on the 27th instant.—We beg to remain, Sir, Yours faithfully,

(Signed.) J. T. DE SARAM.
(„) D. B. SENEVIRATNE.

Proceeding the Chairman said he felt perfectly certain that no native trader, who was carrying on a legitimate trade, would be hampered in any way by that Association. He could only further say that he welcomed with pleasure the remarks of Mr. Webb and Mr. Campbell on the subject of the position of the Planters' Association for he felt sure any opposition they could possibly have could only be due to their not thoroughly understanding the object of the resolution. (Applause.)

The resolution was put and carried *nem con.*

The CHAIRMAN :—Before going further I might ask when this new regulation is to come into force.

Mr. DRURY :—I would suggest first sale in April.

Hon. Mr. CAMPBELL :—Is that the first of April? (Laughter.)

The CHAIRMAN :—These regulations will be printed as conditions of sale, I suppose.

Mr. DRURY :—Yes.

A RESOLUTION WITHDRAWN.

The CHAIRMAN—who was to have moved on behalf of Messrs. Bois Bros—" That admission to the Tea Sales at the Ceylon Chamber of Commerce Rooms shall be strictly confined to Members of the Association, their accredited representatives, and visitors introduced by them " said that in view of the previous resolution he did not think it was necessary to put that before them and with the permission of the meeting he begged leave to withdraw the same.

WEIGHT OF PACKAGES TO AUSTRALIA: FREE TRADE IN TEA BOXES WANTED.

Mr. J G WARDROP—(COLOMBO COMMERCIAL COMPANY, LTD.)—moved the following resolution standing in his firm's name :—That the Steamship Companies be asked to substitute for the existing clause inserted on all Bills of Lading for Tea shipped to Australia, which is as follows :—

" No package to contain more than 100 lb tea; otherwise the steamer is not responsible nor liable for damage."

The following, viz :—

" No package of tea to weigh more than 129 lb gross; otherwise the steamer is not responsible nor liable for damage."

The original clause referred to in that resolution was inserted 7 years ago with the object of minimising the claims of the shipping Companies with respect to that tea. He thought they must admit it as a fact that the producer in the past had not been as careful of packages to send Colombo for sale as to the sale in London and hence the necessity for that clause in the Bills of Lading. At the time that clause was brought into operation patent packages were used to a very small extent. Now a patent package can be legitimately said to contain 110 lbs. of tea against 100 in the wooden packages and the consequent effect of that stipulation of the Bills of Lading is to penalise the users of the patent boxes. If they adopted that resolution he was now moving it would inflict no hardship on the wooden packages and it would put the patent packages in a more fair position. There was no restriction in the amount packed from Colombo to London or to any country except Australia with regard to the value of the patent packets, he could only mention the case of a Company doing business in Ceylon with Russia. Their Russian friends found the patent boxes useful and well adapted to their trade, strong, light and capable of standing long and varied transport. He thought they were sufficiently used to warrant their taking this action.

MR. A R A HEATH—seconded the resolution. He thought if the shipping Companies could be induced to make the alteration in the present clause and allow 129 lb gross instead of as previously 100 lb net it would be a distinct advantage from a buyers point of view and he could not see that looking at it from the planters point of view there could be any objection to it. He understood that the shipping Companies might consider the matter favourably if brought before them by that Association, and, therefore, he seconded the resolution.

MR. HERCULES SCOTT—said they had heard a great deal on that matter lately which all went to attempt to popularise the Venesta Chest. Some of them were, perhaps, not aware that the matter was very fully discussed last September at a Committee meeting of that Association, and in January last it was brought up in a Committee meeting of the Chamber of Commerce and a resolution was unanimously passed at both meetings, condemning the principle of this resolution. If he had their permission, he might read the resolution passed by the Committee. Proceeding Mr. Scott read the minute of the Committee meeting with regard to this matter and went on to say that at the Chamber of Commerce meeting in January over a month ago that resolution came before them and was unanimously condemned. He hardly thought that the annual general meeting of that Association should upset the decision of both their own Committee and that of the Chamber of Commerce. The Colombo Commercial Company were, as they were well aware, agents for the Venesta Tea Packages and he thought Mr. Wardrop would agree with him that the primary object of the resolution was to push the sale of Venesta tea packages. That, from the Colombo Commercial Company's point of view was quite right, but he thought it was different for the Tea Traders' Association to come forward and give a gratuitous advertisement to a package which is protected by patent. After alluding to the difficulties that would arise in repacking, &c., were the resolution adopted, Mr. Scott went on to say that he was told several present were to vote for the resolution just to give free trade in patent boxes. If they admitted the Venesta chest into general use, what was to prevent the makers of them doubling the price? They were protected by patent. If the Venesta chest became universal, they put the whole situation in the maker's hands.

MR. W E MITCHELL:—I think the Venesta Company have the remedy in their own hands if they make a package that will hold 100lb. (Hear, hear.)

HON. MR J N CAMPBELL—said he had great pleasure in supporting the motion put forward by the Colombo Commercial Company. He had to say he was very much surprised and astonished when he heard the Committees of the two Associations had agreed to have nothing to do with the proposal that that alteration should be made on the Bills of Lading. Mr Hercules Scott's remarks had been entirely a diatribe against the Venesta package and in favour of the Momi chest. He (Mr Campbell) was not in any way interested in the Venesta packages. He had nothing to do with the Venesta Company and he was not a shareholder in it, but he did use for the London market a large number of Venesta packages and he was always very well satisfied with them. There was no free trade in packages in Colombo. They were not allowed to ship more than 100lb. in one package to Australia. Why should they not be allowed to use any package they liked? He did not know why there should be any difference in what was packed for London and for Australia. Why should there be a limit in the quantity packed to Australia? There was no limit in the quantity packed to London. It had always been said by the shipping Companies when they were approached "Let the trade approach us and then we may consider the matter. As long as the Traders' Association is against the change we will take no action." He asked that the Traders' Association should now give them an opportunity to put all boxes on an equal footing. (Hear, hear.)

MR SCOTT—repudiated the suggestion made by Mr Campbell that his remarks were a diatribe against the Venesta packages in favour of the Momi. The great proportion of their teas were packed in country wood. He had no interest in the Momi chest and held no brief for them.

MR AMPENOFF—said that the Company he represented had been trading with Ceylon for the past four or five years. Their experience was that tea packed in the ordinary boxes arrived broken and half the tea lost and his Company had given him instructions that the tea he bought now was to be packed in Venesta packages which they found strong and serviceable. He could not see why objections had been raised to the Venesta Chests. Russian buyers—

MR SCOTT:—May I rise to a point of order? This is not a question of shipments to Russia; it is a question of shipments to Australia.

MR AMPENOFF—resumed his seat.

MR WARDROP—in reply—said he had nothing to add further than that he was equally interested in Momi boxes as in Venestas and all he wanted to see was free trade in tea boxes. What they were aiming at there that day was to forward the interest of the Tea Traders.

THE CHAIRMAN—said he would only say one word, in regard to what fell from Mr Scott, and that was that although the Committee of the Chamber of Commerce or that Association had decided against this, it was not *prima facie* evidence that it had been settled for all time; and if any new facts were brought forward, it was quite competent for the Association to reverse that decision at any time. He just mentioned this unless any member might think that it would be a slight on the Committee to reverse thir decision.

THE MOTION LOST.

THE CHAIRMAN—then put the motion to the meeting and it was lost by 14 to 12 votes.

This was all the business.

SANITARY INSTRUCTIONS FOR THE TROPICS.—We invite the attention of our readers to the list of Sanitary Instructions for the use of people in the Tropics which have just been issued by the Liverpool School of Tropical Medicine. These simple rules are of the greatest importance to all residents in Ceylon and should be perused carefully, in view of the latest discoveries in medical science affecting tropical countries.

A NEW USE FOR SUGAR.

VULCANISING WOOD.

As the result of experiments, a method of so treating timber as to secure even from soft wood a largely increased toughness and hardness is reported to have been invented by Mr Powell, a Liverpool merchant. The treatment to which the timber is subjected is that of saturation at boiling point with a solution of sugar, the water being afterwards evaporated at a high temperature. The result is to leave the pores and interstices of the wood filled in with solid matter, and the timber "vulcanised," preserved, and seasoned. The nature of moderately soft wood, it is claimed, is in this way changed to a tough and hard substance, without brittleness, and also without any tendency to split or crack. It is also rendered remarkably impervious to water. Hard woods, similarly treated, derive similar benefits. Moreover, it is claimed that the process may be completed and timber turned out ready for use in a few days. The invention, which has been patented, is to be brought before the attention of the timber trade by a series of practical demonstrations and lectures.—*H. and C. Mail*, Feb. 20.

RUBBER FORESTS IN PORTUGUESE AFRICA.

The Portuguese investigator, Dr. Pereira, on a journey through Africa, telegraphs from Mossamedes that he has found large forests of rubber trees in the regions of Pungo-Andongo, Bardo and Quanza. The natives there have no idea of the way how to get the rubber.—"*Gummi Zeitung*."—*India-Rubber Journal*, Feb. 16.

PRIMEVAL CAMPHOR AND OAK FOREST DISCOVERED IN FORMOSA.

An interesting and unusual discovery is that of a primeval forest which has been found in Southern Formosa. The forest is of vast extent, covers, it is said, 50,000 acres, and contains 120,000 camphor trees, each measuring from 7 to 18 feet in girth. These are roughly estimated to yield ten million catties of camphor, which, purchased by the monopoly office at 18 yen per 100 catties, will be worth 1,720,000 yen approximately. Besides, the forest abounds in "red-grained" oak, excellently suited for making Japanese oars, and also in *tenge*, valuable for cabinet work and other purposes. On the whole, therefore, the trees in this newly-discovered but ancient forest may be valued at some tens of millions of yen. There is one big obstacle, however, in the way of their being utilised, and that is the excessive cost of transportation. Mr. Ishibashi, chief of the Aborigines district office, is the lucky discoverer of this forest. He has also discovered in the same remote district a peak standing 12,081 feet above sea-level, the next highest peak therefore in the island, the highest being Mount Niitaka.—*Hongkong Weekly Press*, Feb. 23.

RED COCONUT BEETLES IN SINGAPORE.

With regard to the inspection of coconut trees, Mr Ridley, in the Gardens Report for 1902, says that, during the year, notices to cut down infected trees were served on 238 persons and 1,039 dead trees and 35 piles of rubbish were destroyed. There were no prosecutions. The number of red beetles, especially, has greatly diminished in Singapore, so that it was some time before Mr Ridley could get a couple for a correspondent in Madagascar who wished to see it.—*Straits Times*, Feb. 28.

NETHERLANDS INDIA.

The *Batavia Nieuwsblad* tells of the steady march of improvement in Pulo Way, at the harbour of Sabang. Jetties and storehouses are being rapidly built for the Dutch mail steamers calling there. It is expected that the N D L steamers will follow the example.

THE NUTMEG PLANTERS at Banda in the Moluccas are now in the hands of a shipping ring which deals with them on ruinous terms. The planters look now for better times from Australian ships beginning to call at Banda, and readily buying up local products. The supercargoes of these vessels have promised to call again. —*Straits Times*, Feb. 28.

EAST AFRICAN PEARL-SHELL.

Dr. Aurel Schulz, F R G S, the well-known South African explorer, has secured two concessions over the whole of the German East African Coast—one for mother-of-pearl and pearl fishing, and the other for the exploration of trepang, also called Beche-de-mer, both of which in other countries have developed into great industries and given large returns. The discovery of genuine mother-of-pearl shell on the German East Coast of Africa is expected to result in the development of a solid industry. Dr. Schulz state that the islands lying off the coast from coral banks of enormous extent, which fulfil all the natural conditions requisite for the maturing of mother-of-pearl shell in large quantities, while the conditions for diving are very favourable, as the water lies shallow over great areas. Red mussel, out of which he extracted some good white pearl, is plentiful over a distance at least 400 miles in length. South of the island Mafia, off Ras Kisimans, and in other places, he found beds of the large pinna shell (of extraordinary size) which yielded black seed pearls. Trepang is present in considerable quantities.—*African Review*.

ESTIMATE OF COST AND REVENUES OF A CACAO PLANTATION.

[Estimates of expenses in establishing a cacao farm in the Visayas, Phillipines, and profits after the fifth year.]

The size selected is 16 hectares, the amount of land prescribed by Congress of a single public land entry. The cost of producing such a tract of land is as yet undetermined and cannot be reckoned in the following tables. The prices of the crop are estimated at 48 cents per kilo, which is the current price for the best grades of cacao in the world's markets. The yield per tree is given as 2 catties, or 1·25 kilos, a fair and conservative estimate for a good tree, with little or no cultivation. The prices

for unskilled labor are 25 per cent in advance of the farm hand in the Visayan islands. No provision is made for management or supervision, as the owner will, it is assumed, act as manager.

Charges to capital account are given for the second, third and fourth year, but no current expenses are given, for other crops are to defray operating expenses until the cacao trees begin to bear. No estimate of residence is given. All accounts are in United States currency.

EXPENDABLE THE FIRST YEAR.

Capital account :—

Clearing of *average* brush and timber land at $15 per hectare ...	$340.00
Four carabaos, plows, harrows, cultivators, carts, etc. ..	550.00
Breaking and preparing land, at $5 per hectare	80.00
Opening main drainage canals, at $6 per hectare ...	96.00
Tool house and storeroom ...	200.00
Purchase and planting 10,000 abaca stools, at 2 cents each ...	200.00
Seed purchase, rearing and planting 12,000 cacao, at 3 cents each ...	360.00
Contingent and incidental ...	174.00
Total ...	2,000.00

SECOND YEAR.

Interest on investment ...	200.00
Depreciation on tools, buildings and animals (20 per cent of cost) ...	150.00
	350.00

THIRD YEAR.

Interest on investment ...	200.00
Depreciation as above ...	150.00
	350·00

FOURTH YEAR.

Interest on investment ...	200.00
Depreciation as above ...	150.00
Building of drying house and sweat boxes, capacity 20,000 kilos ...	450.00
	800.00
Total capital investment ...	3,500.00

FIFTH YEAR.

Income account :—	
From 11,680 cacao trees, 300 grams cacao each, equals 3,500 kilos, at 48 cents...	1,680.00
Expense account :—	
Fixed interest and depreciation charges on investment of $3,500 ...	350.00
Taxes 1½ per cent on a one-third valuation basis of $250 per hectare ...	60.00
Cultivating, pruning, etc., at $5.50 per hectare ...	88.00
Fertilising, at $8 per hectare ...	96 00
Harvesting, curing, packing 3,500 kilos cacao, at 10 cents per kilo ..	350.00
Contingent ..	86.00
	1,030.00
Credit balance ...	650.00

SIXTH YEAR.

Income account :—	
From 11,680 cacao trees, at 500 grams cacao each, equals 5,840 kilos, at 48 cents	2,803.20
Expense account :—	
Fixed interest and depreciation charges as above ...	350.00
Taxes as above ...	60.00
Cultivating, etc as above ..	88.00
Fertilising, at $8 per hectare ...	128.00
Harvesting, etc., 5,840 kilos cacao, at 10 cents per kilo ...	584.00
Contingent	93.20
	1,303.20
Credit balance ...	1,500.00

SEVENTH YEAR.

Income account :—	
From 11,680 cacao trees, at 750 grams cacao each, equals 8,760 kilos, at 48 cents	4,204.80
Expense account :—	
Fixed interest charges as above ..	350.00
Taxes as above ...	60.00
Cultivating, etc., as above ...	88.00
Fertilising, at $10 per hectare ...	160.00
Harvest, etc., of 8,760 kilos of cacao, at 10 cents per kilo ...	876.00
Contingent ..	170.80
	1,704.80
Credit balance ...	2,500.00

EIGHTH YEAR.

Income account :—	
From 11,680 cacao trees, at 1 kilo cacao each, equals 11,680 kilos, at 48 cents...	5,606.40
Expense account :—	
Fixed interest charges as above ...	350.00
Taxes as above ...	60.00
Cultivating, etc., as above ...	88.00
Fertilising, at $12.50 per hectare ...	200.00
Harvest, etc., 11,680 kilos of cacao, at 10 cents per kilo ...	1,168.00
Contingent ...	240.40
	2,106.40
Credit balance ...	3,500.00

NINTH YEAR.

Income account :—	
From 11,680 trees, at 2 'catties' or 1.25 kilos cacao each, equals 14,600 kilos at 48 cents ...	7,008.00
Expense account :—	
Fixed interest charges as above ...	350.00
Taxes at 1½ per cent on one-third valuation of $500 per hectare ...	120.00
Cultivating, etc., as above ...	88.00
Fertilising, at $15 per hectare ...	240.00
Harvesting, etc., of 14,600 kilos of cacao at 10 cents per kilo ...	1,460.00
Contingent ...	250.00
	2,508.00
Credit balance ...	4,500.00

In the tenth year there should be no increase in taxes or fertilisers, and a slight increase in yield, sufficient to bring the net profits of the estate to the approximate amount of $5,000. This would amount to a dividend of rather more than $312 per hectare, or its equivalent of about $126 per acre.

These tables further show original capitalisation cost of nearly $90 per acre, and from the ninth year annual operating expenses of rather more than $60 per acre.

It should be stated, however, that the operating expenses are based upon a systematic and scientific management of the estate; while the returns or income are based upon revenue from trees that are at the disadvantage of being without culture of any kind, and, while I am of the opinion that the original cost per acre of the plantation, nor its current operating expenses may be much reduced below the figures given, I feel that there is a reasonable certainty that the crop product may be materially increased beyond the limit of two 'catties.'

In Cameroons, Dr. Preuss, a close and well-trained observer, gives the mean annual yield of trees of full-bearing age at 4.4 pounds.

Mr. Rousselot places the yield on the French Congo at the same figure. In the Caroline Islands it reaches 5 pounds and in Surinam, according to M. Nichols, the average at maturity is 6½ pounds. In Mindanao, I have been told, but do not vouch for the report, of more than ten 'catties' taken in one year from a single tree; and, as there are well-authenticated instances of record, of single trees having yielded as much as 30 pounds, I am not prepared to altogether discredit the Mindanao story.

The difference, however, between good returns and enormous profits arising from cacao growing in the Philippines will be determined by the amount of knowledge, experience, and energy that the planter is capable of bringing to bear upon the culture in question.—*Philippine Bureau of Agriculture*, Farmers' Bulletin, No. 2, 1902.

"SWEET POTATO" SUGAR IN FORMOSA.

[WHY NOT IN N. AND E. CEYLON?]

The Island of Formosa will soon become, under the wise economic administration of Baron Kodama and Dr Goto, one of the great sugar producing regions of the world. Sugar is made there from the sweet potato. There is an almost unlimited market throughout the Eastern world for sugar, and the Japanese administration in Formosa is wisely availing itself of the splendid opportunity for developing and supplying this market. It is estimated that at least one-half of the island is adapted to the growing of the sweet potato for sugar manufacture. The climate is moist and favourable, and the soil is as fertile as that of the Hawaiian Islands or of Java. The range of temperature is from 75 to 100 degrees Fahrenheit. The sugar section extends from the middle to the southern end of the island, and in this section rain occurs every day from May until the latter part of September, which is the growing season, and then there is no rainfall whatever until the following May, affording a perfect season for harvesting. The first sugar company was established about two years ago. In 1901 the product of sweet potato sugar was 20,000 bales, and last year it was estimated that it would reach 60,000 bales. The profits of the industry are encouraging, as one acre of land will produce 40,000 pounds of potatoes—worth about 80 yen, or $40 (gold)—and manufacturing expenses is only 75 cents for 1,000 pounds of sugar. Wages are low, a labourer receiving only about 12 to 16 cents a day. In such circumstances there is no reason for astonishment at the rapid development of the industry.—*Straits Times*, Jan. 24.

THE ACTION OF BASIC SLAG ON POOR PASTURES.

It will only be after many years of continuous research that we shall know fully the real action of this cheap and comparatively new source of phosphate (Basic Slag) and the actual limitations to its use. At present we know that on many poor pastures its application has an almost immediate beneficial effect, and that in such cases its influence is very lasting. The Bath and West of England experiments would almost lead us to regard the application of this manure as a permanent improvement to such pastures as benefit from it at all. The six years' experiments at Cockle Park indicate limits which are more in accordance with what we know to be sound and practical agricultural maxims. According to these North Country results, basic slag only indirectly benefit the grasses in a pasture. The slag is found to improve the white clover; the flourishing clover improves the soil by increasing the supplies of nitrogen; while, as a result, the better grasses are strengthened and the worthless bent is displaced. Basic slag, in point of fact, seems to be of benefit only so long as it maintains or increases the white clover; and during the whole of this time both the soil and the better grasses are being indirectly improved. But when the white clover ceases to be the predominant crop—usually from three to four years after the first application of slag—the use of this manure in any quantity should cease, and its use followed up by the application of a mixed manure. Farmyard manure can then be applied with good effect. If artificials are preferred; these experiments show that the best results are obtained by their application in two dressings. In November, 1½ cwt of slag and ½ cwt of bone meal, should be used. This should be followed in February or March by a dressing consisting of 1 cwt. of superphosphate, ½ cwt of fish meal, and 1½ cwt of kainit. These two dressings will cost about 15s and is enough to apply to one or two acres over such portions as need it—*i.e.*, where the white clover is giving place to a more mixed herbage. Such dressings as these, especially if followed by cake feeding, will greatly assist the better grasses of the pasture, and complete the work of improvement commenced by the basic slag.—LAND AGENTS' RECORD.

COCONUTS: COSTA RICA'S POSSIBILITIES.

Every fool with his scheme, and we with ours. It been brought forcibly home to us that as very little is known as to utilising many of the riches in which our fertile soil abounds, and for the present we bring to the front Coconuts, which —if we were poets—we would compare to weeping willows who are mourning their misfortunes and abandonment. By order of the Governor of Limon a recount has been made of the coconut trees existing in the Comarca, and although not effected with any minuteness, it has been shown that there exist between 40,000 and 50,000 trees of this class. Each one of these produces a minimum of 50 nuts yearly, so that without exaggeration of any kind it can be assumed that two million coconuts represents the annual production. Each 40 coconuts produce on an average one gallon of oil, and therefore the two million nuts would produce 50,000 gallons of oil yearly which is less than half the quantity of grease imported into this country for soap alone as will be seen from the figures: In 1901, 373,352 kilogrammes of grease for soap were imported with an invoice value of $18,431.19. The 50,000 gallons of oil that we have calculated as the product of the Limon coconuts would scarcely give 3703 quintals, or, say 170,338

kilogrammes, which are not, as we before said, even half of the 373,352 kilogrammes of fat imported, among which, we do not include 28,055 kilogrammes of machine oil that are also imported, which we could manufacture here—taking for the raw material the coconut or wild fig, for the oils of both plants are very good lubricants and only need a little mixing with petroleum for thinning it. In the calculations that we have made, we have taken into account only the Comarca of Limon, without considering the other extensive territories of the republic in which coconuts can be extensively produced. What is being done, today with all these products? Only a few hundred coconuts are exported that scarcely pay the cost of picking and transportation. What can be done? Much—by arousing the existing apathy before necessity, which is the supreme law, compels us by a more painful process. We know that there exists in this country the necessary machinery for the manufacture of coconut oil, machinery that cannot be utilised because the owner lacks capital for exploiting the business. Perhaps someone may be found with aptitude, having capital and lacking the material elements. Is it so difficult to realise this result? We think not: and in whatever form it is effected it may be the base for a productive and regenerative industry, a germ of the future commercial emancipation of Costa Rica. —*Limon Weekly News*, Dec. 1902.

MARKET VALUE OF VANILLA.

Messrs Brookes & Green, the well-known firm of Brokers in London, writes:—

Concerning Vanilla market and artificial substitutes, we beg to inform you that owing to a very large crop of vanillas from Seychelles, the price dropped very considerably from September 1901 to March 1902.

At the time of writing this letter prices are rising, and we think will keep firm through the summer. You may contradict authoritatively, that either 'Vanillin' or any other artificial competitor was the cause of the decline.

Referring to our letter of July 21st 1902, giving values of the sample vanillas you sent over, these valuations we repeat today, viz: from 3s to 7s per lb, the mention of 6d per lb as a rumour, is altogether wrong.—Barbados *Agricultural News* Jan. 3.

JAVA PRODUCTS IN 1902.

At the opening of the first meeting of the Commercial Chamber of Amsterdam in the New Year, the President delivered the customary review of the trade in the preceding year. In general the results were not brilliant, the course of prices being mostly downward. Java coffee, which opened at c.38, declined to c.34 for good ordinary and Santos from c.23½ to c.18½. Java tea followed a downward tendency until July, and then improved for the greater part. The Amsterdam market maintained its excellent position, and in the last ten years arrivals and deliveries are about 150 per cent. more. As regards Cinchona bark, the larger supplies caused a fall in value from c.7½ to c.6 per unit. The imports of rice were respectively c.10 and c.25 per cent, more compared with 1901 and 1900, but prices were maintained. The prices of Java tobacco were on the average c.5 per half kilo. lower, which means a loss of fl.2,500,000 on the crop.—*London and China Express* Jan. 16.

"DEANE-JUDGE" SAMPLES OF GREEN TEA.

We received a few days ago (and regret we did not notice them sooner) a few samples of green tea, from Mr. Drummond Deane, handed to us by Mr. Grieve of Messrs. Brown & Co. These samples, we may mention, have been seen by several testers in Colombo and were said to be very good and very like in appearance to China teas. The teas are an original ordinary green tea sample and a polished sample made in the New Polisher called the Deane-Judge Polishing Machine. They are, at present, at our office and can be seen by any callers interested.

CACAO CULTIVATION IN THE PHILIPPINES.

There can be no doubt of the rapid development of the Philippine islands under good Government, so soon as the Americans establish "the Roman peace." A "Philippine Bureau of Agriculture" has already been established and we have just received its "No. 2 Bulletin," which deals with "Cacao Culture in the Philippines, by Wm. S. Lyon in charge of Seed and Plant Introduction." Mr. Lyon mentions that cultivated cacao already exists in nearly every province of the Archipelago; but without much commercial success so far, while manuring is quite unknown. Very practical advice is given to intending planters, and an accomplished Entomologist is already at work as to insect enemies; while the following paragraphs are of interest in themselves, and a showing the good sense of the compiler:—

The Philippine Islands appear to be so far singularly exempt from the very many cryptogamic or fungous diseases, blights, mildews, rusts, and cankers that have played havoc with cacao-growing in many countries. That we should enjoy continued immunity will depend greatly upon securing seeds or young plants only from non-infected districts or from reputable dealers, who will carefully disinfect any shipments, and supplement this by a close microscopical examination upon arrival and the immediate burning of any suspected shipments.

Another general precaution that will be taken by every planter who aims to maintain the best condition in his orchard is the gathering and burning of all prunings or trimmings from the orchard, whether they are diseased or not. Decaying wood of any kind is a field for special activity for insect life and fungous growth, and the sooner it is destroyed the better. On this account it is customary in some countries to remove the fruit pods from the field. But unless diseased, or unless they are to be returned after the harvest, they should be buried upon the land for their manurial value.

The climate of the Philippines, where cacao can be grown, is specially praised, and the following contrast offered:—

Malarial fevers are relatively few, predacious animals unknown, and insects and reptiles prejudicial to human life or health extraordinarily few in number. In contrast with this we need only call attention to the entire Caribbean coast of South America, where the climate and soil conditions are such that the cacao comes to a superlative degree

of perfection, and yet the limits of its further extension have probably been reached by the insuperable barrier of a climate so insalubrious that the Caucasian's life is one endless conflict with disease and when not engaged in active combat with some form of malarial poisoning his energies are concentrated upon battle with the various insect or animal pests that make life a burden in such regions.

Finally we have estimates given, which will be closely scrutinised by Ceylon planters, who can readily compare the figures with their experience by remembering that the American dollar is equal to about three of our rupees in value—the hectare being 2½ acres, the "cacao farm" estimated for, is one of 40 acres. The outlay, therefore, to the end of the 4th year is R262 per acre, but the cost of land is not counted and other expenses are expected to be defrayed by "catch crops." We make no further comments, save that so early as the fifth year, an "income," or rather gross return from the cacao crop of over R5,000 (or R125 per acre) is expected, which rises by the 9th year to R21,000 or over R500 per acre, resulting in a net profit of R337 per acre. Very rich must be the soil and flourishing the cacao trees that can give such results.

INDIA-RUBBER.

THE CHEMISTRY OF INDIA-RUBBER.—By Carl Otto Weber, Ph.D. Pp. x + 314. (London: Chas. Griffin and Co., Ltd.). Price 16*s* net. In the volume before us, the author has applied himself specifically to the chemistry of India-rubber, and incidentally to that of its various substitutes. It may be said at once that the result is an eminently useful contribution to the literature of India-rubber and its congeners. The book contains nine chapters and an appendix. In the first chapter, which forms more than a third of the work and gives its title to the whole, Dr. Weber deals with the constituents of India-rubber, discusses their physical and chemical properties, and propounds in outline a theory of vulcanisation. The carbohydrates present in crude "unwashed" rubber are first referred to, and then follows a useful little table showing the proportions of resinous extract obtained from the various commercial brands of technically-pure rubber by treatment with acetone. It may be explained that the importance of these "resins" lies in the fact that they allow the chemist to discriminate between a high-quality rubber, such as Pará, and an inferior product like some of the African kinds. Passing on to india-rubber proper, the author summarises the evidence which goes to prove that the pure rubber substance is a hydrocarbon of the terpene type. Oxygen, it is true, is always present in commercial specimens, but it is partly accounted for by atmospheric oxidation and partly by the presence of an "insoluble" compound having the empirical formula of a hydrated terpene. This last, the author suggests, may be an intermediate product between india-rubber itself and the carbohydrates from which, perhaps, the various terpenes are manufactured in the cells of the rubber plant. Organic chemists have apparently found the chemistry of india-rubber somewhat unattractive. No doubt this is largely due to the intractable nature of the compound; for india-rubber, from this point of view, certainly possesses the defects of its qualities. It has few points of attack; there are none of the carbonyl-, carboxyl-, amido-, imido-, hydroxy- or methoxy-groups in which the organic manipulator delights; it cannot be readily dissolved; and *a fortiori*, being a colloid, it cannot be crystallised. Nevertheless, it has one vulnerable spot, and the Achilles' heel in this case is found in the existence of the 'ethylene bonds' pointed out by Gladstone and Hibbert. Much stress is laid upon the colloidal properties of rubber as being the clue to a proper understanding of its behaviour during manufacture —a disquisition on the colloidal state, leading up, however, to an interesting study of the phenomena of vulcanisation. In the author's view the vulcanisation of india rubber by means of sulphur consists essentially in the direct addition of sulphur to the india-rubber hydrocarbon (polyprene), with the formation of various polyprene sulphides. Combating the theory that the action of the sulphur is one of substitution instead of addition, the author rightly points out that if the former were the case the vulcanisation of a ton of rubber would mean the production of about 18,000 litres of hydrogen sulphide—a daily amount which would make the vulcanising rooms fairly reek with the gas. In reality, only insignificant traces are found there. The cold process of vulcanising by means of sulphur chloride is also discussed in detail. In the succeeding chapter the technical examination and valuation of india-rubber and gutta-percha are dealt with. But in this industry, as in so many others, our manufacturers cling hard to rule-of-thumb methods; stocks are bought on the strength of a cursory empirical examination; and we read that, in consequence, different lots, supposed to be of identical quality, "often show the most absurd variations" when properly appraised by analysis. The following quotation speaks for itself:—

"Pig iron, caustic soda, wood pulp, and scores of similar articles, costing comparatively speaking, a few shillings per ton, are brought and sold on the basis of strict analytical standards; but india-rubber, costing from £150 to £500 per ton, changes hands without either buyer or seller having more than a vague knowledge of its intrinsic value."

A full description is given of the various india-rubber substitutes now so frequently used, and which consist either of recovered rubber from cast-off articles or of the products obtained by the action of oxygen, sulphur or sulphur chloride upon such substances as linseed or colza oils. Inorganic compounding materials, vulcanising agents, solvents, colouring matters and textile fabrics each claim a chapter. Analysts and technical chemists who are called upon to examine india-rubber will be grateful for the chapter on the analysis of rubber articles, with which the volume proper closes. Chemists should note that nitro-naphthalene is recommended as a "solvent" for india-rubber in preference to the nitro-benzene hitherto generally employed. The author is to be congratulated upon a very useful contribution to a somewhat obscure and difficult branch of technical science.

C. SIMMONDS.

—*Nature*, Feb. 5.

ZANZIBAR NEWS.

MR. D. G. FAIRCHILD, RECENTLY IN CEYLON

Mr. David G Fairchild, of the United States Department of Agriculture, passed through here on January 21st. He was on his way South in the "Herzog." He had been to Dar-es-Salaam to inspect the Botanical station there and had thus only a few hours to devote to Zanzibar. Mr. Fairchild is well known in Planting circles in Ceylon, Singapore and the East and West Indies. He is especially interested in fruit and one of the principal objects of his mission is to discover the best fruits that are grown and to collect seeds and plants of them for his Government. He visited the fruit market here and took away with him samples of our oranges, mangoes and bananas. He has promised to send us a brief report upon their quality. Mr. Fairchild was much interested in all that he saw in Zanzibar and was especially struck with the signs of life and vitality that are to be witnessed here in our busy centres.

SIR JOHN KIRK, OF RUBBER FAME.

Sir John Kirk, G.C.M.G., K.C.B., F.R.S. arrived here on January 27th by the "Yangtse" and proceeded to Mombassa by the "Juba" the next day. He goes up the line and returns here it is hoped by about the 20th February to allow him a few days in Zanzibar before proceeding home by the February French mail. Sir John Kirk was British Agent and Consul-General here, but retired in 1887, in 1858 he joined Livingstone's first great Zambesi expedition as chief officer. It was in this Expedition that Lake Nyasa was rediscovered and laid down, the lower Zambesi, the Shire and Rovuma explored. In 1895 Sir John was appointed a member of the Government Committee for the construction of the Uganda Railway and he is now on his way to inspect the line. It is, however, as a naturalist and especially a botanist that Sir John Kirk is perhaps best known. His contributions to the Flora of Tropical Africa have been considerable. The greater part of what is known of the Flora of Zanzibar is due to the investigations of Sir John Kirk. He practically created the Rubber trade of the East Coast of Africa and the best-yielding species, *Landolphia Kirkii*, is called after him.—*Zanzibar Gazette*, Feb. 4.

TEA IN 1902-3.

AN INDIAN END-OF-SEASON VIEW

The 1902-03 season is now drawing to a close and it is time to form an estimate of what has been done in the way of lightening the burdens of the tea producer in the immediate past. In the first place the results of the present season have been disappointing so far as we have gone, and there is not time enough left of the London selling season for last year's crop, to materially alter the aspect of affairs. The general average of all tea sold in London on garden amount for the eight months of the season that have elapsed is lower by nearly a half-penny than the average for the corresponding period of the 1901-02 season, and even below the average for the eight months of the 1900-01 season to end of January. We have during 1902-03 averaged a little over 7¾d against nearly 8d in 1901-02 and 7½d in 1900-01. At the end of two years of short crop this result would be disheartening were it not a mere indication that our efforts have not been commensurate with the magnitude of the evil. Our demand needs to be put on a much broader basis, if we desire to make it firm and constant. There is yet time in the four months of the London selling year remaining, for the averages to advance comparatively, but it is clear that they have fallen too far behind to more than catch up with 1900-01, an admittedly disastrous year for prices generally. Those who pin their faith to the natural flow of trade would do well to note that though advance has been made in the last two years, it has not been sufficient to enable us to contemplate with equanimity the recurrence of another crop of the magnitude of 1900.

On the other hand, having come through so much the future certainly looks brighter, perhaps by contrast. London, fairly indifferent for three years, has woke up to the growing scarcity of tea, and it looks as if the boom in common teas which prevailed in the early days of 1899 were to be repeated. Having in memory the time of depression that was ushered in by that abnormal rise in rates for teas for price, we cannot think the whole battle won by the attainment of inflated prices for this class, even if they should come to pass in the immediate future. We cannot forget that these prices for a particular class of tea were explained at the time as subversory of all true values in other grades and not to the general interest of the industry as a whole. It is to be hoped that when the short excitement of a "boom" is past, we may be able to prevent the reaction and settle all teas on a firmer and truer basis of prices than before.

For the rest 1902 has been replete with good work. The Russian buyers have been attracted to the merits of the Indian article and an important trade has come, we believe, to stay. There has been a general quickening of demand for many minor centres, in the aggregate compensating for the Australian trade which in some unaccountable manner we continue to lose. In America, British grown tea has at last a chance of making further inroads upon the Far Eastern article, our previous expansion having checked upon reaching the limit of the black tea consumption of the Transatlantic countries, British and Yankee. During the year suit-advances in machinery for making the "true" green article, as approved by the Americans, have taken place, and though Ceylon and India by the application of the patent laws appear likely to be served with different machinery for the purpose, it seems that both countries are equally advanced, and time alone can show if either possesses an advantage over the other. Further ingenuity will no doubt be called out to overcome details in the process and place us mechanically equal with the hand labour of China and Japan. Even now we are able to undersell those countries with ease, and in these days of cheapness the result should be a foregone conclusion. In two important markets, therefore, Russia and America, our advance seems certain, and if the crop does not unduly rush forward this circumstance should render prospects for 1903-04 much brighter than any presented to our view for years past but only if the situation is treated with continued prudence.—*Indian Planting and Gardening*, Feb. 28.

COFFEE IN QUEENSLAND.—In a letter from Queensland dated February 2nd, the continued drought in that colony is spoken of as very serious. "We have only had one half crop now in four years," says the writer, "and last year was a total failure. This year promises to follow suit."

MOSQUITO BLIGHT ON TEA BUSHES.
REMARKS BY MR. C. R. NEWTON, OF "TEA ENZYME" FAME.

(*To the Editor of the "Englishman.*")

Sir,—Neither of your correspondents, Mr Harold Mann or R P Mongpoo seems to have noticed one constant habitat of "Helopeltis theivora" or the tea mosquito, viz., the cardamom fields. In the greater part of the Darjiling District it is known by the natives as the alinchee kera or cardamom insect, and is found throughout the year on the young cardamom shoots. I have delayed this communication in order that the result of previous observations might be confirmed and from Christmas to the end of January this year, when nearly all trace of it had disappeared from the tea except in a few unpruned portions which were flushing slightly, I have always with the aid of some sharp native children who had been employed throughout the year in capturing the insect on the tea, been able to obtain a number from the cardamoms, as also from other sheltered places where there was succulent jungle. In fact in my opinion it is rather an omnivorous feeder than a special tea one as described by Mr Mann. In artificial experiments the tea insect when fed on cardamoms acquires a lighter colour resembling those bred on the cardamoms. In fact, the insect seems to vary in colour within certain limits according to what plant it has been feeding upon. From observations during a number of years made by several planters, it always appears first on their tea in the neighbourhood of cardamoms or of special pieces of sheltered jungle and then spreads very rapidly. The crushed insects caught in the tea have also generally a decided smell resembling cardamoms. The reason I imagine that Helopeltis has not often been noticed on other jungle is that that the planter invariably looks for the black spots so typical on the tea, but not so on other plants. The blackness is due to the tanning. The shape of the marks depends on the shape of the plant cell in cardamoms where the cell is oblong, and the cell walls are longitudinal straight lines, rather hard. Several punctures generally occur together, often involving three or more cells; hence the mark, instead of being round as on the tea, may be oblong a quarter of an inch long by one thirty-second broad. Mr Stebbing, the Forest Entomologist, has I see recently recommended the burning of all jungle in the neighbourhood of cultivated crops, as a protection against blights. This I have advocated for years. There is no doubt that the blights have increased and the health of the inhabitants decreased in many districts since the Forest Department took steps to prevent the annual fires which used to take place every cold weather, consuming a lot of noxious jungle, that is now allowed to rot on the ground and harbour any amount of insect pests and fungus blights.

C R NEWTON, F R M S.

—*Englishman*, Feb. 26.

TEA IN UGANDA.

In a report on Exotic Plants of Economic Interest in the Botanic Gardens at Entebbe, Uganda, Mr J Mahon states that tea grows with but moderate rapidity. The rainfall is not great enough. During a period of rains it flushes nicely, but its cultivation on even a moderate scale would necessitate resort to irrigation. Mr Scott Elliot, the naturalist and traveller, seemed satisfied from his exploration in the Ruwenzori country that large areas there offered a fine field for the cultivating tea on a large scale.—*Planting Opinion.* Feb. 28.

PLANTING NOTES.

ELDORADO FOR YOUNG MEN WITH MODERATE CAPITAL—is the attractive opening of an advertisement in an Indian paper referring to Alabama and it runs on as follows:—"Productive fruit land for sale in the beautiful and fertile State of Southern Alabama, U.S.A. Also good grazing land in the heart of the cattle belt. A few thousand acres going cheap in the rapidly enlarging colony of Beavor Meadows, the Chislehurst of the Southern States, situated 400ft. above gulf level, and six miles from the famous health resort of Citronelle. Lovely climate. Pure water good hunting and finishing. one mile from station, 25 from the City of Mobile."—We should think South Africa or Australasia would have the preference with Britishers.

"THE BOTANICAL MAGAZINE" for February contains coloured figures and descriptions of the following plant:—*Sanseviera grandis*, J D Hooker, tab. 7877.—A supposed native of tropical Africa, but introduced into Cuba in the hope that the fibre it contains, which is of extraordinary strength, might be turned to commercial account. The plant is growing in the temperate-house at Kew, and has a tuft of broad, obovate, oblong, acute leaves three to four feet long, six inches wide, pale green, with transverse stripes of a deeper colour, and a central stalked raceme some three feet high of numerous regular, erect, funnel-shaped, greenish flowers, each about two inches long, the linear perianth-segments as long or longer than the narrow tube. As an ornamental plant, it has high claims on the attention of gardeners, and its cultitvation would seem to present no difficulty.—*Gardeners' Chronicle*, Feb. 7. [Can this be very much the same as our *Sanseviera Zeylanica* which also gives a good fibre?—ED. *C.O.*]

ARAMINA FIBRE.—In the Rio de Janeiro district of Brazil experiments have given proof of the excellent qualities of aramina fibre. Steps were taken to manufacture certain goods from it, and in June last year an exhibition of these goods, which consisted of rope and other woven products, took place in the city of S. Paulo. A factory is in course of construction in S. Paulo exclusively for the manufacture of goods from aramina fibre. The weaving machinery has already been erected, and other materials, which are being imported from the United Kingdom, are expected to arrive shortly, and the factory will then be in a position to begin work. The aramina plant is being extensively cultivated at two estates in S. Paulo. It is expected that the annual production of these two estates, which extend over about 325 acres of land, will yield from ten to twelve tons of dry husk, or four and a half to five tons of fibre for every six acres cultivated. The growth of the plant is rapid and it needs no special care. The price paid by the S. Paulo factory for clean aramina is about 1d. per lb.—*British Trade Journal*, Feb. 1. [What is the scientific name of the Aramina plant?—ED. *T.A.*]

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1903, booking necessary before the cud of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated iu Mexico, seeds from specially reserved old untapped trees. Orders booked for October-November delivery 1903, immediate booking necessary; large quantities ou special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, aud what would be the average price." Special offer, post free ou application.

Manihot Glaziovii.—Seeds and Plauts available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22ud August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castlloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-lovel up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica-Liberian Hybrid.—A highly recommended leaf-disease resisting hardy new variety of Coffee (cross between Arabian and Liberian). New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selectiou of the varieties to be seut to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Priec Lists are now being forwarded with Circulars and special offer of Seeds and Plauts of Rubber and other Economie Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902-1903.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Road-sides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plauts of Commercial Products iu larger quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Heuaratgoda, Ceylon, and schedules all the useful and beautiful plauts which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to Willam Brothers."

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: William, Henaratgoda, Ceylon. Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS, *Tropical Seed Merchants*, Henaratgoda, Ceylon

Correspondence.

To the Editor.

THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

Liverpool, Jan. 1903.

DEA SIRS,—In compliance with a suggestion made at a Conference with His Excellency the Governor of Lagos, Sir William Mac Gregor, K.C.M.G., C.B., M.D., held in Liverpool on November 17th, 1902, under the auspices of the Liverpool Chamber of Commerce, and in accordance with the advice given by His Excellency on that occasion, the Liverpool School of Tropical Medicine have drawn up a set of simple instructions for the preservation of health for the use of agents of firms trading in the Tropics. I am requested to send you copies of the instructions in question. The Chairman of the School (Sir Alfred Jones, K.C.M.G.), and the Committee, are convinced that the adoption of the recommendations contained in the instructions would tend greatly to improve the health of Europeans living in the tropics. They trust, therefore, that the Principals of firms at home, having houses in the Tropics, will act on the advice of Sir William MacGregor, and will send copies of the enclosed instructions to their agents or responsible clerks in the Tropics, with strict injunctions that the recommendations are to be carried out.—Yours faithfully,

A. H. MILNE, Hon. Secretary,

P.S.—Additional copies of the instructions can be obtained.

CONCERNING SNAKES.

Padukka, Jan. 15.

SIR,—In answer to Virus *re* "Snake against Snake," my belief is that snakes devour each other for its food. The undermentioned incidents are the datas from which I draw my conclusion.

One day whilst fishing at a pond, I saw a large rat-snake glide into the waters and in a short time it re-appeared with a large water cobra and, dragging its victim ashore, swallowed it up and again went in search of prey, coming to the surface again with a similar one. This time the poor thing clung to the grass and I, through compassion, aimed a blow at the rat-snake with my fishing rod, which made it hook off abandoning its prey and again I have myself killed a cobra and as it seemed to have gobbled up something unusual, I got my cooly to rip it up. When lo! to my astonishment I found that it had swallowed up a rat-snake. On measuring the snake I found the former 5 ft. long and the latter 4 ft. long. *Re* venom of one snake being fatal to another, I have no experience.—Yours truly, B. S. R.

FEEDING MILCH COWS AND BUTTER-MAKING.

London, Feb. 13.

DEAR SIR,—I should like to tell "A Planter's Wife" that she has not quite appreciated the process for producing butter by the absorption of the moisture contained in the cream. The whole action is to take away this moisture as rapidly as possible, and a new paper is to be introduced of a considerable thickness, with an absorption much higher than that of the best blotting paper, so that as the cream is poured out on to this paper it will be immediately dried. This process should be of great value for a much larger percentage of butter can be obtained from the cream, as there is no waste whatever of fatty matter. So that your readers may quite understand the theory, I would suggest their pouring—say, a tablespoonful of cream—on to three or four thicknesses of good blotting paper. The latter must be completely dry.

I would suggest to "A Planter's Wife" that she can increase the yield of cream from cows if it is possible to procure linseed at a reasonable rate in your country. - The plan to be adopted is to put the linseed into a large stewpan with plenty of water, and let it simmer very slowly throughout the day. In this country I mix bran or crushed oats, but I am not sure whether you have any such meal which could be used to take its place. There is nothing which will so improve the quality of the milk as this mixture.—Yours truly, THOS. CHRISTY.

[We thank Mr. Christy on behalf of many planters' wives as well as other residents in Ceylon for his most useful hints. Cotton seed with poonac—coconut cake—is largely used for milch cows in Ceylon. Is linseed better, and has one used it out here? As regards butter-making, Mr. Christy must favour us with a few sheets of the new "patent" paper when it is ready.—ED. *T.A.*]

MANA GRASS FOR MANURE.

DEAR SIR,—Could you or any of your readers kindly give the chemical constituents or manurial value of Mana Grass as a green manure buried with

PRUNINGS.

[The following is the analysis of Ceylon Guinea Grass, grown near Kandy, made by Mr. Cochran, after it had been dried in the sun:—

Moisture, 9·06, Albuminous compounds, 8·10, Fat (ether extract), 2·80, Sugar, 4·70, Mucilaginous compounds, digestible fibre, &c., 41·07, Vegetable fibre, 22·50, Ash, 11·77.—Total 100·00. Containing nitrogen, 1,295, ditto ·455.—Total nitrogen 1·750.

As regards mineral matters guinea grass is very rich in potash and has also a considerable proportion of phosphoric acid.
—ED. *T.A.*]

"THE CURE FOR MOSQUITOES."

Tangalla, Feb. 23.

SIR,—I was much interested in the article "The cure for Mosquitoes" which appeared this month. These pests make life unbearable here and anything appearing regarding a cure is of great interest to me. I enclose under separate cover two varieties of Ocimum growing here. One is called Maduru Tala and is used by the natives here as a cure for mosquitoes. The pungent odour is not lasting; it only keeps away the mosquitoes for a few hours and

through a whole night. But there is no doubt that this plant does keep away mosquitoes to a certain extent. The mere fact of the plant growing in a bed room will not, I am afraid, keep away the insects. The leaves have to be bruised between the hands and placed under the bed and scattered about the room. The other variety is called Tala and is used by the villagers here for chewing when the betel leaf is not procurable.—Yours faithfully,

A. D.

GROWTH OF RUBBER IN MATALE DISTRICT.

Colombo, March 4.

Dear Sir,—The following information *re* the growth of Castilloa Rubber on the Ambanganga Estate in the Matale District may be of interest and merit inclusion in your next issue of the *Tropical Agriculturist* :—

	Height. ′ ″	Girth. ″		Height. ′ ″	Girth. ″
No. 1	19·3	23	No. 8	16·6	23
2	21·11	25	,, 9	16·8	24
,, 3	18·7	26½	,, 10	12·9	24
,, 4	23·	24	,, 11	14·	23½
,, 5	21·4	26	,, 12	15·3	22
6	18·7	25	,, 13	18·3	23
,, 7	18·3	23½			

All the above are in a clearing planted in November-December, 1900, and so 2¼ years old only. Can the Straits beat this? It is interesting to compare these measurements with those of the same clearing published by you some six months ago, where the average girth was 16 inches only and average height 12½ feet only.—Yours faithfully,

W. E. GILDEA.

THE TROPICAL AGRICULTURIST.

March 12.

Dear Sir—What a convenience it is to have all the Directors' Reports of Ceylon Companies given in the *T. A.* They are so handy for reference that I, for one, much appreciate your monthly on this score alone. All the London and Ceylon Tea Sales is another easy bit of reference for our estates. —Truly yours,

TEA-BUSH.

THE FEDERAL MALAY STATES.

Resident General's office, Selangor, Malay Peninsula, 21st February 1903.

The Editor "Ceylon Observer" and "Tropical Agriculturist," Colombo.

Sir,—In reply to your letter of the 5th instant, I am directed by the Resident-General to furnish you with the following information :—

FEDERATED MALAY STATES.

	Revenue.	Expenditure.
Actual 1901	$17,541,507·23	$17,273,158·57.
,, 1902	Returns not yet completed.	
Estimated 1903	$18,377.421·00	$18,561,465·00

(Inclusive of Expenditure on Capital Account $3,638,868).—I have the honour to be, Sir, your obedient servant,

OLIVER MARKS.
Acting Secretary to Resident-General, Federated Malay States.

PLANTING NOTES.

Bananas.—Messrs. Elders and Fyffes inform us that, in round figures, the consumption of Bananas during the past two years—*i.e.*, since Mr Chamberlain's effort to aid Jamaica—has risen from 1½ million to 3½ million bunches per annum, which speaks eloquently for the growing popularity of this fruit.—*Gardeners' Chronicle*, Feb. 14.

Blue Hydrangeas.—It appears from a communication of M André to the *Revue Horticole*, that a certain soil near Augers, consisting of sand and humus, is made use of for the production of blue Hydrangeas with more or less success. The soil has been analysed and found to be chiefly silicious in its nature, but very rich in humus and organic matter including nitrogen and with a fair proportion of phosphoric acid and iron. Potash and lime are in very small proportions, so that it is recommended to grow the plants in soil destitute of lime.—*Gardeners' Chronicle*, Feb. 14.

Agave Americana.—I was much interested with the supplementary illustration in the *Gardeners' Chronicle*, January 31, and the article on the Agave in Britain. I have observed some good specimens of the Agave in the Scilly Isles, but I was of the opinion they were much too tender for planting out near London. There are two fair specimens planted in a garden near Farnham Station, which up to the present look well, although 17° of frost have been experienced. I shall note their appearance later on, for if they survive I shall try them in different positions in the gardens here.—*W J P, gr. Frensham Farnham.*

Tea Growing in America.—Some parts of America are still under the delusion that theirs is a tea growing country. The professional tea taster who said that teas of Yankee origin were superior in bouquet and flavour to the finest Assams must have been fond of a joke! This is the latest from the *Galveston News* :—

Commissioner of Agriculture LeDuc, who introduced the ensilo and sorgo, or, as they prefer terming it, sorghum cane, once experimented with tea in South Carolina. The cash sunk in that enterprise would have floated a daily, but the tea materialised. We once tried to introduce the yerba tea of the chapparal into London; we were running a rural weekly in the Parish of St. Pancras at the time and the sanctum was a sort of Texas museum—jerked buffalo, chile, gum, cochineal, ifitle, madder and cotton. We introduced it secretly among the samples of a professional tea taster, and awaited a verdict. He said afterwards that the bouquet and flavor was superior to the finest Assam teas, but its Yankee origin would condemn it. Its Yankee origin condemned it abroad and its Texas origin condemned it at home. It reminds us of the early reception of the American book and American wine. Some day we will all become more reasonable, if not patriotic, and instead of looking towards Battle Creek, Mich., for the correct thing in daily sustenance we will live like plain folk at home.

The Yataderia Tea Company, Ltd.—All concerned in this well regulated Company are to be heartily congratulated on the excellent results divulged at the last annual meeting. A 25 per cent dividend plus a 5 per cent bonus is certainly an exceptionally high return. The Directors too deserve credit for the very full and comprehensive report (on page 698) which through their agents and secretaries they submitted to the shareholders, and to which we direct the attention of our readers.

Tomatoes in Mexico.—More than 1,200,000 pounds of tomatoes were sold last year by the Bernal Orchard Company, Forlon, Tamaulipas, according to A E Graham, vice-president and general manager of the Company. The tomatoes were produced from a tract of 177 acres between the months of December and May. Mr Graham said that 220,000 pounds were shipped by express to the States, a large portion of them going to the New York market; 800,000 to the States by freight, and 200'000 to the markets of Mexico.—*Modern Mexico*, for February,

A Revolution in Mineral Prospecting.—One of the latest inventions, news of which we publish today, is calculated to revolutionise the work of the prospector for valuable minerals. This is an electrical ore-finder brought out by Messrs. L. Daft and A. Williams of Meadow House, Ealing, by means of which the location of lodes of ore can be effected. The numerous experiments already made prove that its usefulness is no imaginary thing and that even tin sunk at no small depth can be located by means of the instrument. If there is gold in Ceylon—and we have so often said it is to be found in unworkable quantities—prospectors might well wait until the instrument is available for local use, Meanwhile, in finding new veins of plumbago, it should become useful at an earlier date?

Why we should Eat Apples.—German chemists have established the fact that apples contain a large per cent of phosphorous, the element essential to the removal of the nervous matter of the brain and spinal cord, while the acids are of signal use to persons whose livers are sluggish owing to sedentary habits, the acids serving to eliminate from the system noxious deposits which would retard the action of the brain and induce skin ailments and produce boils. Hence the wisdom as well as relish of taking apple sauce with roast pork and goose. The malic acid of ripe apples, either raw or cooked, will naturalise any excess of chalky matter engendered by eating too much meat, says the *St. Louis Republic*. It is also a fact that such fresh fruits as the apple, the pear, and the plum, when taken ripe and without sugar, diminish acidity in the stomach rather than provoke it. Their vegetable salts and juices are converted into alkaline carbonates, which tend to counteract acidity. A good, ripe, raw apple is one of the easiest of vegetable substances for the stomach to deal with, the whole process of its digestion being completed in eigty-five minutes. —*Journal of Agriculture* of Western Australia for Feb,

"Hypopeltis"—is the name given (!) to the local insect-pest, by *Nature* in the issue of Feb. 5th, in which a short summary appears of Mr. E E Green's recent studies on the subject.

Mosquito Screens in Lorenzo Marques.—Portuguese East Africa. The United States Consul at Lorenzo Marques, under date of 16th December, 1902, reports that there is an opening for the sale of mosquito netting in that district. The Consul says:—"This place has long been noted for its mosquitoes and for its malarial fever. Until a year ago, the only nettings used were the canopies for beds. Recently, some of the foreign residents have had mosquito screens put in their doors and windows, and this idea is now beginning to gain popularity. I would suggest that manufacturers of mosquito nettings, as well as manufacturers of screen doors and window screens send samples of their different makes, with complete price lists."—*Board of Trade Journal*, Feb. 19.

Papaw Tree as Mosquito Bane.—In a recent number of *Nature*, Mr Shipley called attention to the influence of the leaves of Ocimum viride in banishing mosquitoes. Following up this subject, Mr. Percy Groom narrates how his house at Whampoa was comparatively free from the invasion of these insects, a circumstance which he attributes to the presence of a line of Papaw-trees which intervened between his house and the river. Other houses in the same island were more or less infested with these insects. Once, after a typhoon had blown two of the trees, and left a gap, the number of mosquitoes in the house increased. Mr Groom further states that he never saw an insect on these trees, though he frequently examined them, and observed flies and other insects upon the Bamboos and Bananas near by. As the Papaw has usually unisexual flowers, and is in fact generally dœcious, it becomes interesting to know by what means fertilisation is effected.—*Gardeners' Chronicle* Feb. 7.

"Buyers, Blenders and Distributors. The economics of tea. Facts and fallacies about competition and combination,"—is the title of a paper in "Tea" for February by W Forbes-Laurie. We make two interesting extracts:—

To prove to what a low ebb tea-growing has reached, I annex a table showing the apportionment of cost in making an average pound of tea:—

Government duty	6 00
Cost to producer laid down in London, including office and all expenses*...	6.10
Growers profit	1.00
Dealers profit	0.60
Retailers profit	3.00
Average cost to consumer	16.70

One undoubted conclusion all agree in, that a low Market grinds down, until grower, dealer, broker and employee from manager to assistant, are in the lowest form of remuneration; and from this cause alone arises mutual recriminations. The market for producer and dealer is at its lowest ebb, neither are wrong, except in not seeking mutually to relieve the pressure at the right spot—they are on the horns of a dilemma. *Yet it has its remedy.*

MATALE AND ITS SURROUNDINGS.

A MODEL COUNTRY TOWN.

"What a charming country station is Matale"—says a recent visitor—"and how great the improvements since I first saw it in 1864 (!) or even since my last visit in 1891. I should scarcely know the place save that the Rest-house and Residency are in the same situations and that the mile-of-street-and-boutiques (like the lang toon o' Kirkaldy) along the North Road, shows as busy a scene as in the most prosperous of

COFFEE DAYS.

Alas! how are the mighty fallen—since the day when Ettapolla, The Borders, The Glen, Asgeriya and even Hampshire and Wiltshire were among the "crack" plantations of the island—all in their pristine vigour as I saw them in the early sixties; after which I rode across to Sylvakande (E J Young), Dambulagalla (D Watson), and on to "The Valley" (*par excellence*)

OF KELLEBOKKA

to see D Webster on Greenwood, and by Goomera to the centre of Rangalla at Battalgalla—now Duckwari. Some years later, a start from Matale led to Rattota, Opalgalla and Gammadua and back to join W D Gibbon and C Catto (who long ago passed the last bourne) in an expedition from Hoolankande across the Knuckles range to new clearings on the Eastern spur; and later still, Matale was the starting-point of a memorable expedition I made with poor A G K Borron right over

LAGALLA

and down on the other side through the region where Wingate, Hope, Mackie and a host besides buried many British sovereigns, bright anticipations and much labour and health in the vain hope that coffee crops would mature where the soil was rich and the rainfall good, even though for three months every leaf was blown off the bush by the swirling South-west winds rushing over and down from the high mountain range into the hot low-country of Bintenne. Our expedition was, however, for a goal much farther on—to inspect an arnatto clearing on one of the blocks at the back of the Knuckles which, when originally surveyed by Mr Vetch, of the Survey Department, he thought so much of that he induced his own brother to invest and settle, with disastrous results Neither did the arnatto prove a success, When ever "new products," without over-production warrant attention to outlying forestland there are many lots privately owned, on the Eastern slopes between Lagalla North and Nitre Cave, available for the exploiter.

But my theme is "Matale" as a centre and starting-point and I have yet to refer to expeditions to North Matale towards Nalande, over land newly developed by Messrs. Ross, Milne, Taylor, Davidson and others, and where so much rich cultivation in cacao, tea and coconuts now prevails. The way in which the

COCONUT PALM

has flourished in response to extensive planting all along the Matale valley is quite surprising and the total crop must now supply no inconsiderable part of the annual food requirements of the town and surrounding country; for, we suppose, none of the nuts are, as yet, turned into oil or used for export? We visited only one plantation on the present occasion: the young extensive and promising property of

CLODAGH

where we were not only gratified at the evidence on every hand of careful substantial work but truly surprised at the extent and magnitude of the operations of the enterprising proprietor, who has as much at heart the good of the people in his employ as well as of the surrounding villagers, as the success of the plantation in which he has invested so much capital. Clodagh is made up of many lots of forest and waste chena land bought from Government and the natives to a total extent of quite 1,000 acres, and of this over 400 are planted with flourishing cacao, and over 300 with tea, very fine in parts—all equal, healthy fine jât from Norwood seed—the oldest field giving probably 500 lb an acre—while in some clearings, the work of "supply" has been a heavy, continuous one. We should be afraid the country was too dry here; but the record shews a fairly good, well-distributed rainfall, and certainly at our visit, everything looked vigorous—not the least, the really splendid coconut-palms (grown from Goluapokuna seed nuts), of which Mr. Malcomson has (or is to have) some 20,000 distributed, at wide planting distance apart, through his property. Nevertheless, if they all succeed,—as with such large holes and careful planting and attention they certainly should,—he should have the equivalent of an ordinary coconut estate of over 25 acres fully planted!

WHITE ANTS

have been a great trouble hitherto; and to get rid of them, Mr. Malcomson began by paying 25 cents for each "queen-ant" brought in; but he soon found this was extravagant and gradually came down until now the rate is as low as 3 cents; and yet from first to last, 1,000 queens have been disposed of and still they come from the latest clearings! All the works on Clodagh—roads, drains and especially buildings—have been executed after, the "pucka" fashion that would have delighted the late Messrs. Worms and Sabonadiere of Pussellawa. Bungalow and Factory are exceptionally well-finished, the proprietor being his own architect and very much his own engineer. The steam engine and boiler (a "Shanks") we were interested to learn was that imported by the ill-fated European Gemming Company to Rakwana; while Jackson's most improved tea machines are in use. We found a Cacao-drying Barbacue and Store in course of construction as also substantial "caddies" where the coolies can be supplied with good curry-stuffs, &c., at fair prices or rice-barter, without having to rush into Matale, or to villages *en route*. Not the least conspicuous, or commodious building on the property is the School-house where also services are held under the auspices of the "Friends' Mission" of which Mr. and Mrs. Malcomson are honoured members; while they have now got colleagues set apart entirely for Mission work in Matale and elsewhere, in Mr. Long (an experienced Missionary with many years of work among the Tamils in Coimbatore district, S. India, behind him), and Mr. Arden and Miss Cheale. It was certainly a fortunate day for Ceylon—and especially for much of the Matale district—when Mr. Malcomson decided to remove from his Irish ancestral home on the pleasant banks of the Clodagh in County Waterford, to establish himself and family in old Lanka.

Never did pioneer, planter and missioner deserve a fuller measure of success in all he has set his hands to, or his heart on.

It only remains to remark on the wonderful growth of introduced trees at this elevation: a four-year-old "Albizzia" quite astonished us by its size, while young "Pehimbias," with their graceful foliage, and the Na ironwood), with its white flower in contrast to scarlet leaves, remind planters that they need not go beyond local jungles for handsome ornamental, as well as useful, timber trees. Clodagh tea-fields are planted all over with the grevillea—the "silky oak" of Queensland—which indeed is a distinguishing feature on all the plantations and clearings around Matale. The scenic outlook from Clodagh is very charming—the front view embraces Hunasgeriya peak and the range right along to the end of Laggalla, terraced rice valleys in the foreground adding variety, and only "water" in river or lake being wanted to complete the picture. There is a river running through one part of the property which (like so many of the Matale streams,) rises so rapidly as often to endanger life; but a useful suspension bridge, thrown across it, is not the least of Mr. Malcomson's improvements. From a point behind the bungalow, Adam's Peak and the False Pedro range are often visible; while the West Matale hills up to old Ambokka and the valley leading out to Nalande and Tamankaduwa are very near. The minor road as well as the main Rattota road we found in excellent order and Mr. Malcomson had only praise for the present active Assistant Agent in this and other connections.

But we must return to

MATALE TOWN

which we left with one long street, whereas it has now developed a back street quite as fully occupied with several busy cross streets; while the amenities—in parks, tennis greens, well-kept roads for the carriage, bicyclist or pedestrian, circling round the town, surprised us by their attractiveness and convenience. The Local Board and its President deserve much praise for these and other improvements in Lighting, Water Supply (not yet complete) and Sanitation. The town altogether has become a model outstation for Ceylon; but nature has richly endowed it in umbrageous and flowering trees and grassy glades,

So fair a scene, so rich a sod
Our English fairies never trod.

The most conspicuous building in Matale is the new "Club-house," erected by the enterprising Mr. Perera, formerly resthouse-keeper, and which he has built all at his own cost, immediately opposite the resthouse which it dwarfs and dominates! The planters are expected to make the investment a remunerative one. "The Borron Hall and Library" near the green, the Roman Catholic Church and Convent (the "sisters" being all Ceylonese) in the back street, the neat little Anglican Church on the Hill in the midst of the well-kept Cemetery, the Baptist Chapel and Hall in the middle of the town are further institutions, not to mention the time-honored Kachcheri and Police Court with its, no doubt, indispensable "Lock-up" (Was it not an Englishman who, washed ashore from a wreck on a strange land, returned thanks that he was among a civilised people because the first object he saw was a gallows!) The airily-situated, neat-looking Hospital and grounds are a special feature near the old coaching entrance to the town; while the Railway Station, though not attractive in itself, has two of the finest flower-gardens we have seen anywhere along the line—the show of chrysanthemums is specially striking. Much good work is being done by the "Padres" in and around Matale, through in-door and open-air services, in schools and in other ways. The climate we found in February to be truly pleasant—never too hot nor too cold—a happy mean between Colombo and Nuwara Eliya.

A CEYLON PLANTER IN CALIFORNIA.

MR O. H. GREENSLADE: HIS NOTES ON CEYLON PRODUCTS.

A letter has been received by a Colombo merchant from Mr O H Greenslade, formerly of Dehiowita, Kelani Valley, dated "Kern County, California, January 30th," He had been at work there, without moving once from the town since he last wrote in July, 1902; the railway is just across the road, where he lives. From his letter we are permitted to make the following extracts:—

"We live a very quiet life, to bed at 9·30 every night. I am greatly improved in health, and feel very strong and young, and fit to do any work. A travelling 'bed renewer' (a man who re-stuffs mattresses) was working here yesterday. I showed him the sample of 'mattress fibre.' He said 'Yes, I know it; it costs 22 to 24 cents per lb' at the lower price. The ton of 2000 lb. equals $440·00, against your quotation. Mattress fibre, £2 per ton, equals $10. The Collector of Customs, San Francisco, writes me the following on *Import duty*: on Mattress and Palmyra fibre, he answered 'Don't know what this is'; Desiccated Coconut, 2 cents per lb. Cocoa, answered "prepared" 2½ cents per lb up to 50 per cent.—"raw" *free*. Plumbago *free*. Cardamoms *free*. Gum, unrefined *free*. Cigars $4·50 per lb and 25 per cent. Tea *free*."

"You notice that Coconut fibre is not imported at San Francisco—also that there is a very fine margin on the retail price.—Import duty on Cigars is quite prohibitive (I got a lot of samples from Madras).—I believe there is quite a fine trade, to be done in Ceylon products, and only wish I could travel, or start in, and sell them. Brushes are made here, with 'broom-grass,' which makes a very good brush. Straw, and hay, is bailed up with *wire*; if the coconut fibre rope would hold the bail together, it would soon be in great demand. [Wire is cheaper and better for bailing. —ED. *T.A.*]—Tea sells retail from ·50 to $1·00 per lb; it can be landed here for under 25 cents.—Railway travelling is high; commercial travellers are allowed ten dollars a day.—Is there much 'gum' to be found in the forests of Ceylon? Every body (boys and girls) chew gum here. Note that there is no import duty on raw gum. There should be a big trade in this article, for I have seen gum frequently in Ceylon."

"Snow is thick all over the country, the first good fall for ten years in this part. Prospects for a good crop are good; but the rainfall is very small eight or ten inches a year, and unless spring rains come, the prospects fall flat."

THE ROEBERRY TEA COMPANY OF CEYLON, LIMITED.

Directors :—Hon. Mr Stanley Bois, Mr G H Alston and Mr H O Hoseason.

ACREAGE :

Tea in bearing	..	497 acres
Tea 5 year old	..	109 do
Tea 4 do	...	36 do
		642 acres
Cardamoms	..	4 do
		646 acres in cultivation

The Directors have now the pleasure to submit their Seventh Annual Report and Accounts, being those for the year ending 31st December, 1902. The yield of tea during the period has been 301,545 lb. costing 24·10 cents per lb., against 291,324 lb., costing 24·42 cents per lb. last year, and realising 36·39 cents per lb., against 37·66 cents for the same period. After providing for commission due Superintendent and making a liberal allowance for depreciation of buildings and machinery, the amount at credit of profit and loss is R27,052·29. To this must be added the sum of R461·82 brought forward from last year, making a total of R27·514·11 now available for distribution. The Directors recommend the payment of a dividend at the rate of 5 per cent on the paid up capital of the Company, which will absorb R15,000 ; that a sum of R12,000 be placed to extension account—thus bringing it to R32,000 ; and the balance R514·11 be carried forward to current season's account. The Directors are pleased to state that the mortgage has been finally liquidated. The estimate for the current year is 320,000 lb. of tea on an expenditure of R75,170 which includes the cost of clearing and planting 10 acres of tea. The retiring Director is Mr G H Alston, who is eligible for relection. The appointment of an Auditor for the current year rests with the meeting.—By order of the Board,

Bois Brothers & Co., Agents and Secretaries.

TALGASWELA TEA COMPANY OF CEYLON, LIMITED.

Directors :—Messrs. W Rae Sands, W Maggregor, Hector VanCuylenburg and J W Erskine.

Agents and Secretaries :—Baker & Hall.

ACREAGE.

		acres.
Tea in full bearing	...	455
Abandoned	...	135
Cinnamon and Tea abandoned	...	43
Ravines	..	113
Forest boundary belts	...	53
Forest	...	1,229
Total Acreage	..	2,028

The Directors have much pleasure in placing before the Shareholders their Fifteenth Annual Report with a duly audited Statement of the Company's affairs to the 31st December, 1902. During the past season 143.131 lb of tea have been secured against 133,760 lb. last year. 30,151 lb. of tea were manufactured and sold on behalf of the Gallinda Estate. The cost of tea this year laid down in Colombo is cents 23·12 per lb. and same has realised cents 30·68 nett against cents 28·39 last year all tea having been sold in the local market. Profit and Loss account shows a profit on the year's working after writing off R2,388·07 to Depreciation, of R7,735·52 from this has to be deducted debit balance of R222·42 brought forward from last year and after payment of interest to preference shareholders viz. R2,100 there remains the sum of R5,313·10 which the Directors suggest should be dealt with as follows:—Payment of dividend 2½ per cent on ordinary shares absorbing R5,000; Carrying forward to current season R313·10. Since the last meeting Mr. J W Erskine has joined the Board ; Mr. Hector Van Cuylenburg retires from the Directorate by rotation and being eligible offers himself for re-election.

The appointment of an Auditor rests with the meeting.—By Order of the Directors, Baker & Hall. Agents and Secretaries.

Colombo, 26th February, 1903.

THE CLYDE TEA ESTATES CO., LTD.

REPORT OF THE DIRECTORS.

Directors :—Messrs. F M Laurie, E D Harrison Robt. Davidson. Agents and Secretaries :—Messrs. Lewis Brown & Co.

ACREAGE :

Tea above 4 years old	...	525 acres,
Jungle, &c.	...	190 ,,
Total	..	715 ,,

Your Directors beg to submit their Report and the Accounts for the year 1902. The quantity of Tea made was :—From Estate leaf 170,647 lb and from bought leaf 5,395 lb. against original estimtes of 175,000 lb. and 5,000 lb respectively. The shortage in Estate leaf is due to the very unfavourable weather experienced during the closing months of the year, but for which the estimate would have been exceeded.

The expenditure on Manuring during the year amounted to R3,732·70 which, along with sundry items for Rubber extensions &c. totalling R1,907·80 have been charged against revenue. The cost of Estate tea exclusive of these, but including transport to Colombo and selling charges was R46,587·57, equal to 27·30 cents, per lb, The average price realised for 27,601 lb black tea was 33·71 cents and 148,432 lb green tea (inclusive of Thirty Committee bonus) 36·24 cents per lb. The Capital Expenditure during the year on additions to buildings and machinery was R344·70 and R4,536·61 respectively. Depreciation on buildings has been written off at the usual rate of 2½ per cent, and on machinery at 5 per cent on the total book values thereof. Including the balance of R499·89 brought forward from last year, the sum now available for distribution R6,084·61, from which the Directors recommend the payment of a dividend at the rate of 2 per cent. This will absorb R5,400 and leave R684·61 to be carried forward. In terms of the Articles of Association, Mr. F M Laurie retires from the Board, but is eligible for re-election. The Shareholders have to appoint an Auditor for 1903.

THE CLAREMONT ESTATE CO., LTD.

ANNUAL REPORT.

The Directors submit herewith their Report and Accounts for the year ended December 31st 1902.

Crop for the year proved very short indeed. 63,383 lb only being realised against estimate of 85,000 lb. This great shortage may be attributed to the very unfavourable season, which was general, and also to the scarcity of labour, which however has since been remedied.

The cost of production was 28·09 cents per lb as against 26·47 cents the previous year, the small crop accounting for the enhanced rate. The Teas netted 33·67 cents as against 29·35 cents in 1901.

It will be seen that after taking into account Interest and all other charges, the balance at debit of Profit and Loss is 10,008·82. Interest on Mortgage has been paid to September 30th, 1902, but the interest on the mortgage Debentures still remains unpaid. The Directors have again waived their fees.

The existing mortgage of £3,000 has been called up, but the Directors hope to be able to effect a fresh mortgage on suitable terms.

Mr R H Eliot retires from the Board of Directors by rotation, but, being eligible, offers himself for re-election. Another Director has also to be elected to make up the number to that required by the Articles of Association.

It will also be necessary to appoint an Auditor for 1903.

THE NAHAVILLA ESTATES CO., LTD.

Directors :—Messrs. J M Mason, E S Grigson, W Anderson, Gordon Pyper ; Agents and Secretaries : —Messrs. George Steuart & Co.

NINTH ANNUAL REPORT OF THE DIRECTORS.

The Directors have the pleasure to present their Report for the year ended 31st December, 1902, the accounts in connection with which shew the Company to be now in a sounder financial position and afford ground for a better dividened than last time. The surplus of Revenue over Expenditure (R45,440·59) is much the same as for the previous season, but there is now less need to make provision for further improvements. After placing R7,500 to Depreciation Account, and the payment of Interest on Mortgages and Sundry other chages, the Profit and Loss Account shows a sum of R22,482·49 available for distribution, out of which the Directors propose to pay a dividend of 5 per cent on the paid up Capital of the Company. This will absorb R19,825·00, and the balance R2,657·49 after payment of Directors' Fees they propose to carry forward to next season's account. The Tea Crop fell short of Estimate, and only amount to 515,611 lb against 524,840 the previous year. The Average Price realised was however, somewhat better, being 35·43 cents as compared with 34·84 last year. The cost of Production including 1·22 cents for Manuring and Burying of Prunings was 28·11 cents against 28·00 last year. Coffee realised only R6,789·40 as compared with R8,846·11 the preceding year. The Water-Power Installations recommended in last Report have been completed on both Ury and Nahavilla, and are working satisfactorily. A new Roller and a Drier have also been placed in the Nahavilla Factory, besides Fans ; but Fans are still required for the Ury Factory to inprove the condition of the wither in the busy months. The Tea Crop for the coming season is estimated as 590,000 lb to be produced at a cost of 25·65 cents per lb exclusive of any manuring or capital expenditure that may be decided upon. The manufacture of Green Tea at certain seasons of the year is under consideration.

ACREAGE.

	Nahavilla.	Ury.	M. P. G.	Galella.	Total.
Tea in full bearing	317	521	252	287	1,377
Tea in partial bearing	48	—	—	—	48
Tea not in bearing	90	16	—	—	106
Coffee	30	41	—	—	71
Cardamoms	—	—	5	—	5
Forest	45	41	—	72	158
Grass, Fuel Trees, Patna &c.	71	147	84	254	556
Total	601	766	341	613	2,321

Mr J M Mason retires from the Board by rotation, and does not seek re-election, as he is about to leave for England. The appointment of an Auditor for the ensuing year rests with the meeting.

YATADERIA TEA COMPANY OF CEYLON, LIMITED.

Directors.—Messrs. Frank Liesching, David Fairweather and Henry Valentine Masefield (Managing Director); Agents and Secretaries—The Eastern Produce and Estates Co., Ltd.; Superintendent of Estate —Mr. J R Fairweather; Bankers—Bank of Madras; Solicitors—Messrs. Julius & Creasy; Auditor—Mr. J D Forbes.

The Directors have pleasure in submitting the Balance Sheet and Profit and Loss Account for the year ending 31st December, 1902.

The Profit for the year is R72,657·16 to which must be added R1,245·99 balance from 1901, and the Directors recommend that a Dividend of 25 per cent and bonus of 5 per cent absorbing R57,000 be declared, R9,500 reserved for Working Capital and the balance R7,403·15 carried forward.

It will be seen that the Property representing Capital stands in the Balance Sheet at approximately R194 per acre cultivated as compared with the same figure in the previous year's accounts, and that the Profit is R75·21 per acre in bearing and 38·24 per cent on the Capital.

The total Tea Crop was 656,820 lb (630,643 lb. Black 26,177 lb. Green Tea) or 76,820 lb more than the estimated quantity, the heavy crop being attributed to improvement in the bushes under the system of allowing them to get well up from pruning before tripping ; the appearance of the Tea is good and prospects of crop for 1903 fairly satisfactory ; the Superintendent estimating an outturn of 541,512 lb. Green Tea from Estate leaf.

The total quantity of Tea for disposal was 695,374 lb including 38,554 lb made from purchased leaf, of which 541,002 lb were sold locally averaging 29·17 cents per lb and 154,372 lb shipped to London in the earlier months of the year averaging 27·85 cents per lb.

The cost of Tea per Superintentendent's Estate Report was 15·27 cents per lb and the total cost delivered to buyers or put on board ship including all charges was 18·02 cents per lb; or exclusive of Depreciation 17·11 cents per lb the nett value realised from sales was 28·88 cents per lb. R14,108·43 was spent in 1902 on New Machinery and Factory Extension and further outlay estimated for at R12,500 on New Engine and Boiler and a Dryer will be incurred in 1903. Manufacture of Green tea was commenced on 8th December, 1902, 26,331 lb being made by the end of the year which realised with the bonus 37·82 cents per lb ; Green Tea manufacture will be continued for the first six months of 1903 the crop for that period not exceeding 300,000 lb having been sold on Contract at 35 cents per lb, the bonus accruing to the sellers.

The Company's Property consisted on the 31st December, 1902 of :—

	Acres Tea	Planted in	Yield in 1902 tea per acre lb	Compared with lb in 1901
981 Acres Tea	172	1885	610	580
	208	1887	522	527
	100	1888	587	541
	42	1889	642	723
	6	1890	842	857
	52	1891	1,107	888
	120	1892	831	725
	68	1894	936	687
	37	1895	625	863
	75	1896	851	682
	33	1897	617	338
	29	1898	610	240
	24	1899	277 not in bearing	
	1	1900		
		not in bearing	—	—
	14	do	680	515
			average on 966 acres	avearge on 942 acres

22 Acres, 1,311 Coconuts plantee in 1896, and Para Rubber planted in 1898, and Factory site.

10 „ Cardamoms,

255 „ Forest, etc.

Total 1,268 Acres.

Para Rubber.—During 1902 some 42,647 plants were put out, the growing plants and trees on the Estate of all ages being estimated at 55,000, of which 843 trees have been tapped.

Mr David Fairweather retires from the Board, and being eligible offers himself for re-election and the shareholders will be requested to elect and Auditor for the current year. By order of the Directors,

The Eastern Produce & Estates Co., Ltd.,
Colombo, March 2, 1903. Agent & Secretaries.

RUBBER IN MEXICO:

OVER 8 MILLION TREES PLANTED AND 11½ MILLION IN NURSERIES.

We begin to think that Mr. John Darley and some other Ceylon planters who have made their home in Mexico are right as to the great future before this favoured land, and that the London Deputation which included, if we remember rightly, Mr. James Sinclair and Mr. John Clark, among other practical men, were a little hasty in deciding against taking up land and establishing a plantation west of the Gulf of Mexico. The number and variety of crops that are successfully grown in a territory which extends from 7 to 32 degrees North Latitude is, of course, very notable; but the chief factor to financial success is found in the great and ever-growing market "next door" in the United States. Making due allowance for optimism and exaggeration, it is not possible to doubt the liberal returns got from coffee, cacao (indigenous) and the very rapid growth of the planted rubber trees. Plants (of Castilloa, the indigenous rubber, we presume) put out in July 1900, at a distance of 18 feet apart, had a girth of 8 inches by February 1901, of 20 inches a year later and of 25 inches in November 1902, and early this year, the branches were touching each other across the 18 feet. "Seeing is believing" and the statements are accompanied by illustrations which appear to bear out the figures given At Henaratgoda and Peradeniya it took 9 or 10 years for Castilloa trees to attain a girth of 40 to 43 inches; but they have done better with Major Gordon Reeves in the Matale valley; and Mr. Gildea the other day showed, for Ambanganga estate, a growth of Castilloa trees in 2¼ years up to 26½ inches girth. *In this Ceylon beats Mexico, the indigenous home of Castilloa!*

On page 700 we give a letter to the New York periodical "Modern Mexico" (February 1903) from Mr. George Cullen Pearson, which bears the impress of truth; and he shows that Messrs. Lewis & Peat of London have valued his sample of rubber, taken from trees *three years old*, at 2s 8d per lb. and pronounced it "thoroughly marketable." We say nothing of the great things Mr. Pearson expects to do—nor of the anticipation of an income of £15,000 from 100,000 trees in their 7th year, to be doubled by the 9th year; but this is certain, that without the stimulus of such statements, rubber-planting has *already* become a vastly extended industry in Southern Mexico, although as yet there is probably not a single plantation which has arrived at the age for its rubber to be regularly harvested. In other words, the rush into planting has taken place during the past four or five, and chiefly within the past two and three, years. Nevertheless, on certain of the coffee and cacao gardens there are old trees planted simply for shade purposes and we are told that some of these, said to be 7 and 9 years old, when tapped experimentally, yielded 2 lb. of rubber per tree; another statement is that trees 6 to 8 years gave 1 lb. each on an average, of marketable rubber; while yet a third account mentions 350 trees (a few of them 20 years old) which yielded altogether 800 lb. of clean rubber.

But now to turn to the future of rubber in Mexico. Our contemporary of the "India Rubber World" of America has caused a census to be taken (by circular letter addressed to all the incorporated rubber-planting companies operating in Mexico) of there total plantings and they have had a response from 26 Companies (one beginning work in 1897, two in 1899 and the rest of 1900 or since.)

The number of trees per acre ranges from 200 to 2,000! 800 seems a favourite number. Here then we have 5,400,000 trees planted out, and over 11,400,800 plants in nurseries ready to put out, say in 1903-4. The work done, or to be done, by Companies not reporting may be taken to cover any over-sanguine estimates, or exaggeration, or failures in nursery plants; and our American contemporary reckons that numerous private planters in Mexico represent perhaps half as much again as the Companies. This would give us a total of over 8 million Castilloa trees planted out in Mexico, chiefly under three years old, apart from the indigenous forest trees.

We are naturally led to compare our progress in rubber-planting in Ceylon and the Straits Settlements with the wonderful start made in Mexico by American Companies, during almost the same period (the past three or four years); but our information is not sufficiently up to date as we write, for any but a rough estimate. We cannot suppose, at the most, that the planting in Ceylon of Para and Castilloa (or even if we count some Ceara and other kinds) exceeds 4 to 5 million trees; while the Straits and Borneo may also have 4 to 5 million trees planted out of all ages.

Is there anything in the Mexican and our Eastern figures to cause an alarm as to over-production in the future of five or six years hence? We do not think so. Suppose that the close of this decade, say 1909, sees 13 or 14 million planted trees yielding a pound of clean rubber each, what would this crop be, —however profitable to the growers as we expect it to be—to the growing requirements not simply of the world; but of the United States alone! The latter seems to require at present from 30 to 50 million lb. of rubber a year, for the manufacture of bicycle tires alone! When the numerous other uses for rubber are considered, and the immense development in new industries, which, we are assured, would follow a slight reduction in price, of the raw product, we may well bid good-speed to all the Mexican, Straits and Bornean, as well as to our Ceylon, planters of rubber trees —whether Para or Castilloa—and feel assured that there is "a good time coming" for most, if not all, of them.

AN EXPERIMENT STATION FOR INDIA.

SOME LESSONS FROM AND FOR CEYLON.

(*From a correspondent.*)

The article in the *Indian Planting and Gardening*, just to hand, by Mr Harold H Mann, is one likely to attract attention in Indian circles and it is hoped that the Government will see their way to encourage the establishment of one or more Experiment Stations in the districts mentioned. The power of an Experiment Station with an agricultural people is very great and were it not for their existence in America, West Indies and Germany the vegetable economic products mentioned by Mr Mann would still have a very limited distribution.

The experimental cultivation of new products, the improvement in modes of cultivation and manufacture of products already existing, and the preparation of standard samples of products frequently adulterated, are subjects of vital importance to all planters and can only be dealt with by Government in places established for the purpose. It is a matter for congratulation to the people of this colony that Sir West Ridgeway has granted an Experiment Station, to be controlled by a recognised scientific staff of workers and assisted by some of our most prominent representatives of the Planters' Association. The constitution of

THE EXPERIMENT STATION AT PERADENIYA,

the organisation of the staff and the work already in hand on the newly-acquired grounds, some 550 acres in extent, might very profitably be considered by our Indian friends. H E the Governor in his last annual speech informed us that Mr Herbert Wright had been appointed Controller of the Experiment Station and that a Committee comprising Messrs J C Willis, J B Carruthers, E E Green, M Kelway Bamber, the Hon Messrs E Rosling, Joseph Campbell, and S N W Hulugalla and Messrs J Fraser, T C Huxley and Edgar Turner, together with the Controller, had been formed. A stronger Committee could hardly be appointed and the Colony may confidently leave the future of Agriculture in their hands. There are several

POINTS WHICH OUGHT TO BE CAREFULLY WATCHED

lest the work turned out from the Experiment Station lack the fullness and vitality which we know Mr Herbert Wright would wish it to have. The first point, mentioned by Mr Mann, is that an Experiment Station is not a revenue-making place. Certainly nothing should be wasted, but, on the other hand, Government should be well aware of the fact that, in establishing new products or improving the old, many futile experiments must be made and these cost often large sums of money. Further, many experiments similar to those carried out at Rothamstead cannot possibly give any return in money to the station, but the agricultural community are placed in possession of knowledge which allows them to get more from their land and resist the ravages of insects and fungi in an intelligent manner.

A second point is *re* the subject of new products, It is a matter of

COMMON KNOWLEDGE THAT PRODUCTS COME AND GO

and the past few years have convinced us that tea is by no means sure of staying long. Cacao is becoming diseased in all parts of the island and cardamoms, citronella, cinnamon, and many other products appear to be passing through stages familiar to those who have seen coffee bloom and fade away. In our opinion the Experiment Station should see that at least a ¼ acre plot of every tropical product be established to show the planters what will grow and how best to grow it. Planters cannot afford to speculate on these products and it is a duty of Government to see that the *estate* in Ceylon is developed to the utmost. New products we must have and there are plenty which have never yet been scientifically cultivated in Ceylon.

We have heard from several planters of the work which is being carried on at the Experiment Station and though we must be patient and wait unil the old cacao estate has been transformed into its proper form we should

LIKE TO SEE SOMETHING DONE WITH CACAO

at an early date. No better place could be chosen for experiments with cacao and as Mr Wright knows, there is plenty of work to be done *re* fungicides and modes of attacking the cacao canker, with shade trees and wind belts, in methods of curing and fermenting and in manurial work in general.

The first annual report issued from the Station should prove interesting and until it arrives further comment is scarcely required.

A MEXICAN RUBBER GROWER SPEAKS REGARDING PROFITS.

£15,000 A YEAR IN THE 7TH YEAR FROM 100,000 TREES.

Having planted and watched the growth of several hundred thousand trees for the past four years-and a-half and having devoted much attention to the preparation of rubber in a series of experiments extending over the last three years, some marketable results I have obtained may be of interest to those who have taken up the rubber industry in Mexico. I may be permitted to state that my property is not in the market and that I can have no interest in deceiving myself. Two years ago, I sent a sample shipment of Mexican rubber prepared by myself from trees growing on the estate to the leading firm of rubber brokers in London, Messrs. Lewis & Peat. The rubber was valued at three shillings and nine pence, the best Para being then four shillings and two pence per pound. The quality was reported as excellent. This—I was informed—was the first sample of good marketable rubber ever sent from Mexico to London. Last year, when in London, I had sent me from the plantation a sample of rubber from three-year-old trees. The trees were only very lightly tapped, but sufficient rubber was obtained to enable me to present a sample on which a quotation could be made. It was valued by the same firm of brokers at two shillings and eight pence, and pronounced thoroughly marketable. I do not present this as a precedent to be followed, but it is interesting as showing that even at the early stage of the tree's growth, clean and careful preparation will produce a rubber which commands a price considerably over that yielded by mature trees when ignorantly and slovenly handled. I am now sending off a large sample shipment of rubber to London, prepared by an improved method (my own) which I, perhaps conceitedly, believe to be the finest rubber ever sent out of Mexico, and which will, I have no doubt, fetch the highest price next to best Para.

It is regrettable that statements should be irresponsibly made, disparaging an industry which will certainly become a source of wealth to those who give thought, care and patience to its development, by any one who has not studied its methods and is manifestly unacquainted with the principles which make for success. For my own part, I am more than satisfied with the growth and prospects of my own enterprise. Let us take the case of a man possessing a hundred thousand trees, and put the yield at the seventh year at one pound only—I believe this to be below what the result will actually be. Let us put the price of good, clean, sound rubber at three shillings per pound, which my brokers inform me it is quite safe to assume will be its value. The result would be £15,000 sterling—fifteen thousand pounds—for the first year, which would be doubled certainly by the ninth year, an income for which I, for one, am quite content to work and wait.

GEORGE CULLEN PEARSON.

Puebla, Mexico, January 4th.

PROSPECTS.

Again:—The following is taken from the letter of a gentleman residing in Mexico who has no interest in rubber lands, and may be considered an impartial statement :—

I am in receipt of your favour of the 15th inst. in which you ask me to give you the location of the various districts of sub-tropical Mexico where conditions are favourable to the cultivation of rubber, and stating that you contemplate establishing a plantation if available land can be found where rubber would likely prove a profitable crop. The rubber tree is found growing wild in the forests which cover a strip of country ranging from ten to one hundred miles in width, and extending from the port of Tuxpan on the north to the western boundary of the State of Campeche, a distance of probably five hundred miles. There are probably more rubber trees to a given acreage of forest in the vicinity of Frontera, in the State of Tabasca, than elsewhere in the rubber-producing country of the Gulf Coast. Near Belize, on the east coast of Yucatan, rubber trees are abundant. Around Soconusco, on the west coast of Chiapas, and in the vicinity of Pochutla, State of Oaxaca, rubber plantations have been started. As rubber grows only on the moist low lands of the coast, the width of the rubber belt varies greatly. In places it follows the river valleys for a considerable distance inland, but, where the mountains approach the sea, it is narrowed to a few miles of country lying along the coast. Nearly all the rubber produced in this Republic is collected by the Indians from the wild trees growing in the forests.

The rubber tree matures at the age of 6 years. They should yield from 6 to 48 pounds of milk annually. In the coagulation of the milk there is a shrinkage of about 50 per cent, leaving from 2½ to 3½ pounds of crude rubber, which is worth 50 to 80 cents per pound gold. The process of coagulating the milk is simple and inexpensive. The annual profit of a bearing plantation of 100 acres should not be less than $8,000 Mexican money. However, up to the present time, the actual profitableness of cultivated rubber is, in a measure, a matter of conjecture, as no one, to my knowledge, is yet making money from a bearing plantation in this Republic.

In the southern portion of the Republic, particularly in the rubber-producing districts of Chiapas and Tabasco, a large number of rubber trees are annually being killed by too frequent tapping by the Indians. This is causing a great decrease in the rubber production of the country.

Capitalists seeking profitable investment in Mexico are fully warranted in going into this subject scientifically. Something is already being done in an experimental way, and a few years should do a great deal toward demonstrating what results are obtainable from the systematic cultivation of the rubber tree in Mexico. There has been a constant increase in the consumption during the past few years. The annual exportation of Brazil has reached $100,000,000. The Central American countries are also largely exporting this commodity. The price of rubber is also advancing. The United States alone consumes $30,000,000 worth of rubber in the manufacture of bicycle tires. It is my belief that the price of rubber will not materially decline. The increased use of electrical apparatus, the probable general adoption of rubber-tired vehicles, the extended utilisation of rubber in the manufacture of belting, clothing, etc., will prevent any notable depreciation in the value of this commodity. A decline in price will be quickly followed by an increase in consumption.—*Modern Mexico* for February, 1903.

A HARDY, RUBBER-YIELDING TREE

Eucommia ulmoides was figured and described by Prof. D Oliver in Hooker's *Icones Plantarum*, tt. 1950 (1891). 2361 (1895), from specimens collected in the Province of Hupeh, China, by Dr Henry. It forms a tree 20 to 30 feet high, with a branch-system resembling that of the common Hazel, the deciduous leaves resembling those of the Elm ; the flowers small, and unattractive ; and the fruit in clusters, samaroid, winged, about an inch long, ½ inch wide, each containing a single oblong seed. The genus is related to Trochodendron, Cercidiphyllum, and more distantly to Hamamelie. A plant of it was presented to Kew in November, 1897, by M Maurice de Vilmorin, and in the space of four years it has grown from a small plant a foot high to a sturdy bush 7 feet high, and 6 feet through. It has stood the frost of that period in the open air without any protection, and appears to be quite as hardy as the Witch-Hazel. Cuttings of the branches root readily, and large branches of it may be successfully layered. This plant has a special interest from its caoutchouc-yielding property, as will be seen from the following note. "Tu-chung" (Eucommia ulmoides) is a native of Central China, where, according to Dr Henry, it is cultivated in the districts of Chang-yang and Patung, in Hupeh, N. lat. 35° ; it is also, according to Farges, cultivated in about the same latitude in eastern Sze-chuen, in the district of Tchen-keow-tin. A singular feature about this plant is the extraordinary abundance of an elastic gum in all the younger tissues, especially in the bark, the leaves, and petioles. Any of these snapped across when dry, and the parts drawn asunder, exhibit the silvery sheen of innumerable threads of this gum. The bark itself (to which, according to Dr Henry, tonic, invigorating, and other properties are ascribed) is a most valuable medicine with the Chinese, selling at 4s to 8s per lb. Further, the leaves are eaten when young, and the fruit is astringent. The merits of the Tu-chung as a caoutchouc-producing plant are entirely unknown; it is, however, deserving of notice. It would be

likely to thrive in semi-tropical countries, such as Algeria and Florida, and in the mountainous parts of Southern India and the West Indies; it might also survive the winters of southern Europe (Morris, 1898). Messrs Vilmorin, Andrieux & Co., Paris, who offer young plants of the Eucommia, give the following particulars in their *Catalogue des Graines d'Orangerie, et de Serre pour* 1903 :—" M J Dybowski, the eminent Director of the Colonial Garden at Vincennes, has called attention to this tree, which contains in all its parts a notable quantity of gutta-percha of good quality. Unlike all other caoutchouc-yielding trees which are confined to the tropics, the Eucommia may be cultivated with success in a temperate climate. We have a plant which has stood for five years in the open air without protection, which has not suffered in the least, although the thermometer has fallen to −8° Cent. (17° Fahr.), and we believe it will support a temperature still lower than this." Plantations of this tree are being formed in France. There is good reason for believing that it would be worth while to plant it in the warmer parts of the British Islands as a probable source of rubber, and also for its medicinal properties. The Kew plant is in a border near the Economic house (No 12.) *W. W., Kew.—Gardeners' Chronicle*, Feb. 14.

THE NATAL TEA INDUSTRY.

ITS FUTURE PROSPECTS.

[BY "NEMO."]

Few people are aware, notwithstanding the ever-increasing flow of immigrants to South Africa from all the world over, what small strides the Natal tea industry is making. Bearing in mind that Natal is the only tea producing Colony in South Africa, the large and steadily-growing market for tea, and the absence, up to now, of any keen competition from other countries, by reason of the protective duty of 6d a lb. on imported produce, there are only a dozen estates, or thereabouts, of any importance, and all of these manufacturing coarse, rough tea. So far, the public have had very little choice in the purchase of tea, and the local planter has taken advantage of this fact to turn out of his factory the greatest possible quantity, with little or no pretension to quality. This line of action, however, is at last beginning to tell on the industry, for, apace with the growth of the Colony, imported teas, from India and Ceylon chiefly, are fast making their way in every other household, while import statistics prove that year by year the quantity imported is largely increasing, and local planters cannot sell off their stocks as easily as in days gone by. Beside this, Government can hardly be expected to protect these few estates at the expense of the tea-drinking public, and, sooner or later, the duty will either be abolished or at least greatly reduced, unless the industry makes more rapid strides to increase both quantity and quality of its produce. There is absolutely

NO REASON WHY NATAL CANNOT PRODUCE AS FINE TEAS AS ANY OTHER COUNTRY.

The labour conditions are precisely the same, while the wages paid are not much more than is customary in Assam and Ceylon, and, if these countries can produce, ship, and, after paying a big duty, sell their teas at a profit, it does not speak very highly for the energy or enterprise of our Colonists. There is a big future for tea in Natal, and, if more capital was put into the venture, care taken to produce as near as possible teas like either the Indian or Ceylon manufactured leaf, and at a price within reach of all, there is little fear of imported teas finding room in our market, especially as it has been proved scientifically that a good Natal tea contains less tannic acid, is less pungent, and therefore more easily digested, than the produce of any other country. The indentured

COOLIE IN NATAL DOES TWICE AS MUCH AS HIS BROTHER IN INDIA,

and gets a third as much again as wages for his work, so that, theoretically, Natal planters ought to produce their teas about as cheaply as their Indian or Ceylon competitors.

A further hindrance to the progress of the Natal tea industry has been the marked absence of men with the necessary experience as proprietors or managers. Not one of the owners of any Natal tea estate has had any practical training in a large tea-producing country, and few employ Indian men. Most owners have become so puffed up with their own importance by being able to make, so far, a good thing of their tea, that they are jealous of any Indian or Ceylon planter about the place, preferring, should they need a manager, or assistant, to select a candidate who knows nothing about tea, and less about Indian labour, and set up to teach him a profession they know little about themselves. This narrow-mindedness can hardly be expected to improve what promises to become a big source of income to the country, and it is to be hoped men with broader views start more estates on better lines. If men from India and Ceylon were imported, well paid, and properly treated and freely employed, and a better class of coolie than the weeds being brought into this country now indentured with all the facilities tea-growing offers in Natal, there is no reason why the finest quality tea should not be made, at prices everybody can afford.

THE SOIL IS EMINENTLY SUITED

to the tea plant, and every condition favourable to its growth. The writer has seen and tasted samples of Natal tea, specially manufactured by a firm of tea-planters employing an experienced manager with Indian training, which cost 4½d per lb. to manufacture and which compared very favourably with a fine Assam Broken Pekoe selling in London at 8d to 9d per lb. Allowing, say, 1d for packing and handling before it reaches the customer surely there is a big enough margin for a profit when there is no duty to pay. More experience and more capital is needed to give this pleasant and paying industry the impetus it requires, and we ought easily, with both these conditions to back us, be able to produce in Natal every ounce of tea consumed in South Africa. The life of a tea-planter will appeal to many, and the pure country air and congenial employment has a charm peculiar to itself which must be experienced to be understood. Coffee production went to ruin here because no one thoroughly understood the venture, and the trees, delicate at best and fond of light shade, were expected to crop out in the open, with no pruning, or any other attention so necessary to this tree. The result was: every known blight and disease soon made their appearance, and presently exterminated every plantation and then the country was blamed for the failure.

LUCKILY FOR NATAL, THE TEA PLANT IS HARDY, being an evergreen of the camellia family, so that it can stand to a large degree the rough usage it receives. Pruning of tea bushes—an art in itself, and the most important work on an Indian or Ceylon estate—is reduced to mere hacking down the bush with the largest sized pruning knife obtainable, and often in the hands of a raw coolie; and as a result a heavy mortality usually ensues on some estates. Plucking, another very important work, is done in a most primitive fashion, and it is a wonder the trees "flush," or send out new shoots again, after the handling they get. By carefnl plncking—i.e., by removing two or three leaves with the "bud," or topmost unformed leaf, and leaving an "eye" or embryo shoot below, carefully protected by the stalk of the last leaf picked, a new shoot soon forms, and springs out ready to be gathered in seven to ten days. The local fashion is to tear off the "flush" in handfuls, and in some cases the writer has counted no less than eight leaves on a single stalk, the stalk being torn away from the parent branch, and every chance of a succeeding flush lost. It can easily be understood, therefore, that, by careful and fine plucking, and nursing the next gathering—though the amount for the day be less than if picked by the local way—the former and correct method produces more flushes for the season than the latter, and in the long run a greater quantity is obtained per acre, while the quality is of course, incomparable.

SUITABLE LAND CAN BE HAD IN ANY QUANTITY at moderate prices, and a capitalist starting on a holding of, say, 500 acres, with 50 Indians as a beginning, and an experienced manager, if he is not one himself, could easily commence his tea garden, and by ordinary perseverance and imitating Indian and Ceylon methods of production, would soon develop it into a very paying concern, and the source of a very comfortable income.—*Natal Mercury*, Feb. 26.

A FERMENT OF THE TEA LEAF.

A most interesting paper on "Ferment of the Tea Leaf"—II.—reaches us today from the Secretary, Indian Tea Association, written by its Scientific Officer—Mr. H. H. Mann, B. Sc. His conclusions, from experiments dealing with the "enzyme" of tea, are :—

1. That, during withering, the amount of oxidising enzyme or ferment in the leaf increases up to a certain point corresponding under normal withering conditions with the point at which the leaf is ready for rolling.

2. That the two processes of loss of moisture and production of ferment by no means necessarily take the same length of time, and that the leaf may be withered (in very dry weather) long before it is *chemically* ready to roll, and in very wet weather may be ready, *chemically*, to roll long before it is withered.

3. That, at the temperature studied (76°—86° F) the normal time which the leaf requires in order to be *chemically* ready for rolling is 18 to 20 hours with normally withered and over-withered leaf, and several hours longer (it may be up to 25 hours) with leaf prevented from withering by a very wet atmosphere.

4. That the object of the tea manufacturer should be not merely to get his leaf in the best physical condition for rolling but also in the best chemical condition, and for this purpose he should arrange, so far as is possible, to have the leaf soft for rolling when the chemical constituents of the leaf are at their best.

Other experiments in fermentation are recorded in the same paper and, being of high importance to all manufacturers of tea, we quote them at once in full :—

1. The time required for making the leaf chemically ready for rolling is independent, or nearly so, of that required to render it soft enough for this purpose and at a temperatnre of 76° F.—86° F. varies from 18 to 24 hours, according as the leaf dries normally, too quickly or not at all. Hence the object should be to wither the leaf in the time. If it be withered too quickly, as by heat and fans, the leaf is soft enough to roll before being chemically ready; if it be withered too slowly, as on a wet day, with a saturated atmosphere, it is chemically ready long before it is soft enough. I hope to be able to, later on, after further experiments, prepare a table giving the best time for withering at various temperatures and under different conditions.

2. The absolute cleanliness of every thing during the manufacture becomes more and more evident and the cleanliness necessary can only be reached by scalding every implement and machine, and the floor of the fermenting house with boiling water. There seems morever considerable reason to suppose that by the addition of a small quantity of Salicylic Acid to the fermenting leaf the effect of outside microbes may be entirely eliminated (the salicylic acid being entirely driven off during the subsequent firing), and the tea correspondingly improved.

RUBBER IN UGANDA.

PARA PLANTS DOING WELL.

It is only a question of the activity of traders to determine the time during which our natural supplies of rubber will last. So says Mr. J Mahon, in a report to the Foreign Office on various exotic plants in the Botanic Gardens at Entebbe, in Uganda, and that being so, importance attaches to the efforts being made there to furnish by systematic cultivation supplies to meet the demands of the future. So far not a great deal has been done, but, despite some unfortunate circumstances, one of the Para rubber seedlings sent out from Kew in 1901 is now over 7 ft. high. It remains to be seen whether the climate and elevation, (4,000 ft.) will continue to prove favourable, but Mr. Mahon appears to have some hope that on the lake shores the Para rubber will do well. The Central American variety, Castilloa elastica, which is more or less highland plant, is likely to find suitable conditions at Entebbe, and a seedling Ceara rubber of eight months is already 4 ft. high. Satisfactory progress has also been made with plants of Theobroma Cacao, and Mr. Mahon believes that since an excellent wild coffee flourishes, introduced sorts would do well.—*H and C Mail*, Feb. 13.

MAN—is born an agriculturist; and it is both bad morality and bad policy to invite him, by fortune or by honours, in other words, by avarice or by ambition, to leave the plough and the fields. It is a mistaken idea to give education to the children of peasants only to make them come out of their sphere. No one is too learned to be an agriculturist, hardly anyone is learned enough for it. (Alphonse Karr.)—*Agricultural News*, Feb 14.

PRIZE ESSAYS FOR TEA PLANTER: THEORETICAL POINTS IN TEA CULTIVATION.

The present age is not one which desires to obtain its knowledge through laborious research nor time-consuming experiment; but rather at second-hand in the concentrated form of hand-books and manuals. It matters not what aspect of truth with which the seekers desire to acquaint themselves, whether it be philosophy, theology, or history, the reading public demands its pabulum in a nutshell, and craves for mental stimulation in the form of literary tabloids No province of literature exists without these royal roads to learning, and any student of fair capacity, can, by walking therein, cram a subject so successfully, as to make a very fair show, indeed, when he goes up for his examination. The result to the student may not exactly be what is meant by education, and to the man who stops at that point, who is content with a pass, and the smattering of knowledge he possesses, the benefits he has received are questionable. If, however, he is bent on widening his horizon, and recognises that education here ends only with life, the superficial knowledge which these rough sketch-plans afford, is not without its value when later on he labours to fill in the details for himself. To know the headlands may not mean an accurate knowledge of the coast; but it is useful in this way that you can locate your position, very nearly, and are not wholly at your wit's end as to what next to do. Tropical agriculture is not different from other studies in the demand for hand-books, and when any special culture bids fair to draw to its cultivation the money and brains of the West, the creation of a new manual is assured. The continued issue from the *Observer* press of complete treatises on almost every brand of tropical planting enterprise, and the steady call from all parts of the world for these cultural guide books, are evidence enough that they supply a needed want, and have a wide and appreciative public. But to attain to the full measure of their usefulness, the reader must be generally informed on tropical agriculture, and the wider his knowledge and experience, the more highly appreciated is the special manual. The Planters' Association—during its literary age—added considerably to the stock of tabulated information available for the outdoor worker in the tropics, and we suppose we may take, as evidence of the dawn of happier and better times, the readiness of the Committee today to accept the onerous task of adjudicating the merits of the Planting Essays to be sent in, in competition for Messrs. George Steuart & Co.'s handsome R500 prize. The principal point which the essayist will have to deal with is Pruning, and on this subject there will be ample scope for the ingenious mind. It will be hard, however, to make the theme intelligible or of much practical value without the aid of illustrations, but if these are employed "he that reads may run." In the February number of *Country Life in America*, there is an article on Pruning, which, however, refers to the garden, and not to a tea estate; but the principles which guide the cultivator when he desires to bring, say, a peach or a cherry tree into prime condition, do not differ in any way from those which obtain when the planter has a field of tea requiring the knife. "Before one prunes a plant" says the American writer "he (*sic*) should know why he (*sic*) prunes it." That statement may at once be accepted as the theoretical standpoint of the scientific cultivator. To successfully treat and advise on such a subject as Tea Pruning—where the plant thrives from sea-board to a six thousand feet elevation—it is clear that no rough and ready rule of thumb will avail; and when we add jât, exposure, soil fertility, and the health conditions of the bush itself, a very complicated problem is evolved calling for special directions, which may modify any general principles before formulated. Root Pruning, which in Arboriculture is about as important as branch pruning, is a dark subject yet as regards tea; certainly what root pruning the tea bush gets, is done in a rough, blind and unintentional fashion; the tool, a mamotie, or a digging fork; and the rule of guidance, blind chance. Roots get cut in manuring operations, but the man has yet to arise who has made the root-pruning of tea a study and who can guide his brother-planters in the matter. He may make his advent among the coming essayists, and he is certain to be hailed when he appears above the horizon. In the early days of coffee-leaf disease, when no one would credit that what was in process before their eyes was a tragedy—the ruin of an industry, there were several men who claimed to have discovered a cure which, alas! on trials made, came to nothing. Some followed well-known remedial lines, but a few originals struck out in a wild way. A German chemist poulticed the stem of the trees with mud and carbolic, and the trees died! Another, an eccentric Frenchman, would have built a miniature paddy field around each individual plant. After a trial of his system in several parts of the country, and no beneficial results obtained, he still lost neither heart, enthusiasm nor resource. "The roots of the tea wanted attention,' he said, "have them uncovered and whitewashed and recovered afresh and then"—here his eyes blazed and rolled in the fine frenzy of the prophetic soul,—"mon Dieu, you will see!" Nobody ever did see; for men were sick at heart, and felt that to have decorated the roots with ribbons of the newest Parisian shade would have salted the tail of the deadly fungus as effectually as white-wash could have done, and been very much more artistic. The next coming authority on root culture who is to appear amongst us will be—let us trust—of a sane mind, and be able to give a reason for the hope that is in him, without requiring to fall back on Gallic hysterics, or the heroics of the Teuton. The

value of buried prunings in particular, and manuring generally is to be a supplementary branch of the essayist's theme. Accurate and reliable information on these subjects will, we feel assured, be very acceptable to the planting community; for the matter is not one where a solid vote would be given one way or another, there being still much variance of opinion especially in regard to buried prunings, while there are districts which are ready to tax all fertilisers. Let us trust when the information is available, it will not be of the technical nature which requires a chemical expert to interpret it; but rather that it may be of a nature easily assimilated by the mind of the everyday-planter, and the man of ordinary intelligence.

REPORT ON SAMPLES OF RUBBER EXTRACTED FROM HEVEA BRASILIENSIS IN THE FEDERATED MALAY STATES.

STRAITS SETTLEMENTS, NATIVE STATES.—No. 432.

Downing Street, 31st Dec., 1902.

SIR,—I have the honour to transmit to you for your information and for communication to Mr Stanley Arden, Superintendent of Experimental Plantations, the papers noted in the subjoined schedule.—I have, etc.,

(Signed) ONSLOW, for Secretary of State.

(Copy.)

Royal Botanic Garden, Kew, Dec. 24th, 1902.

SIR,—I have the honour to inform you that I have received from Mr Stanley Arden, Superintendent of Experimental Plantations in the Federated Malay States, series of samples of Para rubber coagulated by various methods, with a request that I would obtain a commercial report upon the results. A copy of the brokers' report is enclosed. Without entering into unnecessary details it is sufficient to notice that Nos. 1 and 6 were naturally coagulated; No 2 was coagulated by the addition of acetic acid; No. 7 was "scrap rubber" collected off the tree; the remaining samples were coagulated by various mineral acids. It is quite clear from the brokers' report that natural coagulation affords the best results and that the only admissible artificial coagulating agent is acetic acid. The point, however, which it is important to notice, is that Para rubber can be produced in the Straits Settlements from ten years old trees, which is worth eightpence a pound more than the best equivalent Brazilian product. I may be permitted to feel some satisfaction at this result seeing that the trees which have furnished the rubber now reported on are the descendants of those transmitted from Kew to the Straits Settlements in 1877; these were part of the first consignment of Para rubber trees to the tropics of the Old World. I have no doubt that the Straits Settlements is now in possession of a new and important cultural industry. The facts stated above are therefore of sufficient importance to bring under the notice of the Secretary of State and to be placed on permanent record. Mr Chamberlain will no doubt cause them to be communicated to Mr Stanley Arden, in official course.—I am, etc.,

(Signed) W T THISELTON-DYER.

MESSRS. HECHT, LEVIS AND KAHN TO ROYAL BOTANIC GARDENS, KEW.

36, Fenchurch Street, London, E.C., Dec. 19, 1902.

DEAR SIR,—We have examined the samples of Para Rubber from Selangor which you submitted to us. We are of course not chemists, and can only judge the rubber from its elasticity, strength and freedom from dirt. With ordinary Hard Cure Fine Para worth today 3s 8d per lb., we should estimate the value of your samples as follows:—

No. 1 about 4s 4d per lb Nos. 2 and 6 about 4s 3d per lb. No. 5 about 4s 2d per lb. No. 4 about 4s 1d per lb. No. 3 about 4s per lb. No, 7 about 3s 4d per lb.

Numbers 3 and 4 are decidedly weaker than the others, and on the whole we think the less acid used in coagulation the better. Sample No. 1, coagulated without acid at all, is certainly the best of the lot.—We remain, etc.,

HECHT, LEVIS AND KAHN.

PRODUCE AND PLANTING.

The chairman of the Mazawattee Tea Company, like some other sanguine people interested in tea, is hopeful that the Chancellor of the Exchequer will be in a position to

TAKE OFF THE EXTRA DUTY ON TEA

imposed in 1900, when he introduces his next Budget. Tea is certainly much more entitled to relief than some of the other commodities whose vendors are clamouring for reduced taxation; but justice does not necessarily govern these matters.—Commenting on

THE DUTY QUESTION AND THE TEA MARKET

the *Grocer* says: "Operators in the tea trade naturally think that they ought to be relieved of part at least of the Customs' duty before anybody else, and have been inclined to abstain from clearing stocks out of bond faster than was necessary, so as to be in a better position to enjoy the full advantage of a reduction in the impost, should such a proposal be made and carried through. The actual state of the market for tea at the moment is so peculiar as to be almost beyond influences of a fiscal nature, and the change that has come over it within the last fortnight has created quite a surprise. Attributable in the first instance to the shortening of the supplies immediately on offer, by importers restricting the number of invoices to be catalogued for public sale every week for a long while past, the dealers and others have not been overburdened with unmanageable duty paid stocks as they were at this period last year. The consequence has been a great strengthening of the market, as time and opportunity have been given for all surplus quantities in the hands of the trade to be worked off; and as the principal blenders have again entered the market to renew their purchases and replenish stocks, a fresh and stronger stimulus has been imparted to the upward move of late, which has become so marked this week that prices for the common qualities have advanced fully ½d per lb—a rally in no way connected with the question of the lowering or raising of the duty on tea."

If we may judge by the hints given in one of their trade organs,

GROCERS DO NOT KNOW ABOUT TEA

as much as they ought to do. The journal says: "It is a pleasant thing to see a grocer's window smartly dressed with samples and showbowls of tea, and in anyone connected with the trade such a sight generally arouses a feeling of admiration. But how rarely are such efforts to win back the tea trade shown by the one-shop and two-shop tradesmen of today! Yet it is not easy to blame them; there are excuses for this want of interest. The truth is that the retail tea trade has been so exploited, and in such a variety of ways, that numerous grocers have grown

indifferent about the cultivation of a tea trade. It is too large an order. They find it better business to push groceries and even brushes and hardware. If a customer wants tea they are content to sell a packet of an advertised proprietary article for a very small profit. The result often is that such tradesmen, though competent in every other branch of the business have little or no knowledge about tea. As an instance showing how ill-informed some grocers are on the subject, a grocer said, in all seriousness, last September, 'I suppose now is the time for autumnal teas'—imagining that the autumn of the tea gardens was the same as the autumn of the English harvest field."

According to the Bureau of Statistics of the United States Treasury Department, the value of the

TEA IMPORTED INTO THE UNITED STATES

was 14,570,285 dols in 1902, 8,744,190 dols in 1901, and 11,783,317 dols in 1900. The exports of tea during 1902 amounted to 924,544 lb, making the net imports 107,822,920 lb. The Chinese imports were 56 per cent of the total, and Japanese 32·1 per cent. The imports for December, 1902 were 16,479,579 lb, against 7,565,451 lb for December, 1901.

The *Daily News*, quoting the current issue of "India" calls attention to

THE PLANTERS' LABOUR BILL,

now being considered by the Madras Legislative Council. "India" declares that this measure "might more truly be called the Madras Slavery Regulation Bill," and that it will be a public scandal if it is allowed to become law: and the *Daily News* thinks that while the question of forced labour in South Africa is under discussion the Madras Bill should be given a share of attention.—*H and C Mail*, Feb 27.

PLANTING NOTES.

PLANTING IN NYASSALAND.—For a chatty hopeful letter from a Ceylon planter see another page. He says tobacco is to make the fortune of plantation owners, supplemented by *tea* grown for local sale at 3s a lb! We trust there is a good time before all Nyassaland and B C A. proprietors.

THE PEARL FISHERY.—In answer to a correspondent, we may say that the most elaborate and best account of the Pearl Fisheries ever published was contained in letters by the late A. M. Ferguson, C.M.G., to the *Ceylon Observer* in 1887, summarised and reproduced in "Ceylon in the Jubilee Year."

SEA COCONUTS.—Amongst the many curiosities cast up on the shores of the West Indian islands by the sea are numbers of brown, globular fruits, with a hard rind or shell, about the size of a hen's egg. These are popularly known as 'sea coconuts. In reality they are fruits of the Timite palm (*Manicaria saccifera*, Mart.) which grows abundantly in the swampy lower districts of Trinidad and along the river banks of the South American mainland. The tree produces large quantity of seed, which falling into the water are borne by ocean currents to the shores of the West Indies. Dr. Morris in his article on 'A Jamaica Drift Fruit' thus refers to this sea waif:—'In the West Indies the ripe fruits of a palm unknown in the greater Antilles are continually brought up by Gulf Stream from the South and washed ashore at Jamaica and other places. They are locally called [in Jamaica] sea-apples or sea coconuts. They are the fruits of the 'Bussu Palm.' The white kernel is sometimes fresh enough to be eaten after long immersion in salt water. The fruit was gathered by Sloane as long ago as 1687, and he remarked that it was frequently cast on North-west islands of, Scotland by currents in the sea.'—*Agricultural News*, Jan. 17.

VANILLA.—Only 43,991 pounds of vanilla were exported from Mexico in 1901, with a value of £57,426, as against 64,921 pounds in 1900 valued at £62,565, due to a failure of the crops by heavy frosts in the early part of the year. The value of the exports as here given makes the value of each pound £1 6s whereas in the previous year it was only £1 0s 6d, a difference which coincides with the silver value declared at the custom-houses.—*B. and C. Druggist*, Feb. 27.

THE TONACOMBE ESTATES CO. OF CEYLON.—The annual meeting of this Company was held today and the report submitted by the Directors, as will be seen elsewhere, is a model in respect of the comprehensive and interesting information it offers to the shareholders. A dividend of 5 per cent was declared besides a balance of R5,654·06 standing to the debit of Buildings account being written off and a sum of R8,642 carried forward. Other announcements which ought to please the shareholders were made—that the Debenture Debt has been further reduced by £500 during the year and that the Kalugalla estate has been purchased during the year for R17,500. A report of the meeting will be found elsewhere.

MERIT OF ORANGE JUICE.—Professor Kiosto, an eminent Japanese bacteoriologist, also Prof. Koch and others, have shown that the acid of lemons, apples, and other fruits, citric acid and malic acid are capable of destroying all kinds of disease germs. Cholera germs are killed in fifteen minutes by lemon juice or apple juice, and typhoid fever germs are killed in half an hour by these acids, even when considerably diluted. If you squeeze a lemon into a glass of water containing cholera germs and let it stand 15 or 20 minutes, you may drink the water with impunity, as the germs will be dead. These juices will kill other disease germs. Instead of telling a man to have his stomach washed out, we can now tell him to drink orange juice, which will cleanse the stomach as thoroughly as a stomach tube, providing it is not a case of gastric catarrh. The fruit diet will cleanse the stomach and the alimentary canal, and drive off disease germs, which are responsible for a large share of our ailments.—*Journal of Agriculture* of Western Australia for Feb.

A RIVAL TO KANDY.—Mr. W. R. TOWNSEND, a recent visitor to Java, writes a description of that country which appears in the *San Franciso Argonaut Inter alia* he says:—"At Buitenzorg thirty-three miles from Batavia, at an elevation of one thousand feet or so, with towering volcanoes to the east and west, the climate is much cooler than at Batavia, and the place is a popular resort for Batavians. Here the governor-general's residence is located in what is claimed to be the finest botanical garden in the world. It certainly is ahead of anything we have seen, greatly excelling those at Calcutta and Kandy in Ceylon, both of which are famous. There is an avenue of kanary-trees, each tall trunk covered with a different species of giant creeper, some of them orchids, which are wonderfully fine. The collections of palms, orchids, water lilies, bamboos, and innumerable other trees and plants embrace almost every known variety, and are beautiful beyond description."

Correspondence.

To the Editor.

COCONUT PLANTING IN FIJI.

ENORMOUS FRUITING ON OUR PALMS.

Tavinni, Fiji, Feb. 5.

DEAR SIR,—Just a line to describe a very peculiar freak I have just seen. A young coconut tree, 5 years old just coming into bearing: It has three spathes or blossoms and on the largest of the tree I counted 30 spears to the spathes and on one of the spears I counted 51 nuts, making a total of about 1,500, on the one spathe. There are about 1,000 each on the other two so that at the present time there are about 3,400 nuts on the tree. There are two more tremendous spathes that will be blossoming in a few days when we expect to see over 5,000 nuts on the tree—nearly a ton of copra. Now can you Ceylon chaps beat that? When you can let me know, will you? I can assure you it is a positive fact I have often seen from 1,000 to 1,200 nuts on a tree, but this caps all.

We are having a magnificent year—better, in fact than last, I think. I am trying to get hold of some averages this year and will let you know result bye-and-bye. The whole country is looking very well.—Yours faithfully, H. V. TARTE.

[A practical coconut planter's remarks on the above are :—

"The degree of 'prolificness' of the coconut palm varies greatly and although an average of 60 nuts per tree per annum in Ceylon is considered a good yield; yet there are individual trees which bear 400 to 500 nuts a year. However, I have never seen or heard before of such a phenomenon as a coconut spathe with 1,000 to 1,500 fruit on it. I doubt whether such a huge cluster of nuts would reach maturity, as the stalk is sure to break down with their weight before the nuts are even half ripe. Trees of vigorous growth send forth a spathe once a month. The wonderful 5-year old tree, your Fiji correspondent refers to, has already produced 5 spathes, all of abnormal size, and we may expect at least 3 more before the oldest nuts are ripe enough to be gathered.

"The tree should then carry over 9,000 nuts, beside about 3 dozen fronds, but would the stem support such a ponderous load? Mr Tarte should have the tree photographed at once, so as to show the several clusters of young nuts of different stages. It would be interesting to know the length and girth of one of these extraordinary spathes. Mr Tarte says he has often seen 1,000 to 1,200 nuts on a tree. It will be of much interest if he will give the average yield of, say, 1,000 trees in full bearing on his plantation."—ED. *T.A.*]

INFORMATION ON THE CASTOR OIL TREE WANTED.

Batticaloa, March 14th.

DEAR SIR,—Can you or any of your readers be so kind enough as to let me know, through the medium of your valuable paper, if there is any book in which the cultivation of Castor, is dealt with? If there is any, I shall be much obliged, if I will be informed by you or any of your numerous readers, where such a book could be procured. As an experiment is to be tried in the cultivation of Castor in the Island, I shall deem it a favour if you or any of your readers could furnish me with the following particulars :—

(1). Nature of soil required for the cultivation of castor.

(2). How castor is planted? How many feet apart from each other?

(3). In how many months will castor bear fruit?

(4). How many years after, will the plants yield?

(5). What will be the yield for a year, per acre?

(6). How are the crops collected?

(7). What should be the temperature of the place?

(8). What is the average price of a bushel of castor in England, and in Ceylon?

Yours faithfully, SUPPRA.

[We take the following from the "Treasury of Botany," as the fullest information we can find:—

CASTOR OIL PLANT is botanically known as *ricinus communis*, the seeds yielding castor-oil. The plant is a native of India, but is now widely distributed over the warmer regions of the globe and throughout the Mediterranean region. It is even cultivated in England as an annual and is known under the name of Palma Christi. In the English climate the stems do not attain a height of more than from three to five feet; in India however, they grow from eight to ten feet, while in Spain, Crete, Sicily, and elsewhere the plant is stated to become a small tree. The stem is jointed of a purplish-red colour, and covered with a glaucous bloom like that of a plum. The leaves are large stalked palmate deeply divided into seven lance-shaped segments and at the junction of the blade with the stalk of the leaf is a small saucer-like gland. The flowers are in spikes, the males being placed below, the females above. There are several varieties of this plant, differing in sundry slight particulars and amongst others in the size of the seeds. These latter are oval flattened of a greyish colour mottled with brownish blotches. At the upper end of the seed is a small sponge-like excrescence. It is stated that the best oil for medicinal purposes is derived from the small seeds that procured from the large seeds is coarser and in India employed for lamps and in veterinary practice. A still prevalent error is that the acrid purgative principle resides in the seed-coats and in the embryo only while the albumen is destitute of it. The oil is extracted by boiling the seeds and by pressure in an hydraulic press the latter process yields the most esteemed oil. After expression the oil is purified by being allowed to stand, by decantation, and by filtration. In India the oil after having been obtained by pressure is mixed with a certain proportion of water and boiled till the water has evaporated. In France the oil is obtained by macerating the bruised seeds in alcohol but the process is expensive, and the product inferior. The larger quantity of the oil used in this country is imported from India. Castor-oil is very largely used as a gentle and efficient purgative; its nauseous taste is however, a great objection to its use. This may partially be overcome by mixing it with orange-wine, gin, or peppermint-water, or by making it into an emulsion with the yolk of an egg or mucilage. The leaves are used for various purposes, for which their size and coolness render them serviceable, and topically as an application in rheumatism.—ED. *T.A.*]

CEYLON GROWN RUBBER IN LONDON.

London, Feb. 27.

DEAR SIR,—We wrote you *re* Ceylon grown Para Rubber a few weeks ago and now have to

report further sales which, we think, will be of interest to your readers :—

Mark	Cases		Sold at per lb
Culloden	6	Fine thin biscuits	4/2
do	2	Good scrap	3/4½
do	1	Large balls scrap	3/0¾
do	1	Scrap good	3/2
do	1	Scrap fair	3/0¾
Edengolla	3	Fine thin biscuits	4/2
do	1	Good scrap	3/1¾
Clyde	2	Fine thin biscuits	4/
do	2	Scrap	3/
Kumaradola	1	Fine in small biscuits	3/4¾
Yatipauwa	3	Scrap	3/0¾
Igalkande	1 crate	Fine thin biscuits	4/2
Aberdeen	1 case	Fine thin biscuits	3/10
do	1 bag	Good scrap	3/1½
Tudugulla	5 cases	Fine thin biscuits	4/2¼

The market is strong and prices seem likely to go higher. Kindly insert above in your paper, as planters are much interested.—We are, dear Sir, yours faithfully, LEWIS & PEAT.

P.S.—Fine Para 3s 8½d to 3s 9d.

PLANTING NOTES.

THE NAHAVILLA ESTATE CO. LTD.,—The directors and shareholders and the Agents and Secretaries of this Company have our warm congratulations on the return of prosperous times after some two or three years decidedly discouraging balance sheets. The report appears on page 698, and it will be noted a 5 per cent dividend is declared.

VANILLA.—An item that will have some interest to vanilla growers is the following :—A consignment ot about 300 kilos of vanilla cultivated in German East Africa arrived in Hamburg a short time ago. The beans are said to be of fine dark chocolate colour and are commencing to crystallise. They are of various lengths, and are reported to compare favourably with the best Bourbon quality.—*Agricultural News*, Feb. 14.

FAILURE IN THE RUBBER TRADE.—At a meeting yesterday afternoon of the creditors of Messrs Kramrisch and Co, rubber merchants, of Liverpool, the liabilities were stated at £111,663 11s, and the assets at £7,089, leaving a deficit of about £104,000. in regard to the absence of Mr Kramrisch abroad, about which rumour has been busy, it is stated on good authority that he has been endeavouring to arrange matters for the benefit of his creditors and will shortly return. A committee has been appointed to carry out a deed of assignment.—London *Times*, Feb. 25.

GUM ARABIC.—The unsettled condition of several parts of the world, notably Somaliland and Morocco, has influenced the position of some well known products, one of which we may instance namely, gum arabic, a fact which shows the necessity, either of secondary sources for any indispensable product, or of some available substitute. Opposed as we are to substitutes generally, it would seem that out of the numerous species of *Acacia* known, a picked or sorted gum might yet be found to tide over a time of scarcity, which might perhaps end in establishing for itself a reputation of a lasting character, if not for use in food or medicine, at least for manufacturing purposes,—a remark that applies to products other than gums.—*Agricultural News*, Feb. 14.

THE FORMATION OF PEARLS.

A SEASONABLE ARTICLE.

By far the greater number of recent writers on pearls, whether scientific or otherwise, when discussing the cause of pearl-formation, have contented themselves with recapitulating what has already been written on the subject, without attempting to verify or refute the various hypotheses that have been propounded. The question is one which has called forth speculative theories since the earliest times of which we have any records ; but, with the exception of the brilliant researches of Filippi and a few of his contemporaries, theory has prevailed to the almost complete exclusion of practical investigation.

In a recent paper, based upon an examination of large quantities of material comprising a number of the pearl-producing species of mollusca, I have tried to place our knowledge of the matter upon a more satisfactory basis. By observations upon pearl-bearing examples of the common mussel *Mytilus edulis* (which were confirmed in the case of all other species examined), I proved that the formation of the pearl takes place in exactly the same way as that of the shell, except that a true pearl is laid down in a closed sac of the shell-secreting epithelium, embedded in the subepidermal tissue of the mantle and completely cut off from the outer epithelium itself. Inside this spherical epithelial sac, the shell substance is laid down in the concentric layers that are so characteristic of the pearls, instead of in the parallel lamellæ which are found in the shell itself. Such a sac, with its contained pearl, may be compared to a human atheroma cyst. This makes it necessary for us to draw a sharp

DISTINCTION BETWEEN PEARLS PROPER AND BLISTERS OR PEARLY EXCRESCENCES

of the shell lining, which are secreted by the outer (shell-forming) mantle epithelium, to cover over foreign bodies that have intruded themselves between the mantle and the shell or to repair the damages done by shell-boring domiciliaries. "Concretions" are, again, distinguished from pearls as calcospbæritic bodies which have not a cuticular origin from an epithelium, but seem to arise by free crystallisation in the mantle or other tissues. The term "attached pearl" should be applied only to pearls which have become secondarily fused to the shell by absorption of the intervening tissues. From the facts of pearl-formation, it is easy to understand why the pearl presents the special characters of the particular species of shell from which it is taken, and also why, in the same mollusc, the characters of the pearls produced are determined by the part of the mantle in which they are formed. Thus, pearls formed in the extreme mantle margin are composed mainly of periostracum, *e. g.* the leathery pearls of *Modiola modiolus*, while those which occur in the part of the mantle concerned in depositing the prismatic substance are made up of concentric layers of rod-like prisms, as in the brown or "black" pearls of the Scotch river mussel, *Margaritana margaritifera* (Fig. 1). By far the greater part of the mantle epithelium deposits the nacre, and pearls which arise in this part of the mantle are the typical nacreous ones, to which the great majority of the marketable gems belong. Even the uncalcified substance of the hinge ligament of the shell may be represented in the pearls;

for example, in the great Australian mother-of-pearl oyster, *Margaritifera maxima*, Jameson, black leathery pearls are sometimes found in the dorsal body-wall. I next proceeded to investigate the

ORIGIN OF THE SAC IN WHICH THE PEARL ARISES,

and also the nature and origin of the "nucleus" which is so often to be found in the centre of the pearl. In a great many molluscs, among which were several of the pearl-oysters proper, the remains of trematodes were found to from the nuclei, a discovery which confirmed the observations of Filippi, Möbius and others. In one or two cases, however, other parasites played the same part. By confining my attention to the common mussel, I proved that the epithelial sac, which is all-important for pearl formation, is first formed around the live trematode which enters upon a resting stage in the tissues of Mytilus. A similar sac, surrounding a trematode, was found in an example of the Ceylon pearl-oyster, *Margaritifera vulgaris*, Schumacher, which I examined. For the formation of the pearl, it is not necessary for the trematode to persist as nucleus, for it often happens that it migrates out of the sac; but the sac, caused primarily by the specific stimulation of the parasite, is essential to pearl production. In *Mediola mediolus*, and probably in some other forms, similar sacks are formed around Sporozoa. The next subject to be investigated was the origin and

LIFE HISTORY OF THE PARASITE THAT CAUSES THE PEARL-SAC.

The common mussel was found to be the most convenient species on which to study this, and the pearl-bearing mussel-beds of Billiers, in Britany, and Piel, in the Barrow Channel, were selected as suitable sites in which to begin the observations (Fig. 2) The parasite, like most trematodes, passes through a regular cycle of three hosts, two of which are invertebrates and the third a vertebrate. It arises in sporocysts in the "tapestry shell," *Tapes decussatus* and the cockle *Cardium edule*, the former acting as first host at Billiers, the latter at Piel, where Tapes does not occur. The young tail-less Cercariæ or trematode larvæ leave the mother sporocysts in the first host and migrate into the mussel. The transmission of the parasite from Tapes to Mytilus was proved experimentally in a tank at the Brighton Aquarium. In the mussel, the parasite enters into a resting stage, in the sub-epidermal connective tissue, and gives rise to the epidermal sac or "epithelioma" in which the pearl arises (Fig. 3.) If the parasite dies in this sac, a pearl is formed around its remains, or if it migrates to another part of the tissues, a pearl may be developed in the empty sac. Although it was found impossible to secure live uninfected material of the final host for experiment, it is almost certain that the adult stage of the parasite is *Distoma* (*Leucithodendrium*) *somateriæ*, Lev., a whom which occurs in the intestine of the elder duck, *Somateria mollissima*, and the black duck or scoter, *Oedemia nigra*. Both these birds feed almost exclusively on mussels. A number of scoters caught or shot in the immediate vicinity of the Billiers pearl-beds were found swarming with this worm. Indeed, one example of the worm, in an immature condition, quite indistinguishable from the resting stage which occurs in Mytilus, was taken from the intestine of a scoter. Our knowledge of the life-stories of other trematoders, or "flukes" as they are popularly called, enables us to fill in the life-history of this parasite with considerable detail. The worm reaches maturity in the intestine of the scoter and eider, and the eggs pass out with the fæces. These eggs, or possibly "Miracidium" larvæ derived from them, enter Tapes or the cockle and there give rise to sporocysts, in which the young flukes or Cercariæ are formed. These larvæ, unlike typical Cercariæ, are tailless, and when they escape from Tapes reach the mussel chiefly by drifting with the tidal currents. On entering the mussel, they pierce the body wall and settle down in the subcutaneous tissues, in which they become surrounded by the pearl-sacs. If the mussel lives long enough, pearls will be formed in these sacs. If, on the other hand, a mussel containing these resting Cercariæ is eaten by an eider duck or scoter, the Cercariæ develop into the mature worms, which produce eggs, and the life cycle is repeated. As an

ECONOMIC RESULT OF THESE INVESTIGATIONS, it would seem that the artificial production of marketable pearls in large quantities should present no great difficulties, if the conditions essential to pearl production in the particular cases be intelligently investigated. The fact that trematodes have been ascertained to be *at least* one causes of pearl formation in several of the molluscs that produce the marketable gems gives us every reason to hope that, by learning the life-histories of these parasites, we may be able to infect any number of pearl-oysters of pearl-mussels to any desired extent, without any operation on the individual molluscs, by simply placing them in the roper surroundings, in company with infected examples of the first host. Once infected, the molluscs could be bedded out on suitable grounds, and left to care for themselves, until the pearls formed in them were of marketable size.

FUTILITY OF OYSTERS TRANSFERENCE.

These observations show the futility of the proposal that has so often been made, viz., that young pearl-oysters should be transferred from their native grounds to more accessible in-shore waters, as it must obviously be the first object of the scientific expert, before laying down the beds of young pearl-oysters, to assure himself either that they are already infected or that the conditions essential to speedy infection are present on the grounds to which the oysters are to be transplanted.—H. LYSTER JAMESON in *Nature*, Jan. 22.

THE CACAO CROP OF TRINIDAD—is expected to be very large this season. The *Port-of-Spain Gazette* estimates that during the month of December, close upon 20,000 bags (of 130 lb each) will have been brought down by the railway. The Grenada *St. George's Chronicle* draws attention to the necessity of supplementing the cacao industry with others, in view of the rapid increase in cacao production in other parts of the world. The export of this crop from West Africa has risen from 166,054 bags in 1898 to 297,054 bags in 1902. From South America also increased production is recorded. Bahia for instance exported 192,000 bags in 1900, and 236,546 bags in 1902 *Agricultural New* Feb. 14.

CINCHONA AND QUININE.

Messrs. C. M. & C. Woodhouse afford a good deal of generally interesting information in their annual review of the above markets published in February. They say that the bi monthly exports of bark from Java continue to exercise the chief controlling influence on the quinine market; although the total shipments for 1902 were by no means excessive. But when shipments for a fortnight in August were telegraphed at 1½ million lb., a panic occurred, only abated when news came of short exports afterwards. Now the Java planters are expected to regulate shipments; just as India and Ceylon tea planters are expected to try and control the offerings of their staple in the London market—rather a difficult task. The Java Cinchona men have resolved "to offer during 1903 at every Amsterdam Cinchona Bark Auction, not more than 1-10th of the yearly production of every estate." The largest monthly export last year was 1,577,000 lb. in October, and the smallest 776,000 in May. A great feature of the market was the large orders for quinine during the past six months, and Germany has been a large exporter, sending away 232,200 kilogrammes in 1902 against 195,400 in 1901. United States, Russia and Italy are the chief customers. The unit value of bark, in London varied from 1⅜d. to 2d. per lb. Altogether, the estimated production of cinchona bark is given, as equivalent to 14,489,000 ounces of quinine in 1902; and Java makes up 12,457,000 ounces of this l, leaving only 2 millions for the rest of the world, of which again India gave more than half. South America, the original home of cinchona, gave last year bark only equal to 620,000 ounces of quinine; Ceylon 195,000 oz.; Africa 86,000 oz.—Java exported 700,000 ounces of quinine locally manufactured, against 11,757,000 oz. sent away in bark. So that the Java quinine manufactory of which we heard so much, does not deal with much more than 5 per cent of the whole crop of bark. The United States is the greatest consumer, importing 3,400,000 oz. of quinine beside bark for local manufacture equal to 2,496,000 oz. France takes bark equal to 1,802 000 oz. quinine; Germany consumes a million oz. of quinine; but exports 6,195,000 oz. exclusive of what goes to the United States. Russia and Italy each use up over a million oz., and Greece and Turkey rather more. The British Empire makes up another million; and Netherlands, Austria and other countries about 1½ million more. The world's consumption is slowly increasing.

THE FUTURE OF QUEENSLAND:

A SAD PICTURE.

Writing from Dornoch Terrace South Brisbane, Queensland, on 16th February, Mr. Donald Mackay (so well-known in Ceylon) tells us in the course of a chatty letter:—"I am working my way back from New Zealand to Malaya. The disorganised state of trade owing to the ravages of drought makes it more difficult to get along round the north of Queensland and through the Eastern Archipelago for the lines that were formerly regular have become quite irregular for want of loading. I don't know what this poor country is coming to—what with the visitations of Providence and the intolerance of the labour-ridden Government of the Commonwealth which decreed that even tropical Queensland should be the close preserve of the white labour which cannot labour to any purpose. Even now a Government Agent is going about, arranging for the deportation to the New Hebrides of the Kanakas, many of whom have been here for years, some of whom have been here for twenty. The Government or the labour party, which is one and the same thing, think that by bonuses of two pounds per ton, sugar can be grown by whites. Assuming it can, what can be said of a policy that keeps up the price of labour by simply taxing the rest of the population? This is only one of the many examples of labour class legislation, to the detriment of the general body, that has been passed by the Parliament of the Commonwealth. Both N.S.W. and Queensland have suffered already from the Federal protectionist tariff, but this state has suffered most and it is for it a cause for bitter regret that it went into Federation in blind faith, without any guarantees. It was quite open to Queensland to have made terms as West Australia had, but the wise men of the former State had not the foresight of those of the latter who did not pin their faith on the word of any man, much less on those of the colonial politician on the look-out for office. It is stated, and I think with a good deal of truth, that the present Premier of the Commonwealth—to gain the support of the labour party—ate his own words, spoken when bidding for office, and allowed his legislation to be controlled and virtually ruled by the labour minority in Parliament. Hence it is that indirect taxation on necessaries of the multitude, which was really little felt, was sacrificed and as a consequence resulted in a highly protectionist tariff which is now being strongly agitated against by the Opposition. The labour party, though a small minority, hold the fort because of their organisation outside which is complete. The other and larger interests of agriculture and commerce are not organised and consequently are not able to assert themselves to substantial effect in the control of legislation and Government of the country. The arrogance of the labour party and the ruinous results of their narrow, selfish policy will assuredly lead to counter-organisation of rival interests in Australia as it did in New Zealand, where the farming interest is organised and ready to strike in when the pinch of adversity makes labour arrogance intolerable. Labour is having its day of power which, in its short-sightedness, it is using most arrogantly; the more so the better, for the quicker will come the reaction and the more crashing the downfall, I cannot discourse any longer on the politics of Australia which are none of the sweetest, so must say good-bye and with best wishes &c.

Monthly Shipments of Ceylon Black Tea to all Ports in 1902-1903.*

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb
January ..	9056013	7720436	612958	323101	151934	127883	714247	1738760
February	7455219	7983166	919709	372474	121158	150846	1020948	1337353
March ...	8198179		896513		91081		1713916	
April ...	8521388		988698		93198		2081904	
May ..	9638555		238239		80669		2000522	
June ...	12563050		1984976		166479		1828695	
July ..	10724781		1779011		108785		1747960	
August ...	7396614		1065599		208894		1574498	
September	6652202		795315		70262		1857897	
October ..	6559765		360844		79943		1567796	
November	6386229		937757		213619		1033030	
December	9072552		285785		60628		1577381	
Total ..	102.899.489		11,599,953		1,206,140		18,718,794	

			America.		All Other Ports.		Total.	
			1902. lb.	1903. lb,	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January	..	..	125795	538166	389215	584321	11050212	11032667
February	..	..	115332	743733	385705	615790	10018071	11203362
March	...	..	566263		311191		11777143	
April	..	..	807390		290137		12782715	
May	..	..	242651		436410		12637046	
June	..	..	403005		714471		17660676	
July	..	...	464858		846036		15671431	
August	...	...	461229		678095		11384929	
September	...	...	563981		688730		10628487	
October	...	...	483085		655827		9707260	
November	...	...	282794		547508		9400936	
December	...	...	558864		626319		12181529	
	Total	...	5,048.137		6,569,644		146194397	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902 lb.	1903. lb.
January ..	64021	95535	..	...	...	3000	...	...
February	24839	52407	4420	...	...	1430	...	..
March ..	14800	...	24210	...	...	...	...	...
April ...	13676	...	8000	...	...	...	...	...
May ...	70103	...	..	...	...	...	...	...
June ..	87340	...	74225	...	...	...	..	...
July ...	40574	...	..	...	...	...	...	...
August ..	70900	...	..	...	...	...	...	..
September	50771	...	..	...	...	...	...	...
October ...	68679	...	..	...	...	...	..	..
November	48076	...	..	...	...	...	..	...
December	40423	...	..	...	...	...	..	...
Total ...	644,443		127,115				...	

		America.		All Other Ports.		Total.	
		1902 lb.	1903. lb.	1902. lb.	1903, lb	1902. b.	1903. lb.
January	...	113332	26534	...	.	177353	363883
February	..	26480	567474	515		56254	621616
March	...	62313	...	100	...	101423	...
April	...	53610	...	9165	...	84451	...
May	..	32676	...	3280	...	106059	...
June	...	84184	...	4500	...	250249	...
July	...	194016	...	...	...	234590	...
August	...	105982	...	1600	...	178482	...
September	...	333704	...	6800	...	391275	...
October	...	281168	...	..	...	349847	...
November	...	156653	...	20080	...	224809	..
December	...	365843	...	2240	...	408506	...
Total	...	1,968,456		48,280		2,796,844	

* It is impossible to get the figures for the last month in time for publication; but see pages 712, 713 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS'

ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buy-ers.	Sell-ers.	Tran-sactions.
Agra Ouvah Estates Co., Ltd.	500	920	...	920
Ceylon Tea and Coconut Estates	500	..	...	.
Castlereagh Tea Co., Ltd.	100	97·50	..	100
Ceylon Provincial Estates Co. Ltd.	500	550	...	550
Claremont Estates Co., Ltd.	100	..	...	...
Clunes Tea Co., Ltd.	100	...	80	80
Clyde Estates Co., Ltd.	100	..	50	...
Doomoo Tea Co., of Ceylon Ltd.	100	75	...	...
Drayton Estate Co., Ltd.	100	...	...	...
Ella Tea Co., of Ceylon, Ltd.	100	...	47½	...
Estates Co of Uva, Ltd.	500	...	300	...
Gangawatte Tea Co., Ltd.	100	..	..	..
Glasgow Estate Co., Ltd.	500	..	1200	1150
Great Western Tea Co., Ltd.	500	...	750	...
Hapugahalande Tea Estate Co.	200	...	...	..
High Forests Estates Co., Ltd	600	500	...	...
Do part paid	400	...	400	—
Horrekelley Estates Co Ltd	100	..	100	...
Kalutara Co., Ltd.,	500	..	325	—
Kandyan Hills Co., Ltd	100	..	..	...
Kanapediwatte Ltd.	100	...	75	75
Kelani Tea Garden Co., Ltd.	100	...	40	..
Kirklees Estate Co., Ltd.	100	65	..	~
Knavesmire Estates Co., Ltd.	100	..	65	..
Maha Uva Estates Co., Ltd.	500	—	...	...
Mocha Tea Co., of Ceylon, Ltd.	500	780	..	780
Nahavilla Estate Co., Ltd.	500	...	400	—
Neboda Tea Co., Ltd.	500	—	..	...
Palmerston Tea Co., Ltd.	500	—	400	—
Penrhos Estates Co, Ltd.	100	—	92½	92½
Pitakanda Tea Company	500	—	—	—
Pine Hill Estate Co., Ltd.	60	—	47½	...
Putupaula Tea Co. Ltd.	100	—	..	—
Ratwatte Cocoa Co., Ltd	500	—	—	—
Rayigam Tea Co., Ltd.	100	50	52½	50
Roeberry Tea Co., Ltd.	100	100	—	100
Ruanwella Tea Co., Ltd	100	..	67½	65
St. Heliers Tea Co., Ltd,	500	..	500	—
Talgaswela Tea Co., Ltd.	100	...	35	37½
Do 7 per cent Prefs.	100	—	80	...
Tonacombe Estate Co., Ltd,	500	—	400	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estates Co., Ltd.	500	610	650	..
Uvakellie Tea Co. of Ceylon, Ltd	100	...	85 xd.	—
Vogan Tea Co., Ltd.,	100	...	60	60
Wanarajah Tea Co., Ltd.	500	900	—	com.
Yataderiya Tea Co., Ltd.	100	360	370	370

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions.
Adam's Peak Hotel Co., Ltd.	100	..	30	—
Bristol Hotel Co., Ltd.	100	70	80	—
Do 7 per cent Debts	100	..	—	—
Ceylon Gen. Steam Navigation Co., Ltd	100	..	225	—
Ceylon Ice & Cold Storage Co. Ltd.	100	..	...	—
Ceylon Superaeration Ltd.	100	—	225	—
Colombo Apothecaries' Co. Ltd.	100	—	152·50	—
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	...
Colombo Fort Land and Building Co., Ltd.	100	90	...	...
Colombo Hotels Company	100	—	290	290
Galle Face Hotel Co., Ltd.	100	192½	200	..
Kandy Hotels Co., Ltd.	100	130	...	...
Mount Lavinia Hotel Co., Ltd.	500	—	300	..
New Colombo Ice Co., Ltd.	100	—	97½	95
Nuwara Eliya Hotels Co., Ltd.	30	25	27½	..
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	...	—	...

LONDON COMPANIES

Company*	paid. p. sh.	Buy-ers.	Sell-ers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	8	9	.
Anglo-Ceylon General Estates Co	100	—	52—57	—
Associated Estates Co., of Ceylon	10	...	nom	—
Do. 6 per cent prefs	10	—	2—4	—
Ceylon Proprietary Co.	1	—	5—10	—
Ceylon Tea Plantation Co., Ltd.	10	—	24—25	—
Dimbula Valley Co. Ltd	5	—	5½—6	—
Do prefs	5	—	5½—6	—
Eastern Produce & Estate Co. Ltd,	5	—	3¾—4½	—
Ederapolla Tea Co., Ltd	10	—	5—8	—
Imperial Tea Estates Co., Ltd.	10	5	6..6	—
Kelani Valley Tea Assn., Ltd.	5	—	3—5	—
Kintyre Estates Co., Ltd.	10	..	4—5	—
Lanka Plantations Co., Ltd	10	—	3—4	—
Nahalma Estates Co., Ltd.	1	—	nom	..
New Dimbula Co., Ltd.	1	—	2¾—3	...
Nuwara Eliya Tea Estate Co., Ltd.	10	—	10½	...
Ouvah Coffee Co., Ltd.	10	..	8—9	—
Ragalla Tea Estates Co., Ltd.	10	..	9—11	—
Scottish Ceylon Tea Co., Ltd.	10	..	10—12	...
Spring Valley Tea Co., Ltd.	10	..	2—5	..
Standard Tea Co., Ltd.	6	...	11—12	..
The Shell Transport and Trading		..		...
Company, Ltd.	1	..	2⅞—3⅛	..
Ukuwella Estates Co., Ltd.	25	..	par	..
Yatiyantota Ceylon Tea Co., Ltd.	10	..	6..7	6½
Do. pref. 6 o/o	10	..	9..10	9½

BY ORDER OF THE COMMITTEE.

Colombo, April 3rd, 1903.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General*)

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch.	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	3·46	4·16
February ..	1·98	2·78	0·63	3·55	4·57	2·02	3·95
March ..	4·21	0·88	3·71	5·12	6·85	4·82	0·53
April ..	22·81	6·66	15·12	8·71	10·01	11·30	0·00*
May ..	5·80	17·73	10·63	6·28	11·89	11·86	
June ..	10·94	9·23	7·83	5·93	9·84	8·32	
July ..	6·15	1·11	6·77	4·52	4·63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·18	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9·25	19·84	20·10	13·00	
December ..	3·05	4·44	5·20	1·70	6·43	6·21	
Total..	103·11	73·48	83·68	75·86	118·70	88·71	10·64

* From 1st to 2nd April *nil* that is up to 9·30 a.m. on the 2nd April.—ED. *C.O*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate	for	Mar.	1903—8½ to 9 mill. lb.
Total	Shipments	Do	1903— 7,500,000 lb.
Do	Do	Do	1902— 8,198,179 lb.
Do	Do	Do	1901— 7,982,090 lb.

[ESTIMATE for Apr. 1903—8½ to 8¾ million lb.]

"PHILIPPINES AND THEIR RICHES"—is the heading of an article (in *The Manila Times*, February 28th), in which Capitalists are urged to "go East"!—and we read:—

There are hundreds of thousands of acres of the most fertile sugar lands in the world merely awaiting capitalists to take advantage of them, while there are some millions of natives, honest and experienced, who are only too anxious to cultivate them.

TEA IN NATAL.—The article we quoted the other day from the *Natal Mercury* has elicited two further communications, quoted elsewhere. The first writer's acquaintance with the general conditions of tea-growing in Natal was, it will be seen, greater than with up-to-date methods of plucking &c.

COLOMBO PRICE CURRENT.

Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, Mar. 30th, 1903

CARDAMOMS :—
All round parcel, well bleached per lb. R1·00
Do. dull medium do. R0·80
Special assortment, 0 and 1 only do R1·20
Seeds do. R0·70

CINCHONA BARK :—
Per unit of Sulphate of Quinine 8c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lbs. nett.)
Ordinary assortment per lb. 49c.
Nos. 1 and 2 only per lb. 56c,
Nos. 3 and 4 only per lb. 41c.

CINNAMON CHIPS :—(in bags. of 56 lbs. nett. per candy of 560 lb.) R57·50

COCOA :—
Finest estate red unpicked per cwt R45·00
Medium do do do R37·50
Bright native unpicked and undried R35·00
Ordinary do do do R50·00

COCONUTS—(husked)
Selected per thousand R47·00
Ordinary ,, R38·00
Smalls ,, R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R75·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 17c.

COCONUT OIL—
Dealers' Oil per owt. R14·25
Coconut Oil in ordinary packages f. o. b. per ton R322·50.—Business done.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—R9·50.
Plantation Estate Coffee f. o. b. (ready) per cwt.—None
Native Coffee, f.o.b per owt.—None.

CITRONELLA OIL—
Ready do per lb.—53c.

COPRA—
Boat Copra per candy of 560 lb. R45·50
Calpentyn Copra do do R45·50
Cart do do do R42·00
Estate do do do R45·00

CROTON SEED per owt—R11·00

EBONY—
Sound per ton at Govt. depot None—Sales of this day
Inferior None—Sales of this day.

FIBRES—
Coconut Bristle No. 1 per cwt R12·00
Do ,, 2 9·00
Do mattress ,, 1 3·00
Do ,, 2 2·00
ColrYarn, Kogalla ,, 1 to 8 16·50
Do Colombo ,, 1 to 8 12·00
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R600·00 } Firmer.
Ordinary lumps do R550·00
Chips do R350·00
Dust do R250·00
Do (Flying) do R125·00

SAPANWOOD— per ton R45·00—Nominal.

SATINWOOD (Sound) per cubic ft. R5·90—Sales of 26th Jan
Do (Inferior) per cubic ft. R4·40— do
Do (Flowered) per cubic ft. R10·70— do

TEA—	High Grown Average cts	Medium Average. cts	Low Grown Average. cts
Broken Pekoe and Broken Orange Pekoe per lb	59	46	41
Orange Pekoe do	56	43	37
Pekoe do	51	39	36
Pekoe Souchong do	40	35	35
Pekoe Fannings do	38	32	30
Broken mixed—dust, &c	33	29	29

CEYLON EXPORTS AND DISTRIB[...] FOR SEASONS 1902 AND 1903

COUNTRIES	Black Tea. 1903 lbs.	Black Tea. 1902 lbs.	Green Tea 1903 lbs.	Green Tea 1902 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	Cardamoms lbs.
To U K.	20516113	20460731	164079	98130	1716	..	1716	17630	99476
,, Austria	12558	175	...	...	...	..	..	105	—
,, Belgium	34346	8137	...	..	2	..	2	289	1000
,, France	08542	68969	4430	...	...	—	..	161	...
,, Germany	120683	106502	-	...	..	..	..	1488	17280
,, Holland	..	750	..	-	...	..	..	...	...
,, Italy	5029	3200	...	..	...	..	...	...	...
,, Russia	1227409	2400478	...	24210	..	...	..	...	...
,, Spain	300	500	..	..	...	..	...	156	..
,, Sweden	21682	13755	..	...	...	..	..	..	...
,, Turkey	7495	9073	..	...	..	..	..	...	..
,, India	173980	174987	305	515	10	..	10	...	41096
,, Australia	4136379	2667995	...	...	205	20	225	167	...
,, America	1483401	698182	984336	184366	62	...	62	653	...
,, Africa	99116	111629	..	...	...	..	..	..	2078
,, China	1145 '60	646366	..	..	3	...	3	..	3166
,, Singapore	37940	27996	...	..	...	..	-	581	1523
,, Mauritius	19582	19960	...	..	..	..	...	..	..
,, Malta	70770	94000	..	..	..	...	..	...	..
Total export from 1st Jan. to 30th Mar, 1903.	29210585	27513625	1153150	307221	1998	20	2018	21230	165619

COUNTRIES	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1903 cwts.	Coconut Oil. 1902 cwts	Copra cwts.	Dsiccated Coconut lbs.	Poonac. cwts.	Coconuts. No.	Plumbago. 1903 cwts	Plumbago. 1902 cwts.
To U K.	89116	255488	67981	26365	6844	3611463	997	1476140	20557	41349
,, Austria	50	43012	8667	1701	4000	11050	...	..	..	...
,, Belgium	68130	113736	2682	...	3393	61767	22598	61970	4296	2296
,, France	3600	29400	6593	...	12928	14000	...	..	308	...
,, Germany	104211	157667	2117	1333	50438	133230	22587	205635	15477	8601
,, Holland	1000	11200	614	...	...	16200	..	..	102	...
,, Italy	22500	36400	1626	807	...	..	..	1545	...	...
,, Russia	..	..	...	...	15100	-	..	..	112	..
,, Spain	61800	8400	..	...	...	14900	..	...	...	...
,, Sweden	..	..	423	...	...	9850	..	...	..	...
,, Turkey	500	...	..	...	..	...	...	..	..	..
,, India	100	..	3291	13935	...	..	-	19100	1443	1582
,, Australia	600	9520	43	..	..	194365	...	..	220	25
,, America	120043	32400	20232	8041	...	206418	...		59067	55216
,, Africa	...	..	219	...	-	17665	..	431380	..	...
,, China	...	..	1508	...	-	.	..	..	503	637
,, Singapore	...	..	..	..	..	..	...	..	...	..
,, Mauritius	..	..	..	...	..	..	...	...	..	..
,, Malta	...	..	..	..	..	...	..	...	...	..
Total export from 1st Jan. to 30th Mar, 1903.	471650	697223	115996	52182	92703	4290908	46182	2195770	102085	109706

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 11th March, 1903.

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine .	7d a 8d
BEES' WAX, cwt.		
Zanzibar Yellow ,,	Slightly drossy to fair	£6 10s a £6 15
Bombay ,,	Fair genuine ..	£5 10s a £6 10s
Madagascar ,,	Dark to good palish	£6 7s 6d a £7 2s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality .	170s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 6d a 1s 9d
	Middling, stalky & lean	1s a 1s 2d
Ceylon, Mysore ,,	Fair to fine plump ..	1s a 3s [illegible]d
	Seeds .	1s 2d a 1s 5d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish ..	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to fair bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2d a 2¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 40s
CINCHONA BARK.—lb. Ceylon	Ledgeriana Orig. Stem	6d a 9d
	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	[illegible]d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	6d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba	Good and fine bright	3½d a 4d
	Common dull to fair	3⅛d a 3⅜d
Stems ..	Fair	2d
COFFEE Ceylon Plantation ,,	Bold to fine bold colory	90s a 115s
	Middling to fine mid .	70s a 100s
	Smalls	59s a 69s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	65s a 88s 6d
	Medium and fair	58s a 64s
	Native	50s a 57s
COLOMBO ROOT ,,	Middling to good	8s a 15s
COIR ROPE, Ceylon ton		nominal
Cochin ,,	Ordinary to fair	£13 10s a £18
FIBRE, Brush ,,	Ord. to fine long straight	£16 a £19
Cochin ,,	Ordinary to good clean	£20 a £24
Stuffing ,,	Common to fine	£7 a £9
COIR YARN, Ceylon ,,	Common to superior	£15 a £30
Cochin ,,	,, ,, very fine	£12 a £32
do. ,,	Roping, fair to good	£10 a £14 10s
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	34s a 40s
	Small and D's	32s a 34s
Japan ,,	Unsplit	30s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fr. fine pl. in sts.	£10 a £13
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	£75 a £9
	Amber and dk. red bold	£5 15s a £7 10s
	Med. & bold glassy sorts	95s a £6 15s
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ..	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	2[illegible]s 6d a 3[illegible]s 6d
Turkey sorts ,,		27s 6d a 32s 6d
Ghatti ,,	Pickings to fine pale ...	12s a 25s
Kurrachee ,,	Good and fine pale ...	2[illegible]s 6d a 30s
	Reddish to pale selected	10s a 25s
Madras ,,	Dark to fine pale ..	15s a 20s
ASSAFŒTIDA ,,	Clean fr to gd. almonds	[illegible]0s a 10[illegible]s
	Ord. stony and blocky	5s a 45s
KINO ,,	Fair to fine bright	4d a 5d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	65s a 95s
OLIBANUM, drop ,,	Good to fine white	4[illegible]s a 50s
	Middling to fair	3[illegible]s a 42s 6d
pickings ,,	Low to good pale	[illegible]s a 3[illegible]s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grown fr. Para seed)	2s 8d a 4s 2½d
Assam	Good to fine	2s a 3s
	Common to foul & mxd.	7d a 1s 9d
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	6d a 2s 6d

	QUALITY.	QUOTATIONS
INDIARUBBER (Contd.) Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 3½d
	Ordinary to fair Ball ..	2s a 2s 4d
	Low sandy Ball ...	9d a 2s
	Sausage, fair to good ..	[illegible]s 2d a 3s 2¾d
	Liver and Livery Ball ..	1s 9d a 2s 8d
Nyassaland	Fair to fine ball ..	2s 3d a 3s 3d
Madagascar	Fr to fine pinky & white	2s a 2s 9½d
	Fair to good black ..	1s 1d a 2s 3¾d
	Niggers, low to fine ..	7d a 2s
INDIGO, E.I.	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 10d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	3s a 3s 6d
	Ordinary to fair	2s a 2s 9d
	Pickings	1s 9d a 1s 11d
MYRABOLANS, cwt	Dark to fine pale UG	5s a 6s nom.
Madras	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s a 5s 6d
	Bhimlies	4s a 7s 6d
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s nom.
NUTMEGS— lb.	64's to 57's	3s
Bombay & Penang ,,	110's to 65's	1s 2d a 2s 1d
	160's to 115's	6d a 1s 1d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 17s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 2d a 4s 3d
CASSIA ,,	According to analysis	2s 2d a 3s
LEMONGRASS ,,	Good flavour & colour	5d a 5½d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s 1d
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER—(Black) lb. Alleppee & Tellicherry	Fair to bold heavy ...	5½d a 6½d
Singapore	Fair	5⅝d
Acheen & W. C. Penang	Dull to fine ...	5¼d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine bright bold	[illegible]s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair .	40s a 60s
SANDAL WOOD— Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ...	£5 a £5 10s
Manila ,,	Rough & rooty to good	£4 10s a £5 15s
Siam ,,	bold smooth ...	£7
SEEDLAC cwt.	Ord. dusty to gd. soluble	117s 6d a 120s
SENNA, Tinnevelly lb	Good to fine bold green	5½d a 8d
	Fair greenish	3¾d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's D's and B's Small ...	30s a 140s
Mergui ,,	Small to bold ..	£7 15s a £10 10s
Mussel ,,	Small to bold ..	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	15s a 22s
TURMERIC, Bengal cwt.	Fair ...	12s a 14s
Madras ,,	Finger fair to fine bold bright	9s 6d a 13s
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger .	9s 6d a 10s 6d
	Bulbs ...	9s a 9s 6d
VANILLOES— lb. Mauritius .. 1sts	Gd. crystallized 3½ a 8½ in	7s 6d a 28s 6d
Bourbon ... 2nds	Foxy & reddish 3½ a 8 ,,	6s a 13s
Seychelles 3rds	Lean and inferior ...	5s 6d a 8s 6d
VERMILION lb.	Fine, pure, bright ...	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	62s 6d a 65s

THE

AGRICULTURAL MAGAZINE,

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for April :—

Vol. XIV.] APRIL, 1903. [No. 10.

PRINCIPLES OF NUTRITION AND NUTRITIVE VALUE OF FOOD.

THIS is the subject of a learned paper by Prof. W. O. Atwater, of the United States Department of Agriculture, who as special agent in charge of nutrition investigations, speaks with authority on this very important subject. There is so much in it that should come within the knowledge of both grower and consumer, that we have decided to summarise the contents of the paper for the benefit of our readers who will no doubt be able to learn a great deal about the true value—nutritive and pecuniary—of food, as well as the general subject of diet, the errors of which has so much to do with the welfare of mankind.

It is well known that the chemical substances of which the body is compared are made up of the same element as those of the foods which nourish it. The most abundant of the 15 or 20 elements occurring in the human body are oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus and sulphur, which combine to form a variety of compounds. The most important among these latter are the substances distinguished as protein, fats, carbohydrates, mineral matter and water, whose functions stated generally are to build and repair the various tissues of the body, and to supply it with heat and muscular energy.

Water is among the most important compounds, forming over 60 per cent of the weight of the body of the average man, being itself a component of all the tissues.

Mineral matter or ash forms 5 or 6 per cent of the body weight, and is found chiefly in the bones and teeth, though also present in the tissues and fluids. Phosphote of lime is the mineral basis of bone, and compounds of potassium, sodium, magnesium and iron are found in the body and are necessary to life.

Protein includes the principal nitrogenous compounds and is familiar in the form of meat, white of egg, &c. It forms 18 per cent of the body weight in the average man. The albuminoid proteids include substances similar to white of eggs, lean of meat, curd of milk, &c. The gelatinoids occur principally in the connective tissues, and with the albuminoids are the most important constituents of our food, forming the basis of bone, muscle and other tissues. They yield heat on combustion, and are to some extent transformed into fat and stored in the body. Proteids are most abundant in the animal foods though also present in cereals, and, in large proportion, in legumes. It should be added that the gelatinoids are less valuable than the albuminoids for nutriment. The "extractives" though classed as proteids are very different from the two already mentioned. They are the chief ingredients in meat extracts, such as beef tea, &c. They are believed neither to build up tissue nor supply energy, but act as stimulants and appetisers. The nitrogenous compounds of vegetables contain more or less of the so-called amids analogous to the extractives of meat. Fats occur chiefly in animal foods, but are also found as oily matter in seeds. When the food supply is short, fat, and also protein, is drawn upon to supply heat. Fat forms 15 per cent of the average body weight. The tendency to fatness is not

decided by food and exercise alone, but depends also on personal idiosyncracy or some other little understood factor. Sugar and starch of foods are charged into and stored as fat in the body.

Carbohydrates.—These include starches, sugars and cellulose which occur chiefly in vegetable foods, though, milk contains much sugar. The carbohdyrates form less than 1 per cent of the body. Starches and sugars are important as being a source of energy, and are easily digested.

In discussing the nutritive value of food we must discard the refuse part of it, such as bones of meat, shells of eggs, skin and seeds of fruit, in order to find the actual cost of the nutrients.

The potential energy of food is transformed in the body into heat and mechanical power. The latter is required for work, the former is used to keep the body warm, and when more is generated than is needed for that purpose it is wasted. The body is indeed a machine, but unlike other machine it is self-building, self-reparing and self-regulating. It is, however, more than a machine in that it has a nervous organisation, sensibilities, and the higher intellectual and spiritual facilities, the right exercise of which undoubtedly depends upon the right nurition of the body.

Shortly stated the uses of food are (1) to form the material of the body and supply its waste, (2) to yield heat for the warmth of the body and furnish muscular and other power for its work. The principal tissue formers are the proteids, especially the albuminoids which make the frame-work of the body, build up and repair nitrogenous materials (muscles, tendons) and supply the albuminoids of the blood and other fluids. The albuminoids of food are transformed into albuminoids and gelatinoids of the body. Muscle, tendou, cartilage, bone, skin, blood corpuscles, the casein of milk are all made from them. The gelatinoids of food, such as the finer particlees of tendon and the gelatin (which are dissolved out of bone and meat in soup) though not believed to be tissue formers, protect the albuminoids from consumption, When the food contains gelatinoids in abundance, less of the albuminoids is used. The proteids can be so changed in the body as to yield fats and carbohydrates, and are also burned directly in the body like carbohydrates. The material of lean meat may be converted into muscle and its energy into heat and muscular power, but a one-sided diet of meal is unsuitable. Fats and carbohydrates (starch, sugar) are the chief fuel ingredients of food—the former being the more concentrated fuel. The fat stored in the body for food, and that formed in the body from carbohydrates, act as reserve supplies of fuel. While the functions of the different nutrients are interchangable, only albuminoids can do the work of building and repair.

Heat and muscular power are forms of force or energy. The energy latent in food is developed as the food is consumed. When combustible matter is oxidised, be it meat or wood, bread or coal, the latent energy becomes active and is transformed into heat and power. Again, as various kinds of fuel differ in the amount of heat they produce, so various kinds of food give off different amounts of energy, and hence have different values as heat-producing substances.

When a man does no muscular work (beyond respiration, circulation, &c.) all the energy leaves the body as heat; otherwise it is expended partly in this way and partly in muscular work. Any way, the interesting point is that the energy given off is exactly equal to the latent energy of the material burned in the body. The body thus obeys the great law of the conservation of energy which obtains in the physical world. In practically applying the principle of this law to the body, we have to take into account the chemical composition of food, the proportion of nutrients actually digested and oxidised, and the proportion of the whole latent energy of each which becomes active and useful for warmth and work. Taking our common food materials as they are used in ordinary diet, the following is a general estimate for the energy furnished by 1 lb. of each class of nutrients:—

Protein	fuel value, 1,820	calories	per lb.
Fats	" 4,040	"	"
Carbohydrates	" 1,820	"	"

[One calorie is equal to very nearly 1·54 foot tons, that is to say, one calorie of heat, when trans formed into machanical power, would suffice to lift 1 ton 1·54 feet.]

It will thus be seen that a pound of protein of lean meat or albumen of egg is about equivalent to one of starch or sugar as regards fuel value, and that a little over 2 lbs. of either would be equal to a pound of meat or butter fat.

Thus the fuel value depends upon the amounts of the nutrients, especially fat.

Here are a few instances of the fuel value of common foods themselves:—

Wheat flour	... 1,625	calories	per lb.
Butter	... 3,410	"	"
Milk	... 310	"	"
Cream	... 865	"	"
Skin milk	... 165	"	"

(*To be continued.*)

OCCASIONAL NOTES.

The flowering tree now pretty common about Colombo and popularly known as "Madre de Cacao" has at last been fully named *Millettia atropurpurea* by Sir Joseph Hooker. The seeds originally came to the late School of Agriculture from Central America in exchange for seeds of the Dhall or pigeon pea (*Cajanus indicus*). The tree is very easily grown from cuttings, and is rapidly spreading as a shade and hedge plant, while the blossoms, which appear in February-March, are really handsome.

The curious name "Arthapal" by which the English potato (*Solanum tuberosum*) is locally known is only a corruption of "earth apple" (pome de terre) not to be confounded with earth nut or ground nut (*Arachis hypogæa*). "Potato" is said to be derived from "batata" (the Spanish for sweet potato) which must therefore have been known before the former. By-the-bye has any one heard the term "rata-innala" applied to the

English potato? Watt mentious this as the Sinhalese name. Of course, the innala (*Plectranthus tuberosus*) is known as the "country potato."

The Sinhalese word *ala* is indiscriminately applied to all kinds of yams, including the potato, and is apparently equivalent to tuber or bulb. In some cases a prefix serves to distinguish different varieties as in "dehi-ala." The sweet potato is bathala, which some say signifies "the yam which is farinaceous like rice" (bath), and others consider as only a modified form of the Spanish and Portuguese Batata. The specific term *batatas* is believed to be the original South American name.

Some authorities, however consider the sweet potato a native both of the old and new world, that it formerly grew wild in the forest of the Malayan Archipelago, and that *batatas* is the Malayan name. Nicholls states that the plant was first mentioned by Pigafetta who visited Brazil in 1519, and found the Indians using the tuber. Soon after the plant went to Spain and spread over Europe, being introduced into England long before the English potato. Dr. Pavy says that the tubers were imported into England by way of Spain, and that it is the article referred to as the potato by writers before the middle of the 17th century.

With us the term "yam" is applied to the products of either the Araceæ or Dioscoreaceæ, but not so in the West Indies. The name Tania is applied to the tuberosus rhizomes of *Colocasia antiquorum* (Sin. Gahala,) while the term Yam is confined to the several species of Dioscorea.

The pineapples of the Matale district, where oranges also flourish, are becoming famous. Dr. Van Royen has succeeded in growing excellent pines that turn the scale of 16 lbs., and with the careful cultivation he is adopting we shall not be surprised if he beats the record of 20 lbs. reached by Henaratgoda, another pine-growing district.

The Colombo Agri-Horticultural Society's Show to be held at Henaratgoda Gardens in July next promises to be a great success. The Mudaliyars of the contiguous Korales are showing great enthusiasm over the coming Exhibition, the first to be held by the Society out of Colombo city, and the Hon'ble the Government Agent of the Western Province, to which the Show is to be confined, is not less enthusiastic than his chiefs.

One of the prizes offered is for the best School Garden in the five neighbouring Korales. This is an innovation, and is creating keen competition among the village schoolmasters. The first prize will be a large silver medal, a smaller silver medal going to the second best garden.

The renovation of "black cacao" by the aid of anatto (*Bixa orellana*) dye has now become quite an art, and it is a common sight to see Moormen—dealers in cheap cacao—churning the seed in a sheet of coarse cloth together with the colouring medium, made up of cacao juice and anatto. Unfortunately the colour is not a fast one, and the Colombo Broker has, it is said, discovered a convenient and extremely simple means of distinguishing the genuine from the spurious "bold bright red," viz., rubbing the seed against a white substance,—when the dye (like similar capillary washes) comes off!

RAINFALL TAKEN AT THE SCHOOL OF AGRICULTURE DURING THE MONTH OF MARCH, 1903.

1	Sunday ...	Nil	17	Tuesday ...	Nil
2	Monday ...	Nil	18	Wednesday ..	Nil
3	Tuesday ...	Nil	19	Thursday ...	Nil
4	Wednesday ...	Nil	20	Friday ..	Nil
5	Thursday ...	Nil	21	Saturday ...	Nil
6	Friday ...	Nil	22	Sunday ..	Nil
7	Saturday ...	Nil	23	Monday ...	Nil
8	Sunday ...	Nil	24	Tuesday ...	Nil
9	Monday ...	Nil	25	Wednesday...	Nil
10	Tuesday ...	Nil	26	Thursday ...	Nil
11	Wednesday ...	Nil	27	Friday ...	Nil
12	Thursday ...	Nil	28	Saturday ...	·10
13	Friday ...	Nil	29	Sunday ...	Nil
14	Saturday ...	Nil	30	Monday ..	Nil
15	Sunday ...	·23	31	Tuesday ...	·44
16	Monday ...	Nil	1	Wednesday...	Nil
				Total...	·77
				Mean..	·02

The greatest rainfall recorded in any 24 hours, on 31st March, 1903, ·44 inches.

Recorded by Alex. Perera.

SCHOOL GARDENS IN WEST INDIES.

The following account of the efforts made in Trinidad to encourage a practical interest in plants by means of School gardens is taken from the Annual Report for 1901-02 of the Inspector of Schools for the Colony:—

Of the 82 Schools in operation on March 31, 1902, 67 had taken up Practical Agriculture previous to that date, and out of the 80 schools examined, 30, or 37·5 per cent. presented this subject, the results being in my opinion satisfactory for the first year.

In some schools, notably Mayaro Government, and New Gaand, E.C., to which the award of "Very Good" was given, the subject had been treated in a systematic and intelligent manner, whilst at other schools, notably—Hard Bargain, North Trace, New Grant and Princes Town Government, 5th Company, 6th Company and Neckchuddy Road E.C. the work deserves great credit.

My chief object has been to impress upon the teachers that a scool garden is not for the purpose of merely growing vegetables, but to be cultivated in such a manner as to impress upon the children by means of experiments the benefits

to be derived from *true* Agriculture. I have also recommended teachers to try and induce the parents of children to come and see the results for themselves which will do more, I think, than anything else, to make them believe in the benefits to be derived from the proper training of this most important subject, and cause its more rapid spread and adoption amongst the labouring part of the community; and this I am glad to say has already commenced, as some of the parents of the children attending 5th Company, 6th Company, and Neckchuddy Road E.C. Schools, have been to the teachers asking for information as to the methods used to grow the fine vegetables obtained at these scools.

The chief faults in the school gardens are:—

(1) Overcrowding, and mixing of different plants, which renders 'rotation of crops' impossible.

(2) Planting only with a view to get as much as possible out of the land, without any regard to exhaustion of the soil, and without experiments.

(3) Insufficient use of green manure.

(4) Want of compost heaps.

(5) Insufficient mulching during the drying season.

In order to remedy these mistakes, I am advising the teachers:—

(1) To set aside a plot for each kind of vegetable, and plant at regular distances.

(2) To set aside a portion of each plot for experiments.

(3) To bury in each plot as much as they can of the plant refuse.

(4) To form compost heaps of any surplus vegetable refuse, weeds and grass.

(5) Always to mulch as far as possible in the dry season.

I have been careful to inform teachers that it is not the look of the garden on the day of examination for which the award is given, but for the general work during the year.

On the whole I am say that, I think the outlook for practical agriculture in this district is very promising, and if an instructor could visit the different schools two or three times a year, and take practical work, as well as give lectures, the results would be marked, as I have no dould that after a time some of the more intelligent adults would also attend sometimes, more especially if the subjects of the lectures were known beforehand.

I am sorry to say that the parents of pupils attending Russillac C.M.I. School have refused to allow their children to work in the school garden, and have threatened to take them away if they are compelled to do so. In consequence practical agriculture has ceased to to be taught at this school.

VETERINARY NOTES.

Still another cure for tape-worm is powdered kamala. This is a dark ochre-coloured powder, consisting of minute glands and hairs obtained from the surface of the fruits of *Mallotus philipinensis.* It may be given in a little milk or water, or as pills made with flour and water. Being very light it is difficult to mix it nicely with water. The dose for a lamb or kid is a teaspoonful heaped; calves twice that quantity; dogs half to a full teaspoon according to size and age.

Mallotus Philppinensis is an Euphorbiaceous plant called in Sinhalese Hamparilla. It was formerly known as *Rottlera tinctoria.* Trimen mentions that the powder of the seeds is used as an anthelmintic in cases of tape-worm and as a cure for itch. The bark is used for tanning, and the capsule yield a dye giving a permanent rich flame colour.

The following treatment for foot-and-mouth disease is taken from "Diseases of Stock and their Treatment" (Cape of Good Hope, Department of Agriculture): In the first stage, the internal administration of Epsom salts, one pound in three quart-bottles of water; followed by Epsom salts 1 oz., Hyposulphite of Soda $\frac{1}{2}$ oz., Chlorate or Nitrate of Potash 2 drs., given in drinking water for a few days. For a mouth wash: Carbolic acid 1 dr., vinegar 1 pint, water 1 pint, or borax 1 oz., alum 1 oz., water 1 quart.

For the teats: Permanganate of potash 20 grs., water 1 qt.; or tincture of myrrh 1 oz., glycerine 10 oz. to be applied twice daily.

For the feet, after thorough washing, and where necessary, poulticing, apply sulphuric acid 1 oz. diluted with 4 oz. water to the abraised surface with a feather, and apply a bandage previously well soaked in Stockholm or Archangel tar,

An epidemic, recognised to be Indian "Surra" has been causing great mortality (estimated at from 75 to 80 per cent) among horses, mules, and oxen in the Mauritius, and as a result the cultivation of sugarcane has been seriously interfered with. The local Government has, it is reported, decided to apply for the services of Dr. Edington from the Cape of Good Hope,

Owing to the prevalence of Lathyrism in the Central Provinces of India, Major Buchanan, I.M.S. and Mr. Stockton, M.R.C.V.S., late Professor of Pathology in Edinburgh Veterinary School have been appointed to enquire into the cause and prevention of the disease. The malady is regarded as arising from the cousumption of large quantities of the food grain known as *Lathyrns sativus* or teora, when not prepared in such a way as to eliminate the poisonous principle which it is believed to contain.

The following will give an idea of the disease: To begin with there is a feeling of weakness and drowsiness, with pains in legs and occasional cramps in the calves. Suddenly the patient falls, and being unable to rise, is confined to bed for a mouth or two. This is due to the paralysis of the lower extremities. The attempt to stand brings on spasms in the legs. There is also rigidity

of the muscles of the spine. Improvement is slow (assuming a change of diet) but gradual. There is no fever. Males appear to be more susceptible.

NEW VARIETIES OF SWEET POTATOES.

(J. W. Mollison Inspector-General of Agriculture for India.)

I imported three American varieties of sweet potatoes last year. These were first tried on the Bombay farms. The first Bombay crop was propagated from imported tubers, the second crop was propagated in the usual way from cuttings. It was planted on the 8th of April and was lifted at the end of July. A large number of cuttings were distributed from the first crop to various parts of India; therefore only about one-fourth acre was planted for the second crop. The area was too small for very reliable outturn figures. I give, however, the reults as under:—

			lbs. per acre.
Nansemond	...	...	14,470
New Jersey	...	...	16,782
Virginia	..	...	21,413

The land was not directly manured but was in good condition. The produce from the whole plot ($\frac{21}{80}$th acre) was sold for Rs. 90, or Rs. 303 per acre.

2. The crop also yielded a very large number of cuttings which have been used for distribution and for planting an extended area at the Bombay farms. I have now seen these varieties growing on various descriptions of soil in the Punjab, Bengal, Central Provinces and Bombay. The plants everywhere show great vigour of growth. I believe the introduction of these vrarieties to be an undoubted success. It is important, therefore, to have these American varieties tried in all districts where the crop is important. Cuttings can be supplied during October for experimental trials if applications are made to my office at Nagpur.

3. The crop does best on deep alluvial soil of a sandy or loamy character, but will also do well on any free working naturally dry soil of fair depth. The best crops are grown under irrigation in the rabi season; but in districts where the cold of winter is severe and the total rainfall is not excessive, the crop will probably do best if planted in June-July. The American varieties are not likely to thrive on deep black-soil.

4. The results reported from Poona show that the tubers were all sound and of good shape and size. They were proved to cook well and have good flavour. The Virginia variety produced 4 or 5 tubers from each plant. These tubers were larger than those usually obtained from indigenous varieties. The Nansemond and New Jersey varieties produced 16 to 18 tubers from one plant. These tubers were smaller than those from ordinary indigenous varieties, but were all of good marketable size. The tubers of each variety grew not far from the surface in clusters, and were much easier to dig than those of ordinary Indian varieties.

5. The cultivator of sweet potatoes is put to no particular expense for seed. He simply uses as cuttings the haulms of a previous crop. These cuttings may have to be planted in a nursery. A small nursery planted in March when the rabi crop is harvested will provide cuttings for planting a kharif crop in July, and this crop will, in its turn, provide cuttings for the next rabi crop which should be planted in October-November.

6. Full details regarding methods of cultivating this crop are given in Volume III of my Agricultural Text-book, but for easy reference I may refer to important points here.

7. The soil should be of suitable class and be well worked by repeated ploughings and harrowings. Beds should be formed if irrigation is required. The crop can be propagated from tubers, but more economically from cuttings or pieces of mature stem having four nodes to each cutting. The best cuttings are got from the middle portion of the stems. The date of planting the main crop will depend upon the usual custom in any particular district. The main crop is sometimes planted in flat beds and sometimes in ridges made about 18 inches apart. The latter method is preferable. The cuttings, if planted in ridges, should be buried half way between the base and the apex and on each side of each ridge. Each cutting should be planted with two nodes buried and two ends above ground. A vigorous growth of long trailing stems is soon produced if the crop is healthy and very little hand-weeding is required. No irrigation is given in the rains, but if planted in the rabi season irrigation is necessary every 8 to 15 days according to the character of the soil.

8. The stems when in contact with wet soil after rain or irrigation become attached to the soil by rooting at the nodes. This must be prevented, otherwise small thin tubers of no marketable value form at each point of attachment. The tubers which form at the main root, moreover, will not grow so large as when the stems are kept quite free. The stems during growth must be repeatedly lifted clear from the ground and turned over to prevent the formation of these roots. These operations must be done often if the crop is good and the foliaage luxuriant, and always with care, so that the stems and leaves are damaged as little as possible.

9. In a luxuriant crop the growing points of the long trailing stems may be pruned off without damaging the crop in any way. These prunings provide a delicate vegetable.

10. The crop should be lifted when the stems near the growing point get hard and fibrous and the leaves turn yellow. The vines should be reaped close to the ground and cuttings selected for a nursery. Such of the vines or portions thereof as are green and succulent can be used as cattle fodder. Irrigation water should be withheld as the crop approaches maturity. When the tubers are ripe they should be lifted at once, otherwise much damage will be done by rsat and white-ants, &c.

THE CAROB OR LOCUST BEAN BEET.

This is also known as the Algaroba bean or St. John's Bread, and botanically as *Ceratonia Siliqua*. The seeds are said to be the original of the carat weights of jewellers.

According to the *Kew Bulletin* it is a native of Southern Europe. The tree is leguminous and usually grow 15 to 25 ft. high, with few branches and dark green pinnate leaves, composed of 2 or 3 pairs of leaflets of a leathery texture. The flowers are polygamous or dioecious (self-fertilising or unisexual on different plants). The pods are full of sweet mucilage, 6 to 10 inches long and contain many seeds. They are often eaten by the poorer people in the Levant and serve as a useful food for cattle. The seeds are also said to be used in the preparation of mucilage. In Italy and Southern Spain the tree is cultivated in dry strong localities and yields valuable crops. The value of beans exported from Cyprus reaches, in some years, £65,000. There are several cultivated varieties. As the tree is dioecious, male or female branches as is necessary must be engrafted to ensure fertilisation.

For cultivation in hot and dry districts, with strong soils, says the *Kew Bulletin*, there is little doubt that the carob is a valuable tree and deserves to be wildly cultivated. It requires warmer conditious than the orange, and is said to prefer a calcareous sub-soil. We fancy it should therefore suit the northern part of the Island. It begins to bear about 8 years old, and a single tree may yield pods weighing in the aggregate about 2 cwts.

Dr. Balfour refers to the locust bean tree as the Husk tree, and mentions that the term locust in St. John's Bread (German : Johannisbrod) was given to the tree from a mistaken notion that its pods were the locusts referred to in Matt. iii. 4, and Mark i. 6, as forming part of the food of the Baptist.

The Greek word *Ceratia* or *Keratia* (which is given to the pods owing to their resembling a slightly curved horn, (*keras*) has been translated "husks" in the passage occurring in Luke xv. 16, "the husks that the swine did eat." The tree is common in the South of Europe as well as Syria and Egypt, and the pods were formerly used in large quantity to feed swine and cattle. Horace has the following reference to them: "Vivit siliquis et pane secando" in Epist. II. i. 123. Perseus and Juvenal also allude to them, and Pliny describes them as food of pigs (Lib. xv. cap. 23, 24).

A tree will sometimes produce 800 or 900 lbs. of pods, useful for feeding horses, asses and mules. They were given to the British horses in the Peninsula war, and are to some extent imported into England for both horse and cattle food. Farmers mix the beans with oil cake and meal.

Another Algaroba bean tree distinct from, but closely related to the above is *Prosopis Julifera*, the mesquit or algaroba blanca, also with sweet succulent pods used as food. The tree is growing freely in the Goverument Stock Garden, and can be propogated by cuttings.

TOMATO WILT.

By A. DESPEISSIS.

This disease has been unusually prominent on tomatoes this season. The trouble is a bacterial blight. G. Delacroix, a French scientist, who has it under observation, first attributed it to an organism described *Bacillus solanacearum*; subsequent studies have since led him to state that the diseae in question is not to be attributed to this oragnism, but to another apparently undescribed, to which the name ef *B. solannicola* is given.

The attacked plants wilt suddenly and after a time leaves and stalks become discoloured and die. If a section is made of the stem, the pith channel is found brown, small warty spots on the stem, not unlike the water core of apples, let droplets of dirty white liquid exude. This liquid is full of bacteria. In potatoes this discolouration extends down the stalk to the tubers, which turn brown and rot. The disease is mostly spread by innoculation caused by the bite of insects; it is also associated with a web-like ground plaut fungus, *Rhizoctonia Solani*, which extends its meshes from plant to plant, boring directly into the healthy cortical cell and thus giving and an entrance to the bacteriæ.

The first step to take is to spray with a poisonous mixture, and destory those iusects which feed from plant to plant, thus spreading the disease. One ounce of Paris green in ten gallons of Bordeaux mixture will effect this. Carefully dig round the diseased plants and prevent the spread of web-like fungus to healthy plants. Root up and carefully burn diseased plants.

The organism causing this trouble is believed to be present in the soil from which it spreads to the plants, and unfavourable meteorological conditions are a contributing cause of the infection. Sour ground aggravates the disease.

Tomatoes, potatoes, egg-fruit, black nightshade, Cape gooseberry, among other plants, harbour the germs of the disease, and for that reason should be avoided in the course of rotation over infested ground.—*Journal of the Department of Agriculture, Western Australia.*

CONDENSED MILK.

Few people have a clear idea of how condensed milk is prepared, and Mr. M. A. O'Callaghan's contributions on the subject in the *Agricultural Gazette* of New South Wales for January and March of this year (from which we summarise the information given below) are worth perusal by all consumers of the article in question. In Ceylon the use of Nestle's and the Anglo-Swiss Condensed Milk Co.'s milk is very extensive.

Condensed milk may be defined as new milk reduced by evaporation in a vacuum pan to about a third of its original volume. Before sterilising by heat was understood, the addition of cane-sugar was deemed essential; now, however, we have both sweetened and unsweetened milk

in the market. Many brands of condensed milk contain a very large amount of sugar—as much as 40 per cent in some cases. The result is that it is necessary to add a large quantity of water to dilute it sufficiently for use, and this is of course a serious objection.

Of eighty-six samples of condensed milk examined in the Government Laboratory, London, at the instance of the Committee appointed in 1899 to enquire into the use of preservatives and colouring matters in food, none were found to contain chemical preservatives. The use of such preservatives in condensed milk would thus appear to be unnecessary.

But for what is known as *concentrated milk* a preservative, and especially boric or boracic acid, is commonly used. The question will no doubt be raised as to what is concentrated milk, and what is the difference between it and condensed milk? The former is a product peculiar to Australia as far as the manufacture is concerned. It corresponds to the unsweetened milk of Europe. To state the difference clearly, condensed milk is milk from which a considerable part of the water has been evaporated and which has been *sterilised* by heat; it may or may not contain added sugar. Concentrated milk on the other hand is *pasturised* milk from which a certain proportion of water has been evaporated and which contains no added sugar. Condensed milk again is put up in 1 lb. tins which are filled and hermetically sealed. Concentrated milk is generally put up in gallon tins, and sometimes distributed from open vessels. Concentrated milk is not intended for long keeping, and indeed will not remain good beyond a few days, unless kept in cold storage. It is principally used on board-ship where it is much preferred to condensed milk. The question of using preservatives has been warmly discussed, and Mr. O'Callaghan is of opinion that ·25 of boric might be allowed to be added before concentration, so that ·5 or ·75 will appear in the end according to the degree of concentration.

The following is given as the general tecnique of manufacture:—

(1) The milk is sometimes separated or centrifuged to remove all possible impurities before starting.

(2) The milk is now warmed (sometimes boiled) and sugar added when sweetened milk is to be made.

(3) Some factories heat it in open vats for some time before placing it in the vacuum pan. This is to help sterilisation.

(4) It is then evaporated till only a little over more than ⅓ of the original amount remains, the evaporation being carried on in a vacuum pan, where the milk boils for a couple of hours. The temperature at which the milk is evaporated is an important point.

(5) After evaporation has been completed to the desired point the milk is drawn off, cooled, and packed in tin vessels.

(6) If the concentrated milk is required the process is now complete, but if sterile milk (condensed) is required, further heating is carried on, and this is what is technically known as *processing the milk.*

(7) The milk is then held for some time to test its keeping qualities before sending it to market.

The following is given as the fat analysis of the better known milks:—

Ideal ...	(unsweetened)	11·09	per cent.
Rowansborn ...	(do)	10·90	,, ,,
Nestle's ...	(sweetened)	10·73	,, ,,
Anglo-Swiss ...	(do)	10·30	,, ,,
Gold Medal ...	(do)	10·30	,, ,,
Highlander ...	(do)	10·22	,, ,,
Map brand Skim milk	do)	1·53	,, ,,

POUDRETTE.

(J. W. MOLLISON, M.R.A.C.)

A practical and profitable method of utilising human excrement as manure is specially important in India. In the light of up-to-date sanitary knowledge there is no doubt that with a properly organised water-closet system and regular house-to-house connections the sewage drainge of any city can be so purified that it can be used as a source of irrigation and of manure for crops without producing unsanitary effects. The purification is effected by several processes, the most effective of which is a septic tank and filter bed system. Other effective processes are known as "Dibden's filters" and the "macerating tank system." We have had each system in experimental operation in connecti with sugar-cane experiments at Manjri (Poona), and the results are fully reported in my annual report 1899-1900. It is unnecessary to enter here into full detail. The purification is brought about through the influence of bacteria, and in the space of 24 hours the whole of the solid matter of the sewage disappears. The organic matter is converted into soluble inorganic salts. The test of complete purification is the conversion of all the organic nitrogen into nitric acid. In the Poona experiments the purification were not quite complete, the nitrogen being converted mostly into nitrites. The effluent has been proved a most valuable and quick-acting manure for sugar-cane and other crops, and at present I believe that it can be used as continuously as canal water for irrigation without causing unsanitary conditions of any kind. It is proposed to apply the system to the whole of Poona; and the Poona sewage scheme as engineered by Mr. J. C. Pottinger, Sanitary Engineer, Government of Bombay, is described in two addresses to the Municipality which he has recently published.

Pure sewage cannot long be used for irrigating and manuriug one particular area because the land to which it is applied requires intervals of rest. If used continuously the pores of the soil get choked with slimy organic matter which obstructs æration, and in consequence an unhealthy condition of vegetation is produced.

In rural districts in England the earth closet system is practised. The same system is common in Ceylon. This consists in covering the solid and liquid excreta with earth. The urine is absorbed, the solid excreta deodorized. Earth, particularly good loam, has this power. The effect is due to

humus and clay. In Poona and many towns in India the deodorizing power and absorptive effect of earth or carbonized material is taken advantage of in the preparation of poudrette. The night-soil is collected and also the town sweepings and leaves &c., and carted to a depot outside the Municipal limits. The sweepings are burnt or rather charred. The ashes still containing a good deal of carbon are mixed with the night-soil. The ashes, if used in the right proportion, exercise a disinfecting power in deodorizing the whole mass. The resulting manure is a source of handsome revenue. A decided caste prejudice existed for years against its use until its effect upon sugar cane and garden crops was made perfectly clear to the cultivators.

The following is a method of manufacture of poudrette at Poona:—A series of beds 18 feet long, 15 feet wide, and 1 foot deep are floored with *murum*. A layer of ashes about 1 inch deep is laid on this floor, and night-soil poured thereon to a depth of about 5 inches. The mass is immediately covered with another thin layer of ashes one inch deep, and thereafter allowed to stand 24 hours during the fair weather, and for three days during the rains. Wooden rakes are then used to mix the night soil with the ashes. Another layer of ashes is now added, and the whole allowed to remain from three to eight days according to the state of the weather. It is then removed from the beds and dried on dry open ground. In the hot weather it is dry in five days and ready for sale and use. In the rains the whole process is conducted under cover and takes a longer time. When moist poudrette is heaped up sometimes, as with farmyard manure, an excessive degree of heat is generated which causes loss of nitrogen.

In the cantonments of Poona another method is adopted which is decidedly more sanitary. Pits of convenient length and width are dug, sometimes five feet deep. Into these pits the night-soil and dry pulverized earth are put in alternate layers and equal proportions. A capital manure results, but it is not ready for use for several months. It is not of course so concentrated a manure as poudrette made in the ordinary Poona way. Poudrette is recognised as an active and powerful manure for all irrigated crops in which a rapid and luxuriant growth is desirable. It is very suitable for sugarcane, lucerne, vegetable and all fodder crops. It is too forcing for grain crops and fruit trees. The plant is stimulated into active growth at the expense of fruit or grain.

Poudrette is seldom applied except where irrigation is practised. It is worth at Poona as much as R3 per cart-load, but in seasons of scant rainfall when a supply of irrigation water cannot be guaranteed it falls in value to less than R1 per load. Poudrette is applied at the rate of 15 loads per acre, up to as much as 80 loads per acre for sugarcane.

Dr. Leather's analyses show that Poona poudrette contains about one per cent of nitrogen, and generally a slightly higher percentage of phosphoric acid. The percentages of these ingredients vary with the percentage of moisture. If Poudrette was generally manufactured throughout India at all populous centres, it would probably be the cheapest and best manure procurable.—*Textbook of Indian Agriculture.*

SOME PROBLEMS OF THE RURAL SCHOOL.

(*From an American Point of View.*

That there are many important matters in connection with our system of rural education requiring urgent consideration there is no denying; and the publication of a paper on the subject of rural educational problems by Dr. True is very opportune, as likely to direct attention to questions that are closely connected with the best interests of the island, at a time when a good deal is being said or written about educational matters.

We therefore summarise the paper referred to for the benefit of our readers :—

The elementary rural school, free to all children, has undoubtedly done much to raise the general level of intelligence. But in considering the benefits of the system, we have lost sight of its shortcomings, and it has, at times, been in danger of becoming a "petrified institution" deprived of the progressive spirit which can only enable it to adapt itself to changing enviromment and advancing knowledge. With the growth of large towns and cities, men of influence have succeeded in developing a public school system to meet the needs of the stronger and more active communities,—a complicated system of public education for the urban youth—in order to equip him for various professional and industrial occupations. On the other hand the progress among rural communities has been along very narrow lines. The chief effort of the educational forces in the rural districts has been to provide schools of some sort to meet at least the simplest educational needs of a widely scattered multitude of children. The motto of our leaders would seem to have been, "Let us put a school house in every valley and in every hill-top," but little attention was given to make the curriculum of the country school suitable to the condition of the children. The problem was put aside with the remark—"These schools are no doubt unsatisfactory, but we see no present hope of their improvement. Let us go on building school houses, and trust the future to bring forth some plan for the betterment of the schools."

Fortunately, however, there has at length been aroused an interest in plans for the improvement of country schools. In these plans are contained much that promises to work to the advantage of agriculture, as well as to the greater welfare and happiness of the rural population.

The character of Agriculture is rapidly changing in many particulars which need not be here specified, and wider knowledge and greater skill is now needed. It is very important, therefore, that the agricultural people should understand the relations of rural schools to the progress of their art. When every other industry is ally-

ing itself closely with schools and seeking changes in the school courses, it surely will not do for agriculture to hold aloof from the educational movements of our time. It is true that attempts are being made to improve the condition of the rural school, but this must not be left entirely to the "schoolmen." The patrons of the schools, and the land-owners in the neighbourhood, should take an active part in the movement, and impress upon the schoolmen their real educational needs, and help to adjust the schools to the advancing requirements of agriculture.

Obviously the fundamental problem of our public schools is to give all the people at least the simplest rudiments of education. But this primary task they have not established as census reports can prove. Indeed it is illiteracy among the agricultural classes that is one of the greatest obstacles to the progress of agriculture. This "inert mass of absolute ignorance" prevents the introduction of better crops and better methods of cultivation; and the effects of the few intelligent ones to improve matters are largely defeated by the stupidity of those who must be looked to, to give practical effect to suggestions for improvement. There is, then, yet a great work to be done by schools among our rural communities.

The great object before every school is to find a way of getting all the available children within its walls, and keep them there long enough to give them a satisfactory training. For this funds are necessary, and the greater part of the money required for the proper maintenance of schools must be raised by taxation. This may not sound well, but the fact cannot be got over. There are, however, certain general principles to be applied in levying school taxes: (1) The aim should be to provide every child of school going age with equal opportunities for an education. (2) The whole wealth of the "State" should be made available for educating all the youth of the State. (3) The individual communities requiring schools should contribute according to their means towards the support of their own school. The failure to observe these rules has resulted in keeping up the percentage of illiteracy, and has imposed too large contributions on the rural communities, or left them without proper inducements to contribute their share. The main object as regards maintenance, is to have such an adjustment of State aid and local self-help as will make the schools efficient and keep their patrons alive to their best interests. It is not necessary here to discuss the merits of laws to check the evil of non-attendance at schools because of the money value of the labour of school children; but it is sufficient to say that one of the important educational problems to be solved is the securing of more general attendance of children at the elementary schools provided for them.

Though in some respects urban schools have the advantage over country schools, in others the reverse is the case, and there are many natural advantages in the latter. The free and open life of the country imparts greater vigour of mind and body; the occupations of the country necessitate a more varied exercise of both mind and body, and the country environment furnishes a much wider range of materials for interesting study, which (the greater the pity) is almost entirely neglected by the schools. Given a bright, energetic and well-trained teacher, and 25 to 40 healthy and active country children between 5 and 18, and we may easily have a school where educational results will be of great merit, though it lacks the organisation and equipment of the city school. There are such schools, and they are doing a grand work; but these serve at present only to brighten in a slight degree the glooming picture which portrays the unsatisfactory condition of the ordinary village school. The fact remains that if we are to improve our agriculture and compete with others on the best terms, if we are to make the conditions of country life attractive enough to keep the bright boys and girls in the country, if we are to equalise the advantages of country and town so as to maintain an intelligent, prosperous, progressive and contented rural population, we must give effective attention to the needs of our rural schools.

ON POULTRY AND EGGS.

At ancient feastings eggs were consumed in considerable numbers, for it is recorded that at one in the time of Richard II., no fewer than 11,000 were provided. In the reign of Edward I. 450 eggs were sold for eighteen pence. In that of Edward II. A.D. 1314, eggs and other foods being dear, the price was settled by Parliament at twenty for a penny. In A.D. 1316 Parliament abrogated their decree, and then food was to be sold at reasonable rates. The prices allowed for the household of Henry VIII. were "For eggs from Shrovetide till Michaelmas, the hundred, fourteen pence, Michaelmas to Shrovetide, the hundred twenty pence," which was evidence of their scarcity at the latter part of the year, and therefore of more value.

Over five millions pounds worth of eggs are now annually imported into England, but not one half of these are used for culinary purposes. The calico printing works use over 40,000,000 eggs a year, photographic establishments use millions of dozens, and wine clarifiers 10,000,000 dozens in the year; bookbinders, kid glove makers, and leather finishers use them in abundance, as well as other trades. The general public appear to have but little knowledge of the magnitude of the numbers wanted for practical commercial uses, apart from those of food, though in the latter respect not a few of the figures are absolutely startling; as an instance one of the London clubs alone contracts for more than 100,000 eggs a year.

Hens that are kept busy scratching a good part of the day will eat more and lay more. Layers want plenty of ground green, bone, broken shells, grit and vegetables Albumen exists to a large extent in fresh meat and ground green bone than in any other food. The shell of the egg

is formed from bone, shells and grit. Of grains wheat, oats, barley and maize come in order. Of green foods clover, cabbage, carrots, turnips, &c.

Six large eggs will weigh about a pound. As a flesh-producer one pound of egg is equal to one pound of beef. About $\frac{1}{3}$ of the weight of an egg is solid nutriment, which is more than can be said of meat. There are no bones and tough pieces to be put away. Eggs, at average price, are among the cheapest and most nutritious articles of diet. Like milk, an egg is a complete food in itself, containing everything necessary for the perfect development of a perfect animal. It is easily digested, if not spoilt by cooking.

Fertile eggs with strong vigorous germs can only be secured from healthy well-cared-for birds. Despite the various theories and methods suggested, no one can tell which egg will hatch and which will fail till after a period of incubation. It is an impossibility to discern the sex of the prospective chick.

A fresh egg has a somewhat rough shell, while that of a stale egg is smooth. When cooked the contents of a fresh egg stick to the shell and must be removed with a spoon ; but a stale egg, when boiled, can be peeled off like the skin of an orange.

Bran is an excellent food for poultry. It contains more lime than any other cheap food derived from grain, and in a more serviceable, because better digested, form than that in shells. —*Agricultural Gazette, N. S. W.*

GENERAL ITEMS.

The following is Prof. Church's analysis of the fresh kernel of the coconut : Water 46·6, albuminoids &c. 5·5, oil 35·9, sugar &c. 8·1, cellulose 2·9, mineral matter 1·0. The Report of the Agricultural Experiment Station, California, contains the following analysis of good coconut oil cake (poonac): moisture 12·87, pure ash 4·54, crude protein 20·06, crude fibre 11·50, nitrogen free extract (starch, sugar, &c,) 40·90, crude fat 10·13. Prof. Henry in his *Food and Feeding* gives a summary of experiments made by the French War Department in feeding with coconut meal, and says that the results proved that the meal was equal and even superior to the same weight of oats.

A contemporary writing about "What the Onion can do," says : To keep off disease eat onions raw, to cure spasms rub them on the spine, to cure typhoid fever bruise with a hammer and bind on the feet, to cure chills bind round waist and to the pulse, for diphtheria bind to the throat, for a burn wet with raw juice, to cure a cold boil and eat with butter, for croupy babies slice and sprinkle with butter and cover closely, and when the juice runs out give a spoonful every hour.

Prof. Koch has shown that citric and malic acids as they occur in apples, lemons, &c. are able to destroy all kinds of disease germs. We are told that cholera germs are killed in fifteen minutes by lemon or apple juice, and typhoid germs in half an hour by these acids even when diluted.

According to the *Agricultural News* (Barbados) the banana known as "Pisang maas" proves to be the same as the variety well known as "figue sucrée" or ladies' finger. This is one of the eight varieties received from Queensland for the Colombo Stock Garden. It remains to be seen how many of there are distinct from local varieties. The same contemporary says that special mention deserves to be made of the "Guindy" banana, which produces large bunches of fine flavoured fruit and is well worth growing as a dessert fruit.

The following simple method of making grafting, or budding tape is taken from the *Bulletin of Miscellaneous Information* for October, 1902, issued by the Botanical Department, Trinidad :—

"Materials :—(1) White cotton tape, $\frac{1}{2}$ inch wide ;"

(2) Bees-wax }
(3) Ship's pitch } equal parts.

Directions :—Put equal parts ($\frac{1}{2}$ lb. of each is sufficient for about 15 yards of tape) of bees-wax and ship's pitch in a small metal or earthenware vessel with a wide mouth, and heat over a fire, stirring as the two constituents melt together. Then plunge a piece of tape of convenient length into the liquid, keeping hold of one end with the finger and thumb. With the other hand hold two small pieces of wood on each side of the outer end of the tape, just in front where it is held by finger and thumb. Then pull the tape through between the two pieces of wood so as to remove extra wax and distribute it evenly over the tape. As each piece is dipped, it should be hung on a wire to dry. It will be cool and ready for use in a few minutes."

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PRUNING OF FRUIT TREES.

By T. R. Sim, Conservator of Forests.

A CORRESPONDENT in this issue of the *Agricultural Journal* takes exception to Mr. Fred. Symons' statement that pruning is a debateable subject, and quotes American opinion as being entirely in favour of pruning. That, however, only shows one side of the subject, while the fact that a very large proportion of the English orchards are still unpruned shows that there are believers in the opposite view, whether they have reasonable grounds or not for such a belief.

The position may be put thus ;—A fruit tree, like any other animate object, naturally aims at reproducing itself, or rather its kind, and, in furtherance of that object, the production of seed is its chief end in life. To produce seeds the production of fruit is necessary, and with reasonable feeding and cultivation that fruit can be of very high quality, irrespective of pruning. A fruit tree in its natural condition does not, however, begin to fruit at an early age, it rather devotes its early vigour to growing into what is its natural size, and then, on reaching maturity, the fruting commences in earnest. Fruits may be produced earlier, but these indicate precocity in the kind ; the natural sequence in most fruit trees enjoying vigorous health being growth first and fruit afterwards. That being so, the production of a full crop from an unpruned tree usually occurs high up among the top branches, the fruiting buds in almost all fruit trees being produced on the branches most exposed to open air, which naturally are the highest and most spreading ones. These exposed branches often produce fruit-buds along their whole lengths, but if there is sap enough, hose near the points flower first and secure fertiliation, and the rest then become abortive. The result is that on unpruned trees of vigorous habit the fruits are produced at the points of rather long and fully exposed branches, barely fit to support them ; they dangle about in the wind, and when mature are in inaccessible positions, and have to fall or be knocked to the ground, or be gathered from the trees by the use of long ladders. In suitable surrounding, however, they often get beyond the reach of ladders, and I have in mind many fine fruit trees, especially pears, in Cradock and other Karroo towns, which carry grand crops of good fruit 50 to 70 feet above the ground. The soil there is rich, deep alluvial, and is irrigated when necessary.

A pruned tree, on the other hand, is an artificial production, in which Nature is subdued, kept in check, and regulated only in accordance with the skill and persistence of the operator. The extent and object of the pruning may vary considerably, but usually the object is two-fold :—

1. To produce, in the first case, and afterwards keep in the same condition, a tree from which the fruit can be gathered direct into the basket and sent to market or table without a bruise.

2. To change the whole nature of the tree from one of wood production to one of fruit production ; that is, to take the vegetative vigor out of it and to produce an unnatural and precocious tendency to fruit.

Now, abundant fruiting in a tree, whether pruned or not, usually has the effect of further checking the vegetative vigour and increasing the tendency to become reproductive. Any other circumstance which in a similar manner checks the wood growth usually hastens maturity and increases the fruit crop, such as, for instance, the root-pruning of an over-luxuriant tree, chopping incisions in the bark, or allowing rats or sheep to gnaw part of the bark away, and it is a common practice to use stocks of the less vigorous kinds on which to graft the stronger growers, and thereby produce a similar check.

Mr. Symons mentions that Nature supplies the necessary check in the case, when he says " The

climate here is dry, and the trees do not make anything like the wood which those nearer the coast do." The same thing occurs in many places, especially in the drier parts of Cape Colony, where, if irrigation is irregular, or not practised at all, the crops of good fruits are enormous from trees which in spring are too dried out to send sap to the points of the branches, and consequently fruit on spurs lower down. In such case, too, fewer twigs are produced, and consequently abundant air is admitted to all parts of the tree. It will be seen then that Nature in some cases prunes or checks to a considerable degree, and each orchardist has to study his own conditions and his own kinds in deciding whether or not he will prune. (All this, of course, refers to deciduous fruit trees only, and does not apply to citrus or other evergreen kinds, in which the treatment is different). But "pruning" is a wide term and is understood differently by different growers.

(1) The most advanced orchardists believe in a totally artificial tree, which is made, and continues to be such, simply through the unremitting attention paid to it in the matter of pruning, though much of that pruning is done with the thumb nail rather than with the knife, *i.e.*, summer regulation of the young green shoots, to such an extent as to fully mature, by free contact with fresh air every shoot that is left.

(2) Others, again, believe in pruning scientifically only for the first three or four years, that is, until the tree has assumed the desired shape, and there, after doing only a limited amount of pruning, especially if, as often happens, Nature assists by means of drought, hail, or other causes.

(3) Others again do not prune at all when the trees are young, but in after years saw out heavy branches and thereby admit air.

Of these various methods the first is distinctly the most profitable where climatic and soil conditions are altogether favourable, and where skilled labour is always obtainable at reasonable cost. The six Europeans of Mr. Symons could not do everything in 30 acres of orchard on these lines, and it then comes to be a debatable subject whether additional skilled labour will pay better than by adopting the second method, in which dwarfing stocks and natural checks do a good deal of the work after the first few years. In commercial orchard work skilled pruning usually pays, but it is no uncommon case also to find, taking all the surrounding conditions and circumstances into consideration, that skilled abstention from pruning pays better than unskilled pruning.

The third method suits the man who grows his firewood in his apple trees, at the expense of his crop, and who does not have sufficient skill or sufficient energy to do anything better. He is satisfied with second-rate fruit, in small quantity, and uses six acres to produce what one acre should do, and then gets lowest prices. Still it is the method used almost exclusively in all the cider and jam producing orchards in England and New England; it is a low-grade method, producing inferior fruit suitable only for low-grade industries and often unsuitable for market, but it pays the man whose low-grade ability would oust him altogether from the production of first-class market fruit.

For the production of first-rate market fruit one or other of the first two methods must be used, surrounding circumstances deciding in each case which it has to be, but in a general way it may be said that scientific pruning is the more successful coastward, or on low alluvial valleys, while on high and fairly dry ridges and where labour is unobtainable the second method makes a fairly good substitute.

I trust no one will construe this into an excuse for slovenly negligence of necessary pruning; I also trust that your correspondent will see that there is room for debate as to how much pruning should be done, and in some places whether any at all should be done beyond producing the form of the tree at the start.

It is evident that market fruit cannot be successfully gathered from trees 70 feet high, but it is also as evident that where Nature and kind of stock keep the trees reasonably dwarf and productive of full crops of good fruit upon stem-spurs, very little, if any, pruning is wanted.—*Natal Agricultural Journal.*

PREPARING "PARA RUBBER" IN CEYLON.

"To the Editor of the India Rubber World."

I have much pleasure in complying with your request for full particulars as to the method of collecting and coagulating rubber, up to the time of despatch for market, employed on the Kepitigalla estate [at Matale, Ceylon]. After considerable experience, with several methods employed in other parts of the globe, I think there is none other equal to the one adopted in Ceylon, and if this were used in other countries it certainly would mean a rise in price of at least 6 pence a pound for rubber.

The tool employed for tapping rubber trees on this estate is not equalled by any other in use, for its clean cut and absolutely safe incision, the tree not being damaged in the least. The shape is indicated by an accompanying cut.

Tool for incising Rubber Tree.

In practice both hands are used to hold the wooden handle. Placing the corner of the angle *B* at the start of the cut, the tool is pulled downward two or three times in the same incision, care being taken not to cut into the wood. Though this may seem difficult at the beginning, a little practice will soon make the work easy. After two cuts have been made, converging in the shape of the letter V, another labourer places a small tin cup at the lower point of the V. Care should be taken that at this point the two cuts do not run together, but that a small space be left between them. The incisions should be about 4 inches long, with a space of at least 3 inches between them at the top. The same space (3 inches) should be left before beginning the next pair of incisions in going around the tree. This is absolutely necessary, for if the cuts join, the flow of sap to the tree will cease, and the tree will die. The first series of incisions should be made as far up the tree as a person standing on the ground can reach. Every second day a new band of incisions may be made lower down, as indicated in the drawing. About twenty rings or bands of incisions can be made around a tree within a distance of six feet from the ground. About five V shaped incisions may be made around a tree 40 inches in circumfrence.

Incision with tin attached.

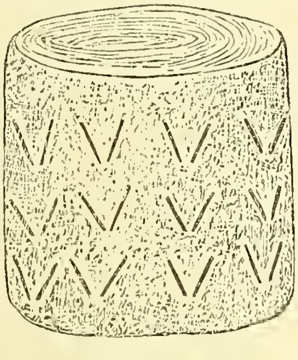
The tin cup used are about two inches in diameter and two in depth. As the *latex* flows immediately after the cuts are made, the tapper's assistant at once presses the edge of a tin cup into the bark, no nails or putty or wax being required to hold it in place. A third labourer follows with a pail of water, putting a small quantity into each tin to prevent the *latex* from coagulating—a very necessary precaution, especially on a hot day. The tapping as above described is done early in the morning, and in this

way three men can place 400 cups in a half day, and attend to the rubber obtained.

The contents of all the tins are stirred once or oftener, besides which the laborers must see to it that none of them overflow. Work is started about 6 A.M. and by 11 A.M. all the tins have been taken off and emptied into a pail. While one cooly carries the pail of *latex* to the factory, the others wash out the tins and at once replace them under the same cuts. The tins are again emptied, in the same manner, at 3 P.M., which completes the yield of *latex* from a given set of incision. In the meantime, after the tins are washed, the coolies pick off any rubber that may have dried in the wounds made on the last round, which is called scrap. So much for the collection of the *latex*; we come now to the curing of the rubber, which is simpler still.

As the *latex* is brought to the factory in a liquid state (mixed with water, which is necessary to enable the *latex* to go through the process by which the rubber is preserved), it is strained through a very fine wire mesh—a milk strainer, for example—into shallow tin pans, 7 inches square by two inches in depth, in which it is left to stand overnight. By morning the rubber will have coagulated naturally, without the use of any chemicals, and most of the water will have become separated from the pure rubber. The lump of rubber is then taken out and placed on a table and gently pressed with the hand to exclude the water, after which a wooden roller worked by hand is passed over it, back and forth, until more of the water has been expressed, leaving a flat sheet of rubber about 8 inches square and ⅜ inch thick. The lumps of rubber thus made are placed on caned trays or frames about 6×3 feet, caned like the bottom of a chair, though not so closely woven. After the rubber sheets have remained on the trays for four or five days, they are hung to dry on wires stretched across the room, after which they will require frequent attention to prevent mildew, a man being detailed to rub off all mildew spots with a rag. About two months are required for the rubber to become thoroughly dry and free from white patches. So long as these patches appear, it is an indication of dampness and further drying will be required.

When thoroughly dry the sheets of rubber are ready for shipment, and are packed in boxes about 18 by 18 inches square and 8 inches deep—usually about 50 pounds to a box. The secret of the high prices obtained for rubber from Ceylon lies (1) in the straining of the *latex*, by which every particle of dirt is kept out, and (2) in the thinness of the sheets of rubber, which permit any one to see that they are free from dirt, sand, etc. No chemicals are used, and no heating is required. On the whole this is the simplest method, when one knows how that could possibly be adopted. The rubber from most countries now comes to market in large pieces, and can conceal any amount of impurity, while in other cases the *latex* is allowed to dry on the stem of the tree and when pulled off contains a large percentage of bark and dirt, which mean loss to the buyer and extra work in the factory.



Relative Position of series of Incisions.

The last sales of rubber from this estate have brought probably the highest average price of any rubber sold in the world during the same period, and this is saying a good deal, namely: an average of 3*s.* 11*d.* per pound, The total output for Ceylon for 1903 will be about ten tons, of which this estate will send two tons.

FRANCIS J. HOLLOWAY.

Kepitigalla Estate, Matale, Ceylon,
January 8, 1903.

KEPITIGALLA ESTATES AND ITS PRODUCT.

The Kepitigalla Estate, situated in the Central province of Ceylon, in the valley of the Matale river, 8 miles from Matale town. THE INDIA RUBBER WORLD of December 1, 1902 (page 80) contained some details regarding the extent of the rubber tapping on this estate, to August 1902 by the manager Mr. Holloway. It was stated at the time that the trees were planted at the rate of 150 per acre, at a distance which fitted them for shading cacao. His experience to that date pointed to one hundredweight (112 pounds) as the average yield per acre, based upon a result of tapping about 4,000 trees. He gave then also an estimate of the cost of preparing rubber and forwarding it to the seacoast, which equalled $17 per acre. At 3*s.* 11*d.* per pound, the product of an acre would realize $106.73 which, after deducting freight to London and brokers' commissions, should allow a very good profit.

Mr. H. G. Tippett managing Director of the Liverpool Rubber Co., Limited, who has used some of the Ceylon rubber, says in regard to it, in a letter to THE INDIA RUBBER WORLD:

"The weight of the cases at present is irregular, roughly about 100 to 130 pounds, but they will probably settle down as the supply becomes regular to 1 cwt. 112 (pounds) cases. The rubber is excellent—made up in round pancakes (just like buckwheat cakes), about ½ inch thick, and 6 inches diameter; semi-translucent—absolutely clean and dry—loss about 1 per cent. Quality equal to finest (Bolivian Para."—*India Rubber World.*

QAT OR ARAB TEA.

[*Special for Indian Planting and Gardening.*]

A specimen of *Qat*, usually referred to in botanical works as *Catha edulis*, is now in flower in the Royal Botanic Garden, Calcutta, to which it was introduced somewhat accidentally in 1892.

The genus *Catha* belongs to the family of *Celastrineæ* or "Spindle-trees," and is at present limited so as to include only this one species, *Qat*; a shrub found in a wild state in Abyssinia, where it is said to be also cultivated. It is likewise found in Arabia, and according to Forskael, who first described the plant, the Arabs cultivate it along with *Coffee*. They eat the green leaves, he tells us, because they attribute to them the property of enabling a man to do 'sentry go' all night without wishing to sleep. He says, too, that they look on it as an antidote to plague, declaring that anyone wearing a sprig of this plant may go without risk among the infected, and believing that, wherever this shrub is planted, the plague cannot come. But Forskael adds that the taste of the leaves does not appear to indicate such virtues. Botta found that in Yemen just as much importance is attached to the cultivation of *Qat* as to that of *Coffee* itself. He speaks of wild as well as cultivated plants, but it is not at all clear from his account whether these wild plants are indigenous or only escaped and naturalised ones. It is true, as De Candolle says, that the interior of Arabia is nearly unknown to botanists; this makes it somewhat uncertain what plants are, and what are not indigenous to the Arab Peninsula. But as regards *Coffee*, it is almost certain, in spite of its popular

association with Mocha, and in spite of its being named *Coffea arabica*, that the plant is a native of the African side of the Red Sea, and is only an introduced plant in Arabia. De Candolle is therefore (*Origin of Cultivated Plants*) inclined to think that probably the two plants, *Qat* and *Coffee*, were introduced together from Abyssinia; and Boisser, who made a study of the plants of this region to a great extent the work of his life, clearly did not accept *Qat* as a native of Arabia, because he does not include the species in his celebrated *Flora Orientalis*.

Hochstetter in *Flora*, for 1841, says that in Abyssina an infusion just like *Tea* is made from the leaves; but a correspondent of the *Gardeners' Chronicle*, for 1843, writing from Yaush in Shoa, November 1842, says very definitely that the Abyssinians only use it in building their houses mostly structures of wattle and daub, for which the thin stems and branches of this shrub must be very well adapted. No other use, this writer says, is made of the plant except by the Musalman merchants, who chew the leaves in order to prevent sleep. These merchants, he adds, have transported the plant into the country of the Yedjon Gallas, where it is largely grown, but is nevertheless not used as an article of trade. In Arabia on the contrary (*Treasury of Botany*) *Qat* forms a considerable article of commerce, large quantities, of twigs being annually brought to Aden from the interior of the Peninsula; some of these, according to Watt, even reach Bombay. For export the twigs are made up into compact bundles, varying in size according to quality; the best kind comes in bundles, 12-15 inches long by 3 inches wide, consisting of about 40 twigs neatly bound together by strips of fibrous bark or tightly packed in palm-leaves. A thousand camel-loads of these bundles, according to the *Gardeners' Chronicle* for 1890, reach Aden every year.

The plant seems, as a matter of fact, to be used chiefly as a stimulant and a food-accessory, just as *Coffee*, *Tea*, *Mate*, and *Coca* are. Of the four, *Qat* appears most to resemble *Coca* in its effects. It enables the user, so it is said, to undergo prolonged muscular exertion without fatigue or to sustain hunger without inconvenience. The use of the leaves which besides being chewed like those of *Coca*, fresh or dried, are also infused like *Tea*, induces a feeling of exhilaration and excites cheerfulness of spirits; for this reason, according to Botta, and to Deflers, the leaves are liberally distributed at religious rites, domestic festivities, and visits of ceremony; Botta speaks of one sheik, obliged to receive many callers who had to spend, on *Qat* alone, as much as 100 francs a day! The fresh leaves, which taste to the writer's mind, very like the leaves of *Coca* are said by Botta to be sometimes very intoxicating; the writer cannot corroborate this from his own experience. It is true that Botta credits this quality to the leaves of wild plants. In the *Gardeners' Choronicle* for 1843, a woodcut is given of a twig, said to be from a specimen gathered by Bové. This woodcut is used again by Lindley in his *Vegetable Kingdom;* it will be referred to critically below. In connection with this drawing it is remarked that leaves gathered when the plant is three years old are sold as *Qat mubarreh* or "inferior;" a year later young shoots are gathered and fetch a higher price. The Abyssinian correspondent also refers to two varieties, but in a somewhat different way; he calls them the "red" and the "white," distinguished by the colour of the wood and young leaves, and (though of this he is not quite certain) the flowers also. To this question of different kinds, too, further reference will be made.

When it is a plant of economic importance that is under discussion, the writer's experience commonly is that there is some confusion as regards its name; *Qat* is no exception to this rule. The name usually given to the plant is *Catha edulis;* the authority quoted is Forskael, *Flor. Aegypt. Arab.* p. 63 (1775). The first writer to make this citation is Vahl, *Symbol.* i. p. 21 (1790), who himself named the plant *Celastrus edulis.* The citation can only be explained as a *lapuus calami*, because in the place quoted Forskael does not use the name *Catha edulis.* He described the plant rather more carefully than most subsequent writers have done, but omitted to name it; so far as the writer can ascertain, Forskael never did publish a name for the species. Vahl's inexact citation has, however, been usually accepted as accurate, but it is not clear if *Catha edulis* be the true name of the plant. It certainly is not on Forskael's authority that it can be taken up if it be the true name. This is, however, a trifling matter. More important is the question as to the arrangement of its leaves and branches.

Forskael's account, which is rather more careful than some subsequent ones, states.—"Branches alternate, axillary; branchlets green, annual articulate; leaves opposite, on the large branches alternate." Vahl, copying from Forskael, but varying the expressions, says:—"Branches alternate; branchlets articulate, alternate; leaves alternate, on the branchlets opposite." Don (*Gen. Syst. Gard.* 1832) says briefly: —"Leaves opposite and alternate." Hochstetter *Flora*, 1841) says:—Leaves opposite." Lindley's figure in the *Gardeners' Chronicle* for 1843 and in his *Vegetable Kingdom* (1853) shows a pair of opposite leaves *with flowers in their axils*, at the base of the twig and two alternate leaves *without flowers* above. *The Genera Plantarum* (1862), apparently following Hochstetter says:—"Leaves opposite." The *Treasury of Botany* (1866) says:—"Leaves opposite on some branches and alternate on others;" Oliver (*Flor. Trop. Afr.*, 1868) says:—"Leaves opposite; or alternate on the leafy shoots." In the *Histoire des plantes (*1875) Baillon says: —Leaves usually opposite." Finally Loesener, the last important author who has dealt with *Qat*, says (*Engler's Naturlich-Pflanzenfam*, 1896):—"Leaves opposite on fertile twigs, often alternate on the sterile." Forskael's account is thus the fullest, and it may be added is also the most accurate on the point; that even it is not clear we can see from the indecision and the discrepancies of subsequent writers. It may therefore not be superfluous to explain exactly what does happen and what the conditions, as exhibited by plants that the writer has watched for eleven years, really are.

In 1892 some twigs were sent from Hodeida for identification; they were specimens of a kind very familiar to the Editor of *Indian Planting and Gardening* and to the writer, for they had neither flowers nor fruits, and had been placed in a letter without having been previously dried. They reached their destination a mass of pulp so far as the leaves were concerned, but as there seemed to be some vitality in the twigs, an attempt was made to strike them as cuttings. Of the twigs that had, as their leaf-scars showed, borne opposite leaves none survived; of those that had borne alternate leaves a fair proportion held. In, as was then supposed, (though now it is clear this was not exactly what happened, the axils of these leaves small buds broke and gave rise to nearly vertical shoots with red bark and alternate leaves. These shoots gave the plant a fastigiate character; they increased in length for two seasons, retaining nearly all their leaves but not branching. In their third season the axils of the lowest leaves, corresponding to the first season's growth, gave origin to branchlets quite different in appearance from the branches produced by the original cutting. Instead of growing fastigiately these branchlets spread horizontally; instead of having alternate they had opposite leaves, slightly smaller and distinctly more cuneate at the base than the others, with moreover only a faintly red petiole and base of mid-rib, whereas the alternate leaves had red petioles, mid ribs red throughout, and reddish secondary nerves beneath. The following season the set of leaves corresponding to the next succeeding season of growth in turn gave out more horizontal opposite-leaved branchlets, while the horizontal branchlets of the preceding season increased

in length. It was observed, however, that these branchlets were now unlike the fastigiate and alternate-leaved branches in other respects. Instead of being decidedly thicker at their bases and tapering upwards like the latter, the opposite-leaved horizontal branchlets remained of uniform thickness throughout; they were moreover rather markedly swollen at the nodes, which is not the case with the alternate-leaved branches; most marked difference, perhaps, of all, the redness of the youngest part of the shoot, instead of deepening with age into a rusty brown, as happens with the alternate-leaved branches, passed in these opposite-leaved branchlets first into green and ultimately into greyish white. After an interval of two more seasons a striking occurrence took place. Just above the oldest set of horizontal branchlets, now in their fourth season of growth, a new series of buds appeared which developed into a new set of branches, so that now in each axil were to be found two superposed axillary twigs. But every one of these new and accessory branches differed from the first from its subjacent opposite-leaved companion branchlet in having dark-red bark, with alternate and red-veined leaves, in being thicker at the base than it is above, and in growing fastigiately instead of spreading horizontally. This second set of branches was in fact a repetition of the system of branches that appeared originally in the cuttings.

Since then the same phenomena have repeated themselves, the branches last described have developed their own primary series of horizontal branchlets and are now beginning to emit their accessory series of fastigiate branches. Moreover, the primary horizontal branchlets of the second series are now in full flower and are setting fruits.

While the cycle described is the normal sequence of events it must not be supposed that it exhibits absolute regularity. To begin with, every leaf on a vertical alternate-leaved branch does not have a horizontal, opposite-leaved branchlet in its axil; most of them have, but not all. Again, by no means does every branchlet with opposite leaves become accompanied by a superposed vertical alternate-leaved branch. Not infrequently these opposite-leaved branchlets die and are shed before the corresponding vertical alternate-leaved branch has appeared. The buds of these alternate-leaved vertical branches, in spite of their greater vigour of growth when they do ultimately burst, often never show at all or lie long latent, and appear low down on the stem, long after the leaves and the horizontal branchlets that correspond have disappeared. But where a vertical alternate-leaved branch does this break, it is at once evident that just below its position there have formerly been a horizontal branchlet and a leaf. Again, though it is usual for only one vertical branch to accompany a horizontal branchlet, now and then two or even more than two branches arise at the same point. What, however, is certain in the case of *Qat* is that there are two branching moods, and that these moods alternate. Leafy branches of deliquescent type with alternate-leaves bear first a set of axillary branchlets of excurrent type with opposite-leaves. The latter are comparatively short lived and do not again branch vegetatively but ultimately bear in their axils cymes of flowers. Later the leafy alternate-leaved erect branches produce, just above the branchlets a new series of branches which repeat the erect habit and the alternate leaves of the branches that bear them and in turn go through the same cycle.

The facts of the case explain all the divergent accounts of the authors who have been cited. In Herbaria only flowering or fruting specimens as a rule find a place, hence as a rule only opposite-leaved twigs occur in collections. This explains the statements of Hochstetter and of the *Genera Plantarum*. The writers who say "leaves opposite or alternate" are more accurate no doubt, but they leave the true condition entirely unexplained. In the case of Lindley's figure it can only be supposed that his artist had twigs of both kinds before him, and not grasping the significance of their differences had, to save space, combined their attributes. Loesener is much more nearly exact, and when he says "leaves on sterile branches often alternate," he is no doubt accurate, since all the opposite-leaved branchlets do not have flowers. He does not, however, bring out the fact that the branchlets with opposite leaves so far as we know, are the only ones that ever do bear flowers and fruits. Forskael's account, in the light of actual facts, now becomes clear. His large branches are the branches of the alternate leaved deliquescent type; his green branchlets are those of the opposite-leaved excurrent type. The expression 'articulate' is not strictly accurate; these branchlets are swollen at the nodes it is true, but they are not jointed; nor is he accurate when he speaks of them as annual, for though they do appear as a new crop each year, and though they are short-lived as compared with the erect branches, they persist as a rule, for more than one season. Some of them in the case of a plant under observation at the Royal Botanic Garden, have persisted for 5 or 6 years. But when a branch of the erect alternate-leaved type appears just above a branchlet of the opposite-leaved type it grows so much more vigorously and rapidly than its companion that it seems to rob the latter of its nourishment, with the result that all save the leaves of its newest growth drop off and in a year or two it makes no more growth, loses the remaining leaves, dies and sooner or later snaps off close to the branch from which it originated.

In what has gone before, the writer has endeavoured to bring together all that has been recorded, and to state what he has been able to observe with regard to *Qat*. There are, however, not a few points that are still obscure; these it may be well to briefly review.

It has been explained that the writer has failed to get cuttings from the opposite-leaved branchlets to hold. It would be interesting to try in some locality more suitable to the plant than the Gangetic delta, whether this experience holds good elsewhere, and whether it is only from branches of the alternate-leaved type that cuttings can be struck. Again, in cuttings from branches with alternate leaves it was found that the buds which broke were all buds that gave rise to branches with erect habit and alternate leaves. They were supposed by the writer to be axillary; he now knows that they were really supra-axillary and that in theory a bud of the excurrent opposite-leaved type must have existed below each, but never became developed. No seeds have yet been obtained at Calcutta; those who have seeds at their command might observe what happens with seedlings, and record whether the first series of branches that appear on these are of the normal primary excurrent type, or whether with seedlings, as with cuttings, the first series of primary excurrent opposite-leaved branchlets is suppressed.

Then as to the name. Some writers give Qâf or Kâf (*Bove*), Kafta (*Treasury of Botany*), or Cafter (*Watt*). In the *Gardeners' Chronicle* for 1843 Lindley publishes the explanation suggested by a scholary friend that the varient *Kaf* for *Kat* is merely a mistransliteration. It very probably is, but the point has not yet been authoritatively settled. Nor, to come to the scientific nomenclature, is it certain that *Catha edulis* is the correct appellation; whatever the name may be authority universally cited for it is erroneous.

Then, is the plant wild in Arabia? Botta, we have seen, speaks of the plant as wild in Yemen. The matter is doubtful. The question whether *Coffee* is or is not wild in Arabia is one that every traveller in the Peninsula hopes to settle. The two matters hang together, and as the two plants are cultivated side by side both problems will doubtless receive the same attention.

That the reputation the plant enjoys as a plague-preventive is an item of folk-lore, and no more is sufficiently clear from what Forskael says, but do the fresh leaves, as Botta states, ever have intoxicant qualities? As the property is associated especially with the leaves of wild plants, the absence of the property from the leaves of plants grown at Calcutta proves nothing. But the statement gives an added interest to the question whether the *Qat* is truly wild in Arabia, whence the property is reported; its accuracy should admit of being readily tested in Abyssinia, where the species is unquestionably wild. That the ordinary commercial *Qat* is not deemed intoxicant, seems fairly clear from the statement made in the *Treasury of Botany* that certain Arabs were induced to assume towards the species the attitude that the Wahabi sect assume towards *Tobacco* and, on account of its stimulant property, to class *Qat* among those intoxicants whose use is forbidden by the Koran. A synod consequently was convened to consider the point, and after due deliberation, having regard to the fact that it only caused hilarity and conduced to good humour, but neither impaired health nor interfered with attention to the duties of religion, this synod decreed that the use of *Qat* is lawful.

Forskael, as we have seen, gently throws a doubt on the potency claimed for *Qat* by the Arabs; Lindley (*Gardeners' Chronicle* 1843), says :—" We have tried the quality of the infusion in hot water, but are unable to say anything in its favour." Were the writer to judge from the results of his own trials, he must consider the stimulant properties even of fresh leaves just as doubtful as their narcotic ones. Possibly, however, Forskael, Lindley, and the writer have not gone on long enough!

The *Qat mubarreh* or "inferior" *Qat* of the *Gardeners' Chronicle* is clearly the leaves of alternate-leaved three-year-old young stems, but whether the young shoots gathered in the fourth year are alternate-leaved branches or opposite-leaved branchlets we do not know. Theoretically we should expect them to be the latter; we know, however, that with cuttings the opposite-leaved branchlets remain suppressed and alternate-leaved branches at once arise, and it may be that with seedlings this is also the case. Anyhow the matter, which might be settled by a simple observation in Abyssinia or Arabia, has never received the attention it demands. That the two kinds of *Qat*, the 'red' and the 'white,' referred to by Lindley's Abyssinian correspondent, are simply twigs from young alternate-leaved and from opposite-leaved shoots respectively, will be obvious to those who have studied the branch-system of the plant. Unfortunately our certainty as to this throws no light on the problem as to whether good *Qat* has leaves opposite or alternate, because no reference has been made to the relative quality the "red" and the "white" kinds.

De Candolle remarks on the fact that the use of *Qat* has not spread eastward to Beluchistan and India, where intoxicants are so much in request, in spite of the fact that the plant is likely to thrive well enough in both countries. The first question of course is as to whether *Qat* be really an intoxicant at all. Apart from this, however, a sufficient reason possibly is that the people of those parts of Beluchistan, Persia or India, where *Qat* will freely grow, did not require to trouble about so relatively innocent an article when they had at hand such potent intoxicants in *Hyoscyamus*, *Cannabis* and the like.

The *Gardeners' Chronicle* for 1890 speaks of *Qat* as a plant that it might be advisable to introduce into various British Colonies and Dependencies. In the writer's opinion *Qat* is a plant that deserves further investigation, but something more definite than we have yet been told must be known before its introduction as other than a curiosity need be advocated.

D. PRAIN.

As a supplement to the interesting article on Arab Tea, written by Major D. Prain, in last week's *Indian Planting and Gardening*, it would be well to give the results of the chemical investigations of this plant.

As the leaves are employed as a stimulant, it was naturally supposed that, like coffee, tea, and kola, the plant contained caffeine, but three independent observers searched for this alkaloid with negative results. Dr. Attfield in 1865, Professor C. Schloremmer in 1884, and Dr. Paul in 1887 were unable to find indications of caffeine. Dr. Paul attributed the action of the drug to an etherial oil or some other aromatic or volatile constituents. Professor Schlorernmer isolated from the leaves a small quantity of a kind of sugar which was apparently mannite.

A long paper was written in 1887 on the history and composition of *Catha edulis* by Professor Flückiger and Gerock, and the authors, as the result of a chemical investigation, detected the presence of an alkaloid existing in small quantity which they named "katine."

In 1894 the physiological and therapeutic properties of Catha were studied by M. E. Collin of Paris. He found that the drug has a powerful stimulating action on the nervous system, banishing sleep, restoring the physical forces and sustaining muscular activity.

In 1899 the leaves were again submitted to analysis to ascertain their proximate constituents, and Professor Schaer of Strasburg communicated the results to the Convention of German Naturalists and Physicians. The principal constituents were found to be—1. Physiologically active alkaloid, cathine, which forms rhombic crystals. 2. Large quantities caoutchouc. 3. A tannin, closely related to that of tea leaves. 4 Mannite. 5. Small quantities of an oxygenated volatile oil. From the seeds about 50 per cent of fixed oil, composed of glycerin-esters was obtained.

Dr. Albert Beitter, in 1901, found the alkaloid to exist in very small amount; the leaves from Aden yielding only 0·076 per cent., while those from Harrar yielded only one half as much. The alkaloid is associated with a new caoutchouc substance, which softens at 50 deg C. and melts at 120 deg. C.; and the composition is represented by the formula $C_{10}H_{17}O$.

These particulars may be of interest to those who wish to know what are the constituents of Arab Tea. The plants grows well at Poona, and could no doubt be easily cultivated elsewhere in India. Dr. Zwemir, of Arabia, who visited Calcutta last December informed me that *Catha edulis* was one of the most useful drugs of the country and formed an important article of trade.

D. HOOPER.

MEXICO'S VEGETABLE PRODUCTS.

MOST OF THE KNOWN PLANTS AND TREES OF THE WORLD FOUND IN THE REPUBLIC.

(*Concluded from page 666.*)

Flor de Noche Buena, Euphorbia pulcherrima, Euphorbiaceas: A peculiar red Mexican flower, medicinal.

Flor de San Juan, Bouvardia longiflora, Rubiaceas: Beautiful native flower of the valley of Mexico, used for perfume.

Floripondio, Brugmansia suaveolens and bicolor, Solanaceas; Large white or coloured flower.

Fresno, ash, Fraxinus juglandifolia, Oleaceas: Especially on Central Plateau.

Frijol, Mexican bean, Phasseolus vulgaris, Leguminosas: Many varieties, best is called bayo gordo, sowed between the Indian corn, furnishes the principal food of the people.

Garambullo, Cereus Garambullos, Cactus with eatable reddish purgative berries.

Garbanzo, chick pea, Cicer arietinum, Leguminosas : Native plant.

Girasol or Chimalatl, Helianthus annuus : Introduced from Peru for the extraction of oil.

Grama or zacate, couch grass, Triticum repens, Gramineas : In many varieties, medicinal ; furnishes straw and roots (zacaton), the latter used for brushes, etc.

Granada, pomegranate, Punica granatum, Granateas : Introduced from Spain.

Granadita, Chinese pomegranate, Passiflora cœrulea, Passifloras : Kind of passion flower, with eatable gourd,

Guaco or Tecomate, Aristolochia grandiflora, Aristolochiaceas : Medicinal.

Guaje, Crescentia cajete, Bignonaceas : Native fruit tree of hot zone ; guaje is also a kind of gourd, Lagenaria vulgaris, see calabazas.

Guayabo, guava, Psydium pyriferum, Mirtaceas : Fruit tree of hot and temperate zones, cultivated and wild.

Haba, garden bean, Vicia faba, Leguminosas.

Heno, Spanish moss, Tillandsia asneoides, Bromeliaceas : Hanging from the cypresses, etc., in pendants and garlands as natural decoration.

Higo, fig-tree, Ficus carico, Urtiaceas.

Higuerilla, castor oil plant, Ricinus comunis, Euphorbiaceas.

Huacamote, sweet cassava or yucca, Jatropha manihot aipi, Euphorbiaceas : Mexican farinaceous plant of three varieties (see Yucca amarga) grows in the hot zone, Vera Cruz, Yucatan, etc., furnished a kind of bread and tapioca.

Huamuchil, Mimosa unguiscati, Leguminosas : Mexican fruit tree of hot and temperate zones.

Huaugzontle, Mexican asparagus, Blitum bonus Henricus, Chenopodiaceas.

Huitlacoche, eatable corn mushroom, Uredo maydis, Fungus : Grows on the ears of Indian corn.

Huizache, Acacia albicans, etc., Leguminosas : Timber and fruit (beans).

Iflame, yam, Dioscorea alata, Dioscoreas : Nutritious root, kind of asparagus ; introduced from Africa as food for negro slaves.

Ipecacuana blanca, white Ipecac, Richardsonia scabra, Rubiaceas : Native plant, grows in hot zone root medicinal, exported.

Jalapa or Purga, jalap, Ipomoea purga, etc., Convulvulaceas : Native vine of temperate zone, root medicinal ; exported in considerable quantity.

Jamaica Hibiscus sabdariffa, Malvaceas : Hot zone, red flower used for a februfuge drink.

Jicama, Dolichos tuberosus, Leguminosas : Native sweet, farinaceous root ; very much cultivated.

Jinicuil, Inga jiuicuile : Fruit tree.

Jitomate, tomato, Lycopersicum scnlentum, Solanaceas : Native plant, cultivated in all zones.

Lenteja, lentil, Ervum lens, Leguminosas.

Lima, sweet lime, Citrus, limmeta, Aurantiaceas.

Limeon, lemon tree, Citrus medica limonum, Aurantiaceas : Cultivated in many varieties ; lemon real, royal lemon, etc.

Linaloe, aloe tree, Amyris lynaloe, etc., Terebintaceas : Wood used for perfume, exported.

Liquidambar, Liquidambar styraoiflua : Native tree of hot zone, furnishes the sweat-gum.

Maguey, century plant, Agave americana, etc., Amarilideas : Most useful and peculiar native plant of Mexico, grows in many varieties all over the conutry, furnishes the intoxicating "pulque," the brandy "mezcal" and a strong fibre, the "ixtle." The finer fibre "henequen" and the finer brandy "tequila" are obtained from two other varieties. Lately a vinegar has been extracted from the "pulquo." The Aztecs called the plant "metl" and used it besides for the extraction of "pulque (octli), fer the manufacture of clothing, paper, molasses and sugar ; it furnishes further gum, food, fuel, needle and thread, household furnituro and other useful utensils.

Maize, Indian corn, Zea mays, Gramineas : Native lant of Mexico, the 'tlaolli' of the Aztecs, principal grain of the country ; cultivated in many varieties ; yields from 40 to 800 times, at an average from 80 to 150 times. Sown usually from April to June, harvest from September to November. It furnishes the bread (tortillas) of the people, made in round, thin cakes and without yeast.

Mamey, mammee, Lucuma Bomplandi, Sapoteas : Temperate and hot zones, furnishes fruit (after eleven years) and cabinet wood, seeds are medicinal.

Mangle, mangrove, Rhisophora mangle, Risophoreas : In forests of the east coast ; gum and timber used.

Mango, Mangifera indica, Terebintaceas : In temperate and hot zones in many varieties, fine shade trees, fruit after four years, best "mango de Cordoba" and "mango de Manila," harvest during spring and summer.

Maranta, Maranta arundiuacea, Marantaceas : Root produces the starch called arrowroot.

Melon, Cucumis melo, Cucurbitaceas.

Membrillo, quince, Pyrus cydonia, Rosaceas : Cool and temperates zones, furnishes a palatablo wine, "vino de membrillo."

Mezquite, Prosopis dulcis, Leguminosas : Native tree, sweet beans are used by the Indians as food and for a fermented drink ; furnishes timber, gum, medicine.

Naranjo, orange tree, Citrus aurantium, etc., Aurantiaceas, cultivated in many varieties ; fruit exported.

Nardo, tuberose, Polyhantus tuberosa, Liliaceas.

Nopal manso, prickly pear cactus, Cactus opuntia : Native cactus of many varieties, grows especially on the Central Plateau and furnishes the very refreshing and popular fruit "tuna." Harvest, from June to October. In San Luis Potosi a red kind is used for the favourite drink, "colonche."

Nopalillo, Cereus phillauthus, cactus.

Orchilla, archil, Lichen rocella : Red colour of this plant exported.

Organo, giant or candelaber cactus, Cereus exelsus Cactus : Used fer fences, etc.

Oyametl, Pinus religiosa, Coniferas.

Palo de Campeche, logwood, Hæmatoxylon campechianum, Leguminosas : Native tree of hot zone especially in Yucatan, medicinal and dyewood (blue colour) ; exported.

Palo del Brazil, brazil wood, Cœsalpinia echinata Leguminosas : Hot zone, used for dyeing and tanning exported.

Palo mulato, tawney wood, Xantoxylon pentanome, Rutaceas : Valley of Mexico, used for timber and medicine.

Palma or Izote, yucca, Yucca gloriosa, Cicadeas : Temperate and cool zones.

Palma de coco, coco palm, Cocos nucifera, Palmeras Hot zone, furnishes fruit, wine and oil.

Palma de coyol, Cocos guacuyule, Palmeras.

Palma real, royal palm, Oreodoxa sp.? Palmeras.

Palma de datil, date palm, Phœnix dactylifera, Palmeras.

Papa or patata, Irish potato, Solanum tuberosnm, Solanaceas : Introduced from South America.

Papayo, melon tree, Carica papaya, Papayaceas : Native plant of hot zone.

Patol, colorin or zompantle, Erytrina. coralloides, Leguminosas : Flower eatble, seeds poisonous.

Pimiento gordo or de Tabasco, Eugenia pimienta, Mirtaceas : Hot zone, especially in Tabasco ; coudiment exported.

Pinguica or gayuba, oil nut, Arctostapylos pungens, etc., Ericaceas.

Pina, pineapple, Bromelia anona, Bromeliaceas : Native plant of hot zone.

Pitahaya, giant cactus, Cereus pitahaya, cactus : Eatable fruit, kind of prickly pear.

Platano, banana, Musa paradisiaca, etc., Musaceas : Introduced in many varieties in the sixteenth century, cultivated in the hot and temperate zones. Humboldt calls it the corn of the tropics and believes

it to be native. There is no other plant which produces so much nourishment in so small space. It is planted in sprouts and needs little cultivation; fruit can be gathered after the tenth month. One branch bears often from 160 to 180 bananas, and weighs from 80 to 100 pounds. One acre may contain 600 to 800 banana plants, which will yield annually about 800 cwt. of fruit, nourishment enough for about forty persons. The best varieties are the platano gordo, colorado, costarica and manzana.

Ramie, china grass, Urtica Boehmeria, Urticaceas: Textile plant, introduced from China.

Sandia, watermelon, Cucurbita citrullus, Cucurbitaceas.

Sauz and Sauz lloron, willow and weeping willow, Salix pentranda and babilonica, Salicineas.

Sempasuchil or Zempoalxochitl, Tagetes erecta, Compuestas: Yellow, favorite flower of the Indians.

Siempreviva, house-leek, Aizoon canariensis, Crasulaceas: Many varieties, medicinal.

Tabaco, tobacco, Nicotiana tabacum, Solanaceas: Native plant of Mexico; the yetl of the Aztecs, in many varieties in hot zone; wild in Tabasco, etc., best in Vera Cruz, Oaxaca and Tepic, further in Yucatan, Campeche, Chiapas, etc.; important article of export.

Talaycte, Gonolobus pedunculatus, Asclepedias: Eatable green fruit; harvest in summer.

Tamarindo, tamarind, Tamarindus occidentalis. Leguminosas: Hot zone, fruit medicinal, exported.

Tejocote, Mexican thorn-apple or hawthorn, Crataegus Mexicanus, Rosaceas: Native fruit tree of temperate and cool zones, abundant in fruit; harvest, October to December.

Tepeguaje, Acacia acapulceusis, Leguminosas: Hot zone, furnishes timber and gum.

Timbiriche, wild pineapple, Bromelia pinguin, Bromeliaceas: Hot zone.

Tomate, Physalis pubescens, etc., Solanaceas: Favorite Mexican condiment of many varieties.

Trigo, wheat, Triticum sativum, Gramineas: Introduced about 1530; next to corn, most cultivated grain, in Mexico; sown in November to January, harvested in April and May, yields on an average from fifteen to thirty and up to 110 times. Humboldt considers the Mexican wheat among the best of the world.

Trompetilla, Bouvardia angustifolia, Rubiaceas: Beautiful vine.

Tule, reeds, Cyperus, Cyperaceas: very prolific on the banks of the lakes; green, used as food for animals; dried to make mats, fire fans, etc., especially in the Valley of Toluca.

Uva, grape vine, vitis vinifera, Vitiferas: Introduced from Spain, best in Coahuila. Chihuahua, Puebla, etc. In Parras is manufactured a light, good wine and cognac. Wild grapes grow in various places.

Vainilla, vanilla, Epidendrum vanilla, Orchideas: Native plant of hot zone, the tlilxochitl of the Aztecs; wild and cultivated; blooms in February and March; harvest, March to June; best fruit in Vera Cruz (Papantla Misantla); production in 1880, $651,958; formerly exported exclusively from Mexico: still an important article of export.

Yoloxochitl or flor del corazon, Magnolia mexicana, Magnoliaceas: Very fragrant flower.

Yuca amarga, bitter cassava. Jatropha janipha, Euphorbiaceas: Native plant of the same kind as the sweet cassava or huacamote and although poisonous furnishes, too, after certain preparations, the same tapioca; the brown juice is used as sauce.

Zapote, sapota, fruit trees of many varieties Zapote blanco, white sapota, Casimiroa edulis, Rutaceas; zapote borracho, yellow sapota, Lucuma salicifolia, Sapotaceas, especially in Morelos—zapote prieto, black sapota, Diospyros obtusifolius, Ebenaceas. The gum of the sapotas called "Chicle," is an article of export for making chewing gum.

Zarzamora, bramble or blackborry, Rubus fructicosus, Rosaceas: Wild in the temperate and cool zones, is used in the Valley of Toluca for blackberry wine.

Zarzaparilla, sarasapilla, Smilax medica, Esparragineas: Medicinal; native plant of hot zone, especially in Vera Cruz; root exported.—*Modern Mexico.*

PLANTING NOTES.

A NEW RUBBER-PRODUCING PLANT.—M. E. de Wildeman describes in the *Comptes Rendus*, 1902, p. 400, a new species of Clitandra (Apocynaceæ), from the Congo. The species is called C Arnoldiana, and the caoutchouc is obtained by boiling the latex or milky juice with water.—*Gardeners' Chronicle.*

THE NATIVE COUNTRY OF THE COMMON LILAC.—M. LOCHOT, in a recent number of the *Revue Horticole*, establishes the fact that the common Lilac is indigenous in the Balkan range from the Black Sea to Hungary, thus confirming the opinion of M. Andre, who found it growing wild in Servia and Bulgaira.—*Ibid.*

WEST INDIAN AGRICULTURE.—Under the energetic direction of the Commissioner, Dr. Morris, the Department of Agriculture is making satisfactory progress. Over 5,000 copies of official bulletins and other publications were distributed among those concerned last year, and although practically nearly everything is distributed gratuitously, yet the sale of publications reached nearly £100. Messrs. Dulau & Co., Soho Square, are the London agents.—*Ibid.*

THE DOUGLAS FIR.—A curious case of a woman being poisoned by handling the branches and leaves of this tree while gardening, and not washing her hands before eating, is recorded by Neudoffer in the *Centralb. f. Innere Medicin.* The symptoms were spasmodic convulsions, dyspnœa, and coma. Other persons appear to have been more or less affected who were working at the same employment. It appears probable, therefore, that the tree which is cultivated for ornamental purposes, contains some poisonous ingredients to which some persons are more susceptible than others. *Nouv. Rem.*, 1903, 65—*Journal of the Pharmaceutical Society.*

GINSENG (ARALIA QUINQUEFOLIA) will not grow in this country. It has been tried again and again at Kew; the last time according to directions given by Mr. Stanton, who grows it successfully near New York; and I know of several other gardens in England where it has been tried. The directions given by Mr. J. J. Willis (p. 171) are, he informs me, taken from *Bulletin* 62 (1903) of the Pennsylvania State College, and are practically those given by Mr. Stanton. Mr. Budde, of Utrecht, in his note (p. 181) stated that Ginseng was easily cultivated in Holland, where it was grown as a market plant; but the plant he means, and of which he kindly sent me a leaf, is Pseudopanax (Aralia) crassifolium, a New Zealand shrub, of which there are large examples in the temperate-house at Kew. I have seen a plant of Ginseng in flower in the rock-garden at Kew, but it was the sole survivor of a large number that were planted a few months before. Evidently there is some condition, as in the case of (Ipecacuanha) (Cephaelis), Manilla Hemp (Musa textilis), Sandalwood (Santalum album), and certain other plants, which is essential, but as yet is unknown. Probably it is in the soil. Is it bacteria? I am told that attempts to extend the cultivation of Ginseng in the United States have proved unsuccessful. Ginseng has a parennial tuberous rootstock, not unlike a small Parsnip, annual stems a foot or so high with long-stalked palmatisect leaves, usually with five leaflets, hence the specific name. The flowers are in umbels, small, yellow, and they are succeeded by small Pea-like, bright red berries. The medicinal properties are in the roots.—W. W., Kew [*Bailey's Cyclopœdia of American Horticulture*, art. "Ginseng," may be consulted with reference to the culture of the plant in the United States.]—*Gardeners' Chronicle.*

Wilson, Smithett & Co.'s Ceylon Tea Memoranda for 1902.

LONDON, MARCH, 1903.

Although the year under review cannot be considered one of actual prosperity for tea planters generally, it may at least be regarded with more satisfaction than its three immediate predecessors, inasmuch as during its progress the industry would appear to have, at length, emerged from the period of storm and stress, resulting from over-production on the one hand, and on the other from the disorganisation caused by the additional fiscal burden imposed upon it in 1900, and the apprehensions on the same score in the two succeeding years, which found expression in the abnormal duty payments of the ante-Budget periods. Since the date of our last "Annual Memoranda," however, the clouds of doubt and depression, which so long obscured the outlook, have been almost dispersed, and we have, we believe, entered on a period which requires only ordinary care and prudence to ensure a return to comparative prosperity. If we cannot, therefore, absolutely congratulate planters upon a profitable season, we think we are entitled to indulge in more hopeful anticipations for the future. It was generally considered that the year 1902 would produce the heaviest yields yet recorded, both in INDIA and CEYLON, owing to the fact that it was the year in which the most recent important extensions would come into full bearing. The caprices of climate, however, had not been taken sufficiently into account, and the estimates made with regard to the crops both in CEYLON and INDIA proved, fortunately, to be excessive, and this factor, in conjunction with a further marked expansion in the demand for British-grown teas from extraneous markets, has resulted in a satisfactory re-adjustment of the balance between supply and demand. The problem for the future, which should now engage the serious attention of producers, seems to us to be that of securing the maintenance of this re-adjustment, and for its solution we look naturally to the steady following up of the successes already gained in the exploitation of new markets. In this connection we would strongly urge the desirability of developing, as far as possible, the characteristics peculiar to each district, so as to satisfy the varying demands, not only of foreign markets, but more especially of the United Kingdom, which, after all, constitutes the principal tea-consuming community of the world. One of the chief reasons, perhaps, of the periodical depressions experienced in recent years in the home-trade, apart from the question of over-production, has been the monotony and lack of character of a large proportion of the supplies. Too often in the past has a temporary scarcity of common tea resulted in a universal resort to coarse plucking, or a superabundance of common tea has been followed by a general rush to the other extreme; and although in the past year plucking was evidently conducted with considerable care, we regard with some anxiety the exceedingly strong position of common tea at the present time.

The average Price of all Ceylon Tea sold on Garden Account in 1902 was 6·85d. per lb., against 6·80d. in 1901 and 7·25d. in 1900.

HOME CONSUMPTION of CEYLON tea during 1902 is somewhat disappointing, seeing that it only equals the figures of 1897, when the IMPORTS were almost 8,000,000 lbs. less. The true explanation seems to lie in the smaller proportion of common tea received, and the increased demand from Foreign markets, as well as the cheapness and abundance of INDIAN imports of a similar character. In the past year the deliveries amounted to 85,541,000 lbs. for HOME CONSUMPTION and 17,352,000 lbs. for EXPORT, whereas although 85,494,000 lbs. were cleared for HOME CONSUMPTION in 1897 the EXPORTS in that year only reached 10,684,000 lbs.

FOREIGN TRADE.—The development in this respect has again realised the most sanguine expectations, and is most encouraging for the future. The increase in the consumption of BRITISH-GROWN tea in RUSSIA is very remarkable, and now that CEYLON and INDIAN teas have gained such a foothold in that country, we may fairly look forward to an annual expansion in the quantity absorbed, and it is a most favourable feature that the demand is no longer confined to light liquoring delicate sorts and the whole-leaf grades, but that semi-broken Pekoes and ordinary fermented teas are now more freely taken, if not actually preferred. The AUSTRALIAN market has also again bought freely in COLOMBO to the extent of 19,000,000 lbs., and for AMERICA and CANADA the COLOMBO purchases of Black leaf tea shew an increase of 700,000 lbs. in 1902, having amounted to 4,365,000 lbs. against 3,654,000 lbs. in the previous year; in addition to this and to the direct EXPORTS from LONDON, transhipments from LONDON to NEW YORK shew a considerable increase.

GREEN TEA.—The ready sale of some 2,000,000 lbs. of GREEN tea in 1902 to the STATES and CANADA is of happy augury for the attempt to break down the monopoly hitherto enjoyed by JAPAN and CHINA for

this description of tea. The manufacture of this variety has materially increased since the date of our last Annual Circular, and though it must still be considered to a certain extent as experimental, there is every reason to congratulate planters on the success which this latest phase of their enterprise and energy has met with. The true Green teas, manufactured for the first time this year, are especially to be commended, and appear to us to compare most favourably with coloured JAPANS. It is open to question whether the substantial increase in the out-turn of Green tea, estimated variously at from 10 to 15 million lbs., contemplated this season is not too great, but there can be little doubt that the high rates ruling at present for JAPAN and CHINA Greens, which, as far as JAPAN is concerned, are likely to be maintained, owing to the advance in the value of labour following the development of manufacturing industries in that country, afford a most favourable opportunity for a successful assault upon the AMERICAN and CANADIAN markets, by supplying an equally good article at a more reasonable price.

PACKING.—Both wood and lead have occasionally left a good deal to be desired during the past year. The use of chests made of unsuitable or unseasoned wood has been responsible for a good deal of deterioration in values, but to the increased use of thin lead is probably due the "woodiness" which has marred the flavour of many a good tea. The economy practised in the use of "two-ounce" lead is, we think, false, as in the case of good and fine qualities the particular point and flavour is often so neutralised that a loss of 1d. per lb. in value may easily result.

Our list of Estates this year gives the quantity sold in Public Sale and average price realised of 550 marks: a good deal of tea was again disposed of privately but not to the same extent as in 1901, when the agitation in favour of unreported sales was, for a time, in force. The chief feature to note is the rather better value generally realised for low-grown tea, despite the low rates ruling for this class during the summer and early autumn. With the exception of DIMBULA, which averaged exactly the same figure as in 1901, viz., 8·25d. per lb., high grown teas generally sold at a rather lower range, and the large proportion of medium tea also shewed some irregularity. Owing to the development of the UVA side of the island—BADULLA in particular—this group of districts shews a considerable expansion in yield, and it is very satisfactory to note that this expansion was accompanied by a substantial advance in the average realised.

Estimated relative YIELD and AVERAGE PRICE realised for the different CEYLON Tea Districts, compiled from the Public Auctions held in LONDON between JANUARY 1st and DECEMBER 31st, 1902:—

	1902. lbs. about	Av. Price per lb. about 1902.	1901. lbs. about	Av. Price per lb. about 1901.	1900. lbs. about	Av. Price per lb. about 1900.
UDA PUSSELAWA	2,500,000	8·55d.	2,200,960	8·90d.		*
DIMBULA	16,000,000	8·25	19,825,000	8·25	18,250,000	8·75d.
NEWARA ELIYA, & MATURATA	2,215,000	7·85	2,350,000	8·00	4,500,000	9·10
DIKOYA	5,000,000	7·50	5,950,000	7·50	6,000,000	8·00
HAPUTALE	3,000,000	7·20	3,450,000	7·00	3,250,000	7·90
BOGAWANTALAWA	3,650,000	7·15	4,250,000	7·50	4,500,000	7·90
MASKELIYA	3,500,000	6·95	4,100,000	6·50	4,000,000	7·45
UVA	9,100,000	6·90	6,750,000	6·00	6,750,000	6·90
HEWAHETA	1,950,000	6·65	2,350,000	6·50	2,500,000	6·90
PUSSELAWA, KOTMALE, PUNDALOYA & RAMBODA	8,750,000	6·50	8,300,000	6·75	8,500,000	7·00
AMBEGAMUWA and LOWER DIKOYA	2,700,000	6·35	2,900,000	6·25	3,500,000	6·60
KNUCKLES, KALLEBOKKA & RANGALE	2,950,000	6·30	3,950,000	6·15	4,750,000	6·35
MATALE and HUNASGERIA	5,900,000	6·05	5,700,000	6·25	5,750,000	6·85
DOLOSBAGE and YACDESSA	4,150,000	6·[illegible]5	4,700,000	5·75	6,000,000	6·20
KADUGANAWA	2,150,000	6·[illegible]0	2,000,000	5·90	2,500,000	6·40
KALUTARA, AMBLANGODA & UDAGAMA	2,550,000	5·95	3,250,000	6·25	3,000,000	6·25
*KELANI VALLEY and KEGALLA	8,500,000	5·90	8,800,000	5·65	10,000,000	6·10
SABARAGAMUWA	1,850,000	5·90	1,550,000	6·00	1,750,000	6·55
NILAMBE and HANTANE	3,750,000	5·8[illegible]	3,350,000	6·25	2,500,000	6·40

Entire invoices on Garden Account only are included in the above estimate.

* UDA PUSSELAWA was grouped with N. ELIYA in 1900.

SUMMARY of CEYLON TEA sold at public auction in London between January 1st and December 31st 1902. Estimated quantity in lbs. and average prices realised:—

Average Price for the Year was 6·85d per lb., against 6 80d in 1901, and 7·25d in 1900.

The initial letters following the estate names refer to the mean elevation, as follows:—

L (low) sea level up to 1,000 feet. M. (medium) 1,000 to 2,500 feet. HM (high medium) 2,500 to 3,500 feet. H (high) 3,500 to 5,000 feet. HH (highest) above 5,000 feet.

Over 750,000 lbs.

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Diyagama ....H	1,084,000	8⅞d	1,247,000	9¼d
Demodera ....H	909,500	7d	705,500	7d
Meddecombra ....H	791,000	6¼d	731,000	6¾d

500,000 lbs. to 750,000 lbs.

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Badulla ....H	531,500	6⅝d	403,500	6⅞d
Kurugama L	527,000	6d	510,000	5½d
Mattakelly ....H	584,500	7⅜d	685,000	7⅜d
St. Leonards ......H	578,000	8⅞d	571,000	9⅛d
Sunnycroft L	650,000	6⅛d	598,000	5⅞d

350,000 lbs. to 500,000 lbs.

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Bandarapola ....HM	400,000	6d	291,000	5⅞d
Campden Hill ....M	496,000	5⅞d	505,000	6⅛d
Cannavarella ......H	357,000	8¼d	386,000	8d
Craighead ....M	469,000	6½d	493,000	6½d
Culloden L	446,000	5¾d	505,500	6d
Delmar ....H	380,500	8⅞d	303,000	9⅛d
Dunsinane ....H	408,500	7⅞d	564,000	8⅛d
Elston L	364,500	8⅛d	296,000	8½d
Fordyce ....H	366,500	7⅜d	395,500	7⅝d
Gikiyanakanda L	355,500	6⅛d	317,000	6⅜d
Great Western ....H	413,000	8⅞d	461,000	9d
Gonakelle ......HM	412,000	6⅝d	508,000	6¾d
Hauteville ....H	360,000	8½d	415,000	8¾d
IMP..............H	490,500	6¼d	510,000	6½d
K.A.W. ....HM	394,500	6d	490,000	6d
Kirkoswald ......H	426,000	7⅛d	450,600	7¼d
Ledgerwatte ......M	378,500	7¾d	330,000	7d
Le Vallon ......HM	473,500	6⅞d	458,000	7⅜d
Mahadowa ....H	403,150	6⅝d	305,000	7¾d
Mooloya ....H	372,000	7¼d	328,000	7⅝d
Nilambe ....HM	357,000	5⅞d	323,000	6¼d
New Peradeniya ..M	444,500	5¾d	441,500	5½d
Pambagama L	350,500	5½d	290,000	5d
Ragalla ....H	407,500	8⅞d	304,000	9⅝d
Rangbodde ....H	467,500	6d	352,500	6¼d
Rothschild ....H	399,500	6¼d	342,000	6⅜d
Spring Valley......H	438,000	7⅛d	381,500	7½d
St. John del Rey ..H	352,500	7⅝d	309,000	8⅛d
Talawakelle ......H	427,500	10⅛d	467,000	10¼d
Tangakelly ......H	414,000	8⅝d	383,000	9¼d
Tillicoultry ......H	371,500	9⅞d	417,000	8d
Vellai-oya ....H	370,500	6¾d	393,000	6⅝d
Wanarajah ......H	423,500	8¾d	437,000	9d
Wattegodde ......H	438,500	7½d	406,600	8⅜d
Walpola L	459,000	6d	388,000	5¾d

200,000 to 350,000 lbs.

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Adam's Peak ......H	229,‘00	5⅞d	217,500	6⅝d
Ambatenne L	253,000	5⅝d	243,500	5½d
Atgalla ....M	207,500	6⅝d	198,000	7¼d
Ayr L	223,500	5⅝d	208,500	5⅝d
Antony Malle ....M	298,000	6d	291,500	6⅝d
Barnagalla ......M	202,000	6⅝d	164,500	6⅞d
Beaumont ....M	311,500	5⅞d	318,000	6¼d
Bogahawatte ......H	316,500	7¼d	327,000	7½d
Bogawana ....H	201,500	7⅛d	245,500	7¼d
Brae............HM	210,000	6d	230,500	6¼d
Bridwell ....H	228,500	7d	235,000	7¼d
Campion..........H	313,000	8½d	360,500	8¾d
Castlemilk ....M	341,500	5¾d	363,000	6⅜d
Chapelton ....H	294,000	6¾d	307,000	7½d
Concordia ......HM	225,500	9⅞d	215,000	10¼d
Clydesdale ....H	255,500	9¾d	304,500	8½d
Cocagalla ......HM	353,500	7d	253,000	7d
Cranley ....H	275,500	8⅝d	289,000	8½d
Chesterford........L	251,500	5¾d		
Dartry ....M	310,000	6d	312,500	6⅛d
Degalessa L	327,500	5¾d	433,500	5¾d
Deltotte ....HM	231,500	5¾d	182,000	5⅝d
Deviturai ......HM	230,500	6⅛d	138,500	7¼d
Digalla............L	248,500	5¾d	214,000	5½d
Duckwari........HM	213,500	6⅜d	312,000	6⅜d
Doragalla	209,500	6d	20,000	8¾d
Ederapolla L	218,000	5⅞d	214,000	6⅝d
Ellekande...... L	305,000	5⅞d	231,000	5¾d
Elbedde............H	324,500	7⅝d	378,000	7⅞d
Ernan..............L	250,500	5⅞d	267,000	5⅞d
Gallebodde... ......M	294,000	6¾d	233,000	7¼d
Gartmore...... ......H	213,500	7¼d	150,500	7¾d
Glenugie....... .....H	243,500	7½d	249,000	8½d
Glenlyon ....H	295,000	8⅛d	287,000	8¼d
Goorookoya ....M	329,500	5¾d	319,500	6¼d
Gouravilla ....H	312,000	7¼d	352,000	7d
Gordon ....HH	292,500	7⅛d	230,000	7⅜d
Glen Alpin.......... H	307,500	7½d	302,000	7d
Gallamudina ....M	306,000	6½d	358,000	6⅝d
Hemingford L	274,000	5⅜d	543,000	5⅜d
Henfold.......... ...H	233,000	10½d	258,000	10¼d
Hoonoocotua ....H	240,500	6d	309,500	6¼d
Holyrood East......H	304,000	9⅜d	357,000	8¾d
Holyrood West ....H	201,500	9d	197,500	9¾d
Hope .... H	207,000	6⅜d	318,500	6½d
Hopewell ....M	222,500	6½d	268,500	5¾d
Invery..............H	221,500	7⅛d	237,000	7⅛d
Imboolpittia ....M	267,000	7⅛d	351,500	6⅜d
Kadien Lena ...... M	252,000	6¾d	274,000	6¼d
Kandanewera ....HM	222,000	6⅛d	288,000	6¼d
Kehelwatte ... .M	309,500	6⅝d	267,000	6⅞d
Kelburne...... ......H	275,500	6½d	226,500	7¼d
Kellie ....M	217,000	5¾d	295,000	5¾d
Kelliebedde..........H	244,500	8¼d	238,000	8½d
Kotiyagalla .. .. H	295,000	8¾d	338,000	8⅝d
Kottegodde ....H	332,000	6⅝d	250,000	7d
Labukelle ....H	245,000	7d	261,000	7¼d
Lawrence... ....H	214,500	6¾d	193,000	6⅝d
Laxapana ....H	316,000	6½d	277,500	7d
Lippakelle.... ....H	234,500	8¾d	240,000	9½d
Loolecondera........H	320,000	7⅝d	323,000	7⅛d
Mahaousa ... ...M	216,500	6d	197,500	5⅝d
Mahaoya..........HM	235,500	5⅞d	276,000	5⅜d
Mariawatte .. ..H	298,500	5⅞d	290,000	6½d
Melfort ....M	260,500	6⅛d	252,000	7d
Mossville .. .. M	290,000	6⅛d	277,000	7½d
Napier ....M	225,000	6¾d	130,000	7⅛d
Nayabedde .... H	220,500	8⅛d	223,500	8⅛d
Nayapane ....HM	211,000	5⅞d	218,000	5¾d

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Needwood ....H	243,500	7d	279,000	6d
New Peacock......... H	301,000	6½d	306,000	7d
North Matale ....M	205,000	5¾d	169,000	6d
Norwood . ... H	323,000	7½d	302,000	8¼d
Ouvahkellie .... H	225,000	7⅞d	244.000	8⅜d
Orion .... M	265,000	5⅞d	197,000	5⅜d
Penrith............. L	317,000	5⅞d	293,000	5¾d
Pen-y-lan ....M	221,000	5⅜d	246,000	5⅝d
Pingarawe........HM	215,500	7⅜d	184,000	7¼d
Portmore .... H	279,000	10d	241,000	10½d
Pundaloya ....H	205,000	8½d	180,000	8⅝d
Pussetenne ....M	299,000	6d	251,000	6¼d
Queensberry.........H	285,000	7¾d	242,500	8d
Rangalla ....HM	262,000	6¾d	255,000	7¼d
Rosita.. ....H	206,500	7d	190,000	7¼d
Sandringham ....H	320,000	8½d	314,500	7⅞d
Sanquhar ....HM	255,500	6⅛d	263,500	6¼d
Sarnia .... M	202,500	7d	131,000	7¼d
St. Clair..... ....H	248,000	8⅛d	289,000	8⅝d
Sheen.....................H	230,000	9⅜d	216,000	9⅛d
Sogama.. ....HM	247,500	6d	265,000	6¼d
Stonycliff.............H	226,000	6½d	283,500	6⅞d
Sorana........ L	308,500	5⅝d	279,500	5¾d
Tallagalla.... L	251,000	6⅜d	204,000	6⅜d
Thornfield.............H	226,000	8⅜d	226,500	8⅝d
Tillyrie.......... ....H	250,000	6¾d	126,500	7¼d
Tyspane...............H	227,000	6¾d	183,000	6¾d
Ukuwella ....M	293,500	6d	350,000	5⅛d
Ury ....M	323,500	6½d	263,000	6⅝d
Verelapatna ....H	320,000	7d	261,000	7⅜d
Waverley ....H	338,000	9¾d	400,000	9⅜d
Warriagalla ....M	294,000	6⅜d	254,000	5⅝d
Wihiragalla ....H	207,000	7⅜d	198,000	7⅛d
Windsor Forest....H	211,500	6d	227,500	6⅜d
Westhall ....HM	232,500	6d	277,500	6¾d
Wavelkelly.........M	231,000	5½d	335,(00	5½d
Yataderia L	220,500	5⅞d	252,500	4½d
Ythanside ....H	209,500	6⅞d	242,500	6¾d

100,000 to 200,000 lbs.

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Abbotsford ....HH	153,500	7⅞d	179,500	8¼d
Abbotsleigh ....H	130,500	7⅜d	·259,000	8d
Attabagie ....M	140,000	5⅞d	80,500	5⅞d
Albion ....H	140,500	8¾d	134,500	8d
Allakolla.........HM	197,500	5⅝d	200,000	5⅞d
Allagalla...........M	181,000	6½d	200,000	6½d
Aldie ....H	195,000	8⅜d	185,500	8⅝d
Alton ....H	114,000	8d	177,000	8d
Alnwick ....H	124,500	7⅜d	128,500	8½d
Amherst ....H	196,000	8⅜d	173,000	9¼d
Annfield ....H	184,500	7½d	99,500	8¼d
Ardross L	132,000	5¾d	139,000	5⅞d
Arslena ....HM	115,500	5⅝d	141,000	5⅜d
Atherfield L	116,000	5¾d	105,000	5⅝d
Augusta Tea Estates Company .....HM	121,000	6⅛d	116,500	6⅛d
Abamalla ....H	167,500	6d	67,500	7⅛d
Appachy Totam....H	132,000	7¾d	170,000	7⅝d
Ambanpitiya	198,000	5¼d	155,000	5½d
Bambrakelly & Dell H	167,500	7⅛d	31,500	7½d
Bathford...........H	100,500	7½d	100,000	7¼d
Battagalla ....M	138,500	5⅞d	205,500	5½d
Battalgalla Est. Co. H	122,000	7¾d	75,500	8¾d
Berat ....H	107,000	7⅛d	116,000	7½d
Belgravia ....H	175,500	8⅜d	344,500	8d
Bellwood.........HM	138,000	6¼d	155,000	6¾d
Berragalla ....H	116,000	7¼d	142,500	7¾d
Binoya ....HM	187,500	6¼d	209,000	6¾d
Blair Athol ....H	149,000	6d	154,500	5⅞d
Bogahawatte ....H	195,500	7½d	·221,500	7¼d
Brookside...... H&HH	124,(00	8⅞d	106,500	9¼d
Braemore . ...H	178,000	7⅜d	208,000	8d
Burnside Group .. .M	174,500	6d	261,500	5⅞d
Beddegama... .....HM	152.500	6¼d	135,500	6½d
Ballacadua ....HM	110,000	5½d	71,500	5¾d
Bearwell........ ......H	171,500	8¾d	200,000	8⅛d
Bothwell.............. H	121,500	5⅞d	44,500	6⅜d
Cairn-mon-earn ..HM	167,500	5¾d	155,000	6d
Calsay... ....H	179,000	7⅜d	200,000	7⅞d
Caledonia ....H	122,000	9d	155,000	7⅞d
Condegalla..... ..... H	169,500	6¼d	102,000	7d
Coolbawn .. .. M	110,000	6⅛d	86,500	6¼d
Cottaganga..... L	147,000	6⅝d	110,500	6¼d
Cullen L	129,000	6⅞d	74,000	6⅛d
Chrystlers Farm .. H	102,000	6¾d	182,000	7¼d
Dunally	175,500	6⅛d	29,900	7⅜d
Dalleagles .. ..M	158,000	5⅞d	179,000	6d
Dangkande........HM	109,000	6d	123,500	6¼d
Deeside ....H	157,000	7⅜d	155,000	7⅜d
Dehiowita........... M	100,000	5¾d	126,000	5⅞d
Denegama ....H	145,500	5⅜d	106,500	6d
Densworth L	123,000	6⅛d	170,000	4¾d
Derryclare ....H	125,500	7⅜d	145,500	7¾d
Dessford ... .H	172,500	8⅝d	209,000	8½d
Detenagalla ....H	106,000	7⅛d	101,000	8d
Dimbula........... H	166,000	7½d	190,000	8d
Donside ....HM	122,000	5¾d	104,500	6¼d
DoombagastalawaHM	121,000	6⅛d	88,000	6d
Doteloya..............M	148,500	5⅝d	185,000	5⅛d
Drayton .. ..H	129,500	9⅝d	161,500	9¼d
Dunedin L	188,000	5⅞d	188,000	5¾d
Ellawatte ....M	176,500	6⅞d	168,500	6⅛d
Eildon Hall .... .H	161,500	8½d	195,000	8d
Elfindale ....H	139,000	5½d	148,500	5⅛d
Elkadua ....HM	143,000	5⅞d	246,000	5½d
El Teb ....M	152,500	7d	305,500	6½d
Eltofts ....H	138,500	7⅛d	169,000	7¾d
Emelina .... H	113,500	7⅛d	128,500	6⅞d
Excelsior.... .....HH	124,500	9½d	80,500	9½d
Ettie L	101,500	5¼d	57,500	4⅛d
Ellamalle ......HH	151,000	6⅞d	153,000	6½d
Farm ....M	127,000	6d	145,000	6¼d
Fernlands ....H	156,500	8⅞d	101,500	9d
Fetteresso ......HH	164,000	7⅜d	159,000	6¾d
Forres ....H	147,000	7⅛d	97,500	7¼d
Ferham ....H	129,500	10¼d	121,000	10d
Galkandewatte ....H	162,000	8d	191,000	7⅞d
Gammadua ......H	189,500	5¾d	253,000	5⅜d
Glencairn .... H	110,500	6⅝d	214,000	6½d
Glenrhos L	130,500	6⅛d	202,000	5¼d
Glenloch...........M	133,500	5⅞d	138,000	6¾d
Goatfell ....H	124,500	1/0½	100,000	1/0½
Gonamatava ....H	154,500	7⅝d	178,000	7⅝d
Gorthie ....H	147,000	7⅛d	170,000	7⅜d
Goonambil ......HM	174,000	6⅛d	157,000	6⅛d
Galata ....HM	119,500	5⅝d	70,500	6⅝d
Gowerakelle ......M	161,000	6⅞d	146,000	7¼d
Gona Adika ...... M	135,500	5⅝d	113,000	5⅞d
Grotto..............M	117,000	5½d	114,000	6d
Galatura L	143,500	5¾d	33,500	6⅞d
Halwatura L	166,500	5⅞d	266,000	5¾d
Hantana...........M	187,0 0	5¾d	163,000	5½d
Hatale...... ......H	140,500	5¾d	205,000	5½d
Hethersett ....H	151,000	7⅞d	111,000	9d
Hindagalla.........M	170,000	7⅛d	146,000	7⅜d
Holmwood ....H	140,000	9⅜d	120,000	10¼d
Hunasgeria......HM	164,500	5¾d	140.500	5⅝d
Halgolle L	138,500	6⅜d	313,000	5⅞d

	1902 About lbs.	Av. price per lb.	1901 About lb.	Av. price per lb.
Hapugastenne ....H	143,000	6⅞d	308,500	5⅞d
Harrington ......H	112,5,0	7⅜d	83,500	7⅝d
Indurana..........L	162,500	6d	125,5(0	6d
Ingestre ....H	199,500	9¼d	214,000	8¾d
Ingurugalla ......M	101,500	5⅞d	99,000	5⅞d
Kabragalla........H	159,5(0	5⅞d	227,000	6d
Kaipoogalia ......H	107,(00	6¾d	113,000	7¼d
Kalupahani ......H	137,000	6⅜d	114,500	7d
Kataboola ....H	196,000	6¾d	192,500	7⅛d
Keenakelle L	189,500	6⅜d	157,000	6⅜d
Kelliewatte ......H	112,000	6⅝d	129,000	8d
Kelvin............M	122,500	6⅛d	102,5(0	6½d
Kintyre ....H	119,500	6⅝d	140,000	6¼d
Kirrimittia.........M	145,000	6⅜d	187,000	6⅛d
Knuckles Group HM	189,500	6⅛d	251,000	5¾d
Kowlahena ......H	115,000	8d	100,500	8½d
Kuda Oya ....H	176,000	6½d	187,000	6¾d
Kew ....HH	111,5(0	7d	155,(00	7¼d
Katooloya ....H	195,500	6⅝d	252,000	6⅜d
Lagalla ....HM	169,500	5⅞d	117,000	5⅝d
Lavant...........L	179,000	5⅞d	161,000	5⅞d
Lindoola..........H	182,000	7¼d	177,000	8¼d
Loinorn ....H	101,500	8½d	94,000	8⅜d
Luccombe ......HM	185,500	6⅛d	191,500	6¼d
Lynford ....H	131,000	6⅞d	129,500	8⅜d
Leangawella ....HM	142,500	7¾d	137,000	7⅞d
Logie ....H	115,000	7⅝d	96,500	7¾d
Lochnagar ....M	102,000	6⅜d	40,300	6⅜d
Longford........HM	119,500	5⅝d	14,800	5⅛d
Lonach ....HM	116,500	5⅝d	132,000	5⅞d
Malvern ....H	147,000	6d	94,500	6¼d
Medenpennakande..L	105,500	5⅝d	113,000	5⅝d
Madampe ......HM	199,500	5¾d	188,500	5⅝d
Maddagedera L	138,500	5⅝d	218,000	5⅜d
Mahagalla ....H	131,000	6⅝d	139,000	7d
Mahagastotte......H	168,000	7⅝d	146,500	8⅝d
Maratenne ....H	137,000	7⅛d	126,500	8d
Meria Cotta ......H	194,500	7⅝d	182,000	8⅞d
Meeriabedde ......H	125,500	6¾d	288,500	6d
Midlands ......HM	155,000	5⅞d	156,000	5⅜d
Minna ....H	138,500	7⅛d	175,000	7d
Mayfields ....H	176,500	7¾d	275,000	7⅛d
Mipitiakande... ..L	155,500	5⅝d	203,500	5⅝d
Morar ....H	179,500	6⅜d	237,000	6⅜d
Moolgama ....M	111,000	6⅜d	117,000	6½d
Moralioya L	111,000	5⅝d	104,000	5¼d
Mount Pleasant...HM	104,500	6⅛d	137,500	6¾d
Mount Vernon ....H	185,000	10d	248,500	9⅜d
Mudamana L	153,000	5⅝d	202,500	5⅜d
Memorakande ....H	136,500	6⅝d	163,500	6¼d
Meddakande ....M	161,300	6¾d	193,500	6¼d
Mahakande ....H	182,500	6½d	22,500	7d
Maymolly .... H	115,500	7d	70,000	7½d
New Rasagalla ...HM	122,000	6¾d	254,000	6⅝d
Nikakotua L	166,500	5½d	170,000	5½d
New Forest...........H	134,500	6¼d	113,000	7⅛d
Newton ....H	140,500	6⅝d	133,000	7⅛d
Nicholaoya.. ......HM	146,000	6⅜d	231,500	6⅛d
Osborne........... ....H	158,000	6½d	191,000	7⅝d
Oaklands.............. L	103,500	5½d	41,500	5⅜d
Pansalatenne . ... . M	134,000	6d	129,000	5¾d
Parragalla..........HM	182,500	6½d	262,000	6⅛d
Park... ....HH	130,500	8½d	125,000	9d
Pita Ratmalie. ... ..H	157,500	7⅜d	139,000	9⅜d
Portree............. ..H	157,000	6⅛d	164,500	6⅜d
Portswood....... ..HH	108,500	8½d	176,000	8½d
Poyston . ...H	102,000	6¾d	119,500	6½d
Poengalla ... .M	134,500	6⅛d	64,000	6⅜d
Rugby............ .... M	197,500	6⅜d	198,500	6⅞d

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Radella .... H	127,500	6½d	115,500	7¾d
Rappahannock.......H	140,500	7½d	120,000	7¾d
Ravenswood .. .. H	119,500	6⅜d	125,000	6⅛d
Relugas ....HM	169,000	6¼d	177,000	5¾d
Riverside.... . ...M	151,500	5½d	157,000	5⅜d
Rickarton ....HM	103,000	6½d	150,000	6d
Rillamulle ....H	109,000	7⅞d	89,500	7¼d
Rutland .... H	166,000	6¼d	298,000	6⅛d
Rookatenne.... . . ..M	176,000	6¾d	97,000	6⅝d
Shamrock..... . .... M	176,500	5⅝d	162,000	5d
St. Andrew's (Mask)H	152,500	6½d	196,000	6½d
Shawlands ....H	167,500	6⅛d	85,500	6½d
Silver Kandy.......HH	102,500	8¾d	133,000	7½d
Somerset .... H	160,000	7¼d	162,500	7⅜d
Springwood...........M	119,500	5⅜d	131,000	5⅜d
Strathdon... ......HM	108,000	6⅝d	183,000	6¼d
Stockholm ....H	186,500	6⅝d	184,000	7⅛d
Sapumalkande L	174,000	5¼d	120,000	5⅛d
Shrub's Hill.......HM	177,500	5¾d	97,500	6⅜d
Syston ....HM	128,500	6⅝d	26,500	7⅛d
Taurus .... H	110,000	8⅛d	155,000	8¼d
Thotulagalla. ....H	101,500	7½d	95,500	10½d
Troy...... L	101,500	5⅝d	131,000	5d
Troup............ ..... H	163,500	8⅞d	146,500	8⅝d
Telbedde ....HM	141,500	7¼d	105,000	6¾d
Udaradella ....HH	197,500	9⅜d	224,000	9d
Ugieside .... M	147,000	5½d	140,000	5½d
Uva ....H	161,500	6⅛d	146,500	5⅞d
Uvakellie ....H	165,500	7¼d	145,000	8d
Upper Haloya........M	151,500	5½d	207,000	5⅜d
Uralindatenne......AM	159,500	5¾d	13,400	7d
Valamaly.... ....H	114,500	6⅞d	135,500	7½d
Venture............... H	175,500	7d	196,000	7d
Verulupitiya..........L	150,000	5⅞d	144,000	5⅝d
Valley Field..........M	145,000	5⅝d		
Wavena ....HM	147,000	5¾d	88,500	5⅝d
Waldemar.............H	127,000	7½d	140,000	7⅝d
Wallaha ....H	118,000	7⅛d	111,000	8⅛d
Waltrim ....H	152,500	7¾d	133,500	7⅞d
Wangie Oya........ .H	185,500	7⅝d	222,000	7⅝d
Wattakelly............H	125,000	6¾d	157,500	6⅝d
Wereagalla L	190,000	5⅝d	215,000	5⅝d
Wewelmadde.........M	120,000	6d	113,500	6⅛d
Wewesse ... .HM	127,000	6½d	114,000	6½d
Wevekellie...... .... M	125,000	6⅛d	83,000	6½d
Weyweltalawa ....M	103,500	6½d	58,500	7⅞d
Wootton ....H	160,000	8⅛d	156,500	7⅞d
Weddemulle..........H	103,000	6¼d	98,500	7d
Yahalakela L	111,500	5⅞d	111,000	5½d
Yapame.. ....H	129,500	6⅞d	97,500	6⅛d
Yoxford .. .. H	124,000	8d	159,000	8⅛d
Yahalatenne .... HM	108,000	6d	110,000	6⅜d
Yellangowry ......HM	152,000	5½d	53,000	4¼d

50,000 to 100,000 lbs.

Abergeldie ....HM	63,000	6⅜d	72,500	6¼d
Agrakande ....H	75,000	8⅛d	104,500	7⅝d
Allerton ....M	83,000	5¼d	48,000	4⅞d
Ampittiakande .....H	84,300	6⅛d	89,000	6⅛d
Ankande ....M	61,000	5⅝d	59,500	5¾d
Ambawella............H	80,500	6⅛d	67,500	7⅛d
Asgeria ....M	89,500	6⅜d	108,500	5⅞d
Batgodde.. ....H	56,000	7⅜d	75,000	7½d
Berrawella............M	65,000	6¼d	51,000	6⅜d
Beaconsfield..........H	67,500	8d	53,500	8¼d
Blackburn..............M	90,500	6d	109,000	6⅛d
Blackwood ....H	85,500	6d	94,500	6¾d
Blair Avon............H	63,500	6⅝d	79,500	7d
Bon Accord ....H	76,500	6⅜d	75,000	7⅜d

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Broughton ... H	62,000	6½d	93,000	6⅝d
Bowlana ... M	52,000	6⅜d	103,000	5⅝d
Blackwater ...	62,000	6d	14,800	6⅜d
Carlabeck ...	99,000	8d	112,000	8¼d
Cattaratenne ... HM	92,500	6d	110,500	5¾d
C'Galla ... M	75,500	7d	74,500	7⅜d
Clontarf ... L	92,500	5⅞d	110,500	5¾d
Craig ... M	97,500	8½d	70,000	8⅝d
Carriglea ...	54,500	6⅞d		
Deanstone ... H	85,000	6⅝d	70,000	7⅛d
Delpotonoya ... H	66,500	6⅞d	66,000	6¼d
Deyanella ... HM	89,500	6¾d	91,000	7½d
Diyanillakelle ... H	94,500	10½d	129,000	10d
Devon ... H	50,500	7⅛d	102,000	8⅝d
Darrawella ... H	72,000	6⅝d		
Dickheria ... M	64,500	5⅛d	10,000	6d
Dawatakella ... H	66,500	6¼d		
Edinburgh ... H	69,500	8d	129,500	7½d
Evalgolla ... HM	75,500	5¾d		
Fairfield ... H	96,500	8½d	65,000	8⅞d
Faithlie ... H	81,000	7⅜d	92,500	8¼d
Fassifern ... H	80,500	7¼d	80,500	7⅜d
Fruit Hill ... H	88,500	6⅜d	99,500	6¾d
Galgawatte ... M	86,500	6d	94,500	6¼d
Ganapalla ... L	59,000	5¾d	51,000	4¾d
Gavatenne ... HM	63,000	7⅜d	73,500	7¾d
Glentaaffe ... H	66,500	7d	94,000	7¾d
Glenanore ... H	63,000	7¼d	32,500	8½d
Glenesk ... L	50,000	5 d	49,000	5¾d
Hatherleigh ... M	54,000	5½d	70,500	4⅞d
Heatherton ... HM	59,000	6⅜d	67,000	6d
Hunugalla ... H	82,000	5¾d	106,500	5⅝d
Hyndford ... M	92,000	7d	162,000	6⅞d
Harmony ... M	55,500	5¾d	77,500	5⅝d
Halwatura ... **E** ... L	98,000	6¼d	266,000	5¾d
Ivies ... L	63,500	5¾d	97,000	5¼d
Ingoya ... M	76,500	5⅝d	129,000	4⅞d
Igalkande ... HM	90,000	5½d	64,000	5¾d
Iona ... H	98,500	8¾d	44,500	9d
Kaloogala ... M	97,000	6½d	107,500	6⅞d
Kottagalla ... H	90,000	7⅛d	104,500	7⅜d
Karandupona ... L	71,500	5⅜d	43,000	5⅝d
Lauderdale ... HM	98,500	5⅞d	94,500	5¾d
Leangapella ... H	84,500	5⅜d	99,000	5⅜d
Lovers' Leap ... HH	95,000	8⅝d	25,500	9d
Macduff ... H	80,700	7½d	152,000	7¾d
Mahacoodagalla ... H	77,000	7⅞d	80,000	8⅜d
Marakona ... M	83,000	5⅞d	54,500	6¼d
Mincing Lane ... H	72,000	7¼d	83,000	7½d
Mottingham ... H	96,500	6⅜d	106,500	6½d
Mousakelle ... H	53,500	6⅛d	50,000	6¼d
Meddetenne ... M	74,500	5½d	75,500	5¼d
Nahaveena ... HM	53,000	5¼d	51,500	5⅞d
Nugahena ... M	67,500	5¾d	63,000	5⅝d
Nahalma ... L	73,000	5⅛d	70,000	4½d
Narangalla ... M	84,000	5⅝d		
Nawalakande ...	63,500	6⅛d	138,000	7d
Nutbourne ... H	68,500	10¾d	80,000	9¾d
Opallgalla ... HM	87,500	6½d	113,000	5⅞d
Ormidale ... H	61,500	7½d	84,500	9¼d
Pati Rajah ... M	91,500	5½d	55,500	5⅞d
Pedro ... HH	76,500	8⅛d	126,000	8½d
Panmure ... H	60,000	6⅜d	81,500	6¾d
Peacock Hill ... HM	89,000	5⅞d	84,000	6d
Pitakande ... HM	69,000	6⅜d	245,500	5⅛d
Poonagalla ... HM	76,500	7¼d	303,000	6⅝d
Parkfield ...	96,000	7¾d	52,000	7¾d
Poolbank ... H	64,500	7¾d	37,000	7⅝d
Rassagalla ... HM	71,500	6¼d	33,000	5⅞d

	1902 About lbs.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Rhanwatte ... H	91,500	6⅝d	99,000	7¼d
Raxawa ... M	91,000	6d	48,000	6¼d
Ritnageria ... H	84,000	8⅜d	109,500	8¼d
Sirisande ... L	79,500	6d	78,000	5½d
Stinsford ... L	91,500	5⅝d	104,500	5⅝d
Stonyhurst ... HM	58,500	6⅝d	66,000	6⅜d
St. Andrew's (Dimb H	98,500	8⅝d	57,000	8⅜d
St. Leys ... H	58,000	6⅝d	65,500	7⅛d
St. Margarets ... H	62,500	8¼d	63,500	8d
South Wana Rajah ...	97,000	6⅝d	121,000	7⅛d
Shannon ... HM	69,000	6½d	84,500	6⅜d
Sutton ... H	87,500	10⅞d	108,500	11⅛d
Stisted ... L	96,500	6⅝d	101,500	6½d
Scrubs ... H	50,000	7⅛d		
Taunton ...	84,500	6d	65,000	5¾d
Tebuwana ...	73,000	5⅝d	65,000	5¾d
Tientsin ... H	80,500	7¼d	142,000	7¾d
Uma Oya ... M	69,000	6½d	54,500	7⅝d
West Fassifern ... H	90,500	7¼d	69,000	7¾d
Warriapolla ... M	50,000	6⅛d	64,000	6d
Westward Ho ... HH	97,000	9d	71,000	8⅝d
Wattawella ... M	87,000	6¾d	71,000	6¾d
West Haputale ... M	97,000	6⅝d	110,500	6⅞d
Wigton ... H	84,500	6¾d	162,000	6⅜d
Wellington ... H	61,000	7⅞d	58,500	7⅞d
Weymouth ... L	63,000	5¾d	64,500	5¾d
20,000 to 50,000 lbs.				
Acrawatte ... HM	38,000	6⅝d	54,500	7⅛d
Avoca ... H	23,500	7d	28,500	7d
Atherton ... M	46,500	5¾d	55,000	5⅜d
Agra Oya ... HM	24,500	6⅛d		
Beauvais ... H	37,500	6¾d	34,000	6¾d
Beverley ... L	25,000	6¼d	84,000	6d
Bramley ... H	32,500	6⅞d	62,000	8⅛d
Craigie Lea ... H	38,000	6⅞d	26,500	6⅜d
Coreen ... H	26,500	7⅛d	23,000	7d
Dalukoya ... H	26,500	6⅛d	58,000	6½d
Delta ... H	32,500	5½d	168,500	6d
Dewalakanda ... L	34,500	6¼d	167,500	5⅜d
Dunnottar ... H	23,000	7⅛d	27,000	6½d
Eladuwa ... L	31,500	5d	25,000	4⅝d
Findlater ... HM	30,000	6¼d		
Gantenne ... M	21,000	5½d	20,500	4⅞d
Glendevon ... H	39,500	7½d	26,500	9¼d
Gonavy ... H	28,500	6¼d	50,500	6½d
Hornsey Estate Co H	32,500	6⅞d	25,500	8¼d
Hillside ... M	48,000	6¼d	23,000	7¼d
Hittuwellatenne ... HM	27,000	6⅜d		
Hiralouvah ... HM	27,500	5½d		
Idulgasheena ... HM	41,000	6½d		
Indian Walk ... L	48,000	5⅛d	62,500	5d
Kallugalla ... HM	38,500	5⅜d	36,000	4⅞d
Kallebokka ... M	29,000	7⅛d	88,500	6⅜d
Lamiliere ... H	34,000	6¼d		
Lauriston ... HH	42,500	6½d	35,000	7⅛d
Moray ... H	48,000	6¾d		
Manickwatte ... H	39,500	6⅛d	20,500	6d
Monte Christo ... M	26,000	6⅜d	36,000	5¾d
North Cove ... H	37,500	7¾d	78,000	8d
Norton ... HM	47,500	6⅜d	53,500	6⅛d
New Valley ... H	26,000	6⅝d		
Ottery ... H	28,500	5⅝d		
Ohiya ... H	48,000	6⅞d	41,500	6⅞d
Old Haloya ... M	30,000	5⅜d	32,500	5¾d
Oakwell ... H	24,500	6⅛d	21,500	6⅜d
Pondappe ... HM	29,000	5⅞d	33,000	5½d
Rajawella ... L	32,000	6⅛d	43,000	5¾d
Rangweltenne ... HM	26,000	5⅝d	66,000	5¼d

		1902 About lb.	Av. price per lb.	1901 About lbs.	Av. price per lb.
Sinnapittia	M	30,500	6¼d	30,500	6d
Stellenberg	H	21,000	6⅝d	28,000	6⅛d
Stubton	M	21,500	5¼d	42,000	4¾d
Summerville	M	44,500	6⅜d	49,000	5⅛d
Theresia	H	48,500	6½d	135,000	8⅛d
Udabagie	L	36,000	6⅝d	64,500	5¼d
Vicartons	HM	48,500	5⅝d	50,500	5½d
Wiltshire	HM	26,000	5½d	15,500	5⅝d
Weemalle	M	29,000	5⅞d	15,000	6¼d

Weekly Public Auction of Ceylon Tea during 1902 with average price realised :—

Week ending.	Number of Pkgs. offered in auction.	Av. price per lb.	Av. price per lb. for corresponding week 1901.	Week ending.	Number of Pkgs. offered in auction	Av. price per lb.	Av. price per lb. for corresponding week 1901.	Week ending.	Number of Pkgs. offered in auction.	Av. price per lb.	Av. price per lb. for corresponding week 1901.
Jan. 4	10,660	7·60	7·10	May 3	18,600	6·55	6·65	Aug. 30th	29,900	6·50	7·00
,, 11	21,340	7·50	6·75	,, 10	27,640	6·50	6·55	Sept. 6th	27,340	6·50	6·95
,, 18	32,400	7·40	6·60	,, 17	26,900	6·60	6·45	,, 13th	26,500	6·50	7·15
,, 25	25,000	7·50	7·00	,, 24	no sales	—	6·60	,, 20th	25,000	6·40	7·60
Feb. 1	27,240	7·30	6·50	,, 31	30,250	6·75	no sales	,, 27th	16,700	6·75	7·95
,, 8	28,450	7·10	6·80	June 7	30,800	6·70	6·50	Oct. 4th	25,690	6·65	8·00
,, 15	25,500	7·10	6·00	,, 14	29,000	6·65	6·45	,, 11th	20,100	6·80	7·80
,, 22	23,000	6·90	6·30	,, 21	26,600	6·55	6·35	,, 18th	19,840	7·25	7·80
March 1	25,760	7·15	6·50	,, 28	no sales	—	6·35	,, 25th	22,580	7·40	8·05
,, 8	21,500	7·15	6·50	July 5	27,200	6·20	6·30	Nov. 1st	22,100	7·20	8·20
,, 15	25,000	7·15	6·50	,, 12	33,300	6·00	6·45	,, 8th	16,000	7·25	7·90
,, 22	23,200	7·10	6·70	,, 19	32,500	6·05	6·25	,, 15th	15,725	7·80	7·65
,, 29	24,800	7·00	7·00	,, 26	34,000	6 10	6·50	,, 22nd	16,000	7·80	7·60
April 5	no sales	—	7·40	Aug. 2	29,336	6·30	6·50	,, 29th	17,600	8·15	8·00
,, 12	26,500	6·90	no sales	,, 9	no sales	—	—	Dec. 6th	17,500	7·60	7·55
,, 19	28,300	6·85	7·35	,, 16	29,900	6·30	6·70	,, 13th	17,000	7·80	7·55
,, 26	23,600	6·65	6·90	,, 23	28,960	6·50	6·65	,, 20th	19,900	7·80	7·55

DISTRIBUTION OF CEYLON TEA.—The total Exports from COLOMBO in 1902 amounted to 149,000,000 lbs. against 146,726,000 lbs. in 1901, and 148,569,477 lbs. in 1900; of this total 103,656,000 lbs. were shipped to the UNITED KINGDOM against 106,911,800 lbs. in 1901, and 114,229,650 lbs. in 1900. The following table, taken from Messrs. Forbes and Walker's compilations, shews the distribution from COLOMBO for the past four years.

Year.	United Kingdom.	Russia.	Other Countries in Europe	America & Canada.	Africa and Mauritius	Australia.	India.	China and Singapore.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
BLACK 1902	103,017,958	12,423,741	1,531,953	4,361,558	710,066	18,907,720	824,826	4,492,304
GREEN ,,	638,330	127,115	—	1,963,892	2,535	75	35,635	6,340
1901	106,911,806	9,498,801	1,480,124	3,654,105	412,225	20,696,995	1,108,043	2,963,967
1900	114,229,649	8,959,784	1,319,667	4,112,208	384,991	17,434,374	1,126,949	1,001,855
1899	103,948,124	3,949,740	885,051	3,080,002	388,487	15,606,833	567,616	1,468,303

Distribution of BRITISH IMPORTS of CEYLON Tea during the past four years, taken from the BOARD OF TRADE RETURNS :—

Year.	Home Consumption.	To Countries in Europe (chiefly Russia).	To U.S. of America.	To British N. America.	To Other Countries.
1902	85,540,878 lbs.	8,221,979 lbs.	2,398,438 lbs.	3,120,456 lbs.	3,611,472 lbs.
1901	90,825,521 ,,	10,023,370 ,,	2,504,299 ,,	2,390,894 ,,	3,154,105 ,,
1900	92,470,019 ,,	8,487,968 ,,	987,500 ,,	2,131,367 ,,	2,168,585 ,,
1899	85,137,945 ,,	7,265,266 ,,	1,391,931 ,,	2,084,865 ,,	1,402,361 ,,

HOME CONSUMPTION of INDIAN and CEYLON Tea Compared with that of CHINA and OTHER COUNTRIES last year, five years, and ten years previously taken from the BOARD OF TRADE RETURNS :—

	1902.	Per centage of total.	1897.	Per centage of total.	1892.	Per centage of total
INDIAN ...	148,728,000 lbs.	58·45	124,500,000 lbs.	53·76	109,500,000 lbs.	52·88
CEYLON ...	85,541,000 ,,	33·62	85,500,000 ,,	37·00	63,100,000 ,,	30·46
CHINA &c.,...	20,171,000 ,,	7·93	21,370,000 ,,	9·24	34,500,000 ,,	16·66
Total ...	254,440,000 lbs.		231,370,000 lbs.		207,100,000 lbs.	

RE-EXPORTS of INDIAN and CEYLON Tea Compared with that of CHINA and OTHER COUNTRIES last year, five years and ten years ago taken from the BOARD OF TRADE RETURNS :—

	1902.	Per centage of total.	1897.	Per centage of total.	1892.	Per centage of total.
INDIAN ...	13,922,000 lbs.	30·60	5,497,000 lbs.	15·04	3,762,000	10·11
CEYLON ...	17,352,000 ,,	38·15	10,502,000 ,,	28·74	3,448,000	9·26
CHINA &c., ...	14,216,000 ,,	31·25	20,547,500 ,,	56·22	30,014,000	80·63
Total ...	45,490,000 lbs.		36,546,500		37,224,000	

LABOUR AND PRODUCTS IN BRITISH CENTRAL AFRICA.

We have received on the above subject an interesting letter from the Rev A Hetherwick, D D, head of the Blantyre Mission in British Central Africa. With regard to the suggestion that Central Africa should be opened up from the Nile to the Zambesi as a recruiting ground for native labour for the mines Rhodesia, the Transvaal, and the labour markets of the South African colonies, Dr Hetherwick writes :—"The proposal has caused grave anxiety here to all whose interests are bound up with the welfare and progress of the Protectorate of British Central Africa and its people. These are so closely connected with the labour supply of the country, that any attempt to draft natives, out of the Protectorate will be fatal to the very existence of the agricultural and commercial interests that have done so much to open up Central Africa to the pacifying and civilising influences of legitimate trade. At present all recruiting of natives for service outside of the Protectorate is forbidden by ordinance of his Majesty's Commissioner. This ordinance was enacted in view of the fact that the supply of native labour has in past years barely sufficed for local needs." The necessity of a railway across the Shiré highlands to set free for the agricultural industries of the Protectorate the labour now absorbed in transport work between the upper and lower Shiré rivers has at last been recognised by his Majesty's Government, and a concession granted to a private company for the construction of a line from Chiromo to Blantyre, which it is expected will be commenced in April next. "For the construction of this railway a larger amount of labour will be demanded than the Protectorate is able to provide. As I write, the cry from the transport and planting companies is for more labour. The Labour Bureau, the one organisation sanctioned by Government for the proper distribution of the available labour imported from the outlying districts, has on its books at the present moment demands for upwards of 5,000 which it is unable to supply. In such circumstances, to allow any of the labour to be drafted out of the country to the mines of the south, is to cripple most seriously the commercial and agricultural institutions which are at present struggling to maintain their foothold in the country. These institutions have invested during the past dozen years no small amount of capital. The three chief transport companies are valued at £330,000, while a new company which has secured the concession for the construction of the railway has been registered with a capital of £1,000,000. .... The necessities of the country itself demand the retention of the labour of its people for the cultivation of its soil and development of its own resources. Central Africa has no indigenous product such as will form a staple export. The supply of native rubber is exhausted, and so, too, is the ivory trade. Coal there is on the hills above Lake Nyasa and in the Lower Shiré valley. There is gold in the Machinga mountains on the borders of the Congo Free State. But the true wealth of the country lies in its soil. There are thousands and thousands of square miles of land along the river, valleys and over the countless hill slopes now lying waste and arid, waiting for the hoe and the spade or the plough. Given labour and capital, together with easy transport and direct shipping connection with the home markets, and these wastes might become fertile fields of cotton, tobacco, sugar, chillies, &c. Without its labour Central Africa will never be developed, will never become a self-supporting asset of our Empire. The climate forbids any hope of the utilisation of the white man in manual labour, and all hope of advancement depends on a sufficient supply of native labour being always assured. To remove the native from the country, which itself needs his labour so sorely, is to throw an insuperable barrier across the future progress of the Protectorate."—London *Times*, March 24.

BLUE HYDRANGEAS.—The cause of the blue coloration has been the subject of multiple discussion, but so great is the conflict of evidence, that it cannot yet be said any satisfactory conclusion has been arrived at. In a recent number of the *Revue Horticole* we find a statement to the effect that certain plants whose roots were in contact with a fragments of slate had fallen from the roof of mansion produced blue flowers. Elsewhere, where fragments of tiles were mixed with the soil, the flowers were of a rose colour. Here is another experiment which might be tried at Chiswick.—*Gardeners' Chronicle.*

AUSTRALIAN PEARLS AND MOTHER-O'-PEARL OYSTERS:

AN EAST AFRICAN ISLAND AS A CENTRE FOR PEARL FISHERIES.

AMERICAN RIVER PEARLS.

At the time we visited Fremantle and Perth and made a short tour through Western Australia, in September 1875, very little was known of the Australian Pearl Oyster Fisheries. The more extensive fisheries were entirely on account of the shells :—some of the Nickoll Bay Shells (specimens of which we lodged in the Colombo Museum being 6 to 7 lb. weight the pair, thickly coated with mother-o'-pearl and often with noticeable raised "blisters"—of which more anon. The Shark Bay Oysters, on the other hand, about three times the size of those of Ceylon, were fished or rather dredged, solely with reference to pearls. Here then we may reproduce some manuscript notes drawn up 28 years ago; but for some reason not given at the time in the *Observer*. They are, however, of some interest at the present time.

"At first, there was no expectation of finding pearls, and indeed very few were discovered in connection with the West Australian fisheries. The great impetus to the trade in pearls was given by the discovery by Mr. Mason, a jeweller in Fremantle that the raised blisters which are rather common on the nacre inside the larger mother-o'-pearl shells, usually enclosed pearls of great purity and value. This enterprising and skilful manipulator, with whom I had some conversation, assured me that he was first led to pick at these blisters which had never previously attracted attention, through the great scarcity of pearls such as usually came in from Shark's Bay. Peeling away at the blister he soon found that a very fine pearl was enclosed which could be removed without sustaining injury. Every blister was now an object of great interest and value. The secret soon oozed out and the trade in pearls became an extensive and valuable one. Occasionally large blisters or excrescences inside the shells, giving promise of enclosing fine pearls are found to be empty, But, the largest which have yet been seen in the market have been obtained from such blisters rather than from the fleshy body of the oysters. The best pearls got from the Shark's Bay oysters, I was told, averaged from 18 to 24 grains, while from the large Nickoll Bay Shells, pearls of 40 grains were the rule and some had been pricked out as heavy as 82 and 125 grains each. One of the finest pearls yet found is said to have been purchased for the Crown Princess of Prussia for the sum of £2,000 I was told of a small but select consignment of pearls recently sent to England by a private gentleman which was expected to realise a considerable sum, leaving a handsome profit. One pearl—double the size of a pea—was valued at £1,500. I heard of a dealer pestered at a time when pearls were not so much valued in Fremantle as they are now to buy a pearl by a man newly arrived from a Fishery. He did not care about it, but was importuned to give at least all the money he had about him—the encounter was in the street—and so he handed the large sum of 2d and received a pearl which afterwards proved to be worth over £100! A great many small and seed pearls are, of course, found and for these a ready market is found in England at so much per ounce. There is also a considerable proportion of yellow pearls. These are at present regarded as of little value; it being reported that they will not sell in London; but I found a rumour current that they were much prized in India. I could not say whether they are or not; but I have got one or two small specimens with me on which to get the opinion of competent judges. To get at any pearls in the oysters, the mode adopted is to boil down the flesh on the latter. Of pearls the quantity entered in the Custom-house as exported last year stand at a value of £6,600.

Since 1875, Saville-Kent has investigated —and he and others have written freely about—the Australian oyster fisheries. None of the Tahitian species, with black-edged shells, are found on the Westralian Coast.

There is an island some distance off the land from Portuguese East Africa which is believed to be surrounded by banks covered with Pearl Oysters, never properly fished—if fished at all. It was the subject of a Consular report some years ago, and with the South African war intervening, we do not know that any notice has been taken of it up to the present day.

It is not generally known that in America, pearls—and some of them very fine—are found in mussels in the rivers, just as in Scotland and Wales, mussels in the Tay and Conway have often yielded fine pearls. More than 10,000 dollars worth of pearls were sent from Wisconsin to New York in a few months of 1890-1; but the rivers there got worked out and now the States in which pearls are chiefly found are Kentucky, Tennessee, Arkansas and Texas. If limestone prevails near the rivers, it is noticed that pearls are more likely to be found. They are of all colours from pure white to that of a drop of molten copper. There are, of course, pearl-oyster fisheries off Southern California and west of Panama and attempts at culture have been made near the Gulf of California.

COFFEE, CARDAMOMS AND PEPPER IN COORG.

We are in receipt of a copy of the Administration Report on the Province of Coorg for 1901-2, with a note by Lieut.-Colonel Donald Robertson, C.S.I., Chief Commissioner of Coorg, in which he states :—"The province of Coorg is still suffering from the depression brought about by the deterioration of the coffee industry." To us it is wonderful that Coorg coffee has kept up so long as it has, and that there should still be 45,000 to 90,000 cwt. exported annually according to season. Coorg has an area of 1,500 square miles, a little more than our Western Province; but with a population of only 18?,000—not much more than there is within the Colombo Municipality,—the total revenue being under three-quarters of a million of rupees. The following extracts are of some interest to our

planting readers; more especially the reference to Cardamoms, Pepper and Orange cultivation taking the place of coffee :—

The extent actually cultivated with coffee (58,393 acres) declined by over two thousand acres owing to the relinquishment of ruined coffee gardens owned by native planters, though the area cultivated under European methods exhibited a slight extension. Some idea of the depressed condition of the planting community may be gathered from the fact that of the total holding under the coffee tenure only some 57 *per cent* is now actually under coffee, cardamoms and oranges having taken its place over an area estimated at some 12,000 acres, while another 31,000 acres consists of abandoned coffee and unplanted jungle. Special concessions and reductions of assessment have been found necessary in regard to large areas; during the year under report alone, such reductions were sanctioned in respect of some 1,700 acres and orders were awaited in regard to similar proposals affecting a further extent of 2,800 acres. Prices revived somewhat as compared with the low rates prevailing in the previous year, but the variation, in no case material, was more than neutralised by the unfavourable season, heavy rain in the blossoming time having affected the crop so seriously as to reduce the outturn to little more than half the normal figure.

The cultivation of cardamoms enjoyed no more favourable conditions. The outturn was normal, but prices continued at the low figure which has for years past practically ruined the industry, nor were the numerous reductions and remissions of assessment continued from previous years efficacious in reviving the prosperity of the cardamom growers, whose operations extend over an aggregate area of upwards of sixty thousand acres, of which, however, only a portion is actually cultivated.

The only other agricultural features of the year which call for notice are (i) the increased attention devoted to orange-growing and the cultivation of pepper, chiefly on or near estates formerly worked only for coffee, (ii) the fall to normal rates of the prices of the principal food-grains, and (iii) a reduction in the mortality among cattle. Seasonally, the period under report was on the whole normal.

For further extracts bearing on planting in Coorg, see page 744.

ECONOMIC PRODUCTS IN THE STRAITS.

EXTRACTS FROM ANNUAL REPORT ON THE BOTANIC GARDENS, SINGAPORE, FOR THE YEAR 1902.

PARA RUBBER.—The demand for seeds and plants of this fell off materially as many of the trees planted in the Native States and Malacca are fruiting now, and the planters are now supplying themselves. The number of seeds sold or otherwise distributed was 126,210 young plants. Owing to the drought the crop was very late and smaller than usual; experiments were made in tapping but were not completed as owing to the drought, the latex escaped very slowly and in small quantities. Experiments were made in manuring young plants in pots, with various kinds of manures, including lime, cowdung, burnt earth, poudrette, etc. The evidence, was in favour of burnt earth and cowdung; lime and poudrette seemed not to benefit the plants at all.

BRUCEA SUMATRANA.—This new dysentery drug was introduced to Singapore from Pahang in 1892, by myself, and its use in cases of dysentery described in the bulletin of this year. There was a fairly good demand for it, from varied parts of the world especially India, and a piece of ground was planted up with it. The shrub fruited in 6 months after planting, and grew very readily. A bag of ten pounds weight of seed was sent to Messrs Burroughs and Wellcome, for experiment.

Among the plants of economic value received during the year were two species of Anona from Mexico with edible fruit, Eugenia owariensis "Nsali" with eatable fruit, the Nyasa Land Coffee, and the "Masanda,"—an Artocarpus with edible seeds, and some Amomums from Uganda, the Rotan Segar, Calamus sp. from Muar, the best rattan in the Peninsula: Seeds of Bambusa spinosa, Dendrocalamus strictus and 16 bags of Swietenia Marcrophylla from Calcutta, Copernicia cerifera Wax Palm, from Guiana, Javanese vegetable seeds from Mr Cohen, American vegetable seed from U S A Department of Agriculture.

The chief demand for economic plants besides Para rubber, was for Fruit trees and Vanilla.

INSPECTION OF COCONUT TREES.

During the year notices to cut down infected trees were served on 238 persons and 1,039 dead trees and 35 piles of rubbish were destroyed. There were no prosecutions. The number of red beetles especially has greatly diminished in Singapore, so that it was sometime before I could get a couple for a correspondent in Madagascar who wished to see it.

FOR BOTANIC GARDENS, PENANG.

COCONUT TREE PRESERVATION.—The Inspector of coconut trees complains that in too many cases persons summoned for infringing the Ordinance are let off with a caution, or fined in so small amounts as to be non-deterrent. In view of the increasing importance of coconut cultivation, and the necessity for keeping the beetle in check, for which it has recently been found necessary to take steps in the Federated Malay States on the same lines as in the Colony, I think too lenient treatment is a mistake.

The number Notices, &c., issued are shown below

Name of District	No. of dead coconut trees destroyed	No. of pieces of Coconut Trunks destroyed	No. of heaps of Cattle Manure removed	No of heaps of Paddy-husks destroyed	No of Notices issued	Amount of Fines recovered $
Prov. Wellesley, N. District ...	480	2,770	168	89	383	15
Prov. Wellesley, C. District ..	149	1,089	103	54	185	83
Prov. Wellesley, S. District ..	49	231	35	22	85	Nil
Penang Island..	380	3,716	389	70	596	58
Total ..	1,058	7,806	695	235	1,249	101

PARA RUBBER.—Para Rubber still holds the field and bids fair to recoup Agriculturists some of the money that has been lost in other cultivations. The largest tree in the Waterfall Garden, of which mention has been made from year to year in annual reports, has been tapped for the seventh time, the yield of dry rubber being 2 lbs. 13½ ozs. which makes a total of 18 lbs. 7 ozs. from this tree in seven years, or an average of 2 lbs. 10 oz. per year; and I see no reason why this average should not be maintained or even exceeded without injuring the tree. According to a note in the Agricultural Bulletin, two of the oldest Para rubber trees in Perak that had not previously been tapped gave 50 lbs. of dry rubber at one tapping. Mr. Stanley Arden, Superintendent of Experimental Plantation Selangor, has just published his report on tapping of trees in various manners and at different ages, and I believe the conclusions arrived at coincide

in all material points with my own experiments, which though dealing with only a few trees have been spread over a much longer period. The extension of plantations is pushed on, especially in the Native States, and it is proposed to commence tapping this year on two Estates that I know of, but I fear that the return from very young trees will be disappointing after deducting cost of collecting.

RAMIE.—A short note on Ramie in the Agricultural Bulletin somewhat revived the interest in this fine fibre producing plant, and has resulted in eliciting some information that may be of practical value. A correspondent in Scotland who is thoroughly conversant with the methods of cleaning and preparing this fibre, and to whom a parcel of ribbons was sent for treatment, suggests that the kind we sent and which I believe to be the same that has been planted on the two or three estates in which the cultivation on ramie has been attempted on any considerable scale, is a very inferior variety which he terms black ramie. It is a very strong and quick growing form and on this account it has no doubt been selected in preference to others, but if our correspondent's views are correct this is its sole recommendation. We have in cultivation in the nursery here a smaller and shorter variety with hollow stems which will, I have little doubt give more than double the weight of fibre from an equal weight of stems as compared with the large growing kind. The nature of the stem too, I think, simplifies the decorticating process, for instead of stripping the bark from the wood which is never a complete process, there being always a certain amount of fibre adhering to the wood that cannot be removed with the bark, by simply beating the stems while in a green state and washing in water, every particle of fibre is obtained from this variety two pounds weight of green stems without leaves gave 4 oz. of roughly cleaned fibre which has been sent home to ascertain what further loss occurs in completing the process of preparing the finished article and the approximate value if shipped as per sample.

GUTTA PERCHA.—Gutta Percha trees growing in the Waterfall valley, from which a good crop of seeds was obtained in 1901, produced not a single fruit this year though one tree flowered freely. Import saplings both from Borneo and Sumatra are decided failures, and until seeds are obtainable the cost of forming large plantations is too great to justify the undertaking. This, however, is a matter to be dealt with more fully in a report on the Forest department which I have been asked by the Chief Forest Officer to write, and I merely refer to the subject here as the preparations of Gutta Percha plants for planting in the Forest reserves has hitherto been done in the Botanic Gardens.

C. CURTIS,
Superintendent of Gardens and Forests.

KANAN DEVAN HILLS, NORTH TRAVANCORE.

About 12 years ago, there was an account of a visit to these hills in the *Pioneer*. The country was then comparatively unknown and only a few estates had been opened out, principally with cinchona. This District known as the "High Range" is situated in the northern corner of Travancore near the British boundary, and is a portion of the Western Ghats from which it is separated by a barrier of precipitous mountains—the peaks of which are about 8,000 feet high, one of them, Anaimoody, being the highest point in South India —8,827 feet. These mountains shut in an area of about 300 square miles, consisting of hills and valleys ranging from 4,500 feet to about 6,500. Hidden amongst these hills are extensive forests, which until recently were the haunts of elephants and bison, whilst on the summits of the hills there are still large herds of ibex. Altogether there must be between 30,000 to 40,000 acres of forest, the remainder consisting of undulating grass hills and high mountain peaks. In every valley there is a small stream and the rainfall varies from about 250 to 100 inches, the portion lying to the west getting the full brunt of the south-west monsoon. About twenty-five years ago a concession for this District was obtained from the Travancore Government and was formed into a small company. A few experimental estates of

TEA, COFFEE AND CINCHONA

were opened out in different parts by the Company, and two or three independent planters also settled there, but owing to the inaccessibility of the place —it is even now 70 miles from the nearest railway station,—but few persons were attracted. Seven years ago, the whole of the concession was purchased by Messrs Finlay Muir and Company for a very small sum, about 65 per cent of the capital of the pioneer Company. A new company was then formed with a capital of £1,000,000 and operations were commenced on a very large scale. Altogether more than 13,000 acres have been planted out during this period, of which 11 000 acres consist of tea. The great drawback is the want of facilities of communication with the low country. Looking at the map the natural port of egress would seem to be Cochin, and although the western slopes of the Ghats present many engineering difficulties, it would have been quite possible to construct a road on that side. The Travancore Government, however, were not at first prepared to open a road, and have thus lost all chance of benefiting from the produce traffic which now finds its way to British territory. The two other points of egress from the planting district are to the north in the Coimbatore District, and to the west towards the South Indian Railway, running from Trichinopoly to Tuticorin. By the former route it is about 50 miles to the nearest town in the low country, Udamalpett, and from there as far again to the nearest station on the Madras Railway; whereas to the west it is only about 70 miles to Ammanayanaikanur, a station on the South Indian Railway. In both directions the only means of conveyance is by pack animals and cattle and the eastern slopes of the hills are so precipitous that it will probably never be possible to construct a cart road. By the route to the north it will be possible, and the Travancore Government has at last sanctioned and commenced a Ghat road to Udamalpett, to which town

THERE WILL SOME DAY OR OTHER BE RAILWAY COMMUNICATION

by means of a branch railway from the Madras line to the South Indian Railway. Some years, however, must elapse before this project is carried out and in the meantime the produce is for the most part despatched by the eastern route. The hills are almost entirely uninhabited except by Maliyalies, and the whole of the labour employed has to be brought up from the Madras side. Altogether about 10,000 coolies find employment on these hills for about 10 months in the year. The produce sent down amounts to about 3,000 tons annually and probably about an equal amount of rice and food stuff has to be brought up for the consumption of the coolies. To carry all this traffic by head loads and pack animals would be well nigh impossible, and therefore at a very heavy cost the Company has constructed a tramway from its headquarters station Munnar to

the top of the Eastern Ghat a distance of 22 miles. The line is on the Ewing Mono-rail system, each truck carrying one ton and drawn by a pair of bullocks. The gradient is a fair one (1 in 40), but whatever the cause may be, it does not give entire satisfaction, the balance wheel being said to cut up the road way so much as to involve more expenditure than a double rail would cost. The terminus of the rail is at a pass between the enclosing mountains and is said to be 6,000 feet above the sea. From here the produce is sent down rather more than 4,000 feet by a wire rope worked by a turbine from the bottom. The rope is in two sections, the power being applied in the middle station by means of two dynamos (the second being in case of any accident to the first). The rope, an endless one, working round vertically placed wheels at both ends, carries about 150 loads either way each day, each load being 180 lb. The loads revolve with the rope at the rate of two miles an hour and are fastened to the rope by an ingenious grip which fastens automatically on to the rope and is held in position by the weight of the load. When the load reaches the terminus at the end, it is met by a horse-shoe-shaped rail which automatically lifts the load off the wire and releases the grip. The wire is ⅝ inch in diameter and is capable of carrying 200 lb. At the middle station the two sections are connected by cog wheels, so that the load from one section can pass on to the other by the same contrivance. The turbine at the bottom is worked by a 9-inch pipe with a lead of about 1,200 feet and a fall of about 800. Here again there are double machines in case of accident, which are capable of working up to about 50 H. P. although the actual amount in use was only 20 H. P. From the lower terminus there is a cart road of 9 miles descending about 1,000 feet to the low country and from thence a good road 45 miles to the Railway Station of Ammayanaikanur. To construct this

TRAMWAY WIRE ROPE

involved an expenditure, I was told, of about £50,000 and it not only pays an interest on the capital expenditure together with all working expenses, but also effects a saving of about 4 pie in the rupee on what the cost would be by ordinary means of traffic. The great advantage, however, is that it makes it possible to get the produce away and to bring up the food supplies without having to depend upon coolies and pack bullocks. Of course, all the money spent in opening out this large area, and in the employment of labour has not been without advantage to the Travancore Government although the produce finds its way to British outlets. This is proved from the fact that the district, which was formerly an unproductive wilderness, is now made the headquarters of a Revenue and Magisterial official—a European officer,—and not only covers the cost of establishment but brings in a revenue of about R70,000 a year. All this productiveness, however, is at present confined to the forest land. There are at least 150 square miles of grass land which are absolutely unproductive and no attempt has been made to bring them under cultivation. It remains to be discovered what cultivation would be best suited to this land, but with a country so well watered, and so favourably situated for climate and rainfall, it should not be impossible to find a remunerative crop, and it would seem to be the ideal spot for a European colony. The district now

CONTAINS ABOUT SIXTY EUROPEAN PLANTERS,

including the Company's supervising staff and a few independent planters, survivors of the pioneers. Some of these are married and are scattered about the district in outlying estates, most of them beautifully situated as regards position. At the headquarter station Munaar there is a large tea factory, an association store, a club, and gymkhana ground. There is, moreover, a Volunteer detachment, and finally during my visit a Masonic Lodge was opened. The District has evidently a future before it and shows what can be done by the judicious employment of capital and energy. The original shareholders have, I was told, already received back in dividends and bonus about 60 per cent of their capital and now that the estates are coming into full bearing there should be a permanent dividend, though of course every thing depends upon the price of tea, which at present is the staple product. Given an average net profit of £5 per acre, which does not seem an extravagant estimate, the return from the estates already opened out should give 6½ per cent on the total capital. This is entirely apart from the latent possibilities of development and with improved facilities of communication and cheapness of transport there can be little doubt that there is a wide field open for further progress.—*Pioneer*, March 14. J. D. B. G.

PLANTING IN COORG.

(*From the Official Report for 1902.*)

As an indirect consequence of the depression in coffee, there has been a growing tendency to devote greater attention to the cultivation of rice. The extent grown with this crop (79,930 acres) expanded during the year by nearly two *per cent*, the harvest being a good average one notwithstanding an unusually long break in the monsoon. *Per contra*, dry cultivation, to which much less recourse is had in Coorg, diminished; the total extent (14,512) acres), of which almost all relates to rági, was some 13 *per cent* less than in the previous year, when the area under this crop was materially expanded by the irregular practice of *kumri* cultivation which has since been prohibited.

There are two main outlets to the Western coast through the valleys of the Sampaji and Perambadi Ghats. The high roads to the ports of Mangalore and Tellicherry run through these passes, which about thirty years ago were covered with dense forest. This gave place to coffee. Coffee succeeded for a few years and failed, the rainfall being so heavy that it washed away the soil no longer protected by the forest. Lanthana (*lanthana aculeata*) a shrub introduced in 1863, has now taken the place of the coffee and has overgrown the sides of these hills turning them into an almost impenetrable bush.

The evergreen forests on the Western Ghats contain poon (*calophyllum elatum*), ebony (*diospyros ebnaster*), ironwood (*mesua ferrea*) cedar (*cedrela toona*), sampigè (*mischelia champaca*). Owing to their inaccessibility, these forests are very little worked. The right of cultivating or collecting cardamoms in them is leased out, the area of the leased blocks known as cardamom 'males' or hills being no less than 35,240 acres. The cardamoms (*elettaria cardamomum*) are grown in small clearings, the size of which is strictly regulated in order to prevent injury to the forest. There is but

little regular cultivation, and the growth is for the most part a spontaneous consequence of the clearance of timber and undergrowth and the breaking up of the soil. Bamboos are cut in the valley of the Cauvery and exported to Mysore. Fine clumps of a large variety are met with in the extreme south of Coorg near Kutta and the foot of the Sampaji Ghat.

To a considerable section of the population, the cultivation of cardamoms was formerly second in importance only to that of rice. During the last 20 years, however, the price of this product has fallen to such an extent that it now scarcely pays to collect the berries, and many well-to-do families, who depended chiefly upon their cardamoms ma'es for the purchase of articles required to supplement the produce of their rice fields, have been greatly impoverished.

Coffee is extensively produced in Coorg, and its cultivation forms the chief industry of the Province, every one, European and Native, being more or less interested therein. During the past decade however low prices combined with the ravages of leaf disease and borer have materially affected the industry with the result that many estates have been altogether abandoned and the majority hardly pay their way. The plantain (*musa paradisiaca*), of which there is a wild kind in the hill jungles, is commonly grown all over Coorg in the vicinity of native dwellings. The Coorg oranges are celebrated, and in South Coorg are as abundant as the plantain. Among dry grains the chief are ragi (*cynosurus corocanus*), awaré (*dolichos lablab*), togari (*cajanus indicus*) and horse gram (*dolichos uniflorus*); these are mainly grown in those parts of the Nanjrajpatna taluk which adjoin the left bank of the Cauvery.

The area shown in the statement under orchards and garden produce is made up of 281 acres arecanut and 2,165 acres of orange groves. The assessment ordinarily levied on orange cultivation, which has materially expanded of late years, is from As. 8 to Rs. 2 an acre. The expansion is attributable to the gradual decline in the interest taken in coffee planting. An incidental consequence of the same factor is the impetus given to the cultivation of pepper. No statistics are available, but it is an undoubted fact that considerable areas have been cultivated with pepper on estates formerly worked only for coffee.

Coffee suffered severely from unusually early blossoming showers as also from the reaction after the abnormally heavy crop of the previous year. The combined effect of these causes was an outturn roughly estimated at 2,250 tons, or little more than half the normal crop. The price of coffee revived somewhat from the low rates obtaining in the previous year, but the variation was so slight as to have no appreciable effect on the industry. The cardamom crop was also very poor; though slightly better than in the previous year, the outturn was only estimated at the normal figure, nor was there any compensatory improvement in prices.

PLANTING IN BRITISH CENTRAL AFRICA.

A FORTUNE TO BE MADE IN TOBACCO —AND TEA.

(? FOR LOCAL CONSUMPTION) AT 3S PER LB.

A young Ceylon planter, who recently went across to the Nyassaland Districts, sends us a chatty and cheerful letter from which we quote:—

25th January, 1903.—I arrived in Chinde after a fortnight's pleasant journey from Ceylon. The river Zambesi being so low, the paddle boat could not travel farther than the first Wooding Station, after which I had to go by small barge—no house boats being available. It took 10 long weary days from there to *Chiromo.* 13 natives paddled the barge, stopping at night time at different villages *en route.* The river got worse and worse until at Chiromo, I was told that I should have to travel by *Machilla team*: —that is, being carried by natives to Blantyre. I did not care for the idea, as the forests were swarming with lions, leopards and other wild beasts and only a short time since Mr Ray the Manager of Messrs Sharrer's Zambesi Traffic Company had a visit paid to his house by a full-grown lion. Well, I travelled all night through the forest—walking every now and again to stretch my legs; the natives meanwhile made as much noise as possible and imitated the lion to scare them away. They carry varieties of skins made into water bottles across their shoulders and run with great speed.

Thankful I was when "Chiromo" was reached after a journey lasting six weeks from the time I left Colombo. On the way up the Zambesi river I visited Mrs Livingstone's grave: she is buried near the Jesuit Missionary Station but they had not attempted to keep the grave in good order. It took 2½ days from Chiromo to Blantyre. The river has never known to be so low before by the oldest inhabitants and the river is swarming with Crocodiles and Hippopotami, but they did not prevent me from having my swim every evening coming up, a rather unwise thing to do, but after sitting huddled up in a barge all day in a sweltering hot sun one would risk anything, for a cool bath. I am 45 miles from Blantyre, up the hills and not far from Henry Brown, who used to be in Ceylon. Coffee, as you no doubt know, has had its day. Many firms have been ruined by it and are now all going in for *tobacco* and *tea* which pay a large profit at present. As for the land and soil, it is simply marvellous—not like Ceylon "clay", but rich dark soil. To give you an idea, the tea that Mr Brown planted two years ago I said at once when asked was "*five years old.*" Another Ceylon man who saw it said the same thing. The labour is so cheap I could hardly believe the wages the natives receive. As for the climate being made out to be so treacherous, that is simply ridiculous. Where I am at present is quite equal to Halton. The only thing is: food is very scarce; but when British Central Africa is properly known it will I am sure be the centre of Africa for growing Tobacco and Tea. Men with capital, not afraid to speculate out here, can I think make a fortune in a short time—very different from Ceylon in labour and competition. Although I was laughed at for coming over here to grow *coffee*, let me tell you at once that *coffee* is not reckoned on in future: *tobacco* and *tea* only. The tobacco grows here like a weed and I am planting 50 acres up this year and also *tea* is coming on splendidly, in fact better than I ever saw it in Ceylon. All that is required is machinery and that is coming as soon as enough tea is in bearing. At present I have to manufacture this estate's tea by hand and a steady sale is 3s per lb.—not *so bad.*

THE COTTON SHORTAGE: AND GROWTH IN NEW CLIMES.—Our weekly commercial report from Mincing Lane has been steadily urging the growing of cotton in Ceylon in view of the shortage of supplies to British sources. We should be glad to know if independent experiments are being made. It will be seen that Cyprus has sent some excellent samples, and that cultivation in that island is likely to be encouraged.

CINNAMON IN LONDON.

The particulars received by a recent mail confirm and explain the commercial telegram which we published, bearing on the first sale of the current year of Cinnamon held in London. The February auctions do not generally lead to much competition, as buyers lay in large stocks in anticipation of Christmas, which help the November sales. On the present occasion there were two reasons for expecting a good demand. The last quarterly sale of 1902 had a short catalogue—only two-thirds of what had been offered the previous November; and the offerings were all sold at advanced prices The second reason was that the total export of Quills for last year fell short of that for 1901 by about 200,000 lb. and since then the exports had been restricted. As a result, the quantity offered was exceptionally small —less than one half of that brought to the hammer at the corresponding sale last year; and yet the demand was slack, and the competition spiritless. With all that, there is not much to complain of in prices. Though "Worked" spice experienced a drop of 1d., it was from a point which had seldom been reached in recent years; and 1s. 5d. to 1s. 8d. for Firsts, and 1s 4d. to 1s. 6d. for Seconds, is decidedly good. What is more, the whole of the small quantity offered was sold under the hammer. Though about one-fifth of the "Unworked" Cinnamon remained unsold, the prices realised for its Firsts and Seconds were not only a penny higher than at the November sales, but also, we believe higher than "Unworked" had ever before realised. Altogether, the prices which ruled must be regarded as satisfactory, though the tone of the market was dull. It has not recovered yet from that state; and if prices are to be maintained the quantity produced will have to be moderate. But, after all, the United Kingdom now takes only about one-sixth of our Exports, Germany taking about double that quantity, though the best spice which the Island produces continues to go to London.

The Report of the sale from the leading spice firm, from whose notes we usually quote, will be found on this page.

COTTON IN CYPRUS.

The occasional shortages in the American supply of raw cotton have for some time past been the subject of a good deal of interesting discussion. The question of freeing the English mills from the exigencies of American speculators by substituting a supply of raw cotton produced within our own confines is an exceedingly important one; and the Government of several British colonies, notably of the Gold Coast, Lagos, and Sierra Leone, have professed a strong interest in the movement, and declared their willingness to undertake series of experiments with a view to the cultivation of cotton within their boundaries. This being the case, it is not a little surprising that Cyprus—a colony so near home, and one which has, moreover, for centuries been known as a cotton-producing country of no small reputation—should up to the present have been apparently overlooked. The Italian traveller and writer, Mariti, relates that as early as the 16th century, under Venetian rule, 30,000 bales, or 6,600,000lb., of cotton were exported annually from the island. Of more recent years the export has been much lower, but in spite of the depopulation and impoverishment of the island while under Ottoman rule, still eminently respectable. In 1865 it was put at 1,800,000lb., in 1866 at 2,065,000lb., and as late as 1871 at 1,120,000lb. Since the British occupation the yield has further decreased, the average for the first 12 years being 854,554lb., and for the last 11 years 550,664lb. This decrease is to be attributed to three causes—namely, (*a*) swarms of locusts, (*b*) scarcity of water, and (*c*) want of good seed, Thanks to the energetic action on the part of the island Government, which has spared no expense to benefit the country in these respects, locusts are at the present time practically extinct in the colony, and during the last two years large areas of cultivable land have been laid under proper irrigation. The want of good seed continues, however, to make itself felt. Mr John Butterworth, examiner in cotton manufactures to the City and Guilds of London Institute, in his report on some samples of cotton which were sent to the Indian and Colonial Exhibition of 1887, comments very favourably on the colour and staple of Cyprus cotton which he considers equal to the best Smyrna. Practical experiment has demonstrated that by a judicious use of American seed the staple of Cyprus cotton can be materially improved, and in irrigated lands the American varieties of cotton thrive far better than the native one—that is to say, they produce more and better quality of cotton. What is needed for a few years is new seed in sufficient quantities for distribution at a low price to native cultivators. Let but the Manchester Association devote a little attention to this object and in a very short time the output of Cyprus cotton will again reach a figure more than respectable, and the Lancashire market should experience no difficulty in securing practically the whole supply.—London *Times*, Feb. 23.

CINNAMON QUARTERLY SALE.

9, King William Street, E.C., London, 24th Feb., 1903.

CINNAMON.—The first auctions of the year were held yesterday, when the small total of 567b was presented, comprising 116b "worked" good and fine quill, and the remainder "unworked" common to fair medium. At this period last year 1,311b Plantation were offered and 1,178b in November last.

There was a fair attendance of Buyers whose requirements for the time being were apparently fairly all ordered, as competition was spiritless throughout, and only about 415b changed hands in the room and immediately afterwards.

The "worked" spice was all sold, but at prices about 1d per lb. lower on average than at the November sales. "Unworked" for some of the best marks ruled dearer for firsts and seconds, but cheaper for the lower grades.

"Worked" firsts 1s 5d to 1s 8d, seconds 1s 4d to 1s 6d, thirds 8d to 1s 4d, fourths 6d to 11d per lb.
"Unworked" firsts 5½d to 1s 1d, seconds 5d to 11d, thirds 4d to 9½d, fourths 4d to 8d per lb.

CHIPS, &c.—947 bags offered and about 800 bags are sold at lower prices. Cuttings &c. up to 9d and good to fair Chips 3d to 2½d per lb.

BARK.—300 bags brought in. No bids at ¾d per lb. At the Spice Sales on 4th instant 1,301 bags "Wild Bark" were offered and cleared "Without reserve" at ½d to ¾d per lb.

STOCKS.—Ceylon	2,606 b	against	3,420 b	1902
Wild	1,817 b	do	2,282 b	do
Chips	1,801 b	do	2,318 b	do
Wild Bark	5,605 b	do	7,663 b	do

NEXT SALES, May 25.

INDIA AND THE CENTRAL ASIAN TEA TRADE.

Mr. G Macartney, British representative at Kaskghar. writes:—An examination of the Leh Office Trade Statistics for 1900-1901 would show that in that year the total value of the trade

carried on *via* Ladak between India and Yarkand had increased by about 1¼ lakh of rupees as compared with the previous twelve months.

Trade in Indian tea during 1901 02 does not strike one as having made any special progress—at least, if any has been made, it does not appear to have been proportionate to the general expansion of imports. The slackness is the more extraordinary because, as explained in this office 1900 1901 Trade Report, the quantity of Chinese tea, on account of transport difficulties in Kansu, has been diminishing in the market here, resulting in a gradual rise in price. The Indian tea brought to Yarkand last autumn consisted mainly of the three following sorts:—

'Green'—Forming about ⅔ of total import price at Palampur about 7½ annas a seer. All obtain from native gardens.

'Bohea'—Forming about ⅙ of total import Price at Palampur about 4 annas a seer. All obtained from native gardens.

'Black'—Forming about ⅛ of total import Price at Palampur about 6½ annas a seer. Partly from native, and partly from European gardens.

It may be noted from the above that whatever be the trade in Indian tea with this country, it is almost exclusively in the hands of native growers, the European planters of the Indian Tea Association having apparently only had an infinitesimal share in it.

Regarding the present demand for Indian tea, the following information given by traders may be of interest:—The 'Green' tea is mostly taken by the Chinese, and penetrates to regions as distant as Kuchar and Ili. This preparation is not in special request with the natives of Turkistan, who prefer the Chinese brick tea. Since, however, the latter has risen in price by reason of diminished supply, Indian 'Bohea' has gained somewhat in favour in Yarkand, where it is said a few Tunganis buy it up secretly, and mould it into bricks for native consumption. The reason why the 'brick' form is adhered to is that the people are accustomed to it, and that it permits of adulteration. A few maunds of Chinese tea, received *via* Bombay, came to Yarkand in the year under notice. The importation of this tea, though never large, has been a persistent feature in the Indo-Yarkand trade during at least the last decade. One cannot help remarking the sense of irony in the fact that, whilst our planters are trying to gain a market in these parts for their tea by competing with Chinese growers, our own traders should, all the while, assist the latter by importing the Chinese production.—*Indian Daily News*, March 17.

BORDEAUX MIXTURE.

Bordeaux Mixture if required for application to leaves or young branches should be made as follows:—*Materials.*—(1), 8 galls. water; (2), 1 lb. copper sulplate (blue stone); (3), ⅔ lb unslaked lime *Directions*—(1). Put 7 gallons of the water into a tub, reserving one gallon to mix with the lime; (2). Put one lb of blue-stone into a small muslin or cotton bag and suspend it by a string to a piece of wood placed across the tub, so that the bag with the blue stone is just a few inches below the surface of the water; (3). Allow it to remain for about six hours or until all the blue stone is dissolved then remove the bag and pour in the lime which has already been mixed with the other galllon of water. The formula given in pamphlet No. 17 of the Imperial Department of Agriculture is as follows:—(1), six lb copper sulphate; (2), four lb unslacked lime; (3), fifty gallons water.—*N. B.*—When required for dressing the old stems of trees so that the leaves or young branches are not touched by it, the solution of copper sulphate may be stronger and sufficient lime may be used to make a thin white wash. This mixture is usefully employed when trees are attacked by any kind of fungus, and it has also been strongly recommended for the removal of epiphytic growths.—*Trinidad Bulletin* for October 1902.

THE CULTIVATION OF CASSAVA—ITS CONVERSION INTO SUGAR.

I think the public of Jamaica owes a heavy debt of gratitude to Mr Robert Thomson for the great revival of the interest which is now taken in the cultivation of cassava in this Island. His interesting pamphlet relating to what has been done in Florida has aroused a well-merited attention, which it is to be hoped will not be allowed to subside without profitable result.

In the course of my professional avocations, I see much cassava growing in what would appear to be its natural haunts, namely Clarendon and Saint John. The long continued dry weather in these districts, lasting from August through September into October—for the autumnal rains have not yet fallen—has caused a retardation in the maturing of the crop. Cassava should have come into the market fully two months ago, and the tubers that are now being lifted are small in size, and so stringy by the development of fibro-vascular tissue at the expense of the starch, that they are scarcely fit for the table, However, the peasant-women continue their preparation of starch, and this article will soon make its appearance in the markets.

Cassava starch is much undervalued in the island as an article of infant's food. Prepared, with boiled milk it is highly digestible and should be freely given to young children. Mixed with even a small proportion of ground malt its digestibility is increased, and it then vies with more expensive articles that are much advertised. To make a market for this starch, it should, I think, be converted into starch-sugar, or glucose. There is a demand for glucose which the Americans have found out, for brewers use it in brewing ales and beer, and confectioners employ it in preserving fruits, in making pastry, barley sugar and other sweet-meats. In the very valuable work on Sugar growing and Refining by Messrs Lock, Wigner and Harland, there is a chapter of some twenty two pages on starch-sugar and glucose, giving very clear directions as to the different processes in use for its manufacture, some of which are very simple, requiring no great outlay for apparatus. The most simple apparatus is that known as Anthon's, Sulphuric acid and bone-black are required in the process, but the other substances we have here in abundance, namely, starch—produced more cheaply than corn-starch can be produced in the Western States of America—quicklime and chalk, the latter existing here in the form of white marl,

What follows is quoted from the work mentioned :—" In Anthon's method for producing three to four cwt of starch sugar per twenty-four hours, the ingredients for boiling are :—

370 lb of air-dry starch.

11 lb of sulphuric acid of 66 degree Beaume.

3 lb and seven-tenths of bone black.

2·46 to 3·70 lb of pure burnt lime.

4·95 lb of prepared chalk.

The apparatus is very simple. It consists of a boiling pan, a vat of about eight and half bushels capacity, with a wooden spigot at the bottom, a Taylor's filter in a case four feet high and two feet wide and deep, arranged for the reception of nine bags, each about two and half feet in length, and six to seven inches in diameter when filled, and set up so that the thin liquor can be drawn off into a cask. The bags are made of grey linen of prime quality and of uniform weft and are fastened over funnels placed in the bottom of a syrup-containing box with a strong cord." It is stated in America the cost of manufacture is about one cent (half pence) a pound. Some 26 to 32 lb are made from a bushel of corn. It is sold by the manufacturers at three to four cents one penny to twopence per pound.

The authors quoted also give directions for the preparation of starch-sugar on a larger scale by Anthon's process, which it is stated, furnishes excellent sugar. They also state that starch-sugar is principally used for manufacture of table-syrups, candies, as food for bees, for brewing, and for making artificial honey. All soft candies, waxes, and toffies, and a large proportion of stick-candies and caramel are made of starch-sugar syrup. Small quantities of starch-sugar syrup are used by vinegar makers, tobacconists, wine-makers, distillers, mucilage-makers, and perhaps for some other purposes.

All readers interested in the proper utilisation of cassava in Jamaica should consult the valuable work from which I have partially quoted.

Old Harbour, Oct. 25, 1902. JAMES NEISH, M D.

—*Journal of the Jamaica Agricultural Society.*

WEST INDIAN COTTON CULTIVATION

A RICH FIELD IN PROSPECT.

Sir Alfred Jones has just received from Dr Morris, of the Imperial Department of Agriculture, Barbados, a letter stating that they had already 600 acres under cotton cultivation in different portions of the West India islands. In St. Lucia, Antigua, Montserrat, and St. Kitts encouraging results have attended the experiments, proving that the West Indies offer a rich fields for cotton growing. The revival of interest in West. Indian cotton cultivation, like that of the West African, is very marked in Lancashire. Further larger shipments of American cotton seed have been sent to the Governor of West African colonies as well as to Sir F Lugard, who is displaying great interest in regard to cotton growing.—London *Times*, March 2.

RUBBER IN UGANDA.

In a report on exotic plants of economic interest in the Botanic Gardens at Entebbe, Uganda, Mr J Mahon states that while some plants make only moderate progress in this country, which in other parts of the tropics are known to grow very rapidly, still, it may be said that, on the whole, the things mentioned in the accompanying lists thrive most satisfactorily, and are eminently suited to the climate for either useful or ornamental purposes.

It is well known there are large areas in Uganda containing abundance of rubber vine (Landolphia) yielding excellent rubber, but as it is practically impossible to systematically cultivate this plant, we are introducing all the celebrated rubber-yielding trees with the object of demonstrating that this country offers a field for establishing rubber plantations on a commercial basis. As I have pointed out before, it is only a question of the activity of traders to determine the time during which our natural supplies of rubber will last, and as the same circumstances apply to other countries. where rubber is found naturally, it follows that timely preparations require to be made to furnish supplies for the demands of the future.

The standard by which all rubber is judged is the Para (Heavea brasiliensis). When I came to Uganda in 1901 the director of the Royal Botanic Gardens, Kew, forwarded in my charge a consignment of plants, amongst which were several sorts of Para rubber seedlings with stems about as thick as a lead pencil, and 9 in. to 12 in. high. One of these, in the Botanic Gardens, is now over 7 ft. high, and otherwise of proportionate growth. As I reached Entebbe for one of the worst droughts remembered here, the young plants, after a trying journey of almost two months, had a hard battle to exist, and some of them succumbed, so that the success of the survivals is all the more satisfactory to record. But as this Amazonian plant affects low levels, it remains to be seen whether our climate and elevation will suit it. I am certain the lake will exercise a very favourable influence, and it would, in my opinion, be a mistake to experiments with these and other extra-tropical plants elsewhere in Uganda than on the lake shores.

Castilloa elastica—Central America rubber—was another item in the Kew consignment. This also has done very well, and, being more or less of a highland plant in its native country, it is reasonable to assume the conditions here will prove suitable. A considerable quantity of Castilloa plants have been ordered, and an experiment in introducing its seeds here direct from Mexico is being conducted.

Ceara rubber (Manihot Glaziovii) is growing with its accustomed vigour. A seedling of eight months is nearly 4 ft. high. It seems quite at home in Central African climates, but it is not a first-class rubber, and instances are on record where it was proved not worth the trouble of planting, still it might be a most suitable sort here.

A serious loss occurred last June in the burning down of a large nursery shed through native carelessness, when a fine batch of the celebrated silk rubber of Lagos (Funtumia elastica) was lost, in company with other valuable things.

They were raised from seeds I received from the Gold Coast, and we were waiting for a rainy spell to plant them out. I am expecting more seeds by every mail. A few seedlings are doing very well, but a plant brought from Kew, which at first made good growth, has, for some reason, become leafless and refuses to move at present. I feel certain Lagos silk rubber will prove a suitable culture here for plantations in the lake region.

We have a large number of Landolphia seedlings which were obtained from Sesse in 1900. Nothing is more puzzling than the slow rate at which this common native plant grows under cultivation. It is quite clear it requires to be sown where it is intended the plants are to remain. It resents transplanting, and some seedlings we put at the base of trees in a stretch of forest to grow "au naturel" have remained practically as they were put out six months ago.—*India-rubber Journal*, March 2.

THE RAYIGAM COMPANY, LIMITED.

REPORT OF THE DIRECTORS.

DIRECTORS :—The Hon. Mr. Edward Rosling, Messrs. Albert Rosling, Gordon Frazer, F M Mackwood.

ACREAGE :

Rayigam.

Tea in bearing	.. ..	628 acres.
,, partial bearing	.. ..	68 ,,
Rubber not in bearing	..	20 ,,
Forest	.. .. ..	484 ,,
Total	...	1,200 acres.

Annandale.

Tea in bearing	.. ..	250 acres.
Forest	.. .. ..	8 ,,
Grass	.. .. ..	38 ,,
Total	..	296 acres.

The Directors herewith submit their Report and Balance Sheet for 1902. After writing of R4,000·00 for depreciation on buildings and Machinery there remains at credit of Profit and Loss Account R15,046 01. Out of this the Directors propose to pay a divided of 2½ per cent absorbing R15,000·0, carrying forward a balance of R46·01. The crop of Tea from Rayigam was 296,725 lb as against 294,110 lb in the previous year, and from Annandale 90,606 lb as against 85,929lb. In the case of Rayigam approximately about one-third of crop 99,355 lb. was made into Green Teas which netted 34·02 cts. per lb exclusive of the Cess bonus. The Black Teas netted 29·56 cts. and on Annandale 41·85 cts. per lb. A contraot has been made disposing of the first six months' crop of Green Teas from Rayigam Estate for 1903. The estimate of crop for the current year for Rayigam is 300,000 lb and for Annandale 100,000 lb.

Para Rubber.—About 20 acres were planted with Para Rubber during 1902. This, with what is already planted in ravines and through the Tea, gives an equivalent of 50 acres varying up to 10 years old. It is proposed to plant up about 20 acres annually. Mr. Albert Rosling retires from the Board of Directors by rotation, but being eligible offers himself for re-election. The election of an Anditor for 1903 rests with the Meeting.

PORTMORE TEA COMPANY OF CEYLON, LIMITED.

ANNUAL REPORT.

to be submitted at the sixth annual meeting held at 24, Rood Laue, London, E. C., on Monday 16th March.

The Directors have the pleasure to submit the General Balance Sheet and profit and loss acconnt for the year ending 31st December, 1902, duly audited.

The net amount at credit of profit and loss after providing for general expenses, income tax, &c. £3,930 6d 9d. To which should be added balanoe brought forward from last year £260 5s 11d.—Total £4,190 12s 8d.

An Interim Dividend of 5 per cent. was paid October 18th, 1902, amounting £2,000. It is proposed to pay a final Dividend of 5 per cent. (making 10 per cent. in all, free of Income Tax) which will absorb £2,000. And to carry forward to next year £190 12s 8d.—Total £4,190 12s 8d.

In presenting their sixth annual report, the Directors have pleasnre in recommending a dividend of 10 per cent. for the year ending December 31st, 1902. The Tea crop from the Estates has been 221,143 lb. being at the rate of 472 lb per acre, which is the smallest yet obtained, and is acoounted for partly by the system which has been carried out of leaving a portion of the area nnpluoked, and partly by excessive rains in the latter months of the year, which prevented the usual flushings.

The cost of production has been £4,071 15s 5d, being at the rate of 4·42d per pound, and the crop has netted £8,459 5s 10d, being 9·18d per pound. The average rate of exchange has been 1s 4 3·16d against 1s 4 3-32d last year. Mr W Herbert Andersen retires from the Board by rotation, and being eligible offers himself for re-election.

The latest reports from the manager in Ceylon show that estates, buildings, and machinery are in good order, and the estimates of crop and expenditure give promise of continued good results. The directors feel that great credit is due to Mr R C Grant, the manager, and Mr H A Grigg, the superintendent in Ceylon, for the way in which they have cultivated the estates and maintained the high quality of the tea during the past year.

THE TONACOMBE ESTATES COMPANY OF CEYLON, LIMITED.

REPORT OF THE DIRECTORS.

Authorised Capital ..	..	R600,000
Subscribed and paid up	...	280,000

DIRECTORS :—Hon. Mr. J N Campbell, Messrs. G H Alston and R S Templer. Agents and Secretaries:—Messrs. Cumberbatch & Co. Estate Superintendent: —Mr V Vicaresso.

ACREAGE.

The acreage of Tonacombe Group is as follows:—

Tea in bearing	..	582 acres	
Tea not in bearing	..	8 do	
Tea seed bearers	...	3 do	
			593 do
Cardamoms in bearing	..		98 do
Reserve Forest	..		24 do
Fuel Trees	...		20 do
Chena and Patna	..		1,142 do
Total	..		1877 aores

The total quantity of tea secured for the year was 244,566 lb being 14,566 lb in excess of the estimate. This was sold at an average of 35·63 cents per lb. as against 37·84 censt per lb. last year. The cost of production was 25·84 cents per lb. as against 26·50 cents in 1901. The cardamom crop was disappointing, the quantity secured being only 6,308 lb. Of this 4,220 lb. have been sold at an average of R1·07 per lb., and the balance is estimated in the accounts to realise 75 cents per lb. In 1901 a net average of R1·48 was obtained. The total expenditure amounted to R69,931·07 and, as in the previous year, there has been no outlay on capital account on Tonacombe Group. The balance available, after providing for depreciation on buildings, and including R5,004·38 brought forward from last season's account, amounts to R28,296·51, and the Directors recommend the payment of a dividend for the year at the rate of 5 per cent on the paid up capital of the Company absorbing R14,000, the writing off of the balance standing to the debit of Buildings Account R5,654·06 and the carrying forward of R8,642·45. The Directors have pleasnre in stating that the Debenture debt has been further rednoed by £500 dnring the year. An opportnnity arose towards the end of the year of acquiring the Kalugalla estate consisting of 146 acres of tea, and about 227 acres of patna, &c. The Directors being of opinion that the purchase of this estate would be to the advantage of the Company decided to acquire the property at a cost of R17,500. Financial arrangements necessitated the payment of the purchase money by the last day of December, 1902, and the estate was taken over on the 1st January, 1903. The Coast Advances on Tonacombe Group stand at R3,116·34 on 31st December, 1902, being a slight deorease on this account since the same date in 1901. To meet the requirements of Kalugalla the labour force on that estate was taken over, and R1,846·70 has been advanced to meet their debt. The crops for 1903 are estimated at 210,000 lb tea from Tonacombe Group; 56,000 lb tea

from Kalugalla Estate; 6,000 lb cardamoms, against an Expenditure of R85,498·70. The Hon Mr W H Figg resigned his seat on the Board on leaving the island, and Mr G H Alston was appointed in his place. Of the Directors the Hon Mr J N Campbell retires by rotation, but is eligible for re-election. The appointment of an Auditor for the current year will rest with the meeting.

COLOMBO COMMERCIAL COMPANY, LIMITED.

REPORT OF THE DIRECTORS

presented to the eighth general meeting on Tuesday, the 17th March, 1903:—

The Directors have pleasure in placing before shareholders the profit and loss account for the year ended 30th September, 1902. Balance sheet made up to 30th September, 1902.

The above accounts shew the following figures:—

Profit for the year after debiting all charges, interest on debentures, &c..	£7,999	11	7
Add balance brought forward from last year	2,023	13	5
	£10,023	5	0
Less transferred to reserve fund ..	1,500	0	0
Amount available for dividend, &c.	£8,523	5	0

Interim dividends, of 3 per cent. on the preference capital and $2\frac{1}{2}$ per cent. on the ordinary capital were paid on the 15th September, 1902, and the Directors recommend that the following dividends be now declared, viz.:—3 per cent. on the preference capital, making 6 per cent. for the year, and $5\frac{1}{2}$ per cent. on the ordinary capital, making 8 per cent. for the year, the latter free of income tax.

After payment of the above dividends there will remain a balance of £1,832 3s 0d, which the Directors propose should be carried forward to next year.

The liquid assets in Ceylon appear in the Company's accounts at the same exchange as in last year's balance-sheet, viz.:—1s 1d. per rupee.

The general reserve fund stands at £7,000, including the amount transferred in the present accounts.

Hatberleigh estate, one of the Company's tea properties, has been sold, and its cost has been deducted from the amount at which those assets were represented in the last balance sheet.

Mr. P C Oswald, a member of the Board, retires from office on this occasion, and, being eligible, offers himself for re-election.

Messrs. Deloitte, Dever, Griffiths & Co., the Auditors also offer themselves for re-election.

TEA IN NATAL.

PAST AND PRESENT.

(*By* "*Planter.*")

I was much struck with the article on the "Natal Tea Industry" by "Nemo," in your issue of the 26th ultimo. Wholesome criticism from those who have been connected with industries attempted in Natal will at least show those who have the conduct of these affairs that there is still room for improvement in their products, while the facilities of climate, labour, soil, and proximity to markets are nine-tenths as great as the countries whence the whole world has obtained its supply for a century.

No Indian or Ceylon tea-maker would accept the carelessly-picked leaves that are sent in from the field here, and the class of machinery will have to be very much improved, and looked after by experienced men, before Natal can approach the standard these other countries attained ten years ago. I do not mean to say that it will take ten years to attain this standard—it need not take ten months—but both the field and the tea-house must be under the control of competent men, and your field will then produce more and your machines will turn out better quality. What "Nemo" has pointed out was patent to me when I came to Natal three years ago, and I have had the opportunity of comparing notes with the sons of brother planters from India and Ceylon who have been brought up on tea and coffee estates, and know their business thoroughly: and they have gone back with little fear of any competition from Natal while the present state of things lasts.

(To the Editor of the "Natal Mercury.")

Sir,—With "Nemo's" article on "Natal Tea," as a planter of long experience with one of the largest tea companies in Assam, I fully agree. Natal planters will not have an experienced Assam, Indian, or Ceylon planter on their estates as I found to my cost when I arrived, thinking that with long and up-to-date experience and first class references I should have no difficulty in obtaining a billet. I was offered the handsome salary of £8 per month! Having a trade to fall back upon, I preferred to work at it, rather than give my experience and knowledge for such pitiful competence. The methods of pruning and plucking, as described by 'Nemo,' would not be tolerated even on a native garden in Assam, and might well be described as murdering the bushes. To hack at a tea bush with the 'largest size pruning knife available' can only result in a large percentage of the 'new wood dying back,' and forming knots, which it should be every planter's object to do away with. Plucking eight leaves and a bud is absurd, as the lower end of the shoot will have formed 'wood' by the time eight leaves are out, and it is not usual to make tea out of wood, although, of course, it will make up the bulk, and help to swell the quantity. Tea, with the quantity of 'sticks' that most Natal teas show, would be almost unsaleable on the London market. I have before me some Natal tea, styled 'Pekoe'; it should be styled Pekoe Souchong, a much inferior grade. Pekoe should be a clean, whole-leafed tea, free from 'sticks' and red leaf, and with a few 'tips'; this is partly made up of sticks and red leaf, the balance being a broken and coarse Souchong leaf—it would not be considered on the London market even a fair Pekoe Souchong. 'Nemo' is quite right in stating that, by plucking two or three leaves and a bud, the quantity is not sacrificed; this has been proved by experience, and the old custom of plucking four or five leaves and a bud has long been discontinued by up-to-date planters.—I am, &c.

ASSAM PLANTER.

RETURN OF MR. T. FAIRHURST FROM THE STRAITS.

RUBBER TAPPING FROM PARA TREES.

We have have to welcome back Mr. T Fairhurst, the well-known proprietor of St. Andrew and Ferham estates, Dimbula, who arrived by the P. & O. "Valetta" yesterday after a visit of some weeks to the Straits. Mr. Fairhurst goes up to Ferham on Saturday and will leave for Europe in about a fortnight's time—probably by the Bibby ss. "Lancashire" on April 7th.

In a conversation with Mr. Fairhurst to-day we learn that he had been seeing a good deel of rubber in the Straits and was everywhere struck with the fine growth displayed. He had not, however, seen rubber growing in Ceylon and so could not institute comparisons. Mr. Fairhurst assisted at the tapping of a specimen Para tree which was 32 inches in circumference, 3 feet from the

ground, and 5½ years of age. The incision was made at a height of about 4 feet (the height of the first branch, we may mention, was nearer 7 feet!), in a V-shape, and the rubber latex flowed freely into the cup fixed at the foot of the V. Making the incision in this fashion, one gets the rubber to flow well and the cut does not dry up quickly. Another common method is the herring-boning, in which a long central cut is made, perpendicularly, and then parallel incisions are made sloping into the central one; but in this case the channels are found to be too small and numerous and to dry up too quickly. The ideal instrument for making the incisions has yet to be found and something of the nature of a chisel has been mostly used so far; the tool should be a sort of gouge that would be pulled rather than pressed along the line of incision, the sharp portion being just deep enough to pierce the bark (which shall pass under the knife blade as it is cut) and not injure the inner wood. There is another kind of chisel-knife, with a double handle which is pulled along in cutting the bark; from its make it requires less energy to handle. It is from the bark, of course, that the latex flows.

DOCTORING TREES.

A new method of feeding trees and plants without the agency of the roots has been discovered by the well-known entomologist M S A Mokrshezki, who has explained his discovery in a lecture before the Imperial Botanical Society. He has invented an apparatus by which he can introduce into the stems of apple and pear trees salts of iron, either in the form of a solid or in solution. The effect of the chemicals is, on the one hand, completely to cure the tree of chlorose and on the other, to stimulate its growth in an important degree. Among other extensive researches the scientist has applied his theory to 800 fruit trees growing on the southern shore of the Crimea. By introducing dry sulphate of copper into the stems he produced an unusual development of the trees, as many photographs testified. M Mokrshezki considers that in this way the size of a fruit tree can be increased, its colour improved and varied, and its diseases removed. The discovery opens up a wide field of practical utility, and is regarded as most important.—*Indian Daily News*, March 26.

RAINBOW TROUT IN CEYLON.

(To the Editor, *Indian Field.*)

SIR,—Can any of your Ceylon correspondents furnish information of the success or otherwise attending the introduction of "Rainbow Trout" into the Island? Up here in South Sylhet we have small streams admirably suited for trout of all kinds, and on the northern side of the valley there is a pretty little fellow running about 2 to 2½ lb; a true trout. The upper part of the body is light sepia coloured, the under silver, but where these hues blend into one another there are three, sometimes four, longitudinal streaks of bright blue spots; the upper part is also speckled but with darker spots than the back ground. It is a handsome fish generally found in bright pools: can you identify it? It will rise to the black fly but a spoon or anything bright or glittering is ignored. Is this the rainbow?

Mulvee, 9th March 1903. PISCATOR.

—*Indian Field*, March 26.

FINE GROWTH OF PASPALUM GRASS.

An interesting record of Golden Crown grass (Paspalum) growth is contributed to the *Gosford Times* (New South Wales) by a correspondent, who writes:—"Off 30 square yards land under the above grass I took 150 lb. of dried hay (which would be nearly 11 tons per acre), being the second cutting this season, and will probably get as much from the third cutting. This piece of land has never been manured. What other grass is there in cultivation will do as much and then keep green all through the winter? Granting that this particular piece of land is well suited for it, say, that an average acre of land would produce 3 tons per cutting—3 cuttings per season, 9 tons—which any ordinary land about Gosford can do, why grow couch? Both grass and hay (chaffed) are well suited for the cattle, improving the milk and butter yield."—*Melbourne Leader* March 7.

MALARIA AND MOSQUITOES.

GOVERNMENT COMPETITION: BOMBAY PRESIDENCY.

Bombay, March 19.—In accordance with a recent Government Resolution requesting the Surgeon-General with the Government of Bombay to furnish detailed proposals to give effect to the wishes of the Government of India that measures should be organised by private enterprise for the prevention of the spread of malaria by mosquitoes, a statement on the subject is published in today's Government *Gazette* in which the Surgeon-General points that whilst all Civil Surgeons express their readiness to promote organisations for the destruction of mosquitoes, so far as their time and opportunities will allow, the majority report that the collection of funds for this purpose from Municipalities or private individuals is uncertain and that they cannot hope to arouse much interest in the matter on the part of the inhabitants. On consideration of the views expressed by the Surgeon General, the Government of Bombay have decided to offer four prizes of R400, R300, R200 and R100, for a year's observation on the distribution and habits of mosquitoes in any of the towns and villages mentioned in the Surgeon-General's letter. The competition is not restricted to Government servants.—*Pioneer*, arch 21

THE CAMPHORTREE IN HUNAN.

March 10.—Formosa, which has hitherto been the chief supplier of the world in regard to camphor, will soon have a great rival in Hunan province. the soil of Hunan has now been found to be well suited for the extensive cultivation of the camphor tree, and the inhabitants are enthusiastically planting it everywhere they can. A Ch'angsha, capital of Hunan, dispatch states that there are innumerable camphor trees several feet in diameter in the porovince and it is expected that with care the province will soon be able to export annually several thousand piculs of the stuff.—*N. C. Herald*, Mar. 12.

THE PASTEUR INSTITUTE, KASAULI.

We have received the report of the Director of the Pasteur Institute at Kasauli for the second year ending 8th August, 1902 (Punjab Government Press: Lahore). There were 543 patients treated during the year, as compared with 321 in the first year. Of these 543 patients 215 were Europeans and 328 were natives. As regards the latter, Major Semple, the Director, remarks, "I believe every caste in India was represented;" and he apparently means every main Hindu caste, as well as Mussalmans, Sikhs and others. This is the only loose statement in the Report; and in view of the prejudice against anti-rabic treatment still prevalent amongst the Indians it would be as well, we think, if in future Reports a list of actual castes and nationalities were given, as an object lesson. As regards results of the treatment there were only five failures (all native) or 0·92 per cent of persons treated. In addition, four patients (three Natives and one European) contracted hydrophobia within 15 days after the last inoculation, and two patients (both Natives) during treatment. The European referred to was a lady in a delicate state of health, severely bitten on the upper lip, nose and cheek, and who came late for treatment. The Report remarks:—"It cannot be too forcibly impressed upon persons bitten by rabid animals the very great importance of early treatment, especially if the bites are multiple, or severe, or situated on the head or face." This emphasises the need for another Institute in Southern India; and it is satisfactory to know that this will soon be an accomplished fact, thanks to the beneficence of Mr. Phipps. It should then be possible for every patient in India to come under treatment before the fifth day. The Report makes an urgent plea that the Railway Companies should grant free return passes for. While 436 of the cases last year were from dog bites and 99 from jackal bites, there were also five from horse bites and three from cat bites.—*M. Mail*, March 24.

A CAMPAIGN NEAR LAHORE.

Lahore, March 20.—Endeavours have been set afoot in the cities of Gujranwala and Gujrat to suppress malarial fever by an organised campaign against mosquitoes. Hollows in the ground have been filled up to prevent accumulation of stagnant water, and water-holes, drains and malarious spots treated with kerosine oil. Larger drains are being flushed with phenyle. Huge swarms of both full grown insects and *larvæ* are reported to have been destroyed. —*Pioneer*, March 22.

INDIAN COOLIES PROSPER IN TRINIDAD.

737 BRING £10,000 IN SAVINGS.

An extraordinary instance of the prosperity of Indian emigrants in suitable Colonies has just been furnished by a shipload of these people who returned to Calcutta on the 24th February by the steamer "Mersey" from Trinidad. There were 737 returning emigrants on board, and they landed bringing nearly £10,000 in drafts, coin and jewellery. State-regulated emigration to Trinidad has gone on now for upwards of half a century: and the carefully kept records disclose to fact that since 1851, when the first Indians began to come back, the returned emigrants have brought with them saving to the value of £386,000 actually declared. This is, of course, merely what they have carried back on their persons and in their pockets, and takes no note of the large sums that are remitted to India as they are saved. It is unfortunate that the Indian cultivator and labourer cannot do in his own country what he does in Trinidad, Mauritius and Natal. But before he will turn high wages to good account it seems necessary that he should be transplanted away from his village, his caste folk and all the influences which conspire to keep him in the traditional rut. Remove him from these and start him in a new country, and from Coolie to Crœsus it is but a step, or at any rate a matter of few years.—*Pioneer*, March 18.

NEW ZEALAND TROUT FISHERIES.

Captain G D Hamilton, president of the Hawke' Bay Angling and Shooting Club, writes as follows on some points raised in a recent *Times* article on the above subject:—

1st. The anglers in the colony are not a few persons, they are thousands. They are not a class, and are chiefly working men, who, when they care for the sport; can for a small fee, necessary to keep up the supply of fish, have a recreation for seven months of the year which relieves the monotony of their work-life and gives them a variety of food. In Scotland nearly the whole of the rivers are open to the trout-fisher. There are in thousands working men living near rivers, who take care that their sport is not destroyed by the trout poacher and netter. Anglers are not always amateurs in knowledge; some of them have more general knowledge of the habits of fish than any of the people employed about fish hatcheries. I fancy few of the experts, have much, if any, experience of fish or game in the countries from which they have been imported. The anglers serve the useful purpose of keeping up the interest in acclimatisation, which is otherwise apt to flag. Were it not for the anglers, I question if there would be trout in New Zealand waters now. All this has been done at the private expense of the acclimatisation societies and anglers, who have worked without pay. I turned out trout in the North Island about 1870. This enables the Government now to invite tourists' to enjoy the sport thus provided—a very commendable project for the benefit of hotelkeepers and others, and for utilising about one-third of the country too sterile for industrial occupation.

2nd. It is argued that, under proper restrictions, netting can be done without injury to the rivers and lakes. I am aware that netting has been sanctioned in lakes, and it has been under certain restrictions. Who has ever seen these restrictions carried out, or who is going to see them carried out if amended restrictions are passed? I predicted when netting was sanctioned in Lake Wakatipu that it would ruin the fishing of the district. The lake is now hardly worth netting. It is not a well-known fact that the sanctioning the netting of Lake Wakatipu for fish for sale has caused all the rivers running into it to be cleared of fish and the rivers and lakes to within seven miles of Dunedin and Invercargill to be poached for fish and sold in those towns as Lake Wakatipu trout? Rotorua is an instance of the same kind. Allowing occupiers of land to fish without a license will be found to be very troublsome, particularly in native districts. So far the Government has not been in a position to protect the rivers and lakes, which would entail a lot of supervision, quite out of the power of the police, even in easily accessible places, but of course they can help. It is a quarter or half a century too soon for legalised netting of fresh-water-going fish in this country. Except in a few rivers, the brown trout, bull trout, sea trout (salino trutta) and salmon are barely established. The sea-going trout travel round the coast, thus stocking rivers and lake

that have been considered too inaccessible so far to stock in the ordinary way. If netting for trout is legalised in salt or breakish water, this supply for stocking the rivers naturally with a large breed of trout will be much reduced, and the stocking of the whole country retarded. It is not possible to avoid taking trout occasionally when net-fishing for other fish off the coast or in the estuaries, but it is possible to return a great many alive to the water, and it is better to try this with some failures. I have for the last few years returned more than three-fourths of the trout of all sizes I have caught on the rod to the water, and not one has failed to recover and swim away. Among these were seven-pound fish. I did not want them. It is quite common to over-fish a stream without using nets. The rivers of this country have become celebrated for their large sea-run trout. This is because there has been no organised netting for trout in or about the estuaries or lower parts of the rivers. The sea-run trout (not salino trutta or salino salar) in some of the North of England and Scotch rivers are just as large and in great number, but the salmon nets prevent nearly all of them ascending the rivers until close time, when it is illegal to take them, and so many anglers hardly know of their existence. I have caught them in the Tweed (Scotland) up to eleven pounds, and have seen them caught twenty pounds weight in the same river. Lately I saw a trout of 39¾ lb. had been taken with a salmon fly at the outlet of a Scotch lake. I am not quite a novice in net and sea fishing. I have been through it all from herring to cod.

More caution should be exercised in allowing insufficiently informed people to deal with these things. The introduction of the poorest of anything that can be called game—the rabbit and other pests—has ruined the game shooting of the whole country. Now we are having 'white fish' introduced to our lakes already stocked with trout. They can only be taken in nets, so that if they are to be taken at all the trout must be netted. It is quite a different thing to accept and make the best of these things, where Nature has placed them, and to introduce doubtful things to a country in which they are not indigenous. A much more valuable fish for the table than the 'white fish'" and a freer riser than the brown or even rainbow trout, in lake or river connected with the sea, is the white trout (salino trutta), and much more likely to remain on our coasts than the salmon.—*New Zealand Mail*, March 4.

GIANT LAND-TORTOISES.

"In the long-past days when the plains of India were the home of the mighty sivatherium and of still more gigantic elephants and mastodons, while its rivers were tenanted by hippopotamuses and huge long-snouted, gavial-like crocodiles, that country was likewise inhabited," writes Mr. Lyddekker in *Knowledge* for March, "by the most gigantic land-tortoise of which we at present have any knowledge. When fragments of its fossilised shell and more or less nearly complete specimens of its limb-bone came under the notice of its original describers it was thought, indeed, that they indicated a creature of truly colossal proportions, the length of the shell in a straight line being estimated at no less than twelve feet three inches. In a restoration of the shell made under the superintendence of the discoverers of the species, and still exhibited in the geological department of the Natural History Museum, the length was reduced to a little over eight feet. But even these reduced dimensions appear to be considerably in excess of the reality and it is probable that the maximum length did not much exceed six feet. A shell of this size vastly exceeds, however, that of any modern land-tortoise, so that the Siwalik tortoise, or 'Testudo atlas,' as it is scientifically called, is fully entitled to rank as the real giant of its kind. . . . In modern times the islands most famous for these tortoises are those of the Galapagos group, which take their title from one of the Spanish names (ga'àpago) for a tortoise, and are situated on the equator, a comparatively short distance off the western coast of South America. All the other 'tortoise-islands' are in the Indian Ocean, where they lie (with the exception of the lower extremity of Madagascar) within the southern tropic, off the African coast. . . . In the Aldabra tortoises the only member of the group surviving in a wild state in its native habitat is the South Aldabra 'Testudo daudini.' A male of this species, received by Mr. Rothschild in 1897, is the largest known example of modern giant tortoises, the length of the carapace in a straight line being no less than 55 inches, or only 19 inches short of the length assigned to that of the extinct T. atlas."

NILGIRI PLANTING NOTES.

TEA PLANTERS FROM ASSAM.

A group of estates near Colacumbay has just been sold to two tea planters from Assam. The properties consist of the Terramia, Pembroke and Carshalton estates, comprising about 600 acres of land, of which about 200 acres are under tea and 100 acres under coffee. It is said that the purchasers intend to open out all the uncultivated land in tea and make a big concern. It is significant that planters long resident in that well-known tea-producing District should leave it to settle on the Nilgiris, and one is inclined to seek the reason. It must be that the labour difficulty in Assam is preventive of any profits being made in these times where large advances have to be made to the coolies, R75 per head and even more, and where Government interference is so irksome. The planters here will no doubt hail the advent of these newcomers as they will be sure to carry out economical methods and keep down the rates of pay which have a tendency to rise of late years, and would undoubtedly run high but for the fall in prices.

NILGIRI TEA.

Nilgiri tea is noted for its peculiar aroma, is delicious when used alone, and is bought by dealers to make a blend with the coarser-tasting tea, grown at a lower elevation, to give it flavour. Some good sales have taken place lately, the average from one estate realising as much as 9d a pound, a very remunerative price if the yield is fair.

SALE OF THE MOYAR ESTATES.

The Moyar coffee estates belonging to Lady Souter, have just been bought by Mr E G Windle at a figure indicative of the low prices.—*Madras Mail*, March 28.

GREEN TEA MACHINERY AND MANUFACTURE.

(To the Editor, "Indian Planters' Gazette.")

SIR,—I thank you for your complimentary mention of my name (on page 272 of your issue of 21st February) in *re* the bringing about of what promises to be a solution of the problem of over-production of "black teas."...I now claim that we have solved the problem of Panning and Finish-

ing by machinery—the mere finishing by friction being an old and well known process often used in America and Java, but this though it gave the appearance, did not give the flavour or keeping qualities of the panned article. "Black tea" prices are up, thank goodness, but to keep them so, it should be the endeavour of every company to foster and promote the manufacture of "True" Green teas on such gardens as, owing to forcing climate and heavy flushes, cannot hope to stand out for special *strength* and *flavour* as Black teas. If India can dispose of ten to fifteen millions of Greens, and Ceylon a like amount, at remunerative prices, so surely will a better day dawn for Tea Companies and Proprietors. In conclusion I may state that the only two points, in which India, at any rate, is behind China and Japan, are firstly the rolling of "gunpowders," which is affected in China by foot-rolling in bags, and secondly the "polishing" of coloured teas, which in China and Japan is done with "soap stone," both these processes we hope and intend to adapt existing machinery to with but slight alteration.—I am Sir, Yours faithfully,

HORACE DRUMMOND DEANE.

Stagbrook, Peermaad, S. India, 16th March, 1903.

P. S.—Owing to complications of a business nature, by which my crops were hypothecated to London, I have had to abstain from making Green Teas on a large scale. These troubles, through the courtesy of my London Agents, Messrs. Rowe White & Co, are now removed, and I hope from July next to have a full installation of green tea machinery at work, including a novelty in boilers of the "Flash light" type, that are not only extremely portable but expensive, costing about £25 f.o.b. This is a most important item in the expense of an installation, to such Estates as have not "Steam power" as their motor.—*Indian Planters' Gazette*, March 28.

CONDENSED EGGS.

When condensed milk was introduced it was looked upon as a curiosity by the public, but it has become a staple article of food now, and milk factories exist in the agricultural districts for collecting the milk from the farms and condensing it at once; by this means much of the prejudice against condensed milk has been overcome. Eggs are used in enormous numbers in this country, and somewhere about £7,000,000 represents the annual value of eggs imported into Great Britain. When an abundance of eggs can be procured in the summer they quickly go wrong and many methods have been suggested for preserving them, but these all entail some trouble and small expense, and the public do not care for preserved eggs. For some years now eggs have been deprived of their shells and a preservative added, liquid egg is an article of commerce for manufacturers, but hardly suitable for domestic use. The Condensed Egg Syndicate, Limited, have, however, overcome the difficulties which beset the question of preserving eggs, and supply egg in a condensed form mixed with sugar as a preservative. We have examined the product, and find it contains all the constituents of ordinary fowls' eggs, and further, we are able to state that it is in an excellent state of preservation, and free from organisms which would induce decomposition in keeping. The product is about the consistence of treacle, and is supplied in hermetically-sealed glass jars. Like condensed milk, it will remain good as long as it is unopened, but when once opened it should not be closed up again. Three forms of the preparation can be had for domestic purposes—(1) the entire contents of the egg; (2) the yolks only; (3) the whites only; and the uses of these are as unlimited as those of fresh eggs. For pharmaceutical purposes condensed egg and extract of malt ought to find a ready sale to replace the preparations with cod-liver oil for patients who cannot take the latter. In the preparation of emulsions the condensed yolk ought to find a wide field of usefulness. Emulsions of petroleum, hypophosphites and egg, or cod-liver oil and egg, would be useful adjuncts for retailers; while, for prescribing purposes, equal parts of port wine and an entire egg should be of especial value to invalids when given in suitable quantity. A tablespoonful of the condensed egg represents one entire fresh egg, and it can be used without any doubt of its freshness or soundness.—*British and Colonial Druggist*, March 6.

INDIAN COMPANIES AND GREEN TEA.

We note from the accounts of the North-Western Cachar Tea Company now published that green tea did pretty well for the Company last year. Out of a total of 318 645 lb. of tea manufactured, the proceeds of which totalled R89,416, the amount of green tea made was 145,108 lb. producing R44,936 and black 173,537 lbs. producing R44,480. The average price of green tea in the above account works out to 4 annas 11½ pies per lb. against 4 annas 1¼ pie per lb. for black. Another Company which shows good results from having undertaken the manufacture of green tea last year is the Manabarie Tea Company. Out of a total of 247,944 lb. manufactured, 195,633 lb. of green tea were made, 182,522 lb. of which were sold in Calcutta, producing R59,790; and 13,111 lb,, were sold in London, producing £403. The average works out about 5 annas 3 pies for the Calcutta, sold green tea and 7½d for the green tea sold in London. against 6¼d per lb. for the black tea sold by the Company.—*Indian Planting and Gardening*, March 28.

THE BAOBAB TREE IN UGANDA.

It seems a pity that so far no praetical use has been found for the baobab tree, beyond the conversion of its fruit shells into calabashes by the natives. The wood of its stem is said to possess qualities suitable for the manufacture of paper, so possibly this, together with the undoubtedly large supply of rags obtainable from the natives, will one day form a nucleus for the material required by a local paper manufactory. The consumption of paper in East Africa must already be very considerable, and is constantly increasing. —*African Standard*, March 10th.

VICTORIA REGIA IN NATAL.—The water plant in the Durban Botanic Gardens is now in four buds, and the first bud is expected to open on Sunday or Monday—the first event of the kind in South Africa. The flowers last only one day. —*Natal Mercury*. March 7.

PRODUCE AND PLANTING.

INSURANCE OF TEA CROPS.

An interesting and important departure is, we understand, being made in connection with the insurance of the new season's Indian tea crop. The risk of damage from the time the tea is plucked until arrival in the United Kingdom has always been readily undertaken by marine underwriters at reasonable rates, but injury to the leaf before plucking, from whatever cause, has had to be borne by the planter. Hail storms are amongst the worst enemies which threaten the growing crops, and extensive damage can be done by a visitation of this nature. Cases are on record where over 20 per cent of a whole crop has been destroyed in a few minutes, and instances of damage amounting to 10 per cent. are legion. So urgent has the matter become that the Tea Association, having been appealed to, took steps with a view to find a workable basis for the insurance of the risk. It circularised the trade asking for statistics to enable a comparison to be made between total outturn and losses due to hail, and the immediate response of a large section sufficiently indicated their appreciation of the importance of the matter. A number of concerns, however, had to refer to Calcutta, as the required figures were not available in London; meantime, the statistics which had been secured covered sufficient ground to enable inquiries to be made in the insurance world, with the result that a favourable rate of premium has been obtained with a workable clause to govern the assessment of losses. We should imagine the industry will largely avail itself of the new facilities, especially as the statistics of losses due to hail prove without any doubt that no district or garden can consider itself safe from a visitation, whatever may have been its experience in the past; the figures show that the longer the immunity the greater the disaster when it arrives. Under such circumstances no prudent planter can afford to ignore such an opportunity to replace, in his calculation, the very real risk of a calamity with a reasonable annual charge in the form of an insurance premium. The rate is of necessity experimental to some extent, but should experience show it to be too high, competition will no doubt afford a ready and effective remedy. In any case the Tea Association, by its efforts which have led to the establishment of insurance facilities, has earned the thanks of the tea-producing industry.

MARKET VALUE OF TEA SHARES.

From the following figures, compiled, as usual, by Mr George Seton, of the Indian Tea Share Exchange, 120, Bishopsgate Street, E.C., it will be seen, says the "Financial Times," that the market value of the shares of the forty five representative companies has again advanced to a moderate extent. With one or two exceptions, the advance has been "all along the line":—

	£.
Face value of 45 companies' shares	9,500,000
Market value July 1, 1897 (top point)	12,000,000
Do Jan. 1, 1902	7,000,000
Do Sept. 1, 1902 (lowest point)	6,050,000
Do Jan. 1, 1903	6,600,000
Do Feb. 1, 1903	6,800,000
Do Mar. 1, 1903	7,000,000

So that the recovery has been just to about the level of the beginning of 1902, As the grand total of the share and debenture capital of the one hundred and seventy tea companies registered, with sterling capital, in the United Kingdom (exclusive of private-owned estates and companies registered, with rupee capital, in India and Ceylon amounts to about £19,000,000, the fluctuations of the entire volume, based on the above figures, may be thus roughly estimated:—

		£.
Face value of (about) 170 companies	..	19,000,000
Highest market value, July 1, 1897	..	24,000,000
Lowest market value, Sept. 1, 1902	...	12,100,000
Present market value, Mar. 1, 1903	..	14,000,000

This shows a rise in value from the lowest point of nearly 16 per cent, but there is still a depreciation from the highest point of nearly 42 per cent, or, taking 100 as representing the top value, the lowest level would be represented by just over 50 and the present level by 58.

Notwithstanding the present rather uncertain outlook as regards dividends for the producing year 1902, Mr Seton considers that, with the restoration, or partial restoration, of public confidence in the stability of the industry, a further moderate hardening of values is to be expected. It may be noted, however, that the better prices now ruling in Mincing Lane, coming, as they have done, late in the selling season, are just barely compensating for the very low prices at which the first half or two-thirds of the crops were sold during the summer and autumn of last year.

The following letter appeared in the *Produce Markets Review* of February 28, and was signed "Home Tea Trade." This correspondent wrote: "It seems to me that

THE TEA POSITION, FROM THE DEALERS' POINT OF VIEW,

is left entirely without an exponent. In the trade and daily papers we have constantly brought before us the importers' and growers' side of the question in the reports emanating from such brokers' firms, and their policy at present seems to be to write so as to foster the idea of an advancing market. To do this they have to introduce statistics which may be very interesting and instructive, but which should have very little real bearing upon the condition of the market in London. Some two or three years since these same firms were asserting that the accumulated over-production of the previous year amounted to fifty million pounds, and, seeing that the present stocks in bond are, if anything, larger than they were at that time, it is at least doubtful if that overplus has been worked off, and when it is remembered that there is sufficient tea in bond—let alone duty-paid stocks in the country—to supply about five months' consumption, it seems very reasonable to suppose that production is still outstripping consumption. At any rate, it will be pretty generally admitted that five months' stock of tea is quite an unnecessary amount to carry, having regard to the heavy supplies reaching us month by month all through the year, and bearing in mind the fact that much of the tea deteriorates rapidly after reaching this country. A five month's stock must mean that much of the tea becomes eight or nine months old before being used, it will lie for several weeks in the distributors' hands after leaving bond. Values have been forced upwards by a sort of cornering process described as regulating the supply,' presumably with the object of enabling dividends to be paid on the capitals of the tea-growing companies, and advantage is being taken of a rather poor season to try and make out that at last consumption has overtaken production, but the asserted smaller production of this season over last seems quite problematical; and, given favourable conditions in the coming season, there will again be an enormously increased outturn, as it appears from the reports of the various companies that no determination has been reached to reduce the area under cultivation, and in some cases mention is made of increased plantations coming into bearing this season. With an expectation of more tea to sell it is probably bad policy on the part of producing interests to push the price of lowest teas upwards, as with common tea about six pence per pound the retailers will soon abolish their shilling canister, which will mean materially reduced consumption, as poor people will buy one ounce for a penny instead of two ounces for three halfpence; also, dear common tea has the effect of bringing down the values of medium tea through the blender being unable to use the higher cost teas so freely in his lower-priced blends. Also, of course, he uses China

teas to the exclusion of Indian and Ceylon, so that it seems as if it would be more to the advantage of the grower to retain the larger consumption by keeping down the price, and to seek for profit in reduced cost of production and the other heavy charges which tea has to pay. That low-priced teas can be made remunerative to the grower appears to be a fact, as some estates, with the lowest average price per lb., are able to pay dividends."

U. S. A. NATIONAL TEA ASSOCIATION.

A NewYork paper says, apropos the tea trade of the United States: "Nearly two hundred members of the tea trade have consented to become charter members of the proposed national tea association, which will probably take shape in the early spring, but unless this federal organisation can reach down to the extreme fringe of the business and control the actions of the retail cutters who have a weakness of cheap tea, with an 'inducement' thrown in, the tea puddle will hardly be disturbed by any ripple the national association can cause. It is 'getting together' that the tea trade needs so much as an active competition between packers of fine blends, assisted by extensive and expensive advertising. It is 'up to' any wholesale of retail grocer with fair capital to be the tea trade's Moses and lead it out of the house of bondage—the bondage to 'tea for price.' with trading stamps, a cup and saucer, 3½ lb. of sugar thrown in. Who'll be the trade's Moses? Not Uncle Sam, with his tea standards and board of inspectors; not the blender of 'something just as good,' not the tea-store chain-system, with its cut prices and very ordinary goods; not the tea peddler who goes from house to house; not 'Lancelot not another,' but just the plain old-fashioned family grocer, who has the wit to see the possibilities in the tea department when it is properly developed and pushed."—*H. and C. Mail*, March 13.

TROPICAL PRODUCTS IN JAVA.

In the districts around Batavia, coffee-planting is on the down-grade owing to low prices, disease among the plants, and exhaustion of the soil. Should prices continue to be low for the next few years, very few estates will be left to profit by any considerable rise in quotations. Tea-growing has met with a check owing to low prices and over-production. Rubber-growing is extending there, and bids fair to prove profitable.—*Perak Pioneer*, March 24.

THE MANUFACTURE OF GREEN TEA.

(*To the Editor, "Home and Colonial Mail."*)

Sir,—With reference to the manufacture of green tea in India and Ceylon, it appears to me important to consider how this can be made self-supporting at as early a date as possible, so as to relieve those gardens which are making black tea of the necessity of aiding, by bonus, those engaged in exploiting this new manufacture. It will no doubt be necessary for a few years to help those planters who are willing to undertake the manufacture and exploiting of this article, for the capital required to properly alter existing factories and equip the same for the scientific production of green tea must be considerable. There are two methods of distributing this bonus:—

1. Indiscriminately to any factory which makes experimental or small quantities.
2. To bind the planter to produce a season's crop and ensure to him the bounty on a given quantity.

The first we may dismiss at once, for it will only encourage amateur and spasmodic efforts which will waste money. and it will not give sufficient continuity of supply to ensure confidence amongst buyers. The second is the only practical way, for the planter will then study the question of manufacture, and also the markets, &c., and this should enable him in time to build up a sound business in green tea of British growth, independent of bonuses and outside help.—Yours faithfully, EXPORT.

London, March 12, 1903.

—*H. and C. Mail*, March 13.

PLANTING LABOUR ON THE NILGIRIS.

(*To the Editor, "Madras Mail."*)

SIR.—Sometime back a meeting of the planters in this District was called to talk over the local labour conditions. It was then decided that the rate was in future to be cut down from four annas per day per man cooly to five days for the rupee. One would have thought that this was a blessing to the planter, but it has by no means been so, and the only people we have to thank for the present state of things are ourselves. Before we cut down the rates for labour the coolies used to come to the estates from their villages between 8·30 and 9·30 a.m. and do a fair day's work. But of late it has been getting later and later, and only last week I saw a gang going down to work at 10·45 a m Now, these coolies could not have started work till 11 o'clock at the earliest, and they leave off at 5 p.m., making six hours per day or 30 hours work per rupee at present rates. Under the old rates when they came at 9 they did eight hours per day or 32 hours per rupee. But the loss of two hours is not the greatest loss. When we have crop coming in it takes us now 5½ days to do the same amount of work that under the old system we got done in four days. Not very long ago I happened to see a case of this cut-throat policy going on. Some coolies arrived at 10·15, but the manager, who is trying to get back to the old time of 9 o'clock, refused to give the coolies work. They straightway went on to the next estate and were given work, although they could not possibly have arrived there before 10·30. The estate that had refused the labour has now got to take them at their own time or they go. If they are refused they only have to go on to one of the surrounding estates and are sure of being taken on. BERRY.

Kil Kotagiri.—*M Mail*, March 31,

KANAN DEVAN HILLS.—The most complete, up-to-date and interesting account of this favoured district in North Travancore appears in a recent "Pioneer" and is given on page 743. Everything promises well and good returns are expected; only the mono-rail tramway is not quite the success hoped for.

THE OLIVE IN SOUTH AUSTRALIA.—From a report just published, we learn that the cultivation is much in favour, the climatic conditions, nature of the soil, and the introduction of the best varieties, all tending to the success of a highly remunerative industry—of the production of fruit and oil of the best quality. The number of trees returned for 1902 is 66,852, against 61,740 in the preceding year.—*Gardeners' Chronicle*, March 21.

GEORGE WHITE & CO'S ANNUAL TEA REPORT.

(*Extracted.*)

London, 31, Fenchurch Street, E C, March, 1903.

When just a year ago we ventured in our Annual Report to dwell on the gradually improving prospects, it seemed scarcely possible that the hope then put forward of better times could be so quickly realised. As it is, owing to a variety of causes, some of which could not have been foreseen, the tea trade has within the last few months attained a measure of health and general soundness on which it may well be congratulated. The Clearing House dispute which arose in September for some time demoralised the trade, and no doubt retarded the development of the situation. On the other hand, had it not then occurred, more of the crop would have been quitted on the lower level of value, as during the dispute every day was adding to the strength of the position, owing to the reception of confirmatory cables of the shortage and the eventual result was combined action on the part of sellers. The chief causes of the altered situation are to be found, first in the crop falling far short of expectations, and secondly in the marked expansion in the demand for the British-grown article, especially in America, Canada and Russia, and also in less degree, to the displacing of black by green tea particularly in Ceylon.

CEYLON.

Participates with India in the greatly improved position above referred to. Similar agencies have been at work, viz.:—a stationary output and largely increased shipments to markets other than the United Kingdom, together with a very appreciable displacement of black by green tea. In both cases the recent removal of the import tax in America has had a very stimulating effect on business with that country. Quality.—Has been a good average, if not quite reaching the unusual excellence of the preceding year. Really fine high-grown tea has throughout been comparatively scarce and where the standard was fully maintained good prices resulted; on the other hand when it has just been missed the shrinkage in value even in well known marks has been very apparent, as buyers when dealing in high cost tea are extremely sensitive. It is satisfactory to note that really low common, no doubt largely due to the increased manufacture of green tea in the lower districts, has again been practically eliminated from shipments to London and the supply in the inferior grades has, on the whole, been of a useful description. Possibly it is in a measure owing to this that the difference in value looked for between tea grown on the higher and lower levels has often been disappointing to owners of the former, who have not the advantage of a large outturn per acre.

STATISTICAL POSITION.—Although during 1902 there was a falling off in the deliveries of some 7 million lb, partially accounted for by the reduced imports, the stock of 19¾ millions on 31st December as against 68¼ Indian shows the situation as relatively stronger. Shipments to United Kingdom for the past year totalled 103½ millions, or a decrease of nearly 3½ compared with 1901, while the estimate for the current season is only 96 million lb.

For the twelve months the following on Estate Account passed the hammer in London :—

1902.	1901.	1900.
1,012,100 pkgs.	1,059,800 pkgs.	1,125,100 pkgs.
(Av. 6⅝d per lb.)	(Av. 7d per lb.)	(Av. 7⅜d per lb.)

PROSPECTS.

With the steady progress that is being made in all consuming countries the necessity of keeping supply from outstripping consumption appears to be the one thing needful to ensure a continuance of the brighter outlook now before us, and on looking back at the crops under reference it is a good omen to see, that judging from the average quality, there would appear to have been a praiseworthy disposition not to sacrifice the success achieved when our last Annual was issued, and we would venture to refer to the exhaustive remarks then made on this important subject. Formerly a somewhat curious phase of the industry has apparently been that no sooner had a better position been built up than every possible means were taken to demolish it, for instance, a remunerative price for common tea being the general signal for indiscriminate plucking, the obvious result being an eventual slump in values. "Climatic causes" have once again proved to be a trusty friend in disguise, as, to judge from unofficial estimates of the crop put forward in some quarters last spring, had the season been more favourable for flushing, our congratulations today would be more modified. We do not suggest that growers would have again fallen into the fatal and long felt error of 1900, when prudence was cast to the winds, and aided in that instance by the weather, the competition to produce *quantity* at any cost, resulted in a crop out of all proportion to requirements and upset for a long while the important relations of supply and demand. The danger cannot be said to have altogether passed and we would urge upon those interested in the industry to adopt such a policy that the measure of prosperity now attained may be in no fear of being dissipated. The outlook is undoubtedly one of great promise and the temptation to mar it by a system of coarse plucking is bound to have its attractions. We cannot conclude this subject better than by saying "Remember 1900." In this relation the labour question has become a most important factor when considering the contingency of an unduly large crop, as even given the rare experience of a weather being favourable throughout all the districts to abnormally free growth, it is impossible to take the leaf without a correspondingly increased force of coolies, and this, under existing conditions, is apparently not available. These remarks more especially refer to India, but Ceylon is not exempt from troubles in this direction.

MANUFACTURE.

Instead of any endeavour being made to suit a perhaps momentary feature of the demand, which may have disappeared ere the Tea made to meet it has been shipped, we commend each garden to adopt the system which has been found best suited to its soil and surroundings, and so afford a varied supply, rather than all following a general policy, be it that of coarse, medium, or fine plucking. On the average of seasons this will be found to give the best result. Uniformity in leaf and liquor is to be aimed at, as buyers will always then follow a mark to its advantage.

GREEN TEA.

Production a year ago was in its infancy, but so rapid has been its growth, stimulated by the cess, that Ceylon estimates to displace black tea during the current year to an extent of no less than over 12 million lb. India is also making marked progress in this direction and will add an appreciable quota. These teas are being freely introduced in Canada and the States whilst Home dealers also, in many cases, find them suitable to their requirements. Those "finished" in the new style are particularly liked and owing to their cheapness compared with China kinds are receiving more attention; the producing of this style of Indian and Ceylon Green is, however, practically only in an experimental stage and has great possibilities in the future. Various machines are being tried, one recently brought out in Calcutta being specially well spoken of.

MONTHLY AVERAGES

obtained in London for Garden Invoices, from the different Districts of Ceylon from 1st July to end of February, for Seasons 1902 1903, 1901-1902 and 1900-1901.

TOTAL CEYLON.

	July. Pkgs.	July. Avge.	August Pkgs.	August Avge.	Sept. Pkge.	Sept. Avge
1902-1903..	135,800	6⅛	88,800	6½	120,000	6½
1901-1902..	124,500	6½	94,800	6¾	86,500	7⅜
1900-1901..	138,200	7⅛	116,000	7	98,200	6⅞

	October. Pkgs.	October. Avge.	Nov. Pkgs.	Nov. Avge.	Dec. Pkgs.	Dec. Avge.
1902-1903..	82,600	7⅛	63,600	7¾	52,000	7¾
1901-1902...	90,700	8	65,900	7¾	69,600	7½
1900-1901..	103,900	7½	78,000	7⅝	73,500	7⅜

	January Pkgs.	January Avge.	February Pkgs.	February Avge.	Total London Avgs. for 8 months. Pkgs.	Total London Avgs. for 8 months. Avge.
1902-1903 ..	90,700	7⅝	80,300	7⅝	713,800	7
1901-1902 ...	115,300	7⅜	101,600	7	748,900	7¼
1900-1901 ...	146,000	6⅝	107,700	6¼	861,500	7

MONTHLY AVERAGES OBTAINED IN LONDON FOR TEAS FROM DIFFERENT DISTRICTS IN CEYLON DURING 1902, 1901 AND 1900.

Districts.		Jan. d.	Feb. d.	March. d.	April. d.	May. d.	June. d.	July. d.	August. d.	Sept. d.	Oct. d.	Nov. d.	Dec. d.	Total Packages.	Averages for 12 Months.
No. 1.—Uda Passellawa, Nuwera Eliya, New Galway, Dimbula and Lindoola ...	1902	8½	8½	8⅜	8½	8¼	8⅛	7⅞	7¾	8½	9	9⅜	9½	235,891	8⅜
	1901	8⅝	8¼	9	8¾	8	7¾	7⅝	8	8¾	9¾	8⅞	8¼	257,481	8½
	1900	8¾	9	9¼	9	8⅜	8½	8¾	8½	8⅝	10	10¼	9⅞	242,936	9
No. 2.—Maskeliya, Dickoya and Bogawantalawa	1902	7¼	7⅛	7¼	7	6⅝	6⅞	6⅝	6¾	6⅞	7½	8¼	8⅝	148,861	7⅛
	1901	7½	7⅛	7⅜	7¾	7⅜	6⅞	6¾	7	7⅝	8⅛	8	7½	164,361	7⅜
	1900	8	8⅛	8⅛	8	7½	7	7⅞	7⅛	7⅜	8⅛	8½	8¼	183,211	7¾
No. 3.—Lower Dickoya, Ambegamuwa, Kotmalie, Yakdessa and Dolosbagie ..	1902	7	6½	6⅝	6½	6	5⅞	5⅝	5⅞	5¾	6½	6⅞	7⅛	91,486	6¼
	1901	6⅝	5¼	5⅞	6½	5⅞	5⅜	5⅝	6¼	6¾	7½	7¼	7	98,618	6¼
	1900	7	6⅞	6⅝	6⅝	6⅝	6	6⅛	6⅜	6⅛	6⅛	6¼	6⅛	115,127	6⅜
No. 4.—Passilawa, Ramboddo, Pundaloya and Kadoganawa ..	1902	7⅛	6⅝	6⅝	6⅝	6⅜	6	5⅝	6	6⅞	6½	7⅛	7⅛	100,647	6⅜
	1901	6⅛	6	6⅝	7	6⅛	6¼	6	7	6⅞	7½	7⅜	7⅛	97,144	6⅝
	1900	7⅛	7⅛	7¼	7	6⅞	6⅝	6⅞	6⅝	6⅝	7	7	6⅝	98,102	7
No. 5.—Hantane, Nilambe, Hewaheta (U. & L.) Maturata, Dambara, Rangala, Nitre Cave and Medamahanewera ..	1902	7	6½	6½	6¼	6⅛	5⅞	5⅝	6⅛	6¼	6½	7¼	7½	70,479	6⅜
	1901	6	5⅝	6⅜	6½	6	5¾	6	6⅛	6⅞	7¾	7⅜	7½	78,824	6⅝
	1900	7½	7⅛	6¾	6⅞	6⅝	6¼	6½	6⅛	6⅝	7	6⅞	7	90,115	6¾
No. 6.—Kallebokka, Knuckles, Hunasgeria and Panwila ...	1902	6⅞	6½	6½	6⅛	6	5¾	5⅝	5⅞	5¾	6	6⅝	6¾	36,458	6⅛
	1901	5⅝	4¾	5⅞	6¼	5⅞	5¾	6	6⅛	6⅛	7¼	7⅛	7	41,412	6
	1900	7	6⅞	6⅛	6½	6½	6	6¾	6⅛	5⅞	6	5¾	5½	46,315	6⅜
No. 7.—Matale, East and West ...	1902	6¾	6¼	6⅜	6⅛	5⅝	5⅝	5¼	5⅝	5⅝	5⅞	6½	6⅝	55,534	6
	1901	5⅝	4¾	5½	6½	5¾	6½	5¾	6	6½	7	7⅛	7	51,507	5⅞
	1900	6⅞	6⅝	6⅜	6¼	6¼	5¾	6⅛	6	5⅞	6⅛	6	6	55,231	6¼
No. 8.—Kurunegala, Polgahawela, Kegalle and Henaratagoda ..	1902	6½	6	6⅛	5¾	5⅝	5¼	4⅞	5⅛	4¾	5	5⅞	6¼	3,456	5½
	1901	5½	4¾	5⅝	5¼	4½	5	5	5½	6⅛	6½	6⅞	6⅞	3,508	5½
	1900	6⅝	6⅝	6	6	6⅝	5¾	5⅝	6¼	5½	5¼	6	6¾	2,751	6⅛
No. 9.—Kelani Valley, Avissawella, Yatiyantota, Kittoogalle and Lower Dolosbagie ..	1902	6⅞	6¼	6¼	6	5⅝	5½	5⅛	5½	5⅝	5½	6⅝	6⅝	81,848	6
	1901	5½	4⅝	5	5⅛	5⅛	5¼	5½	6	6¼	7	7	6⅞	88,535	5⅝
	1900	6⅞	6⅝	6⅛	6¼	6	5⅝	6	5⅞	5¾	5¾	5⅝	5½	106,197	6
No. 10.—Kurawita, Ratnapoora, Rakwana, Balangoda and Kukulu Korale ...	1902	7½	6¾	6⅜	6	6	6⅜	5⅛	5⅜	5⅝	6	6¾	7¼	23,942	6¼
	1901	6	5⅝	6⅛	6	5½	5⅜	5¾	6½	6¾	7¼	7½	7½	25,960	6¼
	1900	7½	6½	6⅞	7	6⅛	5¾	6½	6¼	6¾	6½	6½	7	21,010	6½
No. 11.—Kalutara and Bintota ...	1902	6⅞	6½	6½	5⅝	5⅞	5⅝	5⅜	5½	5⅜	5⅜	6⅛	6½	30,798	5⅞
	1901	5½	6	6½	5⅞	5⅞	5½	5⅝	5¾	6½	6⅞	7	6¾	31,906	5⅞
	1900	6⅜	6⅞	6½	6½	6	5⅝	5⅞	6	5⅞	6	5¾	6	34,052	6⅛
No. 12.—Udagama, Morowak Korle ...	1902	6¾	6	6¼	5¾	5⅜	6¾	5⅛	5½	5⅜	5⅝	6½	7½	7,580	5¾
	1901	6	5¼	5¾	6½	5½	5½	5¾	6	6⅝	6¾	6⅝	7	8,826	6
	1900	7	7	6½	6⅝	6⅜	6	6⅝	6¼	6¼	6⅜	6¼	6¾	8,480	6½
No. 13.—Haputale, Badulla, Madulsima and Passara ...	1902	7⅜	6¾	7	6⅝	6½	6½	6⅛	6⅝	6¾	8½	8¼	8	127,129	7
	1901	7¼	6½	6⅞	7⅛	6½	6¼	6⅛	7	8	8¾	8	7⅜	117,770	7⅛
	1900	7¾	7⅜	7⅝	7⅜	6⅞	6½	7	7⅛	7⅝	8½	8⅝	8¼	121,576	7½
GENERAL AVERAGE OF ALL DISTRICTS ...	1902	7⅜	7	7⅛	6¾	6⅝	6½	6⅛	6½	6½	7⅛	7¾	7¾	1,012,109	6⅞
	1901	6⅝	6¼	6¾	7⅛	6½	6⅜	6½	6¾	7⅜	8	7¼	7½	1,059,852	7
	1900	7⅝	7⅝	7½	7½	7⅛	6⅝	7⅛	7	6⅞	7½	7⅜	7⅜	1,125,103	7⅜

GEO. WHITE & Co., Tea Brokers.

INDIAN TEA.

(CARRITT MORAN & CO.'S INDIAN TEA MARKET REVIEW, SEASON 1902-1903.)

Calcutta, April 1903.—Season 1902-1903 has closed with an actual crop through Calcutta and Chittagong of 175 millions, of which shipments to the United Kingdom have totalled 145½ millions, the corresponding figures for last year were 174¼ and 153 millions, respectively. The quantity sold on the Calcutta market totalled 47½ millions or 27¼% of the crop.

QUALITY.

In respect of quality the crop has been barely up to average standard, and taken all round has not been equal to that of last year. Assams have, in some measure, been disappointing, at no period during the season have they stood above ordinary average quality, and like last year the supply of good, autumn teas has been small. Cachars & Sylhets have, as a rule, been good, Terais fair, and Darjeelings, with the usual exceptions, have been attractive. Dooars teas in the early months were plain and somewhat indifferent, but towards the close of the rains they rapidly improved, and this district was fortunate in producing a particularly good autumn crop which commenced early and was consistently desirable until the close.

From Southern India supplies have again found their way to this market in small quantities; the offerings throughout the season have totalled two thousand packages, which have realised an average of about 5¼ annas. The teas have been well-received, considering that they are strangers to this market, and also that growers have not yet had time or opportunity to study the particular requirements of the trade here, and produce such types as would secure for them a price that would be really indicative of the full benefit to be derived on this market, where freight and charges are so much lower than they have been accustomed to pay.

MANUFACTURE.

The system of manufacture, in Travancore more especially, seems to be chiefly directed towards cup character, in which a colory liquor is apparently the desideratum, and aimed for consequently at much expense of style and appearance. London having hitherto been the exclusive market, this tendency is explained and the teas are doubtless right for that centre, In Calcutta, however, much importance is attached to make and shape, and generally stylish appearance in teas of the same level of value, and Travancore teas could undoubtedly be made a great deal more attractive than they are with some slight deviation from the present recognised system of withering and rolling and particularly in respect of sorting also, which requires more careful and thorough manipulation. With these improvements there is no doubt that the Eastern market, with its variety of interests, would give a fair return to producers, provided the supply became regular and consistent.

The industry has again been perhaps more fortunate than circumspect in producing a moderate crop; like last year the weather has played an all-important part in levelling down supplies, and although it cannot be said that there has been any positive tendency to increase the supply at the expense of a quality, the impression nevertheless is that the real check is explained by

ADVERSE CLIMATIC CONDITIONS.

The effects of weather as affecting supply have been phenomenal; the cold season set in early, and at the same time so earnestly that a few days sufficed to upset all calculations, and a continued shortage became evident as the season grew older. The local market responded immediately to the altered conditions and prices advanced appreciably and steadily from sale to sale. London, however, was slow to recognise the changed aspect; it eventually broke away from its dead level of value, but only for a time, and in spite of a heavy shortage in supply, not only from here but also from other countries of production, it again set back. The sullen and sensitive tone which existed in the home market for many weeks, difficulty in moving up values, and a non-responsive trade generally must at the time have been a great disappointment to sellers and productive of serious reflection on their part. THE RELATIONS BETWEEN BUYERS AND SELLERS in London in the latter months have never been so pregnant with suppressed antagonism as indications seemed to portray, and in this was probably seen the inconsistency of the position of the home trade. Sellers, however, have since had the balance all in their favour, they have seen their opportunity to force the market and have taken advantage of a position which though new to them, was assured and justifiable. They have had to carry the stocks but it has paid them to do so, and it has been no burden to them. Buyers have retaliated by holding aloof and relying upon hand to mouth dealings to see them through, but it could not last long enough and they were unable to keep pace with consumption.

At the close of the twelve months therefore the producer finds his position strengthened very considerably, but it should be recognised as the outcome of a short yield and a still further deficient supply, so far as London is concerned, owing to the increased offtake in Calcutta by new markets. These are the factors that have formed the backbone of the sellers' position, enabling them to carefully nurse the home market in a way that has not hitherto been experienced in the trade, and with results so satisfactory to themselves.

To producers, the season, though full of encouragement at the close, has again shown disappointing results. The position on their side is undoubtedly stronger and a brighter future is before them, and it is not difficult at present for them to appreciate both, seeing that the recent recovery in prices has imparted financial encouragement to some slight degree. They have, however, been handicapped by climatic influences which have cut down yield and the advance in value has been long delayed.

THE PRODUCERS' POSITION.

That they have done much to improve their position cannot be denied, the improvement though acquired is not yet fully apparent but will certainly take substantial form in the near future. In the meantime the history of Indian Tea for the past two seasons affords much for contemplation on the part of the grower. On a two years' comparison he will recognise that the supply of the United Kingdom has been about right, that market having stood two consecutive short crops without disturbing the *average* value to any great extent; at the moment demand and supply at home

are running almost abreast and on the same reckoning he will realise how sensitive and easily affected by supply and the handling of it, the value of tea in London is likely to be during the ensuing season. It leaves a very small margin to allow for increased production without disturbing value, and if exports to the United Kingdom show at any time only a moderate increase even, it will probably be immediately reflected in prices.

Although the crop this year has been short of estimates and expectations the supply has been sufficient. The total outturn was actually in excess of last year; had this excess gone to London the position there would have been one of extreme anxiety; outside markets, however, saved the situation, for they not only absorbed the increase through Calcutta but a great deal more, and their worth has never been brought home to the producer so strikingly as during the past season. The quantity diverted from the London Market through these channels has played a much more important part in determining the value of tea than inclement weather or any other factor affecting supply, and although these demands are at last being recognised, they do not receive the full consideration they justly deserve, as the only real and sound means of securing the industry in every way from the evils attending a full or abundant yield and of permanently raising value. The history of the past season's trade with countries other than the United Kingdom is extremely satisfactory; it is indicative of continued perseverance and energy by those engaged in the trade who are to be congratulated on the success achieved.

LOCAL MARKET AND DIRECT SUPPLY ABROAD.

The supply placed on the local market for disposal in 1901-1902, shewed a very marked decrease on previous figures, and consistently, Indian Tea lost much ground in the markets of the world outside London. Last year, however, Calcutta received a somewhat larger proportion of the crop, the increase was small, but it gave these markets the opportunity to recover lost ground and new ones to come in also; they responded at once to a more liberal supply and not only have they now regained their absorbing powers of 1900-1901, but they have gone further, and during the past year their accumulated strength has been the brightest feature of the season's restrospect.

As before remarked, the persistent expansion of these valuable outlets should be recognised as the safety valve and governor of the industry. They have unquestionably prevented a state of stagnation in the home market, and the movement towards a higher level of value this year can *only be attributed to their dealings*, for without their increased offtake, the crop, though short, would have been quite enough to make it impossible to raise prices.

The progress made in the twelve months necessitates an extension of last year's figures and comparison with those of Ceylon, which will once more substantiate the assertion, that the more reasonably liberal the supply to this market, the more will our fresh outlets expand and afford relief to London.

INDIA.

	Total Crop. millions	Offered in Local Market. millions	Shipped to outside Markets. millions
1902 ..	175	47½	29½
1901 ..	174¼	46¼	20¾
1900 ..	187½	50	25
1899 ..	174¾	50	22
1898 ..	153	49	17¾
1897 ..	148¼	46	13
1896 ..	135¼	47¾	13

CEYLON.

	Total Crop. millions.	Offered in Local Market. millions.	Shipped to outside Markets. millions.
1902 ...	149 ...	51 ...	45½
1901 ..	146¾ ...	51 ..	40
1900 ..	148½ ..	48 ..	34½
1899 ..	130 ..	38½ ..	25½
1898 ..	119¾ ..	36 ...	23¾
1897 ..	116 ..	33¾ ..	17
1896 ..	108 ..	32 ...	14¼

A careful comparison of the above figures for seven years will show how consistently the offtake of Indians by outside markets has followed and been governed by the irregular offerings in Calcutta, and in the case of Colombo how carefully their corresponding demands have been fed and fostered in the local market from year to year; this will go some way to explain her present figures which are so much better than ours, but her geographical position has much to do with her success.

DISTRIBUTION OF THE CROP.

The following figures show the distribution of the crop from Calcutta and Chittagong compared with recent years:—

	1902-1903. mills.	1901-1902. mills.	1900-1901. mills.	1899-1900. mills.
To United Kingdom	145½	153	161	149¼
,, Colonies ..	5¾	8½	10½	8¼
,, America ..	9¼	2¼	4½	6
,, Other outside markets	14½	10	10	7¾

These show excellent progress, except in the Colonies, where there has been much depression in trade generally. In respect of tea, business there has been sadly disorganised by drought and the uncertainty in regard to the settlement of duty, and imports of all tea last year fell off to a very serious extent; latest advices, however, are satisfactory. They report a recovering trade and an improving market, and a very much better state of affairs with a larger offtake may be confidently anticipated during the ensuing season. The figures for America are particularly good, but the most noteworthy increase has taken place in our trade with Russia. This demand is not a new one for Indian tea, but it is new to *this* market and the transfer from London of a very large portion of these interests is the most welcome and satisfactory feature of our dealings with foreign markets. The quantity she has taken has been very considerable and she has been a more reliable and consistent customer than the Colonies.

In detailing outside market figures it must be noted that a fair quantity of tea is actually destined for these ports in Chittagong shipments; though definite information cannot be ascertained at this end, enquiries on the home side make

it probable that between 1½ and 2 millions have to be thus accounted for which will further improve the foregoing figures. At the same time it is probable that a certain quantity eventually finds its way to London where it has possibly been intercepted on its way elsewhere.

The following figures show the ratio between exports to foreign markets from Calcutta and sales on the local market. The total is 62¼ per cent of the offerings compared with 44¾ last year.

	1902-1903.	1901-1902.	1900-1901.	1899-1900
	mills.	mills.	mills.	mills.
of Calcutta sales ..	47½	46¼	49¾	50
	₩ cent.	₩ cent.	₩ cent.	₩ cent.
Shipments to Colonies ..	12	18½	21⅕	16½
Shipments to America ..	19½	4¾	9	12
Shipments to other markets	30¾	21½	20	15½

GREEN TEAS.

The past year has seen a definite start made in the manufacture of green teas and in respect of value these types have, as a rule, compared favourably with ordinary blacks from the same garden. A fair quantity has been made, totalling about 1½ million pounds, and in the Calcutta market ¾ million pounds have changed hands at an average of 5½ annas per pound. Consistent and regular supplies have been received from the following gardens:—Manabarrie, Moheema, North Western Cachar, Longview and Kolbong, and occasional invoices have come forward from Holta and East India (Cachar); in addition to these sundry lots of a tentative nature have been seen but they have been of no service for gauging comparative values of greens against blacks, the breaks having been small, in many cases single chests or half-chests only. As a test of style and character they have however been useful, but in regard to price, to obtain a true comparison of probable results of manufacture of each type, it is necessary to conduct the trial on market lines and put fair-sized breaks before the trade.

The class of green tea chiefly produced has been the unfinished type, which has met a ready demand for certain outlets. But in this state other markets that required finished types have not had opportunity to interest themselves, a few small lots only having appeared spontaneously, but these have also been good and have been well spoken of in the terminal market. The process of converting the unfinished into pure finished types has now been introduced and has proved successful; it is simple and effective and the finishing is done at small extra cost. During the ensuing season arrangements will probably be made for finishing teas in Calcutta, which can be availed of either by sellers or buyers.

The duty question has once more formed the subject of an appeal to the Home Government, and the Tea Association have asked the powers on this side to use their influence in support. Twelve months ago the industry was disturbed to some extent in expectation of the possibility of an increased impost, which happily did not occur; this year anticipated legislation has also had some effect on the markets, but in a different direction, dealings for some time past having been controlled by the prospect of a reduction in duty which is generally considered reasonable and fair. The Indian Tea Association are to be congratulated on the success they have achieved in the direction of instituting a compulsory tax on all exports, similar to that which has been in existence in Ceylon since 1893.

There are many ways in which the object of the bill can be attained, all of which, it may be assured, will receive the careful attention of the special Committee to be appointed to deal with the funds; one of the most important, however, is in connection with the manufacture of green tea, and the opportunity afforded to induce freer supplies. Ceylon granted bonuses to producers of green tea last year to the extent of about R2,50.000; the supply increased almost 2½ millions during that period.

That more attention will be given to green tea in India seems probable, but at the same time there is some hesitation in taking up and providing for its manufacture. This is to be understood, as in the present state of the industry producers do not see their way to increase their outlay by the cost of additional and necessary machinery, and to embark on a new enterprise without having some inducement which, as in the case of Ceylon, might take the form of a bonus. It would, of course, be unwise for any garden to allow a return of this nature to have any bearing in estimating possible results of the manufacture of greens, it should be ignored altogether, and a self-supporting basis only considered; what is required is *inducement at the start*, and provision against the possibility of unfavourable results during the experimental stages. A bonus would supply this want. The manufacture of greens in India would not have been started last year had it not been the Association's bonus that originally induced it; the American and Canadian markets can take greens freely, and if India does not make them she cannot hope to push her trade with these centres to any appreciable extent. Ceylon in the meantime is making rapid strides in this direction, and she will capture these outlets to her exclusive advantage unless India; if she wants a share of the trade, is placed on the same footing. In anticipating the ensuing season events during the past year furnish useful indications. Recent incidents are full of significance in respect of the course of the home market which promises to be an extremely sensitive one. The movements of exports from this end, which will be carefully kept in view, and the handling of supplies in London, which will be cautiously followed, will be the chief factors in determining the value of Tea. At the moment the producer's position is strong and his prospects good, better than they have been for some years; home consumption is free, stocks light, (they will probably be abnormally low in July next) and buyers carry no burden in the shape of dear tea and difficulty in moving it. To maintain their position and further improve it, the producers' policy is clearly suggested in keeping the crop within reasonable limits, and in being fully alive to the certainty of a return to starvation prices as a result of the taking of any liberties in the direction of supply. The recent bed rock level of value has in some measure influenced better and less tea, but there is no disguising the fact that weather has been the prime mover. At this juncture it would be extremely unwise if the recent advance in value should be met by converse working, and reflected in a freer system of plucking, the drawbacks of which may be further aggravated by weather favourable to yield. The interests of growers and sellers being identical, the latter will realise from the past year's experience the advantages derived by feeding the market

judiciously, and above all the real cause of the turn of events in their favour which a free and expanding trade in Calcutta with outside markets has brought about; it will encourage them to give these markets every consideration. Much assistance is also at hand in dealing with the ensuing year's outturn; not only has Calcutta a rapidly growing constituency in all parts of the world which is ready to relieve London to an ever-increasing extent, if properly supported, but the manufacture of green tea will sensibly reduce the supply of black; the influence of the Cess also, if it become law, will soon be manifest.

In contemplating the approaching year's crop there is nothing to convey an impression that it will be a heavy one, beyond the assumption that two moderate yielding seasons are likely to be followed by one of abundance, or that growers will be persuaded by the advance in value to aim for quantity. The first named possibility is a distant one, and favourable weather will meet counteracting influences. Lean years and hard times through which the industry has been passing have enforced a continued and rigorous cutting down of expenditure, which has had, and will have, its effect on cultivation and, in turn, on yield to a greater extent than is generally supposed. Short labour forces in past years will affect outturn in a similar manner, and it must be remembered that considerable areas have been abandoned. At the same time extensions coming into bearing are small and the plucking area is probably much about the same as last year. The second named possibility cannot be so definitely answered, but circumstances are in favour of moderation. It is quite recognised by producers that the turning of the corner, over a period of two years, has been brought about by care, as well as by weather and greatly assisted by the expansion of foreign markets, and it is also accepted that the situation can be easily disturbed from its present tendency which is so much in their favour. The position is appreciated, and a reasonable conclusion is that it will be respected. The ensuing season can, therefore, be anticipated with much confidence. Prospects are exceptionally favourable from every point of view, and, with careful working in the districts and judicious handling in the markets, there is every reason to look forward to a prosperous year.

WILL THERE BE TOO MUCH RUBBER?

In view of the amount of rubber planting now in progress the question has been asked—and it is a very natural question—whether there is not danger of a new source of supplies being created, out of all proportion to the world's needs. In other words, whether the result may not be overproduction of rubber to a degree that will render the new planting interest unprofitable.

If the consumption of rubber were a fixed quantity, with a definite limit already reached, caution might be wise in the matter of providing new sources of supply. But this is not the case. The consumption of rubber in the United States alone has doubled within seventeen years, and from whatever standpoint the rubber industry may be viewed, it gives promise of a more rapid rate of expansion to come with the many new uses of rubber, the growth in population and the greater buying capacity of the people. The consumption has also become much greater in other lands, and there yet remains a large part of the world's population to become users of rubber goods. Within twenty years the production of 'Para' rubber has increased threefold, and meanwhile the present enormous supply from Africa has been developed. Yet such has been the increase in demand that prices have tended constantly upward, and market supplies are smaller today than for years past.

The natural supply of rubber on the other hand, is limited. There is no longer any unexplored country in which rubber trees may be hoped to exist. There are forests known to contain rubber which have not yet been 'worked,' but these virgin fields are lessened in extent every year. The gradual opening of new fields is offset in part by the exhaustion of old ones. It is true that, under the more intelligent supervision now given to them, the existing rubber trees in Brazil and Bolivia, for example, may long be conserved. Still there must come a time when all existing natural supplies will be taxed to their utmost, and then, without new resources, the further growth of the rubber industry will be impossible. No date for this situation can be fixed, of course, but its imminence certainly appears to us to justify the planting of rubber.

Several millions of rubber trees have been planted, thus far, but so recently that only a few thousand have reached a productive age. It is not reasonable to suppose that all the others will reach maturity, for the reason that rubber planting is a new interest, and as such liable to its share of failures. The addition to the world's supply of rubber from the existing plantations will be made gradually, as each year's planting begins to yield, and is likely to be required by the growing consuming demand. The same consideration will apply to such planting as may be done for a good many years to come. It must be remembered that rubber can be cultivated successfully only within very restricted limits. The territory in which rubber might thrive is much wider, but the natural conditions preclude undertakings there by outsiders, and render the collection of wild rubber so difficult as to make the cost of the product sometimes $2000 or more per ton.

It must be expected that, ultimately, the success of rubber planting will result in lower prices, but not necessarily to the disadvantage of the planters. We have quoted Mexican rubber lately at 68 cents a pound, which means $1,500, gold, per metrical ton. If rubber planting is going to succeed at all, it is not going to cost $1,500 or half of it, to prepare and market a ton of products, and at much lower market rates there ought to be a good profit. At the same time every material decrease in the cost of rubber is bound to give a new impetus to consumption This page would not hold a list of the practical uses for rubber which are held in check today by the high cost of the raw material. But when people once become accustomed to a new use of rubber, in which they are encouraged at first by low cost, they do not give it up latter if obliged to pay more for the article. A reasonable expectation, therefore is that if rubber prices should, in time, be depressed materially from the present level, the effect will be such an increase in consumption as to check the fall and soon create an upward tendency. This sort of fluctuation may be the continual experience of future generations of rubber planters, but it is a consideration too remote for those who are engaging in the business today.

Finally if the rubber planters are alive to their opportunity they will produce an article superior to many rubber grades now marketed, and obtain better prices. Then, if the market should become overstocked the last sorts to feel the depression will be the carefully prepared plantation products, which will be preferred by manufacturers at good prices to badly cured dirt-filled and foul-smelling rubber collected by natives in their primitive way, and now used in the factory through necessity. It might be suggested that people have been cultivating rice and wheat and other crops, and making iron and cloth and leather, for some thousands of years, and that in none of these lines has overproduction ever resulted to such an extent as to render the work unprofitable, taken as a whole, or unprofitable anywhere for a long continued period.—*India Rubber World*, March 1.

DEVELOPMENT OF COTTON-GROWING IN BRITISH POSSESSIONS.

The Committee of the British cotton-growing Association held a meeting yesterday at the offices of the Manchester Chamber of Commerce, Mosley street. Letters were read from the experts already sent out. Mr. Severs (the Gambia), Mr. Prince (South Nigeria), and Mr. Neely (Sierra Leone) all expressed the opinion that the various places they had visited were suitable for cotton-growing, and that the prospects were encouraging. Nr. Neely sent a sample of cotton just picked, grown from American seed, which was pronounced very good and the kind of cotton required. Letters from Mr, E Nathan and Count Gleichen were read relating to cotton-growing in the Soudan, Mr. Nathan is sanguine as to the prospect. The consideration of the matter was deferred till Mr. Nathan's return. The secretary reported that four bales of cotton sent by the Zambesi Industrial Mission had been sold at 5½d per pound. Had it not been mixed the value of the cotton would have been much higher. A letter was read from Mr. T Morris, of Barbados, and it was decided to send out at once three gins and three presses to the West Indies. A large number of persons are now growing cotton there, and the prospects are good.—*Manchester Guardian*, March 10.

PINEAPPLE CULTIVATION IN MADURA

The cultivation of these and other pines is quite easy, and I think well repays the trouble taken. In August I re-port all my pines, I make up a compost of 2 baskets red earth, 1 basket sand, 1 basket each well rotted cattle and horse manure. The pots are well drained, as I find the plants like a lot of water and like it to run away quickly. When re-potting I take away all shoots, but the one which I am going to grow for fruit. (it fruits the second year). As soon as the young shoots are well established plants, I cut away the portion that has carried fruit this year. In January of each year, I give each pine that has fruit, a good supply of liquid manure once every week, I find this is a great help to them and the fruit is much larger and heavier. I do not think the country pines are worth growing when you can get the Kew or Ceylon pine, but I have grown them up to 6 lb (including the head) and the Ceylon pine I have grown to 11½ lb (including the head). I am told they should grow to 18 lb.—W. H. OAKES, Esq.

COTTON CULTIVATION IN CENTRAL ASIA.

In view of the increasingly important part which the production of cotton in Central Asia seems to play in connection with the textile industry of European Russia, the following remarks translated from the "Journal" of the Ministry of Finance by the "Journal de St. Petersbourg," concerning the cotton crop and the state of the plantations in 1902 may be of interest. Last year was not favourable to the cultivation of cotton in Central Asia and Turkestan; the yield was 13·1 per cent below that of 1901, which was itself not abundant. The diminution in the yield of cotton from American seed was as much as 32·2 per cent, while on the other hand indigenous cotton showed an increase of 32·5 per cent. It was not so much a question of diminished production as of a restricted area. Another factor has indirectly contributed to the temporary decline in the cultivation of cotton in Central Asia. Owing to the system of protection in vogue, the cultivation of cotton had become so profitable in Turkestan that the natives had abandoned all other branches of agriculture. Moreover in the absence of agricultural banks, they have recourse to a system of advances which weighs very heavily upon them. Under this system the buyer readily makes advances to every grower who guarantees to supply him with a certain quantity of cotton. Being better informed than the producer, the merchant generally knows how to keep for himself the best chances of profit, and if the price of cotton is high at the time when the product is delivered, the grower finds himself deprived, of a part of the profit which he expected to obtain. Another cause for the present decline in the cultivation of cotton is the lack of manure. In the absence of irrigation works, the natives find themselves obliged to cultivate cotton year after year on the same land; hence the need for manure and the abnormal loss of the seed. In Khiva and Bokhara the cultivation of cotton has replaced that of wheat. The average yield of the cotton plantation in Central Asia was greater in 1902 than in the previous year except in the district of Taschkent. Compared with 1901, the total yield of cotton in 1902 showed a decrease of about 1,683 400 pouds, the estimated figures for last year being 4,900,000 pouds, of which 2,700,000 were American cotton.—*Board of Trade of Journal*, Feb 26.

SELANGOR RUBBER.

From Bukit Rajah Estate, Klang, a small quantity of gutta rambong from trees 4½ years old was sold in Singapore at $190 per picul [or £19 18s per 136 lb—*i.e.* or 2s 9d per lb.] the cost of collection being $72·0 per picul [above 14s 6d per 136 lb.] This rubber was scrap. Subsequent tappings, while no more expensive to collect, show great improvement in quality, and should fetch considerably higher prices.—*Straits Times*, March 25.

TEA PRUNING:
THE LATEST DELIVERANCE BY THE INDIAN EXPERT AUTHORITIES.

The appearance at this time of the *brochure* by Sir George Watt, and Mr Harold H. Mann on the "Principles of Tea Pruning"—1903 No. 1 of *The Agricultural Ledger*, published in Calcutta—is opportune. The postponement of the date for receiving the Ceylon Prize Essays on Pruning, will give intending contributors who read this paper the benefit of the latest deliverance of the recognised Indian authorities; and although it is unlikely that they will find in its pages much that is new, yet the re-statement of the old and established principles of scientific tea pruning should be a useful check. The Ceylon students of the "Principles of Tea Pruning" are ever made conscious of the fact that the field of observation from which the conclusions are drawn is the Indian Presidency, and that it is necessary to keep this in mind when applying them to our local industry. It detracts somewhat from the value of the paper that the range of its field is limited; still the general conclusions, which apply here as well as elsewhere, are of high value, are worthy of remembrance, and in practical hands will be found making for utility. In tea pruning, it makes all the difference in the world if the planter has an intelligent knowledge of what the application of the knife aims at, as compared with the uninstructed man who knows the system but not the reason for it.

"Pruning," say the learned authors, "is the most important operation in the tea garden . . . demanding the most skilled, careful, and constant supervision." This note is sounded all through the paper and reaches its climax in these words, "the sooner it is recognised that pruning should be bush by bush, and not plot by plot, the better will it be for the industry at large." As an ideal, the principle here laid down is indisputable, but as a working hypothesis it is simply hopeless. On a moderate-sized estate—300 acres or so—the number of trees run over the million, and when this is stated, the utter impracticability of an individual treatment of each bush is glaringly manifested. This objection to the "bush by bush" system of pruning has had the attention of the gifted authors, having been urged before by Indian tea planters. The authors admit the difficulty, and offer as one way of overcoming it in the following method. "Trained sirdars go through their respective portions of the garden, and fasten a stake bearing a coloured string alongside of each bush that would require to be pruned in a particular way." The Manager examines these sufficiently to satisfy himself that his ideas are understood; then coolies follow, each pruning his own colour. A very ingenious plan, indeed, but—we incline to think—hardly a feasible one. It would be interesting to know what the cost of the "coloured string" system amounts to, and if the financial results as compared with the style which usually obtains—a few broad principles which the cooly's mind can grasp, with moderate supervision—are in striking contrast. We are not quite sure if the expert authors are not making somewhat of a fetish of their system of pruning. Less elaborate and burdensome styles have been adopted with some success, and the test should be, *results*. Good results are, however, not always admissible evidence in the eyes of the Indian authorities if their principles are departed from, but are said to be "*in spite* of a bad system of pruning." When the good results follow the Watt and Mann methods, to dispute the connection is not allowable! It is possible, we think, to make tea pruning too scientific, and this seems to us a real danger when the guide has no practical experience. Correct pruning is, according to our authorities, a cut which "leaves practically no wood above the bud from which the new shoot is to arise." Again "If the knife be inserted below the base of the bud, and a long slanting section be made, the bud will be starved and thus produce a sickly shoot. If the section be made at a point, say from half-an-inch to two inches above the bud, the protruding portion will be starved and die accordingly." It takes a good deal from the practical value of the above information when we elsewhere read, "It is often impossible to know where the bud will appear in a tea bush"!

The scientific man, who is not also a practical man, is too apt to ignore the necessary commonplaces which lead to success. Expert scientific advice is invaluable, and if it can be linked on to work-a-day methods, there is room for rejoicing; but the effects on the planter must be depressing when he is urged to follow lines which are quite unworkable with the material at his command. Ramasamy hunting for the "often-impossible"-to-find tea bud, while expected to finish a task of pruning, would be a puzzle-headed thing on any estate, and mostly making for mutiny. We would not, however, be misunderstood in what we have said, as if we lightly valued these authoritative deliverances on the "Principles of Tea Pruning." No planter can make himself master of this *brochure* without benefit to himself and the work he directs, and although he may see in it, but a "counsel of perfection" still it is a sure guide as far as he can follow it. He can never expect to reach the proclaimed ideal; but to have an ideal ever with him is a great gain, and to reach forward to it, even in an imperfect and faltering way, has hope and healthy stimulation in it. The price of this scientific pamphlet of 36 pages is only three annas, which places it within the reach of all.

IRISH RAINBOW TROUT FOR JAPAN.

Covered with damp moss in muslin troughs and hermetically sealed in tin, some 20,000 Irish rainbow trout eggs are on their way from Innishannon, co. Cork, to Tokio, for the Japan Exhibition.—*Daily Mail*, arch 21.

"VIOLETS OF ALL SORTS."

—*Tusser.*

If the early records of the Violet were accepted in a too literal sense, its use as a medicinal agent or as a food would lead to the inference that the early Englishwoman was a too devoted utilitarian to have any room in her constitution for mere sentiment. But it is more pleasing to think that the Violet though estimable in its way as the constituent of a salve, or a remedy for headache or neuralgia, or even as an ingredient in the universal pottage so dearly loved by the old-time Englishman, was at the same time no stranger in the plot of plesant flowers. One of the marked characteristics of mediæval times was the strong liking for aromatic and sweet smelling flowers, and we may be sure the Violet was not forgotten among these. At the same time, there is no room to doubt that the Violet is indebted to Shakespeare for its position. He it was who published its perfume—

'Sweet thief, whence didst thou steal thy sweet that smells,
If not from my love's breath ?"

Its purity—

"From her fair and unpolluted flesh
May Violet spring,"

Its fragility—

"Forward not permanent; sweet, not lasting;
The perfume and suppliance of a minute—
No more."

The Violets Spencer painted were of a less noble type. He needed "Primroses greene" to "embellish the sweete Violet." Milton calls it the "glowing," Violet," and misses the plant altogether. In the routine of daily life the flowers were used for strewing sometimes the bridal bed—"Lay her in Lilies and in Violets"; sometimes the grave—

"And Violets and every kind
Of flowers, about the grave
They strawe."

In the garden, along with Camomile and other sweet-smelling flowers, Violets were planted on seats and banks; nor is it at all improbable that Shakespeare had an artificial bank of this nature in view. "Where Oxlips and the nodding Violets grow" and certainly so, the bank of Violets in *Twelfth Night.*

In the *Countrie Farme* and works of a kindred nature, recipes are to be found of method of preserving the flowers of Violets "for salad to serve all the year." Syrups ,conserves, and sugar-plates composed of Violet flowers and sugar, were in much request for lung affections, coughs, and agues, and in every case it was essential to gather the flowers early in the morning previous to sunrise, in order that the virtues and sweet smell should be preserved. In ancient vocabularies, Viola is translated Banwyrt, Hofe, Appelleaf, and a few more names not applicable, as for example, "Clover," which would appear to refer to the cut-leaved form of Viola tricolor: but by the time Turner initiated the recording of English plants and names, it was recognised simply as a Violet. On the other hand, quite a large number of plants other than the Violet bore the name, and some without possessing the slightest resemblance to justify the application. Thus Spanish Violet at one time was popularly applied to Lupinus luteus, both Parkinson and Cole mentioning the fact. Several campanulate flowers also acquired the name, but from a Latin source. Thus, Gentiana pneumonanthe was widely recognised as the Calathian or autumn Violet, and the spring Gentian the blue Violet. Viola Mariana in the same way became Marie or Marian Violet, and Mercurie's Violet, and is Campanula medium. The pretty Campanula hybrida is the Corn: and the yet prettier Specularia speculum, the Five cornered Violet. Then of bulbous Violets there is the Snowdrop, also called Narcissus Violet, and the Leucoïums or Snowflakes. One can sympathise with Turner in his search for appropriate names, when he calls Cyclamen Europæum the Rape Violet, at the period of fairly descriptive of the plant, for then and long afterwards Rape was applied to the Turnip, and Violet was not at all inappropriate. It is, indeed, one of the old-fashioned names that we could ill afford to lose, the more so when its botanical equivalent is all we have left. The Dog's Tooth Violet (Erythronium dens-canis) has a general appearance to the last-named, though it is the root that is the distinguishing part; just as with Dentaria bulbifera, the scaly roots are the medium by which it has acquired the same name. It has also been called merely Toothed Violet. The last-named brings us in touch with the Crucifers, some of which are Violets, but I think in every case from a directly Latin source, just as the Dentaria is. Nor was the designation confined to England, for we find it current in forms modified to the speech of the several countries, in all the chief European nations. Lyte explains that, "under the name of Viola in Latine are commonly comprehended all sortes of floures which be anything like violets"—meaning Viola alba (Matthiola incana) and V. lutea (Cheiranthus Cheiri), the former the white Violet and Guernsey Violet, the latter the yellow and tree Violet, Other plants of this group comprise Hesperis matronalis, rejoicing in a varied assortment of epithets, e.g., Queen's, Rogue's, Dame's Damask, and sometimes Guernsey Violets. When Lunaria biennis was introduced to the notice of botanists it was dubbed the Strange or Foreign Violet but Gerarde, in addition to the name applied to the flowers, supplies a long list of names derived from the white membrane separating the flat seed-vessels. These are "Penny-floure or Money-floure. Silver Plate, Pricke Songwort; in Norfolke, Sattin and White Sattin and among our women it is called Honestie." Honesty is still its common name, but they are mistaken who ascribe its imposition on account of some supposed virtue possessed by the plant of instilling honesty into the minds of its cultivators. The name refers to another kind of honesty, and is indeed merely the popular name of a membrane which the white dividing wall of the depleted seed-vessel of the plant resembles. To Parkinson we are indebted for the knowledge of its tubers having been eaten, though their use seems at no time to have been extensive. Hottonia palustris, the Water Violet, derives its common name from the appearance of the flower to the Crucifers. Pinguicula vulgaris is the Irish or Marsh Violet; and among other plants, the Lily of the Valley may be mentioned as one that narrowly escaped being a Violet!

Reverting now to the true Viola of botanists, we discover among the numerous names of the Pansy those of Horse Violet, three-leaved and Trinity Violet, Autumn Violet, and the less Violet. Of these the two last are of peculiar interest. The latter is also called Banwert and Mygelwort in *Medical Workes of the XIV. Cent.*, and at first sight Gentiana, pneumonanthe would appear to be the plant. But it negatively was of so little importance in medicine as to be the thrust among the other Gentians for its virtues, and among these the "conglutinating" of bones is not to be found. The plant is really the variety of Viola tricolor, distinguished by botanists as "arvensis," and good descriptions of what early French writers call "grosses and menues pensées," are to be found in Liebauld's *La Maison Rustic*, and De Serres' great work on agriculture.

In the *Countrie Farme*, Menue Pensée is translated Autumne Violet, from its flowering late in the year, and its value as a bonewort is fully described. As banwyrt, the old form of bone-wort, it occurs in the oldest vocabularies along with common Violet and Wallflower, the latter being called Viola aurosa. This and the Pansy have an altogether curious relationship, for not only were they described as Banwyrt but they were both known as Tree-Violets a name that the Wallflower still retains in France;

Moreover the two plants had medicinal properties in common, and in due time, as the Wallflower lost its relationship with the Violets, its old name of Heartsease was transferred to the Pansy. As a garden plant, the Wallflower seems to have an older standing than the Pansy, but neither so extended a one as the Violet. These, I think are the more interesting of our Violets, but it must not be supposed that the list is by any means exhausted. The yellow Violet (Viola lutea) of Gerarde is interesting as having been confounded with the Wallflower, and of late years as being, with Viola amœna, the earliest forerunner of our somewhat unhappily named bedding Violas—a noways strange instance of setting aside a common designation for one more pretentious, and certainly less felicitous. —R.P.B.—*Gardeners' Chronicle*, March 28.

A NEW TEA MACHINE.

Mr. Perman is again in the field with a new process for tea making which he has protected in India and Ceylon. He claims the following salient features for his invention which is worked in conjunction with a machine called the 'Expressor' (priced at R450, ex Messrs. McLeod and Co.'s godown.) (1) Stronger and better coloured liquors. (2) Process fully retains the characteristic appearance of the finer grades, particularly the golden tips which are not discoloured in any way. In the lower grades the leaf is turned out much brighter and blacker. (3) 'Expressor' extracts 14% of moisture out of the rolled leaf, consequently the work of the Dryers is decreased with a saving in fuel and labour as a result. (4) In wet weather the 'Expressor' enables any Manager to overcome many of the difficulties hitherto met with in the withering operation. (5) For the manufacture of green tea the 'Expressor' will be found of considerable assistance after the leaf comes out of the 'Steamer' when it is necessary to rid the leaf of all the superfluous moisture prior to rolling. The process is no untried thing we are enabled to say, for it has been at work at several Assam gardens last year, besides Mr Perman's own (Deckajulie Tea Estate) where complete success attended the introduction of the press system of manufacture, the teas showing considerable improvement in quality and style with a corresponding increase in piece for better value. Mr. Perman by its aid was able to reduce the temperature in the Dryer he used and to dispense with the services of one firing machine throughout the season. It will be seen that the process thus makes for economy and good quality being assured is therefore a step in the much desired direction.—*Indian Planting & Gardening*, April 4th.

PRODUCTION OF WEST INDIAN TOBACCO.

The following table, shewing the average annual production of leaf tobacco, cut tobacco, cigars and cigarettes in each of the undermentioned West Indian islands, is quoted by the *Board of Trade Journal* from a recent report by the Belgian Consul-General for the Antilles. One kilogram, we may add, equals 2 1-5th lb avoirdupois:—

	Leaf Tobacco. Kilogs.	Cut Tobacco. Kilogs.	Cigars. Kilogs.	Cigarettes. Kilogs.
Cuba ...	20,000,000	250,000	1,200,000	10,000
Porto Rico ...	2,800,000	—	—	—
St. Domingo ...	8,000,000	—	—	—
Jamaica ...	20,000	—	14,000	4,000
Total ...	30,820,000	250,000	1,214,000	14,000

DISEASED COCONUT PALMS.

A disease, the cause of which is not stated, is doing some damage to the coconut trees in Jamaica. The following description of the disease is taken from the Jamaica *Gleaner* for January 12, 1903:—The heart leaves drop out and the leaves, which are usually upright, fall down. When a tree in this condition is cut down the heart is found to be one mass of bad-smelling, decaying vegetation, while the root and trunk are in perfect condition. The disease often attacks the flower spikes with the result that many of the coconuts drop off while still young. This is frequently preliminary to the disease getting to the heart leaves, after which nothing can save the tree. In the *Journal of the New York Botanical Garden*, Vol. IV, pages 4-7, Mr F S Earle gives an account of his recent visit to Jamaica. He examined coconut trees suffering from what is apparently the same disease as that described above. Mr Earle attributes the disease to bacterium. He points out the necessity for the prompt cutting and burning of all infected trees, and says that 'it is claimed by some planters that a certain green skinned variety of coconut is less liable to this disease than the reddish and yellowish kinds.' If this is confirmed there is a possibility of raising a resistant race of coconuts. A disease, similar in many symptoms is the subject of a paper in *Bulletin No. 38, New Series Divison of Vegetable Pathology and Physiology* of the United States Department of Agriculture. The disease appeared among the coconut palms in the province of Santiago, Cuba. The first indications of trouble was the falling of the young fruit. Shortly after the larger nuts dropped and the leaves assumed a yellowish colour. Within a month all the large lower leaves droop and fall, leaving only the pale, sickly tops which blow over at the first heavy wind. Here also from the root to within a few inches of the top, the trunk was found to be perfectly sound. Perforating the entire upper part of the trunk for 2 to 12 inches downwards was found the mycelium of a fungus, the fruiting bodies of which appeared as small white spots on the underside of the leaves. These might easily be mistaken for the scale insects (*Aspidiotus*) often found there. The fungus was identified as *Pestalozzia palmarum*. On breaking open the lower leaves and cutting the centre of the green growing part open, the heart is found to be one putrid, offensive-smelling mass. It was found that the best way of preventing the spread of the disease was cutting down and burning the diseased palms. It is not necessary to burn the entire trunk, but only the top, with a couple of feet of the upper end of the trunk. In order that this preventive measure may have its greatest effect, it is absolutely necessary that united action should be taken. It would obviously be futile for the proprietors of one estate to eradicate the disease within its limits, if the owners of neighbouring estates omit the precautions and allow the disease to multiply and send its spores abroad to the others. These two diseases are so similar in their symptoms that it would seem not improbable that they are really one and the same. This however, cannot be definitely settled until some thing more is known of the cause of the disease in Jamaica. We trust fuller information will be obtained as the result of the work which we understand Mr F S Earle has in hand at the New York Botanical Garden, and of the field experi-

ments of Mr W Cradwick of the Department of Agriculture, Jamaica.—*Agricultural News*, Feb. 28.

TEA PRUNING.

(*Remarks on Agricultural Ledger No. 1 of 1903.*)

Why the subject of pruning should have been matter for a number of the Ledger is somewhat obscure. Is it supposed that number of persons who have tea to prune are likely to require the help of this oracular pamphlet? Or is it sought to standardise the operation? Finally is it intended to be a fund of information for laymen who are shareholders in tea to throw piecemeal at the heads of practical men who depart from its precepts? It is probably none, or all, of these—a statement of the scientific side of the case, and as such can only have an academic interest to practical men. Put forward by two such men who between them use up half the alphabet on the title page, criticism is half afraid to speak up, and the Ledger might have been suffered to pass into the obscurity of dust and cobwebs but for its too evident effort at belittling the mental proportions of the average planter. Like all who dabble in tea affairs, the authors have fixed their minds on pruning as a *most important operation*. Our authors go further, however, and give their opinion in favour of its being "*the* most important operation in the tea garden." Here we have the apology for their attention to the subject, and after this deliberate judgment who will say where manufacture or even the planting of the bush itself stand in relative importance? But probably the next Tea Ledger on the subject of, say, the weeding of nursery beds, will equally use the time-honoured phrase, and the industry will get a level keel again. The palmy days of the industry were not modelled upon such deliverances, and whatever success our fathers had they achieved without getting lopsided views of the eternal importance of this or that; they went, it may be supposed, for them altogether. Irresponsibility is writ large over this epoch-making Ledger. But that is not its worst fault. The amazing assumption that planters are generally not up to their work or inept in carrying it out is what the industry cannot take from even such valuable men. That variety of opinion exists is a healthy sign of coming and existing grace. As to "principles" which this Ledger is designed to lay down, what in the ultimate position are they? And can they not be stated without calling in question the competence of those engaged in the actual work? Verily, "Behold, ye are the people and wisdom shall die with you." Have our very superior friends ever tried to prune a bush on the principles laid down, *i.e.*, 45 degree cuts just over a bud and all useless wood to be carefully removed? It takes 10 to 15 minutes to do it working hard. Now working moderately hard eight hours a day, a man would on this reckoning do 40 to 60 bushes and the cost would be R11 a acre; one man would do an acre in about even weeks, and you would require a man for every acre of your garden, which clearly is impossible. And just in this sort of thing lies the crux of the whole matter, that the planter does as well as he can with the means at his disposal, and must not be called names or have it suggested that he is an amateur at making his bread and butter. Practice is often at variance with the principles or science; and the reasons for any departure in this particular case are well able to bear examination. All things considered, it seems likely we shall still have to go over the garden and cut it some how into shape, though hereafter we shall not call it "pruning" without visions of Sir George Watt and Mr. Mann and their clever, thoughtful Ledger. After all there is more in the management than they have yet dreamt of. O. P.

—*Indian Planting and Gardening*, April 4.

TROUT IN THE NILGIRIS.

FRY TO BE IMPORTED FROM CEYLON IN CASKS.

I hear that there are several promising trout in Snowdon Pond and no more in the stream near Emerald Valley in the Kundahs. Of the fate of the fry that were floated out of the nursery pond on the Pykara River last year there is no news, but it is very probable that many of them went up stream and these may yet be heard of again. The suggestion of the Nilgiri Game Association that Major Bagnall should make enquiries with a view to procuring a fresh supply of ova when he went to England on leave last year has come to nothing. A scheme which has every promise of success, however, is now being attempted by the Association. It is well known that the Ceylon Association has been very successful in rearing rainbow trout in the streams there, and the District Forest Officer here is now in correspondence with the Association with a view of bringing over fry from Ceylon in casks. If an agreement can be arrived at it is intended to bring over healthy fry, from five to six inches long, and there seems to be a great probability that the Nilgiri Association will be able to acclimatise, at any rate, a fair percentage of them in local waters.—Ootacamund *Cor.*, *Madras Mail*, April 13.

CAMPHOR PRODUCTION IN CHINA.

(*Daily Press, 21st March.*)

One of the great staple products of Formosa during its occupation by the Chinese was camphor, and a considerable proportion of the export was in the hands of foreign firms until after the cession of the island to Japan. Under Chinese administration there was a great deal of waste in the production, and we believe that the Japanese have been attempting the conservation of the camphor forests. The loss of this important export has been felt by China, and it is with no little satisfaction that the Chinese are able to announce that an experiment in the production of the tree in the province of Hunan has been attended with great success. It is stated that the soil of Hunan has now been found to be well suited for the extensive cultivation of the camphor tree, and the inhabitants are enthusiastically planting it wherever they can. A Changsha letter reports that there are now, in consequence of this industrious planting, innumerable camphor trees several feet in diameter in the province, and it is expected that with care it will be possible for Hunan to soon be able to export annually several thousand piculs of the

drug. This is a step in advance, and may perhaps go some distance to reconcile the Chinese Government to the loss of Formosa. The market is at present dependent chiefly upon the supply from Formosa, and in consequence the price is maintained at a high figure. Camphor is not the only product that might be introduced into the eighteen provinces and the Viceroys might profitably institute enquiries as to what new products the soils and climates of their respective provinces are best calculated to reproduce. Now that tea has practically ceased to be an export except on a comparatively small scale, it would be well to endeavour to find out other articles of commerce that could be successfully and profitably raised to take its place as a paying export and to redress the balance of trade, now so largely against China. With the heavy indemnity to be paid to the Foreign Powers, it is a matter of vital import to China to find new articles of export. And unless sustained efforts be put forth in this direction, it is tolerably certain, spite of the foolish optimism of the opponents of a gold standard in China, that the exports of this great Empire will remain stationary, or at any rate barely maintain their present position.

PROTECTED PEPPER.

Pepper from French Indo-China pays lower customs duties on entering France. In other words the import duty on colonial pepper there is fifty per cent. less than on the foreign article. This protection has so largely stimulated pepper-growing in Cochin-China among Europeans and Chinese that the French market is glutted with that spice from the Colony. Growing the article there has become unprofitable. The European planters seek to ward off heavy loss by starting an agitation against Chinese pepper-planters being allowed to share in the preferential tariff rates. This simply means the ruin of the Chinese planters. The prevalent opinion is that the planters should hang together, and should seek to meet the bad times by turning to other markets and by resorting to improved business methods.—*Straits Times*, April 2.

CACAO.

EXPERIMENT PLOTS AT GRENADA.

The following summary is taken from the report of Mr M McNeill, Agricultural Instructor at Grenada, on the cacao experiment plots in that colony. The information given refers to the period from October 1st 1901 to September 30th 1902. The report is published in full in a recent issue of the Grenada *Government Gazette* :—

The following is a comparative statement of the yields for 1900-01 and 1901-02 :—

	1900-01 lb wet cacao.	1901-02 lb wet cacao.
Vendome (one acre) ...	421	1561
Colombier (do) ...	564	117
Vincennes (half acre) ...	340	879
Nianganfoix (one acre) ...	3335	3989
Bellevue (do) ...	1611	2087

The yield for Vendome and Vincennes is three times greater than last year, about double for Colombier, with a decided improvement for Bellevue and Nianganfoix.

Average cost of working per acre for 1901 02, including cost of manures, cartage, etc., has been £5 17s 0d.

The average cost of production per cwt, allowing for wet cacao to give half its weight in dry, on which, however, there is at present wide differences of opinion has been 12s 9d.

Summary of manurial results :—

	Vendome.	Vincennes.	Colombier.	Nianganfoix	Bellevue.	Totals.
Basic slag and sulph. potash	522	279	340	1109	561	2811 lb wet cacao
Basic slag and sulph. ammonia	426	252	252	1202	613	2745 lb wet cacao
Basic slag and nitrate of soda	251	200	307	1021	420	2199 lb wet cacao
Sheep or pen manure	362	148	218	657	493	1878 lb wet cacao

Basic slag and sulphate of potash sections have taken first place in three plots and second place in two.

Basic slag and sulphate of ammonia sections have taken first place in two plots, second in two, and third place in one.

The total yield for the basic slag and nitrate of soda sections has been better than that for the sheep or pen manure sections.—*Agricultural News*, Feb. 28.

INDIAN TEA AND PROSPECTS.

We call attention to the long and instructive Report of the leading Calcutta Tea-broking house for the season 1902-3—see page 759. It will be observed how much importance is given to the restriction of crops by fine plucking, and to the need of supporting the Calcutta market as a check on that of London, and also to the value of encouraging green tea. For the coming season, the tea crop prospects are favourable ; but much depends on weather and labour supply; and the expectation on the whole, is of a prosperous year for producers, if due care is taken in the directions pointed out.

ASSAM PLANTERS' PURCHASE IN THE NILGIRIS.

A group of estates near Colacumbay has just been sold to two tea planters from Assam. The properties consist of the Terramia, Pembroke and Carshalton estates, comprising about 600 acres of land, of which about 200 acres are under tea and 100 acres under coffee. It is said that the purchasers intend to open out all the uncultivated land in tea and make a big concern. It is significant that planters long resident in that well-known tea-producing district should leave it to settle on the Nilgiris, and one is inclined to seek the reason. It must be that the labour difficulty in Assam is preventive of any profits being made in these times where large advances have to be made to the coolies, R75 per head and even more, and where Government interference is so irksome. The planters here will no doubt hail the advent of these wellcomers, as they will be sure to carry out economical methods and keep down the rates of pay, which have a tendency to rise of late years, and could undoubtedly run high but for the fall in voices.—*Indian Planters' Gazette*, April 11.

COCONUT CULTIVATION IN CEYLON AND FIJI.

Mr. Edward McCarthy, - an experienced coconut planter now of the Rajakadaluwa district, Chilaw, sends us a very instructive and useful letter in reference to the bearing powers of the coconut palm and the foolishness of drawing deductions from the experience of one or two trees, or again of supposing that all small nuts are to come to maturity,—or that, once again, a head of 100 or more small nuts will give more oil or copra than one of 50 to 60 large, fully-matured nuts. All these qualifications indicate the directions in which, alone, sound comparisons can be made. Mr. Tarte of Fiji and any other planter proud of his prolific palms, must not only tell us of the number of nuts per tree and of trees per acre; but also the weight of the nuts, of the resulting copra, or oil, *per acre*. Then indeed shall we be in a position to institute a fair comparison with the best plantations in Ceylon.

MATALE PLANTERS' CASE FOR THE COCOA THEFTS COMMISSION.

(*Extracted.*)

Cocoa stealing has continued in a greater or less degree ever since Cocoa came generally into bearing some 14 or 17 years ago, the question of degree coinciding with the variation in prices, thus from 1889—1893 prices were at their highest and stealing was rife, so that after considerable agitation a Commission was granted in 1895. But in the meantime in 1894 prices fell until Cocoa was almost unsaleable and thefts also fell away, figures and data had not been collected so that when the Commission sat after a year in which there was little or no theft, there was no proper evidence to place before it, and although men were prepared to swear that they had suffered severely from thefts some 16 months previously, they had to admit that at the present time they were not suffering in that way. Sufficient stress not being laid on the fact that they were not robbed because it was hardly worth anyone's while to rob them. A record of thefts had not been kept and the fact of the absence of specified cases, was held by the Commission of 1895 to prove that a sufficient case had not been established. A Trial of rural police was however recommended and failing that, a Receivers Ordinance was to be tried. The rural police was given a fair trial. The cost of them is small, planters had every reason to adopt this form of protection if it was found efficacious, but it was not so. Such success as was attained was due to the personal influence brought to bear on the headmen by the Government Agent and his assistant. This is of course so far satisfactory, but it is not law and past experience has taught us that individual effort is not the proper thing to rely on in such a case. We may mention that in all reports on rural police, the cost of Estate Watchmen is ignored whereas the cost of them was very considerable; on one Group which came under the system, being about R500 per month.

We have to point out that the Assistant Government Agent of Matale-after two years' experience of cocoa stealing, and of the active management of rural police, pronounces himself at the end of 1901, in the most unqualified way as in favour of special legislature, taking the form of a Receivers Ordinance, plus certain restrictions on cocoa growers. This paragraph was framed into a resolution which was brought before the Planters' Association of Ceylon by the Chairman of the Matale Planters' Association, and carried unanimously :—

SPECIAL LEGISLATION FOR CACAO STEALING.

"We, the undersigned, are of opinion that the law, as it now stands, is not sufficient for the protection of Cacao-proprietors. We would, therefore, respectfully suggest some amendment of the Praedial Products Ordinance, which, while continuing to make the possession of *Green* Cacao without a satisfactory account of such possession an offence, might also provide against the dishonest possession of *Ripe* and *Cured* Cacao. We should also be grateful for any protection against receivers" which the Government may be disposed to "grant."

This embodies the demands of both European and Native planters. It is well known that natives suffer severely, and often pick their cocoa before it is ripe to save it from theft. Testimony as to a specified case of this can be given by Mr J B Tennant, Mr Lyall, and the Assistant Government Agent of Matale.

There are in Matale 7,000 acres of European Estate cocoa in bearing. As to the acreage of native owned cocoa, there is some uncertainty. It is given by the Assistant Government Agent of Matale as 2,200 acres, there is no Government record of the native acreage in bearing. According to Government figures there would be 1,500 acres of native owned cocoa in bearing, and according to the planters' estimate there would be 1,000. The Matale cocoa is despatched by the Railway, and from figures very kindly given us by the General Manager, C.G.R., we obtain the following results :—

1902—Despatched by Europeans from Matale, Ukuwella and Malvern Stations cwts 11,465, to which we add cwt 1,137 sold by Europeans to Natives, making a total of cwt 12,602, giving an average of cwt 1 80 per acre on European Estates.

	Cwts.
Despatched by natives from the same stations	4,366
Less purchased from Europeans	1,137
	3,229

Giving an average on Government figures of 2·15 per acre, and on Planters' figures of cwts 3·1 per acre.

We wish to say that European owned cocoa is easily distinguished by the names of the Estates being marked on the bags and by its being consigned to well-known firms in Colombo. European owned cocoa is not forwarded by any Native Agency at the Stations mentioned. The native gardens taking a liberal estimate, may perhaps have been cwts. 1,500, leaving cwts. 1,729 totally unaccounted for.—And this is a year when the Rural Police system has been worked for all it is worth.

When Cocoa Planters first approached Government on this subject, their case was dismissed by the then Colonial Secretary by the curt remark that cocoa could afford to pay for its own watching. Such an utterance shows ignorance of the subject. Cocoa Planters do not and never have asked Government to relieve them of the duty of watching their Estates, what they do ask is that the law should

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NOT ALLOW UNDOUBTED THIEVES TO ESCAPE.

On another occasion one of his watchmen was stabbed, and his gun stolen. Many other instances could be added, Mr Martin has tried Rural Police

and found them worthless, and now has to get men from the Punjab at a very large expense to protect his Estates. It is true that the Cocoa stealing cases in the Matale Court increased in 1900 as compared with the two previous years by 50 per cent but it is not correct to say that they decreased in 1901. The very reverse is the case, the figures of 1901 as compared with 1900 show an increase of some 25 per cent. Mr Dunuwilla is, we believe, a Cocoa planter amongst other things, and he is singularly ill-informed as to that branch of his business if he does not know that the reason that thefts decreased towards the end of the autumn's Crop of 1901-2 was that Cocoa towards the end of that crop become practically unsaleable, the native traders were enormously overstocked and refused to purchase on almost any terms. Therefore when he says that towards the end of crop thieving fell away and gives the headmen and the rural police the full credit of this decrease in theft, he will get few people who know anything of the matter to agree with him; further, he writes as if the rural police system applied to the whole district whereas it only applied to some 10 or 12 per cent of it. The chief reason of the decrease in theft was the fall in the value of Cocoa. And now we have to deal with the statement made by Mr Dunuwilla against planters that thefts are common because planters employ "Dishonest Watchmen." Twice Mr Dunuwilla has advanced these very general charges against the planters, and each time has only been able to bring forward one case to prove what he says, and neither of these cases as stated by him will, we submit, bear investigation. That planters whose living depends on their crops should deliberately select "dishonest watchers" is at variance with common sense, and with the true facts of the case. Planters select the best men they can get, they do not draw upon any particular nationality. Sinhalese, Tamils, Malays, Moormen, have all been tried, the best men of their class are selected, and good wages are given. If Mr Dunuwilla would tell us where amongst his countrymen or the native races of Ceylon we can find passably honest watchmen, he would do something towards proving his case.

We submit a list of the

AMOUNTS SPENT ON WATCHMEN AND PREVENTION OF THEFTS

by estates in Matale and elsewhere. Taking the yield per acre, the value of same, the expenditure per acre on estates, and the Railway figures showing what was sent away in last year, we are prepared to show that Matale proprietors have to spend 10 per cent of their income in trying to protect the rest. We instance a group of five Estates under the same management where 22 per cent of the profits from the cocoa in bearing have been spent in protective measures. We instance an Estate where about 70 thefts occurred last year. We draw attention to cases instanced by Mr. Garrick and Mr. Wilkinson. We suggest that the following witnesses be examined:—

R W Bolling, Longville; Gilbert James, Katugastota; C M Krickenbeck, Matale North; J A Mac Allister, Pansalletenne; L R Rudd, Marakona; H D Garrick, Ukuwela; W Lyall, Alloowihare; J Anderson, Banderapolla; James R Martin, Yattawatte; J A Burmester, Warriapolla; Harry Storey, Warakamura; the Hon. the Colonial Secretary; C H T Wilkinson, Kondesalle; Dan. Joseph, Matalé; A Il Don Bastian De Silva, Matale; the late Arachi Pattagedera, Wattagama; Dingeri Banda Lukam, ambawella.

We suggest that the Commission procure from Government the cost of the rural police system *to Government*, including not only rural police but headmen's wages and rewards, amounts paid Government watchers and every other expense incurred. We finally submit that cocoa cultivation deserves consideration at the hands of Government. Crops are small, prices are bad, and the cost of cultivation has been largely increased by canker.

	Acres in bearing.	Cost of watch, etc.	
J B Tennants Group of Estates..	347	480	00
North Matale Estate ..	733	1993	75
Warriapola	600	925	10
Kahawatta	100	320	00
Arangalla and Arduthie ..	231	240	00
Marakona Group	400	879	16
Yattawatta	650	1973	62
Ross	200	500	00
Hylton	250	500	00
Laxahena	100	400	00
Dangan	80	350	00
Hampshire	55	202	01
Ukuwela	74	394	50
Wavena	10	60	00
The Grove	250	190	00
Asgeria	153	650	00
Sudugama	300	746	82
Strathisla	170	184	33
Keppitigalla	600	1274	89
Pitakande	84	120	84
Bandarapolla	220	446	33
High Walton	120	...	
Aloowihare Group	378	1685	71
H. Bell's Group	290	292	74
Pansalatenne	90	240	00
Kuduwela	187	402	00
Morankande	200	760	00
Pattiagalla	240	600	00
Katugastota	500	2927	00
Kondesalle	500	1700	00
Pallekelle	3170	3000	00

The Matale Police Court figures for Cocoa stealing are as follows:—

1898 ..	37 ..	14 convictions
1899 ...	37 ..	18
1900 ..	55 ..	37
1901 ...	67 ...	37*

*Four absconded.

Figures collected by the Matale Planters' Association point to 35 per cent only of Cocoa thefts being taken to Court, the uselessness of prosecuting under the existing law being the reason that so many thefts are allowed to go unnoticed.

We wish to point out that the legislation we ask for is nothing new. In Ceylon at one time Cinchona was largely cultivated in the Central Province. It was much stolen and it was found that the most dangerous receivers were the owners of small gardens with a few Cinchona trees growing in them, as stolen bark was then openly sold as the produce of these gardens and to check this the Ordinance No. 9, 1885 was amended as follows in 1886 "Whenever......the bark whether of the branch, root or stem of the Cinchona tree shall be found in the possession of any person who is unable to give a satisfactory account of his possession thereof, such person shall be deemed and adjudged of an offence and shall on conviction be liable to the punishments.........under section 368 C P C." This legislation stopped the theft of Cinchona bark and never was known to injure any honest man—and this is the species of legislation that European and Native Cocoa planters have united in demanding.

We would draw the attention of the commission to the Mauritius Ordinance for the suppression of Vanilla theft which is on the same lines as our Cinchona Ordinance.

Also to the Grenada Ordinance for the suppression of Cocoa and Nutmeg theft and the amendments to the same which bring it exactly into line with the Ceylon Cinchona Ordinance.

Also to the statement in the Administration Report for the Central Province 1901, page C 35, to the effect that, the old Ceylon "Coffee stealing" Ordinance and the Madras Act VIII of 1878 "were found to be inoperative to a great extent." "The reason for this has been stated by the Hon. the Chief Secretary to the Government of Madras. They impose no adequate check upon the dealings of receivers of stolen coffee who own small patches of land planted with coffee in the vicinity of large estates and account for the possession of large quantities of Coffee by the statement that it is grown in their own land." This is precisely the difficulty that meets any purely receiving ordinance in Ceylon. We would suggest to the Commission that the Hon. the Colonial Secretary be asked to state from his West Indian Experiences, what nature of laws exist there, for the suppression of Cocoa theft and what their effect has been. We would also suggest that some influential natives be asked to give their opinion on the proposed legislation to the Commission and would mention Mr Dan. Joseph and Mr Bastian de Silva. We submit this case to the Commission and would be glad to attend in the form of a deputation and go over it carefully and give evidence as to the points raised.

[*Correspondence in connection with cocoa thefts commission and rural police.*]

No. 307.

COCOA POLICE.

Police Station, Matale 11th February, 1903.

Sir,—I have the honour to request that you will be good enough to inform me whether you were satisfied with the conduct of the Cocoa Police employed for the protection of your Estates during the past season, and whether you consider that they were of assistance in checking thefts of cocoa.—I am, Sir, Your obedient servant,

(Sgd.) E. B. ALEXANDER, A. G. A. (Police.)

D. E. RODRIGO.

The SUPERINTENDENT, Alloowehare Estate.

Alloowebare Estate, Matale, 16th, Feb., 1903.

The ASSISTANT GOVERNMENT AGENT, Matale.

Sir, I am in receipt of yours of the 11th instant, requesting me to give my opinion as to whether I was satisfied with the conduct of the Cocoa Police for the past season, and whether they were of assistance in checking thefts of cocoa.

In reply to this, I have to state . . . . that the Police did their work well, and only on two occasions (at the commencement of the Season) did I find them absent from their posts. On all other occasions I found them at work, and I must say the headmen attended to their duties in a very satisfactory manner. I put down the zeal of the headmen, and the constant attention to duty of the Police in a great measure to your very close supervision, and to the co-operation you received from the Ratemehatmeya and Korale under you,—these latter were closely under your control, and they in their turn kept both Constables and headmen well up to the mark. I would venture to point out that, considering the majority of the before-mentioned headmen were busily engaged guarding my cocoa from 4 to 7 a.m., and again from 4 to 7 p.m , they were unable to do justice to their other numerous duties in their districts. Under the condition on which the Cocoa Police worked during the past Season, I have no hesitation in saying that they did their work well and prevented thefts of Cocoa. —Yours faithfully, (Sgd.) WILLIAM LYALL.

P.S.—The headmen guarding the Cocoa were paid by Government for this work. W. L

COCOA THEFTS.

Katugastota Estate, 18th March, 1903.

My dear Martin,—In reply to yours, I have pleasure in handing you a few facts which I hope will go to help us in proving that we want something better in the way of protection in cocoa. This place is a scattered one, and lends itself more to robberies perhaps than places more compact, but that does not lessen the fact that we want better protection but proves that the present law is not enough. The villagers will not steal unless they can get rid of the stolen cocoa, and the receivers are the ones to get at. They give one cent per pod to people who bring them, and if they don't agree to those terms they threaten to expose them. I think if we get a stronger law, and the receivers made to account for the cocoa they receive, it would stop a good deal of it. In my opinion it is no good sending a low-caste Sinhalese to prison or fining him much, he is received with open arms when he comes out of jail by his friends, and they do not attach any shame or disgrace to it. The better class and good caste Sinhalese do not steal I think. It is often the case that the same man has been convicted and sent to jail for stealing several times, that goes to prove that he does not fear going to jail.

No. 1.—I should say I had quite 70 thefts last year, but fortunately none of these were big ones owing to good work of my watchmen, which prevented large robberies,

No. 2.—I caught and took to Court 31 cases.

No 3.—I got 20 convictions and 11 dismissals.

No. 4.—The Watchmen cost the Estate R2,427 and Legal Expenses cost R500.

No. 5.—I consider there were cases dismissed which ought to have been convicted.

Yours Truly, GILBERT JAMES.

March 22nd, 1903.

My dear Martin,—I will willingly do anything I can possibly do to help you and the cocoa theft Commission.

I have sent for a Native Proprietor, a neighbour of mine, who is perhaps as honest as natives are made. He may be able to give you some help by suggestions, can the cocoa commission not send out Forms with leading questions and headings. An example of one theft I detected was, I was losing cocoa from one of my far Fields. We could not detect anything for months. By a big bribe I received information where I might find some of my cocoa drying. I went and there was quite a beaten track towards some Lantana a few chains from my boundary. Into this there was a hole about 18 in. wide by about 18 in. high, through which I had to crawl on my stomach about 10 yards long: arrived inside was a cleared space (a barbacue well stamped) not noticeable from outside as it was surrounded by thick Lantana. Cocoa was drying and there were Sacks and Scales on the spot. We remained in ambush. After a while a Tamil Proprietor and two Moormen crawled in, whom we captured, and handed over to the Arachchi. Panwila was then my Court. Owing to being ill I had to postpone the case several times and then having Pleuro-pneumonia I had to leave the island. The case was dismissed as the P. M. would not let my Conductor or *Locum Tenens* to go on with the case. My watchers cost me over R1,300 per annum and expenses, battas etc. to witnesses about R400. We have detected about 18 thefts but had only about 4 convictions. I have now a case pending for 5th April. The accused's previous convictions here are (1) 1 year, (2) 6 months, (3) 3 years. The case pending is District Court.

This year's crop is about 2,200 cwt. Average Crop about 1,500 cwt. Expenditure about R35,000. Crop stolen about 10 per cent. If I can give any further help, I will willingly do so and am grateful to the Commissioners.—Yours sincerely,

C. H. T. WILKINSON.

PLANTING NOTES.

AGRICULTURAL PROGRESS IN FORMOSA.—The Japanese are going ahead in this fine island. An Agricultural Experiment Station has just been established at Taipoli and Mr. Y. Fujini, the Director sends an order for the "Tropical Agriculturist" to be forwarded.

ORANGES.—The Florida orange crop for the past season has totalled 800,000 boxes, being 300,000 less than last season, but growers have not suffered through the shortage, owing to better prices obtained. The cause for the small crop was the drought which occurred in the spring just at the bloom of the oranges; and the red spider partially destroyed the crops in some groves; while the very heavy rains that came later did not better matters. This is something like the experience here this season; dry weather in June decreased the quantity and size of the fruits in St Ann and Manchester. Yet market results have been good. The grade of fruit all over has been improvement, better packing, grading and handling generally, with great room for greater care still.—*Journal of the Jamaica Agricultural Society* of February.

THE CEYLON TEA AND COCONUT ESTATES COMPANY—which has, since its inauguration in 1896 been worked at a loss has, we are glad to see, completed this year's working with a profit of R4,377·22. No dividend was declared at the last annual meeting, but the report when compared with last year's statement is decidedly encouraging. This year the tea crop was slightly over that of last year, while the prices obtained were ·60 cent better. The coconut trees gave 707,034 nuts as against 516,008 in the previous year. Rubber too has now begun to yield a return and 55 lb. have been sold at an average price of R2·50 The Company have 50 acres under rubber, so that considerable revenue will soon be obtained from this source.

COMPANY REPORTS.—The annual reports of a number of Ceylon Tea Companies registered in London appear elsewhere. Mount Vernon, as reported by wire, has paid a dividend of 8 per cent for the year and in addition has placed to reserve £200 and carried forward a similar amount—on the whole, considering the unsatisfactory season, a very good first result. Yatiyantota Company pays 5 per cent for the year and writes off £1,000 for cost of properties &c. and carries forward £2,029. The Punduloya Tea Company has had one of the best years it has yet experienced in its six years of existence. It pays 5 per cent as against 4 last year, places to reserve for depreciation &c. £2,250 and carries forward a balance of £225 15s. The Augusta Tea Company closed their year with a credit balance of £652 12s. Beside paying Debenture interest and other fixed charges £100 is written off machinery account, and £41 5s 3d is carried forward. Balmoral Company has had a very successful year and pays 10 per cent. A balance of £766 7s 3d is carried forward.

OLD TREE STUMPS.—To remove old stumps, a correspondent to the *Country Gentleman* gives the follwing :—'Get a 2-inch iron pipe, 8 feet long; have a steel point welded into one end of it. With a sledge hammer drive this under the stump as far as may be necessary. Drop half a stick of dynamite into the hole thus made, and tramp earth upon it until the hole is filled; then light the fuse. The stump will be lifted entirely out of the ground with no earth adhering to it, so that it may be burned the next day.'—*Hawaiian Planters' Monthly*, February 15.

THE EUCALYPTS.—Mr. J. H. Maiden, Government Botanist of New South Wales and Director of the Botanic Gardens, Sydney has begun a very valuable work in a critical revision of the Genus Eucalyptus, part I, (with four plates), has just reached us. It is a quarto in large type clearly printed and covers some 50 pages, the description and four plates being devoted to "Eucalyptus Pilularis." The Contents are :—

Synopsis :—Preface —Variation in the Genus ; Doubtful Species ; Non-Eucalypts described as Eucalypts ; and Works Consulted.

1. Eucalyptus Pilularis, Smith :—Description, Notes Supplementary to the Description ; Synonyms (with descriptions), Notes on the Synonyms ; Range, Typical Form and Varieties ; Affinities ; and Explanation of Plates.

From the preface we quote :—

During the 20 years that have elapsed since the publication of Mueller's 'Eucalyptographia,' which added valuable information to Bentham's masterly account of the genus Eucalyptus in the *Flora Australiensis*, we have obtained a large accession of facts. It seems to me that the time has arrived when these additional facts should be incorporated with the labours of the old workers. I have spared neither time nor expense to obtain access to the types. I have spent many years in field observations on the genus in every State of the Commonwealth (though, of course, particularly in my own State of New South Wales), and thus have endeavoured to secure what is an essential qualification for the study of this protean genus.

A very important departure in a work of this kind is the following :—While expressing my opinions as to affinities, synonyms, etc., I shall in all cases give the original descriptions of the species whether considered to be synonyms or not. In this way my readers will be able to weigh the evidence for themselves, and, if they do not concur in my conclusions, they will at least be placed in possession of the data on which they are based.

The genus Eucalyptus is the most important in Australia. The individuals which comprise it are all pervading, while the number of species and varieties is very large. As the work proceeds I will give my views as to the grouping of the species. The present part contains much prefatory matter referring to the genus. Then one species is taken in detail, and the other species will be treated in a like manner, the facts being grouped in the same way. The rapidity with which this work can be issued depends mainly on the plates ; I have only the partial services of one artist.

The future number of this valuable work will be eagerly looked for.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1903, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900 :—" I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for October-November delivery 1903, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901 :—" We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900 :—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica-Liberian Hybrid.—A highly recommended leaf-disease resisting hardy new variety of Coffee (cross between Arabian and Liberian). New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—" Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products :—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902-1903.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Road-sides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in larger quantities.

" SOUTH AFRICA."—The great authority on South African affairs of 25th March, 1899, says :—" An interesting Catalogue reaches us from the East. It is issued by WILLIAM BROTHERS, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London :—MESSRS. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon :—E. B. CREASY, Esq.

Agent in British Central Africa :—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: WILLIAM, HENARATGODA, CEYLON.

Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,
Tropical Seed Merchants,
HENARATGODA, CEYLON.

Correspondence.

To the Editor.

THE PINEHURST "TEA" EXPERIMENT.

March 10.

DEAR SIR,—At it again!—but this time from the facile pen of Mr. P C Larkin of Toronto! You should naturally expect a *douceur* for the advertisements given Pinehurst. Alas!—I am almost bankrupt, having to pay 5 cts. for each clipping concerning Pinehurst, and so many are they that it keeps a paster at work transferring them to huge invoice-books. And then our generous Government, which would give me everything (except a salary), has been called on by me for this fiscal year to loan me some tea machinery and to give me some foreign tea seed. Aside from that, I have not received any assistance, and it is very questionable whether I shall ask for anything next year. "A huge joke," indeed. (Different countries do not agree on what is witty.) But Mr. Larkin's information on how "to do it" with the American Press may some day prove useful, and—with the rest of the valuable notices emanating from your office—have been duly posted under your impressive motto, *Fiat Justitia.* I have had, a few days since, a most agreeable visit from Mr. Robert Hart of India, and shall be most happy to see you here whenever you will honor me with a visit. Only do, please, not forget to have sent me all the kind notices which your columns contain concerning "Pinehurst." Never mind my feelings; I am old and tough and the laws against duelling in South Carolina are vigorously enforced.—Yours very truly,

CHARLES U. SHEPARD.

COCONUT CULTIVATION IN FIJI AND CEYLON.

Rajakadaluwa, March 23.

DEAR SIR,—To those of us who have been connected with the Coconut Industry for the last three or four decades and who have never been able to realise, even with the most modern and approved modes of culture, a higher annual average per tree than 50 to 60 nuts, Mr Tarte's letter from Fiji, dated 5th February, comes as a startling revelation illustrative of the wonderfully prolific nature of coconut trees in the isles of the South Seas. We cannot do otherwise than give full credence to his statements, but it is strange that we have never heard of this sort of thing before. Coconuts have been cultivated in Fiji these many years, but such stupendous results have never reached our ears till now. He tells us "I can assure you it is a positive fact I have often seen from 1,000 to 1,200 nuts on a tree; but this caps all." I should think so indeed. Where can we produce the like of it or half as good? If we had known before that Fiji was such a wonderful coconut country I warrant there would have been a stampede and a large exodus of capitalists from Ceylon would have testified to the attractions of the new El Dorado. Our coolies and artificers and mechanics would have fled thither pell-mell for higher wages. Enge Ramasamy?—Pecjuppuku odinan. Ko Haramanis? Peejju ratata pennalla giya. Onde Signior Jokong? Ja fugi per Fiji.

The tree referred to by Mr Tarte certainly beats the record hollow; but, I think, he is rather too sanguine about the prospective quantity of oil to be had of it.

He draws attention to the unprecedented plethora of tender nuts in three peduncles, but the mere appearance of these thousands, fresh from the embryonic stage, does not guarantee their uninterrupted progress to full maturity. I have seen as many as 30 tender fruit on a single peduncle, but, alas! their number has eventually dwindled down to 8 or 10. Some dry and drop off, affected by changes in the weather or some secret inaptitude for further development, others are nibbled by rats and squirrels and otherwise prove that "brief life is here our portion," so that no one could accurately predicate what his crop is going to be by making the newly opened spathes his data for calculation, any more than he could count his chickens before they are hatched. Miscarriages occur in every department of life, animal or vegetable, and in their best regulated families and classes—notably in the flower of the coconut tree. As Mrs Malaprop says "Man proposes and God disposes."

On the banks of the Maha oya I have counted over 250 nuts on a tree at a time, but this number was far short of what the spathes revealed on newly opening. Exceptionally favoured trees—that is to say, those benefited by the alluvial deposits of a river given to inundating its banks, or those growing on excellent loamy soil and well tended, or those highly manured and carefully looked after near dwelling houses, coolie lines, cattle sheds and horse stables—have borne wonderful bunches; but they are few and far between, and cannot come near the Phenomenal Phenomenon of Fiji. In the Keriang Kalliye District, north of Badulu oya, the finest specimens of coconut trees in this Island are to be seen flourishing, spite of hundreds of envious and evil eyes cast on them daily by footpads and passengers in coaches. They are second to none but the Maha oya coconuts; yet all these must hide their diminished heads before the awful tree which is the lawful property of Mr Tarte. With rare exceptions the ordinary number of spathes produced by a cocount tree is twelve in a year. I know of some trees in Ambepusse which gave fourteen. The nuts on those trees were from 250 to 300; but every rule has its exception and those were exceptional trees.

I have invariably noticed, and so have a good many people, that when there is a multiplicity of "Etties" or tender nuts (as they appear on the opening of the spathe) on a peduncle, the fruit is generally small. On the other hand those hanging in twos and threes are nearly always big coconuts. The Goondara or Maldivian coconuts appear in thicker clusters than the ordinary kinds; but they are exceedingly small—in fact too small to be scraped for culinary purposes with a "hirramaney." The Bhodi Poll is still smaller and more numerous in a bunch than the Goondara. I wonder how large the Fiji nuts in general and Mr. Tarte's nuts in particular, are. It would be interesting to have a specimen of a well-matured nut from Mr. Tarte's tree of trees—a photograph could not give us an idea of the size. It would also be interesting to have another letter from him, when the fulness of time shall have come, telling us how

many of those thousands now on that particular tree actually attained maturity.

Let us hope a change may not come over the spirit of his dream—if the enormous weight of the bunches in the Kurumba stage were to snap the peduncles at the base, which would, indeed, be a base proceeding after so high a promise of a ton of copra! We all know that the biggest bunches often come down with a rush in spite of props to prevent them and it is a heartbreaking sight to see a splendid cluster of 15 to 20 coconuts so suddenly brought low and scattered in every direction ere half matured. If these Fiji trees bear such extraordinary, ponderous bunches and if all the blittle fruit develop into big ones, the tree, in soot, would be in imminent danger of snapping short off, immediately below the fronds, especially when swayed to and fro violently by those terrific winds so prevalent over the Fiji isles—almost enough to bend the teeth of a carpenter's saw. We know what fine trees come down with an ordinary weight of top hamper when a blustering gale bursts through our coconut topes; what must it be over among the low-lying islands, surrounded by an infinity of sea with the storm, when it does come, howling like a thousand fiends and devastating everything high and low. I think it unwise to be dazzled by the fair pictures drawn by the over-sanguine respecting prospective fortunes in foreign lands, of fortunes too rapidly made, in black and white, but like the *ignis fatuus*, in point of fact ever nigh but never grasped.

Seeing is believing, and if the good friend who sent me the cutting anent this subject could be liberal enough to send me on a reconnoitring expedition, on the extreme quiet, as the spies were sent to the promised land, I might come back from Fiji not with a cluster of grapes, but a bunch of coconuts, a faithful report and a new lease of life. In the meantime, on the principle that a bird in the hand is worth two in the bush, I prefer to cultivate coconuts in good old Ceylon where—if I make not a splendid fortune—I need fear no magnificent bankruptcy. As Pat says: "Betther dale wid a divvle yer know than a divvle yer don't know."

If an anonymous writer had written the account of the now famous Fiji tree we might have been inclined to take it with a grain of salt, but coming as it does we are bound to receive this Tart [E] without a dollop of sugar or a wry face.—I am, dear sir, yours very truly,

EDWD. McCARTHY,

CEYLON PARA RUBBER.

London, E.C, 27th March, 1903.

DEAR SIR,—The following particulars of Ceylon-grown Para Rubber sold in Public Sale here today may interest your readers:—

Mark.	Quality.	Description.	Price ℔ lb.
Yatipanwa	5 cases	Fine thin biscuits	4s 1¼d
Do	1 do	Good scrap	3s 3¾d
Arapolakande	6 do	Fine thin pale biscuits	4s 2d
Do	1 do	Good scrap	3s 3d
Do	1 do	Fair scrappy biscuits	3s 2d
Igalkande	1 do	Fine thin biscuits	4s 1¼d
Deviturai	1 do	do	4s 0d
Do	1 bag	Scrap fair	3s 1d
Tudugulla	3 cases (not ready)		

The market is good.—We are, dear Sir, ours faithfully. LEWIS & PEAT.

A WARNING TO PLANTERS' SELLING TEA FLUFF.

April 2.

DEAR SIR,—We would like to warn planters against selling any tea fluff, sweepings or other refuse tea to native buyers unless the same have been denaturalised before leaving the estate, for we know for a certainty that suchfluff, etc. is carefully picked and the tea obtained in this way either sold in Colombo or shipped. The denaturalising is best done by mixing fluff, sweepings, red leaf, etc. with 5 per cent of slaked lime, which will render them unfit for human consumption, and will not interfere with the extraction of caffeine. We are quite willing to provide planters with the lime free of charge to mix with refuse teas and sweepings they intend sending to us, and if they insist on native buyers doing the same a good turn will be done to the tea trade. We think the matter well worth the attention of the Planters' Association and others interested in the Ceylon Tea Enterprise as the quantity of fluff and refuse teas sent to Colombo is we think, far greater than people have any idea of.

CHS. A. BOHRINGER.

DROUGHT IN AMBEGAMUWA: AND THE GREEN TEA GRANT.

Ambegamuwa, March 23.

SIR,—What an awful drought, almost everything and everybody scorched out; not sufficient water in our streams to even dilute the "auld crathur." It puts one in mind of 1887 or 1888—I am not very sure which year it was—when the drought lasted from end of November to the 14th of February. With the exception of just ·28 in. of rain we have not had a shower for over a month. Patana fires galore!

What about that green tea grant? Surely the "Thirty Committee" do not expect men to be philanthropists when most of them are face to face with ruin. The men around here are averaging 35 cts. and more for their blacks. Can you expect them to go in for green teas which average about the same and which cost nearly 4 cts. more to produce as you can *never* get the same outturn from green teas as you can from black? No, Sir, the only remedy is for the "Thirty Committee" to go on with the grant. If they have no money—stop the American campaign at once. It has done precious little good and will do no more if continued to the millennium. Keep up encouraging green teas for another 2 years and then it can look after itself. We are still in the primitive state, and every encouragement is absolutely necessary at this juncture to save a rising industry from a lamentable collapse.

G. T.

GREEN TEAS AND BLACK: COMPARISONS OF OUT-TURN.

Calcutta, April 11.

DEAR SIR,—Judging from the enclosed cutting which appeared over the signature "G.T." in the last *Observer* of 25th March, (see above) some at least of your Green Tea makers do not

seem to be quite up-to-date. At least the statement that "you can *never* get the same outturn from green teas as you can from black" does not apply to our North Indian adaptation of Mr. Drummond Deane's process, and the estimate of 4 cents or 8 pies (nearly ⅜d!) per lb. extra for manufacture is a sheer waste of money. We get our full weight from green as from black, without any loss of quality—as you may have noticed from certain appreciations of our Indian green teas published by yourself and others in Ceylon. Our new Indian appliances for the purpose are good, and naturally from long knowledge of green tea on the old Indian processes we have a bit of a pull in handling leaf; but there should be nothing beyond the resources of your local talent in reducing cost and getting full weight with a little trouble. If I could not truthfully assure Indian tea concerns that they could make green tea without loss of weight on our Indo-Ceylon system, and without any material increase in expenditure, our business-like men would laugh me out of their offices. But there is little encouragement to the introduction of our North Indian improvements till the question of security from imitators is more settled. If your correspondent's estimate is generally true in Ceylon, Indian tea concerns working on our system are going to make green tea at a cost some 3 cents below yours, and if sales at public auction in London can be relied on (and there is no sentiment, so far as I know, in London) our Indian teas will average some 3 cents more than your correspondent's estimate of value. This, of course, is purely based on your correspondent's statements which, perhaps, are not universally true. I enclose three statements from leading Indian green tea gardens, bearing out the results I claim. I am sorry I am not authorised to publish the names in support of the first two, though I append them for your information, but the third I give, and it is one that is well-known as a successful mark.—Your faithfully,

CHARLES JUDGE.

(*Extract from cutting referred to.*)

Ambegamuwa, March 25.

Sir,—What about that green tea grant? Surely the "Thirty Committee" do not expect men to be philanthropists when most of them are face to face with ruin. The men around here are averaging 35 cents and more for their blacks. Can you expect them to go in for green teas which average about the same and which cost nearly 4 cents more to produce as you can *never* get the same outturn from green teas as you can from black? No, Sir, the only remedy is for the "Thirty Committee" to go on with the grant. G. T.

(*Reports on three marks of green tea.*)

Extract from a letter from the Manager of .... estate to Mr. C. Judge:—"Given adequate machinery the only extra cost would be in the fuel. At .... with short drying machinery and working night and day when busy I consider ⅛d per lb. extra on the 2,500 maunds. I made easily clear all extra expenditure on fuel and labour and also leaves sufficient over to pay the cost of machinery. *Green Tea after manufacture weighs out as well as black.*"

Extract from a letter of the Superintendent of .... to whom the above letter was submitted for confirmation or criticism. "I see no reason why .... should not get as much weight from their greens as from their blacks. If there is any loss in the manufacture of greens it is when true greens are panned occasionally and, of course, ... does not make true greens (*i.e.* the first estate makes 'uncoloured' and does not "finish.")

A third statement is from the Manager of Kolbong whose teas (after pan-firing in Calcutta by machine) fetched in open auction in London 9¼d for Young Hyson, 8½d for Hyson and 8d for Hyson 2—who says:—"Greens and blacks here weigh out the same."

GREEN TEA MANUFACTURE AND BLACK.

Ambegamuwa, April 20.

DEAR SIR,—Replying to Mr. Judge's letter and your correspondent *re* green teas and outturn (see page 783), I still maintain that it costs nearly 4c. more than black tea. Carelessness in manufacture or extreme supervision will not give an outturn of over 23 per cent. I will ask Mr Judge or your other correspondent to weigh out, say, 300 lb. of green leaf from the field straight to the steamer. They must be sure it is done under their immediate eye and if they can with a *bona fide* 300 lb. tea leaf turn out more than 68 to 69 lb. I am open to be instructed how it is done. I have carefully weighed out 200 lb. green leaf, *withered it separately*, and when ready, rolled the leaf off and had the lot fired. *24 per cent black* tea was the result. There is weighing and—weighing!—of leaf,!! and results accordingly. All true men know this. Mr. Judge is quite right to get in as much advertisement for his machine as possible. He is no exception to human nature. Apologising for any trouble,—Yours truly,

G. T.

P.S.—If 23 per cent is the result of green tea outturn, add the cost of extra leaf and extra cost of manufacture, it will turn out very close on 4c. above blacks.—G.T.

SOILS OF DOMINICA.—We have received from Mr. D. Morris, C M G, copy of a report on the physical and chemical analyses of the Soils of Dominica, 1902, by the Hon. F Watts, B. Sc., Government Analytical and Agricultural Chemist for the Leeward Islands, issued by the Commissioner of Agriculture for the West Indies. The Report contains a great deal of valuable information; for as Mr D Morris says:—

In countries where the land has been tilled for long periods, much knowledge is gained by experience and the need for thorough chemical and physical analysis may not be urgent. In Dominica the case is entirely different. Much of the land has never been cultivated and there is no fund of experience to guide intending planters. The valuable information contained in this report may well then be the means of preventing costly mistakes in planting crops on lands unsuitable to them. This report is a valuable contribution to our knowledge of West Indian soils and embodies the results of very careful work by Mr Watts, continued over a long period of time, and the thanks of the Government and the Planting Community are due to him for his active and zealous efforts.

THE BATTALGALLA ESTATE COMPANY, LIMITED.

THIRTEENTH ANNUAL REPORT, 1902.

The Directors are pleased to Report that the year's working shows a better result than in 1901. The crop has been larger, and therefore the cost of production has been much less, and although the average selling price has not reached last year's level, the profit realized is some £700 better. The quantity of tea manufactured has been 254,692 lb against last year 218,531 lb. The average selling price in London has been 8·07d gross, against 9·34d gross in 1901; and in Colombo 34·82 cents gross, against 37·06 cents gross; the total crops averaged a selling price of 7·16d gross, against 7·50d gross in 1901. London sales amounted to 119,853 lb, realizing net £3,471 0s 4d, and Colombo sales 134,755 lb, realizing net R15,544·77. This compares with 63,282 lb, realizing £2,156 16s 4d, and 154,518 lb, realizing R55,638·87, sold in London and Colombo respectively. Exchange for Drafts has averaged 1/4 9-32 against 1/4 19-64 in 1901.

An interim dividend of 3 per cent. was paid in October, the Directors, now propose to pay a further 3 per cent. free of Income Tax, making 6 per cent. for the year, to also write off £512 1s. 8d. from Machinery and Factory Account, and to carry forward £96 7s. 6d. to next Account. The best thanks of the Shareholders are due to the Superintendent, Mr G C R Norman, as well as to the Colombo Agents, Messrs E Benham and Company, for valuable services rendered to the Company during the year. In accordance with the Articles of Association Mr Edward H Hancock retires from the Board and being eligible offers himself for re-election.

50 & 51 Lime Street, London, E.C, 9th March, 1903.

THE GREAT WESTERN TEA COMPANY OF CEYLON, LIMITED.

REPORT OF THE DIRECTORS.

DIRECTORS:—F W Bois, J Anderson, J C Dunbar.

At a General Meeting held on 21st July, 1902, it was decided that the financial year of the Company should in future run from January to December, and in consequence the Directors have on this occasion to submit Report and Accounts for nine months only to December, 1902. The yield of Tea was 272.147 lb netting 44·84 cents per lb. after estimating the value of 37,961 lb, which sold at a net average of 7·41 pence per lb but of which account sales have not yet been received. The Directors much regret the fall from average of 47·37 cents last season but do not attribute it to any actual falling off in the quality of the tea. The cost per lb. was 32·13 cents including 3·20 cents per lb. for manuring as against 29·05 cents for last season, and the increase may to a great extent be attributed to the shortage of crop which was 12·49 per cent less than that of the same nine months in the preceding year, and partly to the change of the Company's financial year. The amount available for distribution is R35,214·24 out of which the Directors recommend the

payment of a dividend of 6 per cent absorbing	R 35,040·00
and to carry forward the balance of ..	R 174·24
	R 35,214·24

The Estimate of Crop for the current season is 430,000 lb to cost R129,355·88 equal to 30·08 cents per lb. including 2·54 cents for manuring and with favourable weather this should be realised The acreage of the Estate is:—921 acres 2 roots 12 perches Tea; 39 acres 0 roots 0 perches Fuel 38 acres 2 roots 4 perches Ravines; 17 acres 1 root 12 perches Grass Field; 11 acres 3 roots 13 perches Buildings and Gardens; 30 acres 0 roots 14 perches Cart-road and roads; 23 acres 2 roots 25 perches Railways; Total 1,082 acres 0 roots 0 perches. During the year Mr. G F Walker left the Island, and Mr. F W Bois was appointed a Director in his place. In terms of the Articles of Association F W Bois retires by rotation and being eligible offers himself for re-election. It will be necessary to appoint an Auditor for season 1903.—By order of the Board of Directors, J M Robertson & Co., Agents & Secretaries.

THE LETHENTY TEA ESTATES ASSOCIATION, LIMITED.

The report and balance sheet to be presented at the fifth ordinary general meeting, to be held at the Registered Offices of the Company, Liverpool House, Middlesex Street, E C., at 12 o'clock noon on Tuesday, the 31st March, 1903:—

The Directors beg to present their Report and Balance Sheet for the season ending December 31st, 1902, showing a nett profit of £4,071 16s 10d; to which has to be added balance from last year £7 4s 3d. —Total £4,079 1s 1d; which. after providing for Debenture Interest £2,500, and fees to Trustees for Debenture-holders £50—Total £2,550; leaves a sum available for Dividend of £1,529 1s 1d. Your Directors now recommend a dividend of 3 per cent for the year on the ordinary shares, free of Income Tax, £1,364 14s; with Income Tax payable, £95 2s 6d,—Total £1,459 16s 6d. And that the balance of £69 4s 7d be carried over to next account

ACREAGE, 1902.—Tea in full bearing, 958 acres; tea five years old, 44 acres; tea four years old, 30 acres; tea under four years old, 6 acres; forest, 85 acres; grass land, 18 acres; roads, ravines, and waste lands, 61 acres. Total, 1,202 acres

REPORT.

The total crop for the year 1902 amounted to 482,079 lb. of tea, being 15,261 lb. more than was obtained in the previous season. This, considering that the season was a very unfavourable one for flushing, and that the yields of most estates were below those of last season, must be looked upon as satisfactory pointing as it does to our properties being in good heart and condition.

The whole crop was sold on the Colombo market, and realised a gross average of 39·37 cents, being the equivalent of 7¼d in London, a very satisfactory average in view of the low prices ruling last season, and one that reflects great credit on our estate management.

The profit for the year, including the balance of £7 4s 3d. brought forward from last account, after providing for debenture interest, income tax, and bonus to estate manager in Ceylon, shews a balance of £1,433 18s 7d.

Your Directors recommend a dividend on the ordinary shares at the rate of 3 per cent, free of income tax, carrying forward a balance of £69 4s 11d to next account.

Your Directors take this opportunity of pointing out that the result of closing the retail business has fully come up to their expectations, and net profit made this season fully justifying the action they took in January of last year.

In accordance with our Articles of Association, two of the Directors, Mr. James Skene and Mr. Sholto G D Serretire from office, and, being eligible, offer themselves for re-election.

The Auditors, Messrs. Carter, Son & White, offer themselves for re-election.

THE CEYLON TEA AND COCONUT ESTATES COMPANY, LIMITED.

DIRECTORS:—Messrs. F Capper, G H Alston, J A Henderson; Estate Inspectors. (Tea.)—Mr. R W Harrison. (Coconuts.)—Mr. W Jardine; Estate Superintendent—Mr. P T L Wetherall.

ACREAGE.

TEA.—In full bearing	410	2	22	Acres.
Coconuts	559	3	3	,,
Cinnamon	21	2	30	,,
Rubber	50	0	0	,,
Jungle, Patua and Scrub	365	2	38	,,
Total,	1,407	3	13	Acres.

The Directors have now to submit to the Shareholders the accounts for the past year. TEA DIVISION.—The crop secured amounted to 159,487 lb., being about 40,513 lb. below the estimate. Unfortunately, this estate with many estates in Ceylon has suffered from the unfavourable weather for growth. A very careful system of plucking has been followed as usual. The cost of laying down the tea in Colombo was 25·58 cents per lb. as compared with 23·31 cents per lb. in 1901, and the nett average price realised was 29·46 cents per lb. against 28·86 cents in 1901. COCONUT DIVISION.—The crop gathered was 707,034 nuts a large proportion of which was made into Copra 557. 4. 1. 14 candies, and sold at a nett average of R53·78 per candy. The coconut crop for the current year was sold as Copra at R55 00 per candy. The estimates for the current year are:—TEA, 200,000 lb. against an expenditure on working account of R52,002·00. The Directors have put in machinery for making Green Tea which has been sold on the Colombo market. Coconuts, 760,000 nuts against an expenditure of R16,420. RUBBER, is coming on well. 55 lb. have been secured and sold at an average price of R2·50 per lb. It will be noticed that the profit on last year's working is R4,377·22 and it is hoped that the present year will show even more satisfactory results. Messrs. W H Figg & F C Roles having resigned their seats on the Board, Messrs. G H Alston and F Capper were appointed to fill the vacancies. In terms of the Articles of Association, Mr G H Alston retires from the Board of Directors and is eligible for re-election. The appointment of an Auditor for the current year will rest with the meeting. By order of the Directors, TENNANT, HENDERSON & Co., Agents and Secretaries.

Colombo, 7th April, 1903.

THE TALAWAKELLE ESTATES CO., LTD.

DIRECTORS:—Messrs. Arthur Phelips Hoskyns and Charles Murray Robertson: Agents in Colombo—Messrs. George Steuart & Co.; Agents and Secretaries—Messrs. Robertson, Bois & Co.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1902, duly audited. The mortgage has been reduced to £14,000, by the payment of the fifth instalment of £1,500 on the 31st December last, which has been charged to Profit and Loss Account. The profit on the year's working is up to the average of the preceding four years, the increased yield compensating for the slight falling off in the price obtained for the tea. The amount expended in new clearings, about £270, has been charged against revenue. In the five years since the formation of the Company, the cost of production has varied but little, the average annual yield has been 528 lb. per acre, and the average price of the tea 10·47d. During the above period, after charging all expenditure on buildings, machinery, and on the conversion of 104 acres forest land into tea, the nett profits have amounted to £37,886 2s 11d, equal to rather more than 12 per cent on the purchase price of the estates. The sum of £7,500 having been paid out of the profits towards redemption of the mortgage, the cost of the estates has been reduced to £54,646 7s 11d, the acreage now being 802 acres tea in full bearing and 104 acres young tea.

STATMENT SHEWING RESULTS OF WORKING FOR THE FIVE YEARS ENDING 31ST DEC., 1902.

Season.	Average Plucked.	Total Tea Crop.	Yield per Acre.	Sold in London.	Gross Average per lb. Tea sold in London.	Cost of Crop per lb. f. o. b. Colombo.	Average Rate of Exchange per Rupee.
	Acres.	lb.	lb.	lb.	d.	cts.	s. d.
1898	802	421,284	525	418,565	10·57	27½	1 4 3-16
1899	802	419,544	523	417,164	10·23	27	1 4 5-16
1900	802	419 632	523	417,978	11·21	27½	1 4 9-32
1901	802	422·038	526	420,599	10·23	27¼	1 4 3-16
1902	802	434,492	541	432,907	10·10	27	1 4¼

	£	s.	d.	£	s.	d.
The Profit for the year amounted to ..	7,502	0	7			
To which has to be added Interest ..	58	10	1			
And the Balance from last year of ..	432	11	6			
				7,993	2	2
Interest on the mortgage for the year has been paid amounting to ..	775	0	0			
The fifth instalment of the Mortgage of £21,500 has been paid, viz ..	1,500	0	0			
Dividend on the 6 per cent. Preference Shares for the year *less* Income Tax, has been paid ..	309	14	4			
An Interim Dividend of 5 per cent, free of Income Tax, on the Ordinary Share was paid on the 1st October ..	1,853	10	0			
Income Tax ..	447	2	6			
It is Proposed—						
To pay a Final Dividend of 7 per cent on the Ordinary Shares, free of Income Tax, making 12 per cent for the year, which will require ..	2,594	18	0			
And to carry forward the balance of ..	512	17	4			
				£7,993	2	2

The Directors desire to place on record their high appreciation of the efficient management of the estates by their Superintendent, Mr. H St. C Bowle Evans, and his staff. Mr. Charles Murray Robertson, the retiring Director, offers himself for re-election. Messrs. Whinney Smith and Whinney, who were appointed Auditors in the place of Mr. John Smith, retired, offer themselves for re-election. By order of the Board, ROBERTSON, BOIS & Co.,

Agents and Secretaries.

12, Fenchurch Street, London, E. C., 15th March, 1903.

SCHEDULE OF THE COMPANY'S ESTATES.

Estates.	Tea in bearing	Tea not in bearing.	Forest and Timber.	Grass, Land, Buildings, &c.	Approximate Total.
					Acres.
Talawakelle	(a) 302	74	7	(b) 22	405
Nannoya	250	—	1	11	262
Katookelle	250	30	—	8	288
Totals	802	104	8	41	955

(a) 3 acres leased from the Proprietor of the Boutiqnes.

(b) 2 acres leased to Messrs. Davidson and Brown.

THE VELLIKELLIE TEA COMPANY OF CEYLON, LIMITED.

DIRECTORS.—George Abercrombie Dick, Esq., Percy Lawrence Johnson. Esq. Agents and Secretaries.—Robertson, Bois & Co.

REPORT.

Your Directors beg to submit their Report and Balance Sheet for the year ending 31st December 1902, duly audited. The yield of tea fell short of the estimated quantity by 72,132 lb, the shortfall being attributed to the unfavourable weather during the latter half of the year, and other causes. The total yield was 207,818 lb tea, plucked off 540 acres, being at the rate of 385 lb tea per acre, costing free on board at Colombo 33·86 cents per lb. The gross average price of the 195,350 lb sold in London was 8·19 per lb. Last year the crop amounted to 275,549 lb, costing 26·90 cents per lb. f.o.b., and the average price for the 251,699 lb sold in London was 8·03 per lb. The crop anticipated for the current season is estimated at 250,000 lb tea, a considerable increase on the crop secured last year, which may reasonably be expected in response to the liberal cultivation carried on. The rate at which Drafts were negotiated was 1s 4 3-16d per Rupee, the same as last year.

	£ s. d.	£ s. d.
The Net Profit for the year amounts to ..	1,134 15 0	
And the Balance from last year to ..	213 9 2	
Making a total of ..		1,348 4 2
The Directors have already paid out of this, Dividends on the 6 per cent Preference Shares for the year ending 31st Dec. 1902	285 0 0	
Interim Dividend on the Ordinary Shares of 1 per cent free of Income Tax ...	352 10 0	
Income Tax ..	113 19 8	
And it is proposed :—		
To pay a Final Dividend of 1 per cent free of Income Tax on the Ordinary Shares, making 2 per cent for the year ..	352 10 0	
And to carry forward the Balance of ..	244 4 6	
		1,348 4 2

Mr Edgar Bois resigned his seat on the Board during the year. The Director retiring on this occasion is Mr George Abercrombie Dick, and, being eligible, he offers himself for re-election. The Auditor, Mr J Hamilton Alston, also offers himself for re-election. By Order of the Board, ROBERTSON, BOIS & Co., Agents and Secretaries.

London, 21st March, 1903.

THE LINDOOLA TEA COMPANY, LTD.

DIRECTORS :—Messrs. Edward Dumaresq Thomas, Walter Cross Buchanan, Charles Murray Robertson.

AGENTS AND SECRETARIES :—Messrs. Robertson, Bois & Co.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1902, duly audited. The total crop was 180,375 lb tea, against 175000 lb estimated, and 171,311 lb obtained last season. The crop was at the rate of 563 lb per acre, and cost 23·31 cents per lb, free on board at Colombo, and the gross average price of the 168,935 lb sold in London was 7d against 8¼d last year. It will be seen that the fall off in profits is entirely attributable to the lower average obtained for the tea. Drafts were negotiated at an average rate of 1s 4¼d, the same as last year.

The Net Profit for the year amounts to ..	£1,589 9 8	
And the Balance from last year to	36 6 9	
Making a total of		£1,625 16
The Directors have already paid out of this, Dividends on the 6 per cent Preference Shares for the year ending 31st December, 1902 ..	£ 780 0 0	
Income Tax ..	90 1 3	
Amount written off Investment	64 6 0	
And it is Proposed :—		
To pay a Final Dividend of 2½ per cent free of Income Tax on the Ordinary Shares	650 0 0	
And to carry forward the Balance of	41 9 2	
		£1,625 16 5

The Director retiring on this occasion is Mr. Charles Murray Robertson, and, being eligible, he offers himself for re-election. The Auditor, Mr. J Hamilton Alston, also offers himself for re-election. By order of the Board, ROBERTSON, BOIS & Co., Agents and Secretaries,

London, 25th March, 1903.

THE TYSPANE TEA CO., LTD.

DIRECTORS.—Messrs. Edward Dumaresq Thomas John Philip Herringham, Walter Cross-Buchanan and Col. E D Newnham-Smith.

AGENTS AND SECRETARIES.—Messrs Robertson, Bois & Co.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1902, duly audited. The total yield was 261,878 lb. Tea against 280,000 lb. estimated and 277,773 lb. obtained last year, and in view of the unfavourable weather during the latter part of the year, this may be considered satisfactory. The average price realised per lb. Tea was 5·59d. nett against 5·66d. nett last year. The cost of production, exclusive of expenditure on new clearing, was 26 cents per lb. free on board at Colombo, or about 4⅓d. The present season's crop is estimated at 280,000 lb. Tea. Exchanges averaged 1/4¼ por rupee against 1/4½ last year.

The Net Profit for the year, after payment of the Interest on Debentures is ..	£1,071 1 11
To which has to be added the balance brought forward from last year	22 9 10
	£1,093 11 9

The Directors have already paid out of this an Interim Dividend of 1½ per cent, free of Income Tax ..	270 0 0	
Income Tax	54 5 11	
And it is proposed:—		
To pay a final Dividend of 3½ per cent free of Income Tax making 5 per cent for the year	630 0 0	
And to carry forward ...	139 5 10	
		£1,093 11 9

Mr Walter Cross-Buchanan, the retiring Director, offers himself for re-election. The Auditor, Mr J Hamilton Alston, also offers himself for re election. By Order of the Board,—ROBERTSON BOIS & Co., Agents and Secretaries.

London, March 25.

The acreage of the Estates is as follows:—

		Acres.
Tea in bearing	..	740
Tea planted in 1897	..	10
Do do 1898	..	28
Do do 1899	..	4
Do do 1901	...	18
Jungle, Timber Waste, &c.	.. ...	168
	Total	968

THE PUNDULOYA TEA COMPANY OF CEYLON, LTD.

REPORT

to be presented at the Sixth Ordinary Annual General Meeting of the Company to be held at the Office of the Company, on Wednesday, the 8th April, 1903, at 12-30 p.m.

1. The Directors now submit their Report for the year ending the 31st December, 1902, together with the balance sheet and accounts of the Company made up to that date, and duly audited.

2. The crop amounted to 749,415 lb., of which the old tea contributed 734,445 lb., being the largest crop it has ever given, and the new clearings 15,000 lb. The net average price obtained was practically the same as in the previous year, but the cost of production per lb. was considerably less as shown in paragraph 4, and the Directors desire to record their appreciation of the successful efforts of the Ceylon management in this direction.

3. Since the end of 1902 the statistical position of the tea market generally has considerably improved, and the outlook for producers is more promising than for some time past.

4. The following statement gives details which may be of interest:—

Season.	Acreage Plucked.	Total Tea Crop.	Yield per Acre.	Cost of Crop per lb. f.o.b. Colombo,	Gross Average price obtained per lb. Tea.	Average rate of Exchange per Rupee.	Dividend on Ordinary Shares free of income tax.
	acres.	lb.	lb.	d.	d.	s. d.	per ct.
1902	1,800	749·445	416	4·87	8·45	1 4¼	5
1901	1,777	692·579	390	5·29	8·37	1 4 3-16	4
1900	1,640	697,359	425	4·86	8·68	1 4 17 64	6
1899	1,640	644,565	393	4·81	9·28	1 4 9-32	6
1898	1,640	627,886	383	5·29	9·27	1 4 3-16	6
1897	1,640	623·699	380	5·22	9·52	1 3⅜	6

5. The profit for the year amounted to £7,872 6d, to which has to be added interest £98 19s 8d, and the balance from last year of £318 15s—Making a total of £8,289 15s 2d.

The Directors have already paid out of this, interest for the year upon the mortgage, less Income Tax £225 5s, dividend for the year upon the 6 per cent Preference Shares, less Income Tax £1,858 6s 3d, Income Tax £430 8s 10d. And they propose to deal with the balance as follows:—To pay a dividend of 5 per cent free of Income Tax, on the Ordinary Shares, requiring £3,300, to transfer to Reserve for Depreciation and General Purposes (increasing this account to £9,000) £2,250, and to carry forward the balance of £225 15s 1d—Total £8,289 15s 2d.

6. The Director retiring on this occasion is Mr Frederick Henry Christian, who being eligible offers himself for re-election.

7. Messrs. Winney, Smith and Winney, who were appointed Auditors, in the place of Mr John Smith retired, offer themselves for re-election.—By order of the Board, ROBERTSON BOIS & Co., Agents and Secretaries.

12, Fenchurch Street, London, E.C., 28th March, 1903.

SCHEDULE OF THE COMPANY'S ESTATES, ON THE 31ST DECEMBER, 1902.

Estate.	Tea in full and partial bearing.	Tea not in bearing.	Forest and Patna Land.	Forest and Timber Plantations.	Grass Land, Buildings and Waste.	Total.
Sheen	609	77	112	45	52	895 acres
Punduloya	485	10	15	29	95	634 do
Wootton	306	8	—	39	25	378 do
Deeside	400	—	10	—	26	436 do
Total	1,800	95	137	113	198	2,343 acres

THE AUGUSTA TEA ESTATES COMPANY, LIMITED.

DIRECTORS:—Messrs. Charles A Reiss, (Chairman). Edward H Hancock, Hamilton A Hancock, Thomas J Lawrance, Henry Will (Managing Director in Ceylon). Secretary.—Albin B Tomkins.

SIXTH ANNUAL REPORT.

The Directors beg to submit their Report and Audited Accounts for the year ending the 31st December, 1902. The quantity of tea manufactured has been 134,747 lb. which has sold at an average price of 5·95d per lb. gross, the cost of production for the same, works out at 24·90 cents., or equivalent to 4⅞d per lb in London. The average rate of Exchange has been 1s 4 11-32d. The Profit on Working Account is £589 18s 5d and with the balance of £62 13s 7d from last year brought forward, the amount at credit of Profit and Loss Account is £652 12s 0d.

Debenture Interest, Preference Dividend and all fixed charges have been paid, and the Directors propose to write off £100 from Machinery Account and to carry forward £41 4s 3d to the credit of the new season.

By the Articles of Association, Mr. Hamilton A Hancock retires from the Board, and, being eligible offers himself for re-election. The Auditors, Messrs. Singleton, Fabian & Co., alo offer themselves for re-election.

Messrs. Charles A Reiss, Thomas J Lawrance, Directors. Mr. Albin B Tomkins, Secretary.

23rd March 1903.

MOUNT VERNON (CEYLON) TEA COMPANY, LIMITED.

INCORPORATED UNDER THE COMPANIES ACTS, 1862 TO 1900.

DIRECTORS.—John Alexander Melville Stephens, 13, Devonshire Terrace, Hyde Park, (Chairman). William James Chrystal, 7, West George Street, Glasgow, John George Chrystal, 8, Royal Exchange Buildings, Glasgow. Robert Francis Barclay, 19, West Regent Street, Glasgow. Alexander Cantlay, Auchnagatt, Aberdeen.

SECRETARY AND OFFICE :—James Ferrier Anderson (of Lyall, Anderson & Co.), 16, Philpot Lane, London, E.C.

REPORT OF THE BOARD OF DIRECTORS,

to be presented to the Shareholders at their First Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Monday, 30th March, 1903, at 11 a.m.

The Directors have pleasure in submitting to the Shareholders the Report and Accounts of the Company for the year ending 31st December, 1902. The Company was incorporated on 27th December, 1901, and the transfer of the property duly completed on 10th January, 1902, from which latter date the Estate has been worked for account of the Company. As indicated in the private prospectus issued in December, 1901, The Vendors have made over to the Company the whole net profits earned by the Estate from 1st January, 1901, to date of purchase 10th January, 1902. These amounted to £4,702 17s, and were utilised in the payment of dividends of 11¾ per cent. in all, absorbing £4,700, leaving a small balance of £2 17s to carry forward. The net profits from 10th January to 31st December, 1902, amount to £3,597 4s 6d, which, with the £2 17s mentioned above, gives a total to be dealt with of £3,600 1s 6d. An Interim Dividend of 4 per cent, free of Income Tax, paid in September, 1902, absorbed £1,600. It is now proposed to pay a final dividend at the same rate (making 8 per cent. for the year) £1,600. To place to Reserve Account as a nucleus of that Fund £200. And to carry forward to next Account £200 1s 6d.—£3,600 1s 6d. The Directors regret that the profits for the past year have fallen considerably short of those realised by the Estate in previous seasons, the reasons for such shrinkage being threefold, namely, exceptionally unfavourable weather in Ceylon, the depressed state of the Tea market, and the loss of profit on the purchase of Belton Leaf—the proprietors of that estate having built a Factory of their own in the early part of the year. The crop secured for the past season was 352,319 lb, or about 466 lb per cultivated acre, and in addition to this, 4959 lb tea was made from Belton leaf in the beginning of the year, giving a total output from the factory of 357,278 lb tea. It will be seen from the accounts that the tea has been sold partly in London and partly in Ceylon, the system adopted being to sell the higher grades in the former and the lower grades in the latter market, and the market continues to maintain a prominent position both in London and Colombo. The management of the estate has changed hands during the year, Mr Cantlay having resigned, and Mr Joseph C Dunbar having been appointed Manager in his place. It is a matter for satisfaction that, as a member of the Board, the Company will continue to have the benefit of Mr Cantlay's long experience and intimate knowledge of the estate, while the Shareholders are also to be congratulated on securing the services of an experienced planter like Mr Dunbar as the Company's Manager and Representative in Ceylon. In accordance with the Articles of Association, Messrs J A Melville Stephens and W J Chrystal retire from the Board, and these gentlemen being eligible offer themselves for re-election. Messrs Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.—By Order of of the Board, JAS. F. ANDERSON, Secretary.

THE YATIYANTOTA, CEYLON TEA COMPANY, LIMITED.

DIRECTORS :—Messrs A Thomson, Chairman, Charles Young, J M Skinner.

MANAGING AGENTS:—Messrs Whittall & Co., Colombo.

SECRETARY AND OFFICERS :—T A Williams, 27, Mincing Lane, London, E.C.

REPORT OF THE DIRECTORS

to be submitted at the sixth annual general meeting of Shareholders to be held at the London Commercial Sale Rooms, 30 to 34, Mincing Lane, London, E.C., on Wednesday, the 8th April, 1903, at 12 noon.

The Directors now beg to submit the duly audited accounts of the Company for the year ended 31st December, 1902. The bearing area, of all ages, was 2,982 acres, from which crops amounting to 1,434,496 lb were secured, and, in addition, 7,107 lb were made from purchased leaf. Of the total, 772,011 lb were sold in Colombo, and 669,592 lb were shipped to London, the net average realised for the whole being 4·84d per lb. Including purchased leaf, the average cost, f. o. b. (or delivered to buyers in Colombo) was 3·37d per lb. The average rate of exchange for the year was 1s 4 3-16d per rupee.

The following is a comparative statement of the past three years' working :—

Year.	Acreage plucked Mature and in partial bearing	Crop secured from Company's Estates.	Average yield per acre Plucked.	Average Rate of Exchange per Rupee.	Cost of Crop per lb.	Net Average Sale Price per lb.
1900	2,854	1,470,590 lb	515lb	1s 4 7-32d	3·40d	4·56d
1901	2,970	1,261,484 ,,	425 ,,	1s 4 7-32d	3·83d	5·10d
1902	2,982	1,434,496 ,,	481 ,,	1s 4 3-16d	3·37d	4·84d

The outturn for 1902 fell below expectations, owing to unfavourable weather during nearly the whole of the second half of the year. The market was very poor during the earlier months of the year, but since October it has undergone material improvement.

		£	s	d
The net profit for the year amounts to		£8,157	3	1
To which has to be added balance from 1901 Account		2,072	5	5
Together		10,229	8	6
Dividends have been paid as follows :— On the Preference Shares at 6 per cent per annum—On 1st July, 1902, and 1st Jan. 1903 ..		2,700	0	0
Leaving now to be dealt with ...		£7,529	8	6

This the Directors propose to appropriate as follows:—

(1) In payment of a Dividend on the Ordinary Shares of 5 per cent for the year 1902 ..	£4,500	0	0	
(2) In writing off Cost of Properties, including Depreciation of Machinery and Buildings ..	1,(0)	0	0	
(3) In carrying forward to 1903, the balance of	2,029	8	6	
				£7,529 8 6

The following are details of the acreage of the different properties as on 1st January, 1903 :—

Estate.	Acreage under Tea. Bearing	Partial Bearing	Not Bearing	Total.	Forest Reserves &c.	Total Acreage.
Polatagama ...	791	..	50	841	201	1,042
Weoya and New Polatagama ...	632	95	...	727	345	1,072
Walpola ...	871	...	...	871	145	1,016
Rondura ..	581	20	..	601	629	1,230
	2,875	115	50	3,040	1,320	4,360

The condition of the Company's Estate continues satisfactory, and the Directors desire to record their high appreciation of the management and general working of the properties. In terms of the Articles of Association, Mr. C Young retires from the Board, and being eligible, offers himself for re-election. Messrs. Cape & Dalgleish, C.A., offer themselves for re-election as Auditors of the Company. By order of the Board. T. A. WILLIAMS, Secretary.

27, Mincing Lane, London, E.C., March 30th 1903.

BALMORAL (CEYLON ESTATES) COMPANY, LIMITED.

REPORT.—To be presented at the Fifth Annual General Meeting of the Balmoral (Ceylon) Estates Company, Limited, to be held at the Offices of the Company, 12, Fenchurch Street, E.C., on Thursday, 9th April, at 11-30 a.m.

The Directors have the pleasure to submit the Balance Sheet and Accounts of the Company for the year ending 31st December, 1902, duly audited.

The total yield of tea was 540,057 lb., against 595,197 lb. last year, being at the rate of 581 lb. per acre all round; the cost of production, exclusive of Capital Expenditure, was 26 cents per lb., free on board at Colombo, and the gross average price obtained was 9·22d. per lb. against 8·53d. per lb. last year—Sandringham Teas averaging 8·84d. and Clydesdale 9·61d. per lb. Exchange has averaged throughout the year 1s. 4 7-32d. against 1s. 4 3-16d. last year.

All Capital Expenditure has been charged against Revenue, and in view of this the Directors do not consider it necessary to set aside a specific sum for depreciation.

The Net Profit for the year amounts to £7,451, 18s. 4d.; and the balance from last year to £675 10s. 6d., making a total of £8,127 8s, 10.

The Directors have already paid out of this, Dividends on the 6 per cent Preference Shares for the year ending 31st December, 1902, £1,800.; Interim Dividend on the ordinary Shares of 5 per cent free of Income Tax £2,601 15s.; Income Tax £357 11s 7d.; and it is proposed to pay a Dividend of 5 per cent free of Income Tax on the Ordinary Shares, making 10 per cent for the year £2601 15s.; and to carry forward the balance of £766, 7s. 3d.—Total £8,127 8s, 10d.

The Auditor, Mr. J. Hamilton Alston, offers himself for re-election. By order of the Board, C. G. Bois, Joint Secretary.

London, 31st March, 1903.

SCHEDULE OF THE COMPANY'S ESTATES, TEA.

	Full Bearing.	Partial Bearing.	Not in Bearing.	Grass, Patna, &c.	Total.
Sandringham and Yarravale	527	33	26	160	626
Balmoral and Clydesdale	402	—	4	12	543
Acres.	929	37	31	172	1,169

THE CRAIGHEAD TEACOMPANY.

REPORT.

The Directors have the pleasure to submit the balance sheet and accounts of the Company for the year ending 31st December, 1902, duly audited.

The mortgage was reduced to £2,700 by the payment of the third instalment of £450 on the 31st December last. This sum is debited to profit and loss account, and is an ample charge for depreciation.

The total yield, excluding some 20,000 lb made from purchased leaf, was 428,091 lb tea which cost 25½ cents F O B Colombo, and the gross average price obtained in London was 6·66d per lb. The crop of the previous year was 481,265 lb tea, and the gross average was 6·67d. per lb.

The net profit for the year amounted to £2,580 18s. And the balance from the previous year to £670 11s 1d. Total £3,521 9s 1d.

Interest on the mortgage has been paid £157 10s, The fourth instalment of the mortgage (£4,500) has been paid £450. Dividend on the six per cent. preference shares for the year has been paid £481 16s. An interim dividend of 2½ per cent. on the ordinary shares, free of income tax has been paid £572 15s. Income tax £104 9s 2d. It is proposed—To pay a final dividend of 3½ per cent free of income tax, on the ordinary shares, which will require £801 17s. And to carry forward the balance of £683 1s 11d. Total £3,251 9s 1d.

The Directors desire to place on record their appreciation of the efficient management of the estates by Mr. Ernest Hamilton and his staff.

Mr. George Alston, the Director who retires on this occasion, being eligible, offers himself for re-election. The approximate acreages are as follows as per recent survey:—

Tea.—In bearing	..	834 acres.
„ In partial bearing	..	53 „
„ Not in bearing	..	9 „
Ravines and Waste	..	62 „
Timber Clearings	..	53 „
Jungle and Patana	..	31 „
		1,042 acres.

CEYLON PLANTERS' RUBBER SYNDICATE.

Authorised Capital R250,000. Called up Capita R140,000.

DIRECTORS:—W P Halliley, A H Dunsmure, E Hamilton. Secretary :—J E B Baillie Hamilton.

ACREAGE.

The Acreage of the Syndicate property is as follows :—

Opened Land	..	644 Acres
Reserve	..	240 „
Toral	..	884 Acres

At 31st December, 1902, 644 acres were cleared which :—

350 Acres were in Rubber under 2 years.
85 „ „ „ 1 „
9 „ „ Coconuts
200 „ „ cleared and 60 planted with Coffee.

Mr. L T Boustead visited the Syndicates Estate on 11 and 12th March and reports that all the older fields show a good even growth fully up to the average of other Estates and a fair percentage of trees have started to branch out and stems to thicken.

The 60 acres of Coffee planted looks very well, about 4 per cent of vacancies only, and the Superintendent is confident of finishing the remaining 140 acres by the end of April.

A new Director and Auditor will have to be appointed in place of Mr. A H Dunsmure and Mr. W H Graham.

Expenditure to date :—	126,132. 91	Ceylon Expenses 4,729. 17
Estimate of Ex. for 1903	15,800.	
" 1904	14,246.	
1905	16,357.	
	172,535. 91	

NEW RUBBER COMPANIES.

BOLIVIAN RUBBER AND GENERAL ENTERPRISE, LTD. (76,699).—Registered March 16, with capital £150,000, in £1 shares, to adopt an agreement with C Chavanne, S Chavanne and H Ferreccio, to acquire rubber concessions and rights, to exploit rubber properties in Bolivia or elsewhere, to enter into any arrangement with any supreme municipal or local authorities, or others with reference to any charters or privileges or otherwise, to prospect, examine, and explore any countries and places, to employ and equip expeditions, commissions, experts and agents, to work, develop, carry out, exercise, develop and turn to account any properties, rights and privileges acquired by the company, to search for, win, get and prepare for market auriferous sand, quartz and ore and other mineral substances, to carry on business as sawyers, carriers, farmers, general merchants and financiers, etc. The subscribers are :

	Shares.
H Ferreccio, Fucuman, Argentine Republic, gent ..	1
P Burelier, Tzieurs (Loire), France, gent ..	1
E Copping, 18, St. Swithin's Lane, E C, secy ..	1
A E Lidbury, 75, Granville Rd, Walthamstow, clk...	1
W S Lart, Worcester, House, E C, clk ...	1
C A Knight, 6, Upper Av, Rd, Hampstead N W, engr ...	1
E Bird, St. Swithin's Lane, E C, housekeeper ..	1

Minimum cash subscription 10 per cent. of the shares offered to the public. The first directors (not to be less than 3 nor more than 7) are C A Knight, I Chavanne, P Burelier and H Ferreccio; qualification 500 shares; remuneration £100 each per annum and 5 per cent. of the dividend in excess of 10 per cent. dividend. Registered office, 18, St. Swithin's Lane, E.C.

PATALING RUBBER ESTATES SYND, LTD. (76,766).—Registered March 20, with capital £30,000, in £1 shares, to adopt an agreement with Miss M Bennett and H W Brett, for the acquisition of the Pataling Estate, containing about 2,000 acres on Klang River, 5 miles from Kwala Lumpor, Federated Malay estates, held from the Government by the said Miss F M Bennett under a Selangor Land Grant for 999 years from 1895, to grow and cultivate rubber, coconuts, coffee and other produce. and to carry on the business of planters, etc. The subscribers are :

	Shares.
H W Brett, Halliford-on-Thames, gent ...	250
T Ritchie, J P, Cromer ...	250
F W Chaine, Heathercroft, Totland Bay, late Lieut R N ..	250
J L Anstruther, Wellington Court, Albert Gate, S W, Ceylon estate proprietor ..	250
W S Bennett, The Point, Bath Road, Reading, gent	250
N N Blomefield, 45, Bloomsbury Sq, W C, solr ...	1
A T White, 74, Tremadoc Road, Clapham, S W, clk	1

Minimum cash subscription £7,000. The number of directors is not to be less than 3 nor more than 5; the first are J L Anstruther, W S Bennett, H W Brett, F W Chaine and T Ritchie, J P; qualification £250; remuneration £50 each per annum Registered by Warren, Murton and Miller, 45, Bloomsbury Square, W.C.

SOUTH AMERICAN INDIA-RUBBER CO, LTD. (76,755).—Registered March 19, with capital £500, in £1 shares, to acquire, prepare, import, sell and deal in india rubber, caoutchouc, gum, elastic, gutta percha or other gums in their crude state, and to manufacture and deal in any articles of things made of the said substances. No initial public issue. The number of directors is not to be more than 5; the subscribers are to appoint the first. Registered by Paines, Blyth and Huxtable, 14, St. Helen's Place, E. C.—*Investors' Guardian*, March 28.

INDIAN VS. CEYLON GREENS.

RELATIVE COST OF MANUFACTURE AND LONDON PRICES.

A merchant with considerable experience and knowledge of the Ceylon Green Tea trade writes in regard to Mr. Judge's letter published on page 775, as follows:—

With regard to Mr. Charles Judge's letter to you, it will be noted from the weekly sales of greens held in Colombo that the average rates obtained for the teas of various gardens average from 33 cents to 39 cents per lb., depending upon the quality and elevation of the estate. "G.T."'s statement in a letter addressed to the newspapers dated 25th March (which stated that the greens cost 4 cents more to manufacture than blacks) cannot be endorsed by any but careless manufacturers in Ceylon. As stated by one of Mr. Judge's Indian correspondents, the cost of firewood is necessarily slightly in excess of the cost of firewood for black teas, as there is a larger percentage of moisture to expel from the Green Tea. Many estates, however, turn out quite as large a percentage of green as of black tea; so that India has no advantage over Ceylon in this respect. Where firewood is scarce and dear, the extra cost for fuel is a serious item. As regards Indian Green tea fetching higher prices than those of Ceylon manufacture in London, a glance at Messrs. Gow Wilson and Stanton's Circulars for February and March, to take a convenient period, will show how prices rule. On February 6th no green tea averages were given. On February 13th a break of Ceylon Young Hyson fetched an average of 8¼, while the average obtained for a break of 58 packages including Young Hyson, Hyson No. 1, Hyson No. 2, Fannings and Dust got an average of 6¾. In the February 27th circular a break of Indian Greens, including only Hyson and Hyson No. 1, got an average of 7½, while a break of Ceylon Tea including all grades—Young Hyson, Hyson No. 1, Hyson No. 2, and Fannings and Dust also got an average of 7½ notwithstanding that it included two more grades than the Indian break. In the March 6th circular a Ceylon break including four grades is recorded as having obtained a 6½d average, while an Indian consignment only gets 5¾d, while the break only included two grades. In March 13th's circular a break of Indian Green Tea gets an average of 6d for three grades, while in the March 27th circular a break of Ceylon including two grades got an average of 5¼d.

If these prices can be taken as a criterion, Indian Green tea is certainly not getting higher prices than Ceylons.

PLANTING NOTES.

EGGS.—Remember that the hen that is laying needs about twice as much feed as she would need if not laying. Like many other machines, she must be furnished the material from which to manufacture her finished product.—*Agricultural Gazette of New South Wales*, March.

MONTHLY TEA AVERAGES IN LONDON.—The table we publish elsewhere from Messrs. Geo. White & Co.'s annual tea report is always looked forward to with high interest. For 1902 Udapussellawa and kindred districts are first with 8⅝d average—⅛th below last year, and still ⅝ths below 1900. Maskeliya similarly shows a drop of ¼d; but Lower Dikoya, Kellebokka, Matale and Kelani Valley a rise of ⅛th. Others are stationary *e.g.* Hantane, Kurunegala, Rakwana and Kalutara, while falls are seen again in Pussellawa (¼), Udugama (¼), Haputale and Madulsima (⅛), and in the general average, 6⅞ as against 7d—and 7⅝ in 1900. Kurunegala, &c, 5½d, is the lowest average recorded for 1902.

COLLAR-PRUNING FOR CEYLON TEA.—An Indian planting correspondent, Mr. A Cooke, who asked in our columns the other day whether collar-pruning had ever been done twice on Ceylon bushes, has a fairly complete answer in the most useful remarks given elsewhere by a local planter, signing "Still uncollared." The treatment is a drastic one and—like most drastic treatment everywhere—is in Ceylon only applied to the worst cases, teas of bad *jât*. At the same time there may be collar-pruning *and* collar-pruning!—if Mr. Cooke has confused the two operations of "coppicing" and "stumping" which are carefully distinguished elsewhere. The poorer the *jât*, the more attention the bush requires, to be kept in passable condition; and whether collar-pruning, or other means, will do this, is left to the practical planter to find out.

CAFFEINE COFFEE.—It has long been known that coffee berries usually contain something like one per cent of caffeine, the substance to which coffee owes its stimulating properties. Recently M Bertrand of the Pasteur Institute has analysed nine kinds of coffee with interesting results which are referred to in the *Agricultural News* Barbados. The beans of one species (*Coffea Humblotiana*) contained no caffeine, and in another species (*C. mauritiana*) only 0·07 per cent. was present. These two varieties are thus for all practical purposes free from the simulating alkaloid. In Arabian coffee (*C. arabica*), obtained from various sources, the caffeine present varied from 0·83 to 1·60 per cent. Liberian coffee (*C. liberica*) yielded between 1·06 and 1·45 per cent. The new African coffee (*C. stenophylla*) appears very rich in caffeine, 1·52 and 1·70 per cent. being the results of two analyses recorded. *Coffea Canephora* gave the highest caffeine content, 1 97 per cent. The paper is printed in *L'Agriculture pratique des pays chauds*, Year II., pp. 211-13.—*Journal of the Society of Arts*, March 27.

GREEN TEA IN AMERICA.—The *American Grocer*, March 18th, states:—"Messrs. Wisner & Co. received advices from Shanghai stating that no further supplies of green teas can be obtained from the country, as the whole of this season's crop has been marketed. The point is of particular interest when the large size of this season's production of green teas is taken into consideration." This will continue until about the first week of June when the first of the new seasons shipments should begin to arrive from China. Japan, we note in an Eastern paper, has again commenced to make black tea to suit the Russian taste.

POISONS AND PESTS.—Quite recently we have seen a preparation intended for the destruction of ants. This preparation, as we have been informed, contains arsenic in very large quantity, namely, not less than 24 grains to the ounce, two grains being a fatal dose. A pint bottle would thus contain sufficient arsenic to poison one hundred and fifty or more adults. The actual cost of the "mixture" is estimated at about threepence half-penny. What the selling price is we do not know, but in all probability it is one which admits of a very large profit. It is true that to the sample we saw a label with the word "poison" was affixed but the bottle was an ordinary medicine bottle with nothing distinctive about it to prevent carelessness or accident.—*Gardeners' Chronicle*, April 4.

THE PINEHURST TEA EXPERIMENT.—The only fault we have to find with Mr. Shepherd's letter on the tea experiment of which he is in charge is that it does not convey sufficient fresh information to dispel the cloud he seems to feel has been caused by Mr. Larkin's uncomplimentary remarks. We are glad to hear that it is so far progressing that he has asked Government for tea machinery, indicating increased manufacture, and, even if it be of academic interest only, all tea planters will be glad to hear how the Pinehurst experiment is getting on from time to time. Of course it is within the bounds of possibility that this pleasure will be tempered, with those whose interests are against any development of fresh tea-producing countries; but for this we have still a little while to wait.—?

THE MANUFACTURE OF GREEN TEA AND BLACK—"G. T." who has evidently demonstrated the matter to his own personal satisfaction firmly adheres to his former contention. We referred his letter to our correspondent who wrote on Saturday and he suggests "that it would be interesting if "G. T." were to give particulars of his process, so that some more knowing one may give him the tip how to save loss in weight. It is a pity that he should go on losing 4 per cent weight when Mr. Judge and perhaps a few Ceylon planters also, can give such advice as will save this loss. Unless he expresses 4 per cent solid matter from his leaf, when squeeezing out the surplus water, how can there be loss in weight? If he sends this stuff out of his factory drains to manure his fields he may of course get a corresponding return from his bushes at a later period, which may satisfy him." Some other green tea manufactures in Ceylon might also give us the benefit of their experience on this question.

Monthly Shipments of Ceylon Black Tea to all Ports in 1902-1903.*

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January ..	9056013	7720436	612958	323101	151984	127883	714247	1738760
February	7455219	7983166	919709	372474	121158	150846	1020948	1337353
March ...	8198179	7192958	896513	568942	91081	138065	1713916	737977
April ...	8521388		988698		93198		2081904	
May ..	9638555		238239		80669		2000522	
June ...	12563050		1984976		166479		1828695	
July ..	10724781		1779011		108785		1747960	
August ...	7396614		1065599		208894		1574498	
September	6652202		795315		70262		1857897	
October ..	6559765		360844		79943		1567796	
November	6386229		937757		213619		1033030	
December	9072552		285785		60628		1577381	
Total ..	102,899,489		11,599,953		1,206,140		18,718,794	

	America.		All Other Ports.		Total.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January	125795	538166	389215	584321	11050212	11032667
February	115332	743733	385705	615790	10018071	11203362
March	566263	417750	311191	270198	11777143	10625890
April	807390		290137		12782715	
May	242651		436410		12637046	
June	403005		714471		17660676	
July	464858		846036		15671431	
August	461229		678095		11384929	
September	563981		688730		10628487	
October	483085		655827		9707260	
November	282794		547508		9400936	
December	558864		626319		12181529	
Total ...	5,048 137		6,569,644		146194397	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902 lb.	1903. lb.
January ...	64021	95535	..	...	...	3000	...	...
February	24839	52407	4420	...	...	1430	...	..
March ..	14800	59458	24210	...	...	...	..	...
April ...	13676	...	8000	...	...	...	...	...
May ..	70103	...	..	...	...	...	..	...
June ...	87340	...	74225	...	...	...	...	..
July ...	40574	...	..	...	...	...	...	...
August ...	70900	...	..	...	...	...	...	..
September	50771	...	..	...	...	...	...	...
October ...	68679	...	..	..	...	...	..	..
November	48076	...	..	...	...	...	..	...
December	40423	...	..	...	...	...	..	...
Total ...	644,443		127,115				...	

	America.		All Other Ports.		Total.	
	1902 lb.	1903. lb.	1902. lb.	1903, lb.	1902. b.	1903. lb.
January ...	113332	26534	...	..	177353	363883
February ..	26480	567474	515		56254	621616
March ...	62313	551016	100	...	101423	610474
April ...	53610	...	9165	...	84451	...
May ..	32676	...	3280	...	106059	...
June ...	84184	...	4500	...	250249	...
July ...	194016	...	...	...	234590	...
August ...	105982	...	1600	...	178482	...
September ...	333704	...	6800	...	391275	...
October ...	281168	...	..	...	349847	...
November ...	156653	...	20080	...	224809	..
December ...	365843	...	2240	...	408506	...
Total ...	1,968,456		48,280		2,796,844	

* It is impossible to get the figures for the last month in time for publication; but see pages 785, 786 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Agra Ouvah Estates Co., Ltd.	500	920	...	..
Ceylon Tea and Coconut Estates	500	..	...	—
Castlereagh Tea Co., Ltd.	100	100	102½	100
Ceylon Provincial Estates Co. Ltd.	500	550	...	—
Claremont Estates Co., Ltd.	100	..	...	...
Clunes Tea Co., Ltd.	100	...	80	..
Clyde Estates Co., Ltd.	100	..	50	...
Doomoo Tea Co., of Ceylon Ltd.	100	85	...	90
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	...	45	...
Estates Co of Uva, Ltd.	500	..	300	..
Gangawatte Tea Co., Ltd.	100	100	..	..
Glasgow Estate Co., Ltd.	500	12.0	...	..
Great Western Tea Co., Ltd.	500	...	750	..
Hapugahalande Tea Estate Co.	200	...	...	...
High Forests Estates Co., Ltd	500	515	...	515
Do part paid	400	...	400	...
Horrekelley Estates Co Ltd	100	..	100	100
Kalutara Co., Ltd.,	500	..	325	—
Kandyan Hills Co., Ltd	100	..	..	...
Kanapediwatte Ltd.	100	75	...	75
Kelani Tea Garden Co., Ltd.	100	...	35	—
Kirklees Estate Co., Ltd.	100	..	..	...
Knavesmire Estates Co., Ltd.	100	—	62½	—
Maha Uva Estates Co., Ltd.	500	—	...	—
Mocha Tea Co., of Ceylon, Ltd.	500	780	—	800
Nahavilla Estate Co., Ltd.	500	...	400	...
Neboda Tea Co., Ltd.	500	—	..	—
Palmerston Tea Co., Ltd.	500	—	—	—
Penrhos Estates Co, Ltd.	100	85	92½	..
Pitakanda Tea Company	500	—	—	...
Pine Hill Estate Co., Ltd.	60	—	47½	..
Putupaula Tea Co. Ltd.	100	—	..	—
Ratwatte Cocoa Co., Ltd	500	200	—	—
Rayigam Tea Co., Ltd.	100	...	52½	—
Roeberry Tea Co., Ltd.	100	100	105	—
Ruanwella Tea Co., Ltd	100	60	62½	60
St. Heliers Tea Co., Ltd,	500	..	500	..
Talgaswela Tea Co., Ltd.	100	...	35	..
Do 7 per cent Prefs.	100	—	80	—
Tonacombe Estate Co., Ltd,	500	—	..	—
Union Estate Co., Ltd.	500	..	...	—
Upper Maskeliya Estates Co., Ltd.	500	615	625	..
Uvakellie Tea Co. of Ceylon, Ltd	100	80	85	...
Vogan Tea Co., Ltd.,	100	...	60	..
Wanarajah Tea Co., Ltd.	500	950	—	com.
Yataderiya Tea Co., Ltd.	100	—	365	362½

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buyers.	Sellers.	Transactions
Adam's Peak Hotel Co., Ltd.	100	...	30	—
Bristol Hotel Co., Ltd.	100	—	..	..
Do 7 per cent Debts	100	..	—	..
Ceylon Gen. Steam Navigation Co., Ltd	100	210	225	—
Ceylon Ice & Cold Storage Co. Ltd.	100	..	100	—
Ceylon Superaëration Ltd.	100	—	..	--
Colombo Apothecaries' Co. Ltd.	100	—	140xd	145 c d
Colombo Assembly Rooms Co., Ltd.	20	15	.	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	90	...	95
Colombo Hotels Company	100	285	290	290
Galle Faco Hotel Co., Ltd.	100	...	200	195
Kandy Hotels Co., Ltd.	100	132½	...	132½
Mount Lavinia Hotel Co., Ltd.	500	—	300	..
New Colombo Ice Co., Ltd.	100	100	...	100
Nuwara Eliya Hotels Co., Ltd.	30	—	27½	..
Do 7 per cent prefs.	100	—	—	—
Public Hall Co., Ltd.	20	...	—	...

LONDON COMPANIES

Company	paid. p. sh.	Buyers.	Sellers.	Transactions.
Alliance Tea Co., of Ceylon, Ltd.	10	8	9	—
Anglo-Ceylon General Estates Co	100	—	52—57	
Associated Estates Co., of Ceylon	10	...	nom	—
Do. 6 per cent prefs	10	—	2—4	—
Ceylon Proprietary Co.	1	—	5—10	—
Ceylon Tea Plantation Co., Ltd.	10	—	24—25	—
Dimbula Valley Co. Ltd	5	—	5½—6	—
Do prefs	5	—	5½—6	—
Eastern Produce & Estate Co. Ltd,	5	—	3¾—4¼	—
Ederapolla Tea Co., Ltd	10	—	5—8	—
Imperial Tea Estates Co., Ltd.	10	5	6 6	—
Kelani Valley Tea Assen., Ltd.	5	—	3—5	—
Kintyre Estates Co., Ltd.	10	..	4—5	—
Lanka Plantations Co., Ltd	10	—	3—4	—
Nahalma Estates Co., Ltd.	1	—	nom	—
New Dimbula Co., Ltd.	1	—	2¾—3	—
Nuwara Eliya Tea Estate Co., Ltd	10	—	10½	..
Ouvah Coffee Co., Ltd.	10	..	8—9	...
Ragalla Tea Estates Co., Ltd.	10	..	9—11	...
Scottish Ceylon Tea Co., Ltd.	10	..	10—12	..
Spring Valley Tea Co., Ltd.	10	..	2—5	—
Standard Tea Co., Ltd.	6	...	—	£12
The Shell Transport and Trading Company, Ltd.	1	..	2⅞—3⅜	..
Ukuwella Estates Co., Ltd.	25	..	par	6½
Yatiyantota Ceylon Tea Co., Ltd.	10	..	6..7	9½
Do. pref. 6 o/o	10	..	9..10	—

BY ORDER OF THE COMMITTEE.

Colombo, May 1st, 1903.

' Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(Supplied by the Surveyor-General)

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch.	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	3·45	4·16
February ..	1·98	2·78	0·63	3·55	4·57	2·02	3·95
March ..	4·21	0·88	3·71	5·12	6·85	4·82	2·53
April ..	22·81	6·66	15·12	8·71	10·01	11·30	7·60*
May ..	5·80	17·73	10·63	6·28	11·89	11·86	
June ..	10·94	9·23	7·83	5·93	9·84	8·32	
July ..	6·15	1·11	6·77	4·52	4·63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·18	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9·25	19·84	20·10	13·00	
December ..	3·05	4·44	5·20	1·70	6·43	6·21	
Total..	103·11	73·48	83·68	75·86	118·70	88·71	18·24

From 1st to 30th April 7·60 in., that is up to 9-30 a.m. on the 3· th A ril.—ED *C.O*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate	for	April	1903—8½ to 8¾ mill. lb.
Total Shipments	do		1903— 8,250,000 lb.
Do	do	do	1902— 8,521,388 lb.
Do	do	do	1901— 8,474,940 lb.

[ESTIMATE for May 1903—8½ to 9 million lb.]

A NEW FODDER PLANT: "PENICILLARIA."—This new fodder plant seems to be attracting universal attention among our readers, says *American Gardening*, and the crop is truly wonderful, as it yields from three to seven cuttings per year from one sowing and has produced ninety-five tons of green fodder per acre from three cuttings in a carefully weighed test. The seeds are so very small that one pound will plant an acre, and still one plant usually has 25 to 75 stalks, growing seven to fourteen feet in height. When it is figured that one-fourth acre will produce sufficient fodder to support a cow six months, either for summer or winter food, and that the dry hay, as well as the fresh fodder, is highly nourishing, the value of the new plant will be better appreciated.—*Indian Planting and Gardening*, April 11,

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, April. 27th, 1903.

CARDAMOMS :—
All round parcel, well bleached per lb. R1·10
Do. dull medium do. R0·90
Special assortment, 0 and 1 only do R1·30
Seeds do. R0·80

CINCHONA BARK :—
Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

CINNAMON :—(in bales of 100 lb. nett.)
Ordinary assortment per lb. 48c.
Nos. 1 and 2 only per lb. 55c.
Nos. 3 and 4 only per lb. 40c.

CINNAMON CHIPS :—(in bags. of 56 lb. nett. per candy of 560 lb.) R57·50

COCOA :—
Finest estate red unpicked per cwt R47·50
Medium do do do R37·50
Bright native unpicked and undried R35·00
Ordinary do do do R50·00

COCONUTS—(husked)
Selected per thousand R46·00
Ordinary ,, R36·00
Smalls ,, R30·00

COCONUT CAKE—
Poonac in robins f. o. b. per ton R75·00
Do in bags none.

COCONUT (Desiccated).
Assorted all grades per lb 16½c.

COCONUT OIL—
Dealers' Oil per cwt. R14·00
Coconut Oil in ordinary packages f. o. b. per ton R317·50.—Business Done.

COFFEE.—
Plantation Estate Parchment on the spot per bus.—R9·50.
Plantation Estate Coffee f. o. b. (ready) per cwt.—None
Native Coffee, f.o.b per cwt.—None.

CITRONELLA OIL—
Ready do per lb.—53c.

COPRA—
Boat Copra per candy of 560 lb. R46·00
Calpentyn Copra do do R46·00
Cart do do do R42·00
Estate do do do R46·00

CROTON SEED per cwt—R11·00

EBONY—
Sound per ton at Govt. depot R185—Sales of this day.
Inferior R100—Next sales on 25th May.

FIBRES—
Coconut Bristle No 1 per cwt R12·00
Do ,, 2 9·00
Do mattress ,, 1 2·75
Do ,, 2 1·85
Coir Yarn, Kogalla ,, 1 to 8 16·50
Do Colombo ,, 1 to 8 12·00
Kitool all sizes None
Palmyrah None

PEPPER—Black per lb None

PLUMBAGO—
Large lumps per ton R600·00
Ordinary lumps do R550·00
Chips do R350·00
Dust do R250·00
Do (Flying) do R125·00

SAPANWOOD— per ton R45·00—Nominal.

SATINWOOD (Sound) per cubic ft. R5·90—Sales of 26th Jan
Do (Inferior) per cubic ft. R4·40— do
Do (Flowered) per cubic ft. R10·70— do

TEA—	High Grown Average	Medium Average.	Low Grown Average.
	cts	cts	cts
Broken Pekoe and Broken Orange Pekoe per lb	60	44	38
Orange Pekoe do	52	41	37
Pekoe do	48	38	36
Pekoe, Souchong do	42	34	33
Pekoe Fannings do	35	34	32
Broken mixed—dust, &c	32	31	31

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1902 AND 1903

COUNTRIE	Black Tea. 1903 lbs.	Black Tea. 1902 lbs.	Green Tea 1903 lbs.	Green Tea 1902 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	Cardamoms lbs.
To U K. ..	28682810	29936840	249216	110990	2249	..	2249	20520	160859
,, Austria ..	12553	7118	...	...	...	..	..	105	..
,, Belgium ..	39056	25626	...	..	2	...	2	289	1000
,, France ..	132931	84872	4430	...	...	—	..	381	...
,, Germany ..	174950	129143	..	...	...	..	..	2176	20665
,, Holland ...	160	3190	..	..	...	..	..	...	...
,, Italy ..	9153	4590	...	..	...	..	...	...	...
,, Russia ..	1818411	2013820	10411	24210	..	...	..	...	...
,, Spain ..	890	1750	..	..	...	..	...	156	..
,, Sweden ..	33050	14748	..	...	...	..	..	..	...
,, Turkey ..	7895	12813	..	...	..	..	..	...	..
India .	195009	219647	305	9780	10	..	10	...	50986
,, Australia ..	5727094	405342		...	814	20	834	197	...
,, America ...	1748796	1369866	1293773	222685	62	...	62	653	...
,, Africa ..	123168	170588	..	...	4	.	4	..	2078
,, China ...	1600093	756716	..	..	13	...	13	..	4766
,, Singapore ...	34439	37790	...	..	...	..	..	1669	1523
,, Mauritius .	20932	26860	...	..	..	..	...	..	..
,, Malta ..	87414	111000	..	..	..	...	..	...	..
Total export from 1st Jan. to 27th Apr, 1903.	47448074	39876289	1558140 †	367665	3154	20	3174	26146	241877

COUNTRIE	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1903 cwts.	Coconut Oil. 1902 cwts	Copra cwts.	Desiccated Coconut lbs.	Poonac. cwts.	Coconuts. No.	Plumbago. 1903 cwts	Plumbago. 1902 cwts.
To U K.	110632	311516	98199	49476	7902	4622991	997	2215503	30608	67378
,, Austria	50	43012	12379	1701	4300	11050	...	12775	...	...
,, Belgium	68130	147336	3340	900	3393	81267	33093	92000	6341	4300
,, France	3600	29100	6614	...	22923	29220	...	..	1321	...
,, Germany	144663	298547	2160	2336	65013	175130	31091	390865	20150	15600
,, Holland	3500	16800	614	...	...	54039	..	..	102	233
,, Italy	27300	47600	3736	1014	...	..	..	4745	...	...
,, Russia	..	..	...	...	26566	–	..	..	112	1218
,, Spain	84600	14000	..	...	...	18150	..	...	...	..
,, Sweden	..	..	624	...	...	34400	..	...	..	...
,, Turkey	500	...	..	...	..	...	...	..	..	...
India	100	..	4008	18905	...	...	..	35100	1443	1582
,, Australia	2100	12320	55		..	238433	...	..	288	89
,, America	160023	32400	23708	14365	...	231918	...		73173	88506
,, Africa	...	..	219	60	–	24765	2001	626440	..	...
,, China	...	..	1530	...	..	.	..	..	503	637
,, Singapore	...	..	1409	..	..	..	...	..	...	..
,, Mauritius	..	..	..	...	..	..	...	...	..	..
,, Malta	...	..	..	..	..	...	..	...	...	..
Total export from 1st Jan. to 27th Apr, 1903.	605193	952931	158595	88957	132697	5521551	67184	3279028	134041	179513

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 8th April, 1903.

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	70s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar Yellow ,,	Slightly drossy to fair	£6 10s a £6 17s 6d
Bombay ,,	Fair genuine ...	£5 10s a £6 10s
Madagascar ,,	Dark to good palish	£6 7s 6d a £7 2s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 170s
Japan ,,	Fair average quality ..	170s
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 6d a 1s 9d
	Middling, stalky & lean	1s a 1s 2d
Ceylon.-Mysore ,,	Fair to fine plump ..	1s a 3s [illegible]d
	Seeds ..	1s 2d a 1s 5d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish ..	1s 3d a 1s 6d
,, Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to fair bold	2s 8d a 2s 11d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2d a 2¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 40s
CINCHONA BARK.- lb. Ceylon	Ledgeriana Orig. Stem	6d a 9d
	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5¾d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	6d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba	Good and fine bright	3⅞d a 4d
	Common dull to fair	3⅝d a 3 13-16d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	90s a 115s
	Middling to fine mid ..	70s a 100s
	Smalls	59s a 62s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	66s a 88s 6d
	Medium and fair	58s a 64s
	Native	50s a 57s
COLOMBO ROOT ,,	Middling to good	8s a 14s
COIR ROPE, Ceylon ton		—
Cochin ,,	Ordinary to fair ..	—
FIBRE, Brush ,,	Ord. to fine long straight	—
Cochin ,,	Ordinary to good clean	—
Stuffing ,,	Common to fine	—
COIR YARN, Ceylon ,,	Common to superior	—
Cochin ,,	,, ,, very fine	—
do. ,,	Roping, fair to good	—
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough ,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	35s a 40s
	Small and D's	32s a 34s
Japan ,,	Unsplit	31s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fr. fine pl. in sts.	£10 a £13
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	75s a £9
	Amber and dk. red bold	£5 15s a £7 10s
	Med. & bold glassy sorts	9[illegible]s a £6 15s
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E.I. & Aden ,,	Ordinary to good pale	2[illegible]s 6d a 30s
Turkey sorts ,,		27s 6d a 32s 6d
Ghatti ,,	Pickings to fine pale ...	12s a 25s
Kurrachee ,,	Good and fine pale ...	25s a 27s 6d
	Reddish to pale selected	[illegible]0s a 23s
Madras ,,	Dark to fine pale ..	15s a 20s
ASSAFOETIDA ,,	Clean fr. to gd. almonds	[illegible]s a 10[illegible]s
	Ord. stony and blocky	5s a 45s
KINO ,,	Fair to fine bright	4d a 5d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	65s a 95s
OLIBANUM, drop ,,	Good to fine white	48s a 50s
	Middling to fair	3[illegible]s a 42s 6d
pickings ,,	Low to good pale	[illegible]s a 3[illegible]s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	2s 8d a 4s 2¼d
Assam	Good to fine	2s a 3s
	Common to foul & mxd.	7d a 1s 9d
Rangoon	Fair to good clean ...	2s a 3s
Borneo	Common to fine	6d a 2s 6d

	QUALITY.	QUOTATIONS
INDIARUBBER (Contd.)		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 7d
	Ordinary to fair Ball ...	2s a 2s 4d
	Low sandy Ball ...	9d a 2s
	Sausage, fair to good ..	[illegible]s 2d a 3s 6d
	Liver and Livery Ball ..	1s 9d a 2s 10d
Nyassaland	Fair to fine ball ..	2s 3d a 3s 5d
Madagascar	Fr to fine pinky & white	2s a 2s 9¼d
	Fair to good black ..	1s 1d a 2s 4d
	Niggers, low to fine ..	7d a 2s 2¼d
INDIGO, E.I	Bengal--	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 10d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	3s a 3s 6d
	Ordinary to fair	2s a 2s 9d
	Pickings	1s 9d a 1s 11d
MYRABOLANS, Madras } cwt	Dark to fine pale UG	5s a 6s nom
	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s a 5s 6d
	Bhimlies	4s a 7s 6d
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s nom
NUTMEGS— lb.	64's to 57's	3s
Bombay & Penang ,,	110's to 65's	11½d a 2s 10d
	160's to 115's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	14s a 18s
NUX VOMICA, Bombay	Ordinary to middling	5s 6d a 6s
per cwt. Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s
CASSIA ,,	According to analysis	2s 2d a 3s
LEMONGRASS ,,	Good flavour & colour	5d a 5½d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody..	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ..	10s a 14s
	,, wiry Mozambique	[illegible]0s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	5⅞d a 6⅛d
Singapore ...	Fair	5⅝d a 5 15-16d
Acheen & W. C. Penang	Dull to fine	5⅛d a 5¼d
PLUMBAGO, lump cwt.	Fair to fine bright bold	3[illegible]s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky	65s a 75s
	Inferior to fair	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	—
Manila ,,	Rough & rooty to good	—
Siam ,,	bold smooth...	—
SEEDLAC cwt.	Ordinary to gd. soluble	115s a 120s
SENNA, Tinnevelly lb.	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL— Bombay cwt.	Bold and A's	
	D's and B's	30s a 140s
	Small ...	
Mergui ,,	Small to bold ..	£8 2s 6d a £12 15
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL— Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	15s a 2[illegible]s 6d
TURMERIC, Bengal cwt.	Fair ...	11s a 13s
Madras ,,	Finger fair to fine bold bright	9s a 13s
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger .	9s 6d a 10s 6d
	Bulbs ..	9s a 9s 6d
VANILLOES— lb.		
Mauritius 1sts	Gd. crysallized 3½ a 8½ in	7s 6d a 26s
Bourbon 2nds	Foxy & reddish 3½ a 8 ,,	[illegible]s a 16s
Seychelles 3rds	Lean and inferior ...	5s 6d a 8s 6d
VERMILION lb.	Fine, pure, bright ...	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	70s

THE

AGRICULTURAL MAGAZINE.

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for MAY :—

Vol. XIV.] MAY, 1903. [No. 11.

THE CHANGING OF THE SEX IN PLANTS.

THE *Journal d' Agriculture Tropicale* avers that the inhabitants of the Southern oases in Algeria claim the ability to change the sex of date palms. Of 100 date palms 80 are male trees, hence it may readily be conceived that it is greatly to man's interest that the cultivator's intervention should be crowned with success. The method consists of tearing off all the leaves from the foot-stalks at two or three years of age, so that the medial nerve is split in two from the centre to the leaf sheaf. The idea of the Arabs is that this tearing process brings on a concentration of the sap movement in the same way as in the case of an annular incision, and results in an accumulation of sap, which is more necessary for the vital functions of the female plant than for those of the male. No objection, says the editor, from a vegetable pathological point of view, can be raised against the above assertion, for the reason that in young plants the organs are not yet different from each other.

In our experience, the topping—or cutting of the terminal bud—of "male" papaw trees (*Carica Papaya*) as soon as the character of the flower is ascertainable, results in altering that character and inducing them to yield good fruit in lieu of the wretched specimens borne by the so-called male tree.

In this case as with the date palms there is no doubt that the drastic treatment adopted results in what is referred to in the *Journal d' Agriculture Tropicale* as a "concentration of the sap."

In the Papaw the weakly nature of the male tree is characteristic, and the sex could almost be anticipated before blossoming. Whether any such distinctive physical character is observable in the date palm we cannot say, but it is more than likely there is. By cutting back, therefore, it is reasonable to suppose that the sudden checking of the upward flow of sap to meet the demands of the new growths in the region of the terminial bud, brings about a turgid condition of the cells and a corresponding concentrated or vigorous condition of the cell-sap, which is thus enabled to develope the fruit-bearing organs of the flower.

In a "male" or staminate flower, we must of course assume that the pistillate part of it is only suppressed and capable of developement under extraordinary conditions. Suppression is defined in botanical text-books as the absence of parts in a flower, which, from analogy, we might expect to find. The correctness of this view is proved by the fact that we often find an imperfect or partial developement of organs that should be present under ordinary circumstances. To such partial developement of the pistil must be attributed the production of imperfect fruit on the so-called male papaw tree. And that the further developement of organs, which have a tendency to suppression, is possible by artificial means, is further proved by the fact referred to above, namely, that the cutting back of the plant in the male papaw results in the production of pistillate flowers. It will be found in actual practice that one cutting back does not always bring about the desired result, and that the tree has to be attacked more than once before the tendency to suppression of the female organ is overcome.

The ingenuity of the skilled gardener has produced marvellous results in floriculture, not merely in the developement or supression of organs, but also in the multiplication of the parts of flowers, the increase of the number of one series with the corresponding decrease or suppression of another. With the possibility of such results, the apparent marvel of changing the sex of flowers loses its marvellous character. For change of sex would be nothing more than the developement or suppression of the stamens or pistil, resulting in the production of male, female or hermaphrodite flowers. The sexual character of the flower would thus appear to be, to some extent at least, controllable, and dependent on the influence of external forces.

OCCASIONAL NOTES.

Many people complain of the great difficulty in raising vegetables by the sea-side. That such difficulties exist it cannot be denied, but there are crops that will thrive, and thrive well for the greater part of the year, quite near to the sea. What is wanted is experience and that can only be gained by trials of different varieties. It would appear that cucurbits are not unfavourably affected by proximity to the sea, and Luffa grows particularly luxuriantly in such situations.

A contributor to the *Agricultural Gazette* of N. S. W. writing on *Paspalum dilatatum*, which he says "is now so much grown everywhere," refers to its reputation as "hard to germinate," and explains this by stating that it produces very little good seed, the percentage of fertile seed being very low, only ½ to 2 per cent. It is surmised that the seed is greatly affected by external conditions, or perhaps like some other known grasses, only few seeds are produced, and of these only a small percentage fertile. For propagation, therefore, the writer concludes that "without doubt, division of the roots remain the best method." In our own experience propagation by seed is very difficult, but, with root division, there is little difficulty in establishing this grass which may be seen growing in the Government Stock Garden in Colombo.

A very common plant in Dumbara, growing with the grass and sticking close to the ground, with outspread leaves, is the "et-adi" or elephant foot, so called no doubt owing to some remote resemblance to the print of the mammoth foot. In spite of very dry weather it seems well able to hold its own amid the short dry grass, eaten down by cattle and scorched by the sun, but itself apparently untouched. Botanically the plant is *Elephantopus scaber*, belonging to the order Compositae.

The generic name *Elephantopus* is Linnæus' translation of the native name *et-adi* (Sinhalese) and *Anichovadi* (Tamil), both meaning "elephant's footprint," and, like *melastoma* (black mouth) embodies an attribute of the plant as noted by the native observer. Trimen says of this plant, "One of the commonest weeds in turf, and owing to its long roots, difficult to eradicate. The leaves are used as an external application."

Enquiry has been made for *Equisetum debile* as a material for making a cooling drink. The plant is described by Watt as "a vascular cryptogam with creeping rhizomes and fluted stems," and is said to be used in India as a cooling medicine and for gonorrhoea. Though found upcountry we doubt if it could be got in sufficient quantity to meet a large demand. We have, however, supplied samples to be sent to Germany from whence the enquiry came.

Mr. A. Despeissis, writing on Tropical Fruit to to the Journal of the Department of Agriculture of Western Australia, says that the weight of the breadfruit goes up to 30 lb. This is a stupendous weight for the breadfruit and will astonish readers in Ceylon, where the breadfruit grows so well. On the other hand the smooth Cayenne (Giant Kew) pine is said to weigh from 6 to 10 lbs., whereas a weight of 20 lbs. (the record we should say) has been reached in Henaratgoda Gardens, while in Matale (as noted in our last issue) Dr. VanRoyen has succeeded in raising pines weighing 16 lbs. and over.

Mr. G. S. Sykes writing to the *Indian Agriculturist* speaks of "banana meal or flour prepared from the ripe banana fruit." Surely this is a mistake? Banana meal or flour, as we know it and prepare it, is made from the *unripe* but "hard" fruit.

RAINFALL TAKEN AT THE GOVERNMENT STOCK GARDEN FOR APRIL, 1903.

1	Wednesday ...	Nil	17	Friday ..	Nil
2	Thursday ...	Nil	18	Saturday ...	Nil
3	Friday ...	Nil	19	Sunday ..	Nil
4	Saturday ...	·35	20	Monday ...	Nil
5	Sunday ...	·06	21	Tuesday ...	·03
6	Monday ...	·06	22	Wednesday...	·81
7	Tuesday ...	2·15	23	Thursday ...	·11
8	Wednesday ...	Nil	24	Friday ...	Nil
9	Thursday ...	·24	25	Saturday ...	Nil
10	Friday ...	Nil	26	Sunday ...	Nil
11	Saturday ...	·71	27	Monday ..	·17
12	Sunday ...	1·23	28	Tuesday ...	Nil
13	Monday ...	·10	29	Wednesday...	Nil
14	Tuesday ...	·01	30	Thursday ...	·92
15	Wednesday ...	·03	1	Friday ...	·07
16	Thursday ...	·05			

Total in....6·60

Mean in...·22

The greatest amount of rainfall in any 24 hours, on 7th April, 1903, 2·15 inches.

ALEX. PERERA.

THE DEVELOPMENT OF VILLAGE INDUSTRIES.

No policy for the improvement of the condition of the villager in Ceylon will be complete unless attention is paid to the development of minor industries. Our villager in the majority of cases is a land owner, and he can never be induced to leave his ancestral holdings. But these ancestral lands are gradually being alienated in many places, and in these instances the land is being so sub-divided as to leave barely a sufficient area for a man to support himself by agricultural labour. One result of the reduction of the extent of land held by individuals will be an appreciation of improved methods of cultivation, for when a man finds that by better attention to tillage operations, manuring and selection of seed he is able to take as much out of a small plot as he did with larger areas of land under the old system, necessity compels him to pay some intelligent attention to the new methods which he looked to whith suspicion at one time. The School Garden system which was recently introduced in the Island should prove to be of great use at this juncture, and the development of the scheme will in time be welcomed by even the most conservative village *goyiya.*

The second requisite for the development of village industries is the freeing of the *goyiya* from the village money lender, at least in regard to what he actually requires in the cultivation of his lands. It has often been mentioned that a village cultivator has to pay a hundred per cent on the seed grain he obtains, hundred per cent on the manure, and an equally large percentage on any little money he raises to enable him to grow a crop. This is a very large waste, and a saving in this interest will increase his earnings to two or three times of what they are at present.

For example, a *goyiya* who owns in his own right an acre of paddy land, expends personal labour in its cultivation, but has to borrow the seed paddy, say $2\frac{1}{2}$ bushels, for sowing his acre; he also borrows the bone meal say 56 lbs. After he reaps his crop in four or five months' time he has to return five bushels of paddy for the $2\frac{1}{2}$ he borrowed and four bushels for the manure. His full crop may be anything below 20 bushels, and only 11 bushels are left for all his labour, including cattle for ploughing and thrashing. There is no reason why an Agricultural Banking system cannot be introduced in Ceylon, and that too with profit. We have the system now working successfully in such places as Egypt and the Deccan, where the conditions and the surroundings of the cultivator are decidedly more unfavourable for the development of such a system than in Ceylon. An Agricultural Bank will do more than allow the cultivator to obtain his seed and manure at reasonable rates, it will help in the speedy development of the tens of thousands of acres of land which are now being made available for cultivation under the new irrigation scheme. It is only the small landholder that can successfully cultivate irrigable lands. These cultivators with a little encouragement will take up every available acre of irrigable land. The encouragement they require is not much, and will in no way affect the public funds. They will not ask for bonuses, or free grants, or leases on favourable terms.

If we have an Agricultural Bank, and if a little money is lent out on favourable rates for cultivating the land, nothing more will be required to see all these lands profitably cultivated.

There are districts in Ceylon where a number of minor industries can be successfully started among the villagers, and it is here that some special attention should be given to the subject. The preparation of jams and preserves, the manufacture of various articles out of the different kinds of fibres, leaves and rushes so commonly met with here, reed, rattan and bamboo work; and various forms of ornamental work in wood are industries that will readily appeal to the villager. At present these products are put to use to a very small extent to meet immediate local demands; but to create regular and systemetic industries, with a steady demand for the articles turned out, some efforts have to be made to instruct and encourage the producers. There are a large number of wild fruit as well as easily-cultivated vegetable products that can be profitably used in making preserves. The villager will be prepared to give his labour very cheap in preparing preserves, if he only knew what is required, and if he is able to readily dispose of his produce. Woodapple, bael fruit, bilin, lovi-lovi, guava, rambutan, pineapple, Seville oranges and many other fruits now almost run to waste in places far from the chief towns. Fibre leaves and rushes are now put to use in certain localities in the preparation of mats, bags, and a few other articles; but these have only a very limited demand. People must be taught to turn out articles to suit modern requirements. Thousands of kinds of paying articles can be easily made out of these raw products, and the villager who can turn out a mat in complicated patterns, or a tray or a bag with ingenious devices can easily be taught to turn out anything that may be required in the market. The same applies in the case of rattan and bamboo work. The numberless articles prepared in Japan and the Straits in these materials can be turned out here, and can be made a profitable industry among the villagers. The same can be said of ornamental work and wood carving.

These are very simple matters, but if once systematically introduced will have far-reaching effects. There should be some practical training in industrial work in our village schools. The village schools need not be converted into so-called industrial schools where the pupils are taught to be labourers in mere mechanical trades such as smithing, shoemaking, tailoring and printing. Every village school boy should know something of form, colour and the properties of common objects; he should have some training in plaiting, weaving and modelling, in fact in the use of his hands; without this knowledge his learning will not be of much use to him. The art schools in India and Burmah are doing a great deal towards the improvement of minor industries similar to

those noted above. We have no art school, or a school of handicrafts in Ceylon. The Technical College only trains boys in the higher branches of engineering and mechanics which will undoubtedly help large manufacturing industries. But we have no manufacturing industries in Ceylon, neither is it likely that we will ever induce capitalists to open workshops and set up costly machinery for manufacturing, when the raw material required for such purposes is not forthcoming in any appreciable quantites. The Ceylon Technical College should open classes in the vernacular for teaching the properties of raw materials found in the Island, and the methods of utilizing them for making articles that are required in modern markets. It is only at such an institution that a collectonof suitable models can be made. The latest methods of food preserving, fruit packing and canning can be scientifically taught at this institution. The preparation and blending of colour, the manufacture of hundreds of varieties of useful articles out of fibre, leaves, rushes, rattan, reed and bamboo can be studied and systematically taught. The scientific staff attached to the institution will be capable of collecting information that will be of great value, they will be able to experiment on, and test local materials and find new raw materials for the use of the village worker, and eventually open up industries that will benefit a large number of people who are ready to work with their own hands.

W. A. D. S.

OCIMUM SP.

Considerable prominence has been given to the value of the different species of Ocimum by Mr. Shipley's article in *Nature* (January, 1902) which treats more especially of *O. viride* as a cure for mosquitoes. This particular variety does not occur in Ceylon, but the reputation of the plant as a mosquitofuge (to coin a new term) at once suggests the close connection between the plant in question and *O. sanctum,* known among the natives as madurutala or "the mosquito plant."

The testimony of Capt. Larymore, C.M.G., Resident, Kabba Province (Nigeria ?) is certainly very strong, when he avers that by placing 3 or 4 of the plants round his bed at night he was able to sleep unmolested without using a mosquito curtain ; and if we may assume that the experience was not a solitary one, and also that there were no other circumstances prevailing to which the absence of mosquitoes could have been attributed, then we must admit that a valuable discovery has been made for British East Africa. For ourselves we are inclined to think that *O. sanctum* would serve us quite as well as *O. viride,* and we would advise all mosquito-ridden ones to take the hint from the native, as Capt. Larymore has done in East Africa, and make use of madurutala, the mosquito plant of Ceylon, in the manner suggested.

Regarding *O. sanctum,* Trimen says, "The scent of the bruised leaves is faintly sourly (*sic*) aromatic ; they are used in medicine in cases of cough and catarrh," but he does not add, "also for keeping away mosquitoes—hence the native name."

Other species of Ocinum are : *O. canum* (Hin-tala), the leaves of which are pleasantly aromatic when bruised. *O. basilicum* (suvanda-tala), the "Sweet Baril," with a very sweet aromatic scent when bruised. *O. gratissimum* (gas-tala) and its variety *O. suave,* with faintly aromatic apple-like scent, and used in medicinal fumigations. Lastly *O. adscendens.*

The majority of tropical labiates are characterised by aromatic properties, such as species of Mentha, Coleus, Plectranthus, Pogostemon, &c. *Anisomeles ovata,* another member of this order, which possesses "a warm Camphoraceous scent" must, however, take the palm for keeping off noxious creatures, for we read that the smoke from this is believed by the natives of Ceylon to drive away not mosquitoes but demons!

SOME PROBLEMS OF THE RURAL SCHOOL.

(*Continued from last issue.*)

With the better organisation of the rural school will come very much wider opportunities for the enrichment of the courses of study by the introduction of subjects which are directly related to agricultural improvement and the inculcation of the love of country life in the minds of the young. All round the country school is a wealth of material for the most attractive and useful study which has been neglected for lack of knowledge and the absence of a teacher. The secrets of air, soil, plant and animal are coming to be common property, and science no longer mere classifying and anming. In the United States the enthusiastic and successful labours of such men as Professors Bailey and Roberts of Cornell University in formulating plans for nature study in the rural schools have borne much good fruit. Special efforts are now being made to secure the interest of teachers and parents,

The great obstacle to the spread of the movement to introduce nature study into the rural school, aside from the lack of competent teachers, is found in the conservation of the patrons of these schools. Reading, writing and arithmetic they know, but what, forsooth, is this new-fangled nature study? The subject is often so presented to their minds that it seems to them as if the new study must necessarily crowd out some of the old ones, or at least weaken the already too imperfect hold which the average pupil has on such fundamental things as spelling, writing, and arithmetic. But this need not be so. Instruction about plants and animals and insects may easily and naturally be connected with exercises in composition and in numbers, which will bring into practical use from day to day what the child is learning in his lessons about the English language, arithmetic, or geography. Properly taught, nature study will not crowd out any essential branch of learning from the common schools, but, on the other hand, it will stimulate interest in them all as the pupil discovers that they may be directly

related to his daily life and the world about him. Once the child's mind is awakened to the innumerable wonders of nature, and his interest excited in explanations of phenomena with which his farm life makes him familiar, it will be far easier than ever before to stimulate him to continuous endeavour to widen his knowledge through reading, as well as through observation. He will have more thoughts to put on paper, and he will often wish to draw objects he has seen.

The country boy often has a wonderful familiarity with nature—animals, birds and trees—which is of little value till it is broadened and deepened by being connected with facts and principles of which he has no knowledge.

The school is the place where we should learn to connect the practical and other knowledge we already have, with what other men knew who have lived in the past or in other places, or who have studied certain subjects very thoroughly.

What is wanted in our schools is to connect a child's limited knowledge of nature with what science has improved of nature's mysteries, so that life and work in the country may be improved thereby. If we have any such idea as that practice and science must remain apart, we must discard it at once. So far from being "divorced," they are joined as Dr. True forcibly puts it "in indissolubie wedlock." When the needs of the common schools are studied with unprejudiced minds, it will be seen that if they are to be brought into harmony with modern progress in horticulture, agriculture and other industries, they must be developed so as to bring them into direct touch with the land and its productiveness. The nature study movement promises to do this, and for this reason all those who have any concern with the cultivation of land should take an interest in it. True, nature study in the village school is only in its beginning, and much experience will have to be gained before we learn its just limitations and develope its proper service; but this can only be done through its actual working in the schools. Therefore, says Dr. True, open the common schools to instruction in nature, and make that instruction relate directly to the land. Insist also that normal schools and teachers' institutes prepare teachers for this line of work.

PLANTAIN FIBRE.

Hitherto the general impression has been that plantain fibre was only got from a particular species of *musa* which produces the fibre known as "manilla hemp," and hence no serious attempt was made to utilize the stems of the trees so long cultivated only for fruit.

Since of late, however, considerable interest has been aroused by the publication of reports on the value of the fibre to be got from the edible varieties of the plantain. Musa fibre, extracted from the outer sheath of the banana or plantain (call it what you will, for there is no real distinction) after the fruits have been cut, is reputed to be suitable for making "mats, coarse canvas, cords, hats, plaited work, raw fibre cables, ropes, twine, fine muslins, and fabrics 'half stuff' and paper of all kinds, lace, fine lace handkerchiefs, and cloth of a close texture and very durable."

In a contribution to the March number of the *Indian Agriculturist*, Mr. G. S. Sykes deals at length on this subject. It is needless for us to give a full summary of the article, but a description of the method of extracting the fibre will no doubt be acceptable to our readers, some of whom have, indeed, been making enquiries as to how this could be best done. According to Mr. Sykes the method of extracting the fibre is simplicity itself. The stem is cut down to the ground and each leaf is sliced of. The operator then sits on the ground with the end of the leaf stalk in his lap, makes an incision under the fibre at the end, and with a smart twitch rends off strips of the outer skin with adhering fibre, up to the whole length of the stalk. In this way ribbons of fibre are got, and in the same way the stem is also stripped into ribbons.

The contrivance for extracting the fibre consists of a small plank, to which is fixed a blunt iron knife that can be weighted, under which the strips are drawn three or four times, separating pulp and juice from the fibre. The exact amount of pressure to be applied must be learnt by practice. The knife must not be too sharp, but also not too blunt. From ordinary stems $1\frac{1}{2}$ to 2 lbs. of fibre should be obtained, but from $2\frac{1}{2}$ to 3 lbs. could be got from large stems when the whole length as well as the petioles are used. It is estimated that one man can produce 50 lbs. of fibre per day. The fibre should be at once thoroughly dried in the sun to preserve colour and quality. Carefully prepared fibre is said to be worth from £25 to £30 per ton in London, while the entire cost of placing it on the market should not exceed £10 per ton.

This is certainly very encouraging to those who are in a position to embark on the new industry.

HOUSEHOLD HINTS.

ARROWROOT BISCUITS.—1 lb. of butter, 1 lb. sugar, 1 lb. arrowroot (or corn flour), 1 lb. flour, two eggs. First beat well together the butter, sugar, and yolks of the eggs till it is like cream, then add the white of the eggs which have been beaten to a stiff froth, then add slowly the flour and arrowroot, mix well, and roll out on a board till the required thickness is got. Then bake.

ARROWROOT CAKE (BERMUDA CAKE).—Take 4 oz. each of butter, arrowroot, and sugar, two eggs, and the rind of half a lemon. First beat the butter to a cream; beat the yolks and white of eggs separately for ten minutes. Next add the sugar and flour rubbed through a sieve and the grated lemon peel. Beat all together for twenty minutes, grease a flat tin, line with butter paper, pour in the above mixture, decorate it with almonds, and bake in a quick oven. Turn on to a sieve to cool, and cut in squares. Sift sugar over and serve.

BANANA COMPOTE.—Pare thinly a lemon and squeeze the juice. Put both into a basin and leave for about an hour. Place a teacupful of cold water in an enamel saucepan, add to it a teacupful of sugar, and boil; when boiling strain into it the lemon juice. Pare 4 or 5 bananas, removing all fibre, and cut in half lengthwise, and then divide each half into three pieces, cook a few at a time in the syrup till transparent. When all are done, let the syrup get cool and then strain over the fruit.

Mildew stains may easily be removed by wetting and soaping the spot, covering it with powdered chalk, and then putting it in the sun to bleach. Damp it from time to time as it dries, and then wash it in the usual manner with soap and water. If necessary, repeat the process.

Alum purifies water in a remarkable degree. Four gallons of water may be purified by stirring into it a teaspoonful of powdered alum. Allow it to settle for a few hours, when all the impurities will be found to have sunk to the bottom of the vessel, leaving the water fresh and clear.

Wash vessels which have contained milk in cold water first, and afterwards scour them with hot water and soda. The use of cold water first insures greater cleanliness, for plunging at once into hot water is apt to set the milk and cause it to hang about the cans and pans to the detirment of the milk which is afterwards placed in it.

Cold water is said to be efficacious in removing a tight stopper. The bottle must be thoroughly immersed in plenty of cold water and allowed to remain in the latter all night. On removal it will be found that the stopper, after being carefully wiped all round, will come out without any difficulty. A small amount of vaseline rubbed on it will prevent any recurrence of the trouble.

To make liquid glue which will last for years put some pieces of glue into a bottle with some whisky. Cork tightly, and set aside till the glue has dissolved. This should be ready for use without heating, but in very cold weather the bottle may be stood in hot water for a few minutes before using the glue.

If you have not a night light, take an ordinary candle and put finely powdered salt round the wick up to the black part. A candle thus treated will burn very slowly, and give the dull light which is so often desirable in a sick room at night.

As a cough mixture for children the following recipe is unsurpassed:—Liquified honey, ½ oz., lemon juice, 1 oz. Another mixture for strengthening the voice, as well as for curing a tickling cough, is:—Glycerine, ½ oz.; fresh lemon juice, 1 oz., whisky, one teaspoonful. A quarter of a teaspoonful taken every fifteen minutes when the cough is troublesome will soon relieve it.

The odour of onions, either on the hands or on pots and pans, is easily removed by washing with ground mustard mixed with a little water. Linseed meal will answer the same purpose.

MARTHA.

PRINCIPLES OF NUTRITION AND NUTRITIVE VALUE OF FOOD.

(*Continued.*)

It is unnecessary, for the purposes of the ordinary reader, to give a description of the complex apparatus for ascertaining the functions and nutritive value of food, but it is sufficient to know that with such apparatus it is possible to learn what effect different conditions of nourishment will have on the human body. The methods and apparatus are very costly in time and money, but the results are proportionately more valuable than those from simpler experiments.

To summarise what has already been said: Food as purchased consists of an edible part (flesh of meat, yolk and white of egg, flour of wheat, etc.) and refuses (bones, shells, bran, etc.). The edible portion consists of water and nutrients (Protein, fats, carbohydrates and mineral matter). Protein (white of egg, curd of milk, lean of meat, gluten of wheat, etc.) goes to form tissue. Fats (fats of meat, butter, olive oil, etc.) are stored as fat. Carbohydrates (sugar, starch, etc.) are transformed into fat. All these three (Protein, fats, and carbohydrates) serve also as fuel to yield energy in the form of heat and muscular power. Lastly, mineral matter or ash (phosphate of lime, potash, etc.) takes part in the formation of bone, assists in digestion, etc. In view of the above functions, food may be defined as that which, taken into the body, builds tissue or yields energy. The most healthful food is that which is best fitted to the needs of the consumer. The cheapest food is that which yields the most nutriment at the least cost. The best food is that which is most healthful and cheapest.

The value of food for nutriment depends mainly on its composition and digestibility. Composition is determined by chemical analysis. In studying a table showing the composition of foods, one of the first things to be observed is the differences in the proportion of non-nutrients (refuse and water). Meat, fish, fruits, etc., as purchased, contain a good deal of refuse, which necessarily lessens the proportion of nutrients, while such refuse is usually absent in dairy products, cereal stuffs, and foods prepared from the latter (bread, cakes, etc.) In the edible portion the proportion of water present effects nutritive value. Water forms from 40 to 50 % of the ordinary kinds of meat, and is abundant in lean flesh, tending to decrease as fat increases and *vice versa*. In fresh fish water is more abundant than in meats. Fresh vegetables and fruit contain as much as 80 and 90 % or more, while dried seed and flour prepared from them contain roughly from 10 to 12 % only. Many cooked foods, of course, contain more water (added during cooking) than the raw materials. Soups are often little more than coloured and flavoured water, and are hence of extremely low

nutritive value. In some cooked food, on the other hand, notably baked, roasted, and fried meats, little water is present as the proportion has been diminished by the process of cooking.

The most important of the actual nutrients is protein. As stated it is most abundant in meat, fish, eggs, cheese, and dry legumes (beans, peas, etc.) The proportion of protein varies with the kind of meat and fish. In beef, veal and mutton it forms between 14 and 26 % of the edible portion. It is generally less in fish, because the latter is more watery than meat. The fatter the meat, the less is the protein. Lean pork has less than beef and mutton; fat pork almost none. In cheese there is from 18 to 38 %, in dried beans from 18 to 25 %. In cereals there is from 7 to 15 %, being most abundant in oats; wheat flour has about 11 %, and bread about 9 %. Fresh vegetables and fruits contain almost none, seldom if ever over 5 and often only 1 % or less. Fat is derived as a rule from animal foods, but some fat also from vegetable foods. In meat it varies from less than 10 in some cuts of beef and veal to 40 % and over in a side of pork, and over 80 % in fat salt pork. Lean fish like cod contain almost none, but in salmon it goes up to 10 and even 15 %. The chemical composite of salmon is indeed not unlike that of lean meat. Milk contains about 4 % fat; butter is practically pure fat, and full milk cheese may contain from 25 to 40 % according to the richness of the milk or cream.

With the exception of oatmeal, which contains about 7 %, there is little fat in cereals as sold, or in dried legumes, and it is practically wanting in green vegetables and most fruits. Oil seeds (like olive, cotton) are of course rich in fat. Edible nuts also contain a considerable amount.

Carbohydrates are almost entirely absent in animal foods, except milk, but forms the chief nutrient in vegetables. They make up from 70 to 80 %, of cereals, 60 to 70 of dry legumes, and the bulk of the nutrients of fresh vegetables and fruits, as of sugar, honey, etc.

Mineral matters occur in all ordinary foods. Fresh meat and fish contain about 1 %, and milk contains 7 %. In cereals the amount varies from ·3 to over 2 %, but in green vegetables and fruits it is usually less than 1 %. Dry legumes contain from 3 to 4 %.

In short, meat, fish, eggs, milk, fresh vegetables and fruits contain most refuse and water. Protein is most abundant in animal foods and legumes, and also in cereals. Fats occur chiefly in animal food. Carbohydrates are found almost exclusively in vegetable products and milk. Mineral matter in small proportion is found in all foods. The fuel value varies within wide limits, being greatest in those materials which contain the most fat and least water.

(To be continued.)

GENERAL ITEMS.

The United States Consul at Gothenburg, in a recent report to his Government, says that Dr. Ekenberg, of that city, has made a discovery which will be of importance to dairy farming. He claims to have invented an apparatus by which milk can be brought into the form of powder, like flour in appearance, but possessing all the qualities of milk in concentrated form, moisture excepted. It is said that this milk flour is completely soluble in water, and can be used for all purposes for which common milk is employed. The milk flour does not get sour, does not ferment, and in the dry state is not sensitive to changes in the weather. It can be kept and transported in tin cans, barrels, bags, etc. The cost of production is estimated at about 27 cents per 106 quarts, and flour made from skimmed milk can be sold for about 13 cents per lb. At a recent meeting of the Academy of Agriculture, Dr. Ekenberg exhibited samples of the milk flour which received favourable comments. It is considered that the invention will be of the greatest importance for the utilisation of skimmed milk, which heretofore has largely been wasted, but in the dry form it can be transported without losing any of its original qualities. The product mentioned is considered superior to the casein products "proton" and "proteide," now manufactured from milk by the aid of rennet, acid, or lye.—*Natal Agricultural Journal.*

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As an instance of the tenacity of life in timber trees, we quote from the same Journal, the reference to the Kaffir plum (*Odina caffra*) regarding which a correspondent writes:—"The tree was cut in the beginning of March about 4 ft. from the ground. It was at once cleared of all branches, and cut in halves, each piece measuring 15 ft. in length and the diameter 2 ft. with very little tapering, if any. I had it taken outside the boundary of the forest at once. A trader bought it, but left it lying till September, when he dragged it to his house. He roughly squared one side of each piece, cut off 6 ft. from each end, and bored two holes right through for driving in the hinges, as he intended these lengths for gate posts. He eventually put them in 3 ft. deep holes on the 25th September, and hung his gates on them. About three or four months later each of these gate posts had developed fine strong branches all around, even on the squared side. For about 7 months this tree had been exposed to heat and cold, cut in pieces, and yet when only roughly put in holes, stone and earth stamped round, it became a lovely tree or, rather, two lovely trees. Out of the remaining 6 ft. from each piece of timber the trader made the top of a table, and I have never seen any wood take a more beautiful polish; the grain is fine and close." Common local forests give us an instance of a similar character?

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The following is a note on Guinea grass (*Panicum Maximum*) from a report on grass experiments made to the Director of Agriculture, Natal:—"This grew well and attained to a height of over 4 feet between spring and the end of autumn,......It is an exceedingly coarse grass, and I do not think stock would care for it. It might be useful for hay or ensilage, but I fancy

many of our indigenous "land grasses" are superior to it in every respect." This latter statement may be correct, but all the same Guinea grass has proved to be an excellent fodder grass for stall feeding, and it is highly valued both in India and Ceylon. If not cut at the proper time it will of course be found to be coarse.

Collar rot (*mal di goma*), or gumming in lemon trees, is a disease primarily due to defective drainage and smothering of the root-system with rich manures. The first symptoms are exudations of gum from the stem, then the foliage gradually becomes yellow; finally the leaves drop, and there is a profusion of bloom. In the first stages, the disease can be successfully treated by cutting away with a sharp knife all the diseased bark and sap wood. As a rule, this will be found to extend an inch or two below the surface of the soil. When there is nothing but sound bark and wood left, smear the surface with a mixture of Stockholm tar two parts and carbolic acid one part. If it happens that the disease is so far advanced that the stem is entirely girdled with decayed bark and sap wood, it is better to remove the tree, and carefully dress the ground with a heavy sprinkling of lime. By removing the earth from about the base of the tree, and applying 2 or 3 lb. of slaked lime, the disease can in some measure be arrested. The annual whitewashing of the trunks of lemon-trees is also a good check; but nothing can effectually prevent the disease if the drainage is bad, or the trees are overdosed with manures rich in organic matter.

Lysol is one of the most useful disinfectants we have. A solution of half per cent when used for wounds induces rapid healing and prevents suppuration. Lysol has also been successfully used for dressing badly-affected hoofs in horses, for destroying animal parasites and grubs attacking cultivated plants, for keeping off flies and insects such as ticks, fleas, and in numerous other ways.

What is nicotine? When pure it is a colourless fluid of somewhat oily consistency and a strong, peculiar, penetrating odour; but it darkens on exposure to the air and light, becoming first yellow and then brown, so that it looks in this darkened condition something like the tarry matter that soils or smother's fingers, or the substance that is deposited in the stem of a pipe. But this tarry deposit has nothing essential in common with nicotine, and contains but traces of this alkaloid when any at all. A part, but only a small part (about ⅐ in the experiments by Melsür) of the real nicotine of tobacco is volatilized without decomposition, the remainder being burnt and destroyed in the process of smoking. The brown oily substance which is so troublesome to pipe smokers is really the tar produced by the action of heat on the woody fibre of the leaf. So says Prof. Mallett of Virginia University.

Equal parts of white lead and castor oil mixed near the fire into an ointment are highly recommended by a correspondent to the *Queensland Agricultural Journal* as a cure for long standing and itching sores as well as for eczema. Spread the ointment on linen and renew morning and evening. Every day give a good washing with coal tar soap and rub well with a towel.

To induce sweet potato vines to set, twist the vines in a heap on the top, when potatoes will begin to form.

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SISAL, THE YUCATAN FIBRE

Written for Modern Mexico by United States Consul E. H. Thompson, of Progreso.

SISAL grass, sisal hemp, henequen, or simply "sisal," are the various commercial terms apply to a fiber that is neither a grass nor a hemp and is not produced to any great extent in Sisal. The name "sisal" was applied to it because it originally reached the outer world through the port of that name. Sisal was, up to 1871, the only port of entry in Yucatan. It is 35 miles from Merida, the capital of the State and the great center of the Yucatan fibre market. In 1871 private enterprise, stimulated by the demands of commerce that required a shorter route to the coast, caused a board-guage railroad to be built to the town of Progreso. The custom house was transferred there, and Sisal as a port of entry ceased to be. Progreso is a busy port. The wharves are lined with shipping and the streets are filled with hemp bales going out and general merchandise coming in. Two railroads connect it with Merida and a third is underway.

The agave is one of the most characteristic plants of Mexico. One of the family, the *Agave americana*, produces the pulque, the intoxicating drink of the country. Great fields are covered with this plant upon the Mexican table-land, and long "pulque trains," like the milk trains of the United States, roll daily into Mexico City. This beverage is practically unknown to the inhabitants of Yucatan, and the agave that produces it is to be seen only as an exotic in the gardens and parks. Its place is taken by another member of the family, whose importance is more far-reaching. The *Agave sisalensis* furnishes a fibre that not only helps to knit firmer the commerce of the whole world, but binds the sheaves of wheat so that the price of bread in every la is made cheaper for its use, To the casual observer a field of the fiber plant and one of the fiber plant are very similar in appearance. Both show the same peculiar green, the same many-thorned leaves. Investigation, however, soon shows the difference.

There are three known varieties of the species growing wild in the forests of Yucatan—the Chelem, the cahum and the citamci—and I think that I have found a fourth wild variety during my explorations in the interior. There are also two varieties of the cultivated plant—the yaxci, or green fiber, and the sacci, or white fiber. The last-named plant is the most cultivated and the one producing the sisal hemp of commerce. The primeval inhabitants probably did not at a first attempt to extract the fiber from the thick pulp, but took the leaf and wilted it in the fire, then split it and used the splits as thongs. The leaves so treated make thongs of great strength, and as they dry they bind with wonderful force. In the primitive forms of habitation in the region the mud and wattle "nás" are bound together by these shreds or fiber-wilted leaves They are shapely, water-tight and durable, and the native builder's tool is a heavy, sharp-edged knife. Not a spike or nail or metal of any kind enters into the building. Later the people found that if they cleaned off the thick pulp and the green corrosive juice they could get a firmer hold and so bind tighter. Then they learned to twist the shreds and this idea led to the making of ropes and cords. The wild agave, known as the chelem, is, I believe the progenitor of the cultivated sacci. The fiber is of good quality, but scant in quantity. The fiber of the cahum is long and silky, but even scantier in quantity than that of the chelem, and it is said to be brittle. In ancient times the agave, or henequen, was one of the most important plants of the peninsula. At a time when most of Europe was in the pall of utter darkness, when the "Parisii" lived in caves and the Gauls in "wattled hunts," the priests and rulors of Yucatan lived in stone temples and palaces, Up the steep sides of the

myriad pyramids were carried great blocks and sculptured columns. To move these mighty masses of limestone no powerful engines were at hand; but the Batabs of Yucatan, like the rulers of ancient Egypt, had little use for mechanical devices. Human muscle and ropes of agave were all-sufficient. If ten ropes and a hundred slaves were not enough, a hundred ropes and a thousand slaves were not lacking. The ancient artists made use of the fiber in their work. They were not content to make the figure; they made the skeleton, and upon the bones and in the flesh—like the cords and muscles of the body—they placed cords and plaited bands of fiber. Close examination indicates that the fiber used was that of the yaxci plant. Over the imbedded muscles and flesh they placed a thin, hard wash of stucco to represent the skin and surface pigments. The writer has examined many dozen specimens of the broken figures of stucco wherein are plainly shown the casts and the knots and braid—even the very character of the fiber. Ropes and cables for boats were also made of agave fiber, cleaned by the ancient method and twisted by hand into the cordage needed. When there happened to be scarcity of hemp for the cordage of the Royal Spanish Navy, search was made for a new material to eke out the supply from Manila, and the fiber used by the Campeche people came up for discussion. A royal commission was ordered to investigate, and its report, made in 1783, gave unstin'ed praise to the new fiber. This fixes approximately the time of the first exportation of sisal hemp. For half a century afterward its existence seems to have been forgotten by the outside world. This fact was probably due to several causes, the principal of which was that the buccaneers made the path of Spanish commerce often seem the shortest road to ruin and death. Meanwhile the people of Yucatan grew poorer and poorer. Men looked around to see what could be turned into the money needed for the necessities of life.

Attention was turned toward the fiber concealed in the leaf of the henequen, and in 1839 a kind of association was formed to make the experiment of producing the coarser fiber "sacci" on a commercial basis. It was known that the spiny-edged agave called sacci produced a fiber coarser than that of the yaxci, but much more abundant, and consequently more profitable to cultivate, as the fiber then sold by weight and not by quantity. The fiber was cleaned by native instruments, and, packed in loose bales of about 200 pounds each, was sent to New York. It found a market, but the price was such that there was but scant gain for the seller. The methods of cleaning the fiber were so slow that even with the small wages of the day the cost per pound to the planter was discouraging. The State government, recognizing the great need of a suitable machine to clean the fiber, offered a gratuity of $10,000 Mexican to the person inventing an apparatus capable of producing a stated output per hour. This finally resulted in the "*raspador*," the device of a Franciscan friar, which was used for many years. To-day half a dozen machines are in the market, some of them marvels of design and potency.

At this point a brief résumè of the fiber-cleaning machines in use may be interesting. Taking them in order of precedence by priority of invention, the list must unquestionably be headed by the pacché and the tonkas. This is simply a triangular, sharp-edged piece of wood, with rounded ends as handles. The cholul is the material from which it is generally made, as it has a special quality of preserving its e'ge under constant use. A flat face of a "chacah" wood log is made with a hold and a peg in the upper portion. The leaf is taken, one end firmly fixed into the flat surface by jamming it into the hole and pushing the plug in after it; then the scraper is pushed away from the worker, held somewhat diagonally from the flat surface, and the pulp is gradually scraped away, leaving the trees of fiber hanging from the uncleaned half of the leaf. The leaf is then reversed, the clean fiber is fixed into the whole and the uncleaned portion presented ready for the action of the clearer. The second prehistoric implement, called the "tonkas," is a flattened piece of hard wood about 18 inches long by 5 inches wide. At its upper end it is about an inch thick, and it dwindles until at the end it becomes a thin, sharp edge, curving inward, so as to grip and scrape the pulp from the fiber. The bedboard of the tonkas has a curve to correspond with the curve in the edge of the implement. The leaf is placed between the bedpiece and the tonkas, and while the tonkas is held firmly in one hand the other draws the leaf sharply toward the body, this movement being repeated until one-half of the leaf, is clean. The same operation takes place on the second half of the leaf until the clean trees of fiber hangs soft and pliant in the grasp of the operator. The pacche is the implement most in use today among the natives of the interior of Yucatan. Women use it to clean fiber, but the tonkas is used only by the strongest. An able-bodied person can produce with the use of this implement from 6 to 9 pounds of fiber daily. It is unquestionably true that the fiber produced by these ancient implements possesses qualities not to be obtained by the machine-cleaned product. In the hammock-making districts of Yucatan the yaxci is cleaned by these processes, and the makers of the finest hammocks (those worth their weight in silver) will not use a fiber produced by any other method.

The next step in the evolution of the fiber-cleaning machine is the Soils machine, or *raspador*, which, in principle, is a wheel upon which are placed the edges of many pacche. The angle of application is exactly the same. The *raspador* marked a new era for the commerce of Yucatan. With the aid of this machine two men could clean in one day more than forty could with the tonkas and pacche. Its use became extended, and henequen farms began to multiply and become prosperous. The merits of the various machines I shall not discuss. The Stephens machines are at work; the Prieto is believed by many to be the most efficient all-round machine; the Villamor follows it a close second, while the Torroella, the Lopez and the Lanaux each has its partisans and seems to do good work. These machines are the only ones in evidence to-day in Yucatan. Inasmuch as the inventors of the machines above mentioned have made improvements in their apparatus, I have prepared the following table from data given me by the inventors of their authorised agents:

Hemp-cleaning machines in actual use upon the plantation of Yucatan.

Machine.	Leaves cleaned in 10 hours.	Men needed.	Actual horse-power.	Cost of Machine. Mexican.*	U.S.
	⌐Number¬				
Lanaux reformed ...	150,000	4	25	$7,000	$3,003
Prieto reformed ..	150,000	4	16	8,600	3,689
Torroella reformed ...	150,000	4	16	7,0C0	3,003
Villamor reformed ...	100,0C0	7	16	5,000	2,145
Stephens ...	150,C00	3	70	No more being made.	
Solis ...	9,C00	3	9	2,(00	858

* The average value of the Mexican peso in 1902, according to the United States Mint, was 42·9 cents.

The most important implement of all is perhaps the corba, or machete, with a hooked end. It weighs about 1½ pounds, and its size and shape can be seen by the annexed cut. With the corba the native dexterously cuts the thick leaf, leaving the

stub as close as is compatible with the safety of the plant, and trims the side and end thorns. Yucatan ingenuity has attached to the corba a device like an apple and patato parer. This cuts off the side spines with only a very small portion of fiber.

A thin, rocky, limestone soil is generally supposed to be the best for the growth of the sacci plant. Experience indicates that the fiber grown upon this class of soil has a percentage of tensile strength greater than that produced on the richer lands, though the last is more flexible and is longer. The percentage of safety allowed by the cordage-makers is so high that I doubt if the diminished tensile strength of the rich-land hemp would seriously affect the quality of the output. Contrary to the general idea, a poor sandy soil is not congenial to the growth of a large, full-sized fiber plant. Few, if any, good-sized, well-formed plants grow very near the coast line. The best Yucatan fiber plant seems to be produced in a zone or belt following the coast, about 12 miles away from it and 70 miles wide. The plant can be propagated in various ways —by seeds, by cuttings and by scions or suckers. The first-mentioned method is now never undertaken. Very few of the abundant seeds are fertile and the time lost in raising the seedlings is great. The second method—by cuttings—is frequently undertaken; the top of an old, nearly worn-out plant is taken just before the long pole that should bear the flowers shoots up. It is cut off and trimmed of all save the newest leaves and then planted in the ground as though it were a scion. These plants are said to produce earlier than others. The general method, however, of producing a field of the sisal plant is as follows: A field is cut and the refuse burned; then a month or so before the rainy season the "hijos," or scions of sisal, that have sprouted under the shelter of the parent plant are rooted out of the ground, when they get to be 18 or 20 inches high, and thrown in a heap. There they lie for two or three months exposed to the sun and the weather. Just before the rainy season, when they seem to be dried up and decayed, they are carried to the cleared fields and planted in rows. Formerly, they so planted the young plants that they were separated by spaces of barely two yards, but of late years it has been found best to space them so that they will be in lines, each plant separated from the one preceding it by a space of 1½ yards and the lines 4 yards apart (about 1,100 plants to the acre.) Thus long and wide lanes are formed between the rows that facilitate cutting and carriage of the leaves and also lessen the wounding of the leaves by the spines and thorns of their neigbours.

Previous to 1889 but little attempt was made to grade the hemp. Yaxci, sacci, short staple, long staple all went as "sisal." Now, a fine, white fibre. well cleaned and baled, can command a notably better price than mixed fibre, ill-cleaned and badly baled.

Tho hope of tho future is in tho careful selection of hemp plants. Many plantations, more by good fortune than otherwise, aro stocked with fibre-producing plants of a high order; others aro handicapped by plants producing a meager fibre. The quality of the soil in both cases seems to be the same; the difference is in the class of plants. This phase is a comparatively new one on the plantations of Yucatan fiber and has only recently been taken into serious consideration.

The scion when planted ("anchored" would perhaps be the better word, as it is more often held by heavy stones than by the earth around it), needs no special care or irrigation. Once or twice a season the fields aro roughly weeded. The plant thrives, and generally in about five years the earlier leaves commence to extend themselves laterally at right angles to the trunk of the plant. This is nature's signal that the fiber has reached its highest point of tensile strength, and that the leaves are ready to be cut. The native cutters then throng the field and with their corbas deftly cut the leaves close to the trunk, trim off each line of side thorns at a single stroke, snip off the horny end and bind up the leaves in bundles. Tram cars take these bundles and carry them to the cleaning machine. While experience and dexterity are required the work is not hard or the hours long to the cutter of henequen leaves.

Fire is its greatest enemy. Hot seasons do not affect it. In fact, the heat of the sun, especially when accompanied by dampness, seems to act as a tonic. It is then, if ever, that the plant recovers from its injuries. The greatest heat experienced in Yucatan for the last ten years was July, 1900, when the thermometer reached 119° F. in the half shade of a veranda; 147° F. has been experienced in the sun on the principal street of Merida. Long droughts may delay its development, and by wilting the mature leaves causes them to double and injury the fiber, but it cannot stop the ultimate growth of the healthy plant, once it is well rooted. Rainy seasons do not seriously affect the plants, except those in stagnant water. This weakens the plant, but this condition is not common. Cold seasons of the kind that Yucatan experience do not seriously affect the plant. The coldest known period was in February, 1899, when the thermometer registered 47° F.

But fire conquers it. Let a spark from a locomotive, the lighted end of a cigarette, or the embers of a fire made to heat the bread of the native workers start the flames in an ill-cleaned field, and nothing but a miracle can save the crop from total loss. It is said that some planters in the past have taken advantage of the susceptibility of the plant to artificial heat, and when young plants were desired for export they were doctored before delivery by having their roots heated over embers or dipped into boiling water. The effects of this treatment are not perceptible for a time, and possibly this fact may make clear to some enthusiastic foreign planter why his scions, purchase with so much care and expense, never grew and prospered. Naturally, the Mexicans do not dosire to have the plant that is such a valuable product of their country made common.

Next to fire, a large black beetle is the greatest enemy of the cultivated sisal. This large, long-nosed insect, known to the natives as the "max," may also attack the wild varieties, but I have not yet found evidence thereof. This beetle, I am told, is similar to the one that burrows into the trunks of the palm trees in Guatemala and British Honduras. At my request Dr. George F. Gaumer, an American physician, residing in Yucatan, has kindly consented to give in a few brief words the life history of this insect. Dr. Gaumer, whose studies and writings upon the fauna and flora of Yucatan have made his name familiar to naturalists everywhere, writes:

The female insect lays its eggs on the trunk of the henequen plant a few inches above the ground. When hatched the larva burrows into and through the outer bark to the harder fiber of the interior, when it generally takes an upward direction and burrows from 6 to 12 inches during its larval existence. When full grown it works its way to the bark, where it changes to a pupa and so remains for some months, when it hatches into the adult beetle and emerges from the plant, which it leaves injured and weakened, but rarely kills. Three or more larvæ in the same plant will surely destroy it, but that number is of very rare occurrence.

The life of the plant can be greatly prolonged. I have seen fields old at ten years and others vigorous and hearty at nineteen years The plants should be originally healthy scions, the leaves must be cut at just the right time and the long pole must be nipped off before it has grown more than a mere protuberance. Once the pole has grown the plant ages rapidly.

The output of the Yucatan fiber for the ten years ending December 31, 1901, was:

Year.	Bales.* No.	Year.	Bales.* No.
1892	353,525	1898	418,972
1893	355,123	1899	445,978
1894	373,883	1900	499,634
1895	381,504	1901	517,519
1896	397,163		
1897	419,975	Total	4,163,276

* Each bale weighs approximately 400 pounds. A bale of hemp at to-day's prices is worth $84 Mexican. The Mexican dollar is worth to-day 40½ cents gold.

The output for the fiscal year ended June 30, 1902, was:

Month	Bales. Number.	Weight. Tons.	Value. Mexican.	U. S.
1901—July	64,460	10,319.7	$1,960,737	$841,156
August	48,726	7,988 6	1,917,277	822,512
Sept.	44,634	7,271.9	2,337,017	998,290
Oct.	32,455	5,295.7	1,725,912	720,416
Nov.	40.328	6,342.3	2,377,077	1,019,766
Dec.	34,747	5,515.1	2,126,960	912,466
1902—January	45,998	7,355.1	2,726,792	1,169,794
February	38,052	5,889.2	2,334,179	1,001,363
March	60,915	9,712.7	3,496,591	1,500,038
April	61,887	9,769.8	4,469,689	1,917,497
May	50,547	7,956.7	3,433,308	1,472,909
June	41,559	6,588.4	2,662,344	1,142,246
Total.	564,308	90,005.3	31,557,888	13,538,348

There will be a falling off in the supply for the season of 1903. The causes of this diminishing output, despite the high prices that prevail, will be the decreasing acreage of new fields. Labourers are scarce, and the great majority of planters dislike to stop cleaning fiber long enough to plant new fields or replant old ones.—*Modern Mexico.*

CARDAMOM NOMENCLATURE: HOW MISTAKES AROSE.

(*To the Editor "Times of Ceylon."*)

Sir,—In your issue of 20th instant there appeared extracts from the Report of the Controller of the Government experimental Station at Peradeniya. One of these extracts refers to cardomoms. The writer of the Report refers to the unfortunate reversal of the nomenclature of the two varieties of cardamoms in Ceylon. I was engaged in the cultvation of cardamoms for 6 years in Mysore, and I fully established the fact that what the planters in Ceylon call the *Malabar* is the true and only *Mysore* variety. What the planters in Ceylon call the *Mysore* is the Allepy or Malabar variety. The former—the true Mysore—has a layer of silky hairs on the under-surface of the leaves, and a trailing inflorescence or racême. The latter—the Allepy or Malabar has a glabrous under-surface of the leaves and an erect inflorescence or racême. The sowing of seeds obtained from an experienced Mysore planter, in order to settle the point; is a belated though sure method of oing so. I obtained seeds of the robust or glabrous variety and raised plants from the same which astonished the Mysore natives considerably. I understand that Travancore has both varieties. Mr. J. A. Hunter can speak of this. The origin of the mistake I believe, was stated by the late Mr. Macartney. The first lot was obtained from Travancore, which was the true *Mysore*, and it was named *Malabar*. Another variety arrived and this was ignorantly named the *Mysore*, thus, as I have said before, entirely reversing the names.—Yours, &c., W. A. TYTLER.

Kotuwagedera, Matale, May 21 st.

P. S.—A good way to distinguish the varieties is to call one the *glabrous* and the other the *pubescent*, but it is too late now to attempt to alter the marks in the London market.—W.A.T.

CARDAMOMS.

The cultivation of cardamoms is being extended in many up-country districts and nearly 10,000 acres of forest are now occupied with this product in Ceylon. Hitherto planters have adopted the "stool" method of cultivation, and effected the curing by means of sunlight and fumes of burning sulphur. There are few products which lend themselves better to experiment both in methods of cultivation, and curing, and the following plots have been arranged with these objects in view. The time of planting and condition of plants when put out was very unsatisfactory, and much replanting will have to be done in these plots.

VARIETIES.

In Ceylon there are two forms in cultivation, distinguished respectively as the Mysore and Malabar varieties. There is much confusion as to the equivalent of these varieties with those in India, and many assert that the names as applied in Ceylon are reversed in India. In order to avoid further confusion it will be necessary to define the characters of the varieties chosen.

The Mysore cardamoms are characterised by a larger habit, glossy leaves, and usually erect inflorescence; the fruits are elongate and rately cornered.

The Malabars are characterised by a layer of silky hairs on the under surface of the leaves, a trailing inflorescence, and a more globular and shorter fruit than the Mysore.

The most striking difference is in the erect inflorescence of the Mysore, as against the trailing flower system of the Malabar variety.

The other characters form a continuous series of variations, and the two kinds of cardamoms cannot be regarded as anything but varieties of the same species. From examination of the development and form of the fruit it occurred to me that the Mysore variety was probably the more advanced form in cultivation; the stages presented in the development of the fruit of the Malabar variety were observed in the Mysore variety, but the latter proceeded one stage further, giving a fruit more elongate in outline.

In order to determine the relation of the varieties recognised in Ceylon as "Mysore and Malabar," specimens of the true "Mysore" of India were obtained from an experienced Mysore planter. These have been planted in a seperate plot.

The wild cardamom (*Elettaria Cardamomum.* Mat.) is said to be common in the wet forests of Ceylon up to 3000 feet. It can be distinguished from the cultivated varieties by its short and sparsely flowered inflorescence, and when opportunity occurs a plot will be established. It may be possible to improve the Ceylon wild form, and efforts will be made in this direction.

Many natives in Ceylon class several species of *Amomum* as "wild cardamoms." In the Matale district *Amomum petrocarpum*, Thw., and *A. floribundum*, Thw., are thus regarded. Up to the present no attempts have been made to cultivate these species, though the seeds of the former are decidedly aromatic. The genera *Elettaria*, Mat., *Amomum*, L., are so closely allied that it would appear reasonable to expect profitable results to follow from the experimental cultivation of the aromatic species of *Amomum.*

CULTIVATION.

The only form of cultivation in vogue in Ceylon is the "stool" system. The bulbs are planted two together or one double bulb per hole, the holes being 7 to 8 feet apart. In 4 to 6 years a clump or stool of plants is produced, measuring 3 to 4 feet in diameter. The stool increases in size from within outwards; the old bulbs occupying the central position gradually die down. Such a method of cultivation has been found to yield profitable results, and has been adopted by most cardamom planters in Ceylon. It is I think accompanied by several disadvantages. In the first case the stools occupy a limited area, and the roots of

the few score of bulbs in each stool have to obtain their nutrition from the immediate neighbourhood. The roots often extend several feet beyond the stool, but the large space between the stools is rarely drawn upon to any great extent. The stools being in lines along hillsides, it is obvious that the rains will successfully carry away the greater part of the soluble materials in the soil between the stools. In order to prevent this an experimental half-acre plot of each variety has been laid out with a view to establishing what we may call the "terrace" system. In this system single bulbs have been planted 4 feet apart, and their growth will only be allowed to continue in the direction of lines running at right angles to the slope of the hill. The lines will be kept at from two to three bulbs wide.

By this means the whole of the materials washed down the hillsides by the rain will become lodged along the lines of cardamoms, and as their root system will extend upwards and downwards there ought to be minimum loss of nutritive materials.

The original number of plants in these plots is the same as in those which are being cultivated on the "stool" system, the only difference being that they are planted singly 4 feet apart instead of in pairs 8 feet apart.

In the second place the stool method lends itself to the establishment of many fungi, myxomycetes, &c.: in consequence of the crowded nature of the plants preventing the access of light on the lower part of the bulbs. In the terrace system the light will have easier access to the bulbs, and may consequently keep fungi in check.—*Times of Ceylon.*

A STUDY IN RUBBER PLANTING.

In No. 7 of the "Bulletin de la Societe d'Etud's Coloniales" Octave Collet gives a long account of rubber planting in the East, and as he appears to think that the two species of rubber tree known respectively as *Ficus elastica* and *Hevea Brasiliensis* offer the best prospect for planting purposes, a review of his publication may be of some interest. This all the more so as the general opinion amongst those best able to judge is at present rather in favour of *Castilloa elastica*. In this relation, however, it should perhaps be pointed out that while there can be no doubt regarding the eminent suitability of the last named species for planting purposes in all parts of Central America, including all the northern districts of South America the results obtained in the East with *Castilloa* are, to say the least of it, not by any means encouraging, whereas *Hevea* seems to offer very good prospects in the Malay Peninsula, Sumatra, and Java. That many rubber planting experiments have been with *Ficus elastica*, particularly in Java, is well known, but as we possess no very clear accounts respecting the results obtained, Collet's paper on this subject is of considerable interest.

Collet describes the following plantations of *Ficus elastica*:—

"The oldest of all existing plantations is the one at Pamanoekan and Tjassem Landen in Java, consists of 212,000 hectares, 33 of which were planted with *Ficus elastica* in 1864, and which have been tapped since 1881.

"The appearance of this plantation is very unsatisfactory. The trees incline in all directions, have been allowed to grow at random, and to throw out branches at very little height above the soil. In many parts the air shoots sent out by the trees form an almost impenetrable tangle.

"Next in age comes the plantation of Tjkandi Oedik, covering almost the same area, but containing rather fewer trees, as these have been planted at nearly four yards distance from each other.

"Against these plantations laid out by Europeans we have at Poewokerto a plantation made by the natives of that village. The trees, which are now twelve years old, are planted at intervals of 12 yards and have grown to the considerable height of 16 yards The best developed trees possess a circumference of two yards, measured one yard above ground.

Mention should also be made of the plantation at the botanical gardens at Buitenzorg, which covers over 4,000 square yards, the trees having been planted at a distance of seven yards.

It appears that although these plantations yield satisfactory results from the commercial point of view, the most instructive example as regards the plantation of *Ficus elastica* is afforded by the plantations existing at Deli Moeda, Priok, and Boeloe (Sumatra), which contain about 77,000 trees, about one-half of which consist of *Ficus elastica*, most of them less than five years old. The trees of various ages showed the following measurement:—

	Height. ft. in.		Circumference. in
Ficus in nursery (6 months)	2 4	...	—
Ficus in plantation (1 year)	8 4	..	10
" " (2 years)	11 8	..	14
" " (3 ")	16 8	..	16
" " (4 ")	21 8	..	20

These figures represent very low averages, indeed most of the older trees exceed these measurements very considerably. It is, therefore, safe to state that upon suitable land *Ficus elastica* reaches in a very few years, quite an imposing growth if properly treated.

The most interesting matter is, of course, the yield of rubber produced by these trees. It appears that on the average about 2 cwts. of rubber per hectare are obtained annually, which is quite sufficient to render such cultivations highly remunerative. At Pamanoekan and Tjassen Landen, the oldest plantations of *Ficus* in existence, the trees yield 5 lb. per tree, or the almost incredible quantity of 55 cwts. per hectare. There remains, therefore, only the question to be answered at what age the tree is ready for the first tapping.

Warburg states that the trees begin to yield rubber when five years old, but that the quantity produced then is unremunerative, and only becomes satisfactory when the trees are from eight to ten years old. Collet finds that although satisfactory yields are obtainable from trees not more than four years old, it is in the interest of the development of the trees, nevertheless, desirable not to tap them until they are seven years old. He states the following yields:—

Tree 16 years old	..	..	4 lb. 6 oz.
" 7 " "	..	..	1 " 10 "
" 6 " "	..	..	1 " 2 "

From a $5\frac{1}{2}$ year old tree he obtained 1 lb. 11 oz. of rubber, and Schlechter 3 lb 14 oz., from a ten year old tree. There is, therefore, no doubt that the cultivation of *Ficus elastica* is extremely easy, and at the end of seven or eight years produces most satisfactory results.—*India Rubber and Gutta-Percha Trades Journal.*

BOTTLE-TREES AS FODDER.

The following interesting cutting from *The Pioneer* of the 15th June was sent to the Society for further information on the subject:—"*Trees as fodder.*—A Brisbane newspaper says: The value of the bottle-tree as fodder for stock during times of drought has been brought under the notice of the Agricultural Department by Mr. E. Bowman, of Bauhiniavale. Taroom. He states that a trial was first made by a neighbour. Mr. Bowman was cutting down a tree for the leaves, when the sheep began to run after the chips, and so the tree was opened up, with the result, he says, that every head of stock "went mad over it." Mr. Bowman, although he has no grass, has brought 900 merino ewes on the strength of the discovery. Lambs eat it as well as the old sheep. An instance is given of a 15 years old pet wether without a tooth, growing fat since eating the tree. Any kind of stock will eat the wood after

a little use of it. Mr. Bowman considers that it will soon be carried on the railway at fodder rates. He stated that cows which were almost dry from want of condition are now not only fat and strong but are giving a good yield of milk. Bottle-trees often contain from 50 to 100 tons of fodder. There are plenty of bottle-trees within easy reach of the railways. Mr. Bowman believes that hundreds of stock can be saved with it. The trees will keep for months in the log with the bark on." The use of fanciful names of plants and trees in reports, etc., is greatly to be deprecated, as its leads to endless confusion and needless waste of valuable time in searching for the plant, or trees, most likely to fit the description. In the present instance several trees were referred to until it was thought that *Sterculia* (*Delabechea*) *rupestris* (*Sterculiaceæ*), a native of north-east Australia, was the one alluded to. "It is allied to the Gouty-stem tree (*Adansonia Gregorii*), being thickened below, tapering upwards, or often swollen in the middle to the extent of 30 or 40 feet in circumference, with an apparently small tree growing out of its apex, so that it has been compared to the neck of a bottle. The gouty stem is soft and porous, and contains much mucilaginous gum, which is readily obtained by pressure, and is used as an article of food by the natives. It is also called Barrel tree.—*Journal of the Agricultural and Horticultural Society of India.*

HINTS AND INFORMATION IN REGARD TO CASSAVA POISONING.

(*Issued by Imperial Department of Agriculture for the West Indies.*)

In view of the many cases of poisoning by cassava that have recently occurred in the West Indies the following information has been prepared in the hope that it may be possible to warn those likely to fall victims. The hints as to the mode of dealing with persons suffering from cassava poisoning have been prepared by an experienced medical man.

CASSAVA POISONING.

There are two kinds of cassava known in the West Indies. These are the 'bitter' and 'sweet' cassava. Both are largely grown and in some localities the roots afford an important article of food. The roots of the bitter cassava are usually grated and the milky juice is washed out, leaving a coarse flour from which cassava cakes are made. In Brazil and elsewhere cassava flour, known as farine, is eaten cooked or heated on plates and made into tapioca. The roots of sweet cassava are more commonly eaten as a vegetable after they have been boiled or roasted. There are so few differences to be observed between the plants yielding bitter and sweet cassava that children and inexperienced persons may easily take one for the other. Usually the peasants are fully aware of the distinction between them. It is well known that the fresh roots of the bitter cassava are poisonous. If eaten raw or in a halfcooked condition they contain prussic acid, and numerous deaths are recorded, every year, in the West Indies due to this cause. The object of this leaflet is to bring prominently under the notice, especially of the poorer class, not only the poisonous character of bitter cassava, but the fact that some kinds of the sweet or roasting cassava (especially from old plants) have been found to be injurious, if not fully or properly cooked. The record of deaths from cassava poisoning in Barbados has been examined for nearly twenty years. In one year, viz: 1884, twelve inquests were held on persons who had died from cassava poisoning. In subsequent years the number of deaths have been slightly less, but recently, several deaths have been returned due to cassava poisoning. In two cases the ages of the victims (men) were 57 and 45 years respectively. In a latter case the victim was a boy of 9 years. Usually, those that die from cassava poisoning are ill-fed and neglected children. This is a class most difficult to reach unless a special effort is made with that view.

HOW TO PREVENT CASSAVA POISONING.

Although the sweet or roasting cassava is not so poisonous as the bitter cassava, it would be safer to let it be widely known that *no kind of cassava should be eaten without being carefully and thoroughly cooked.* In prepairing cassava for table, it is important to bear in mind that what poison is present lies mostly near the outside of the root. It is desirable, first of all, to scrape off the skin and the outer portion of the root so as to remove the greater part of this poison. In the second place the roots should be *carefullly cooked right through* so as to drive off any remaining portion of the poison. Further, it would be advisable not to eat cold cassava or cassava that has been allowed to stand for some time after being cooked. The rules to be followed in preparing cassava, of any kind, for table would be as follows:—

1 Scrape the roots and remove the outside parts.

2 Cook the cassava well and be sure it is heated throughout.

3. Eat cassava only after it has been freshly cooked.

WHAT TO DO FOR CASSAVA POISONING.

If a person after eating cassava feels or looks ill, medical aid should be obtained at once without any delay. That is to say, *the doctor should be called*, or the patient should be taken to the doctor, or to the nearest hospital, dispensary, or almshouse, where medical aid can be obtained *as soon as possible.* A few minutes may make all the difference, and no time should be lost. The doctor can inject some medicine under the skin of the arm which may save the patient's life. *Therfore lose no time.* While waiting for the doctor to come, or for the cart or trap to take the patient to the doctor, there are several important things to be done which anyone can do. The following things should be done:—

1. Place the patient in the open air, or near the open door of the house. 2. Make the patient vomit by tickling the back of the throat with a finger, a feather or a piece of grass, and, if he can swallow, make him drink water at intervals after each vomit so that the stomach is washed out thoroughly. If he does not vomit freely, get someone to mix a tablespoonfull of 'ground' mustard in a tumbler ('half-pint glass') of warm water—(for a child, a teaspoonful of mustard in half a tumbler of water) *and make him drink it off.*

3. If the patient begins to get insensible or 'lifeless': Take the clothes from the upper part of the body and pour a large stream of water out of a jug or bucket from a height of three or four feet on to the back of the head, the spine and chest. *This should never be left undone.*

4. Afterwards dry the body with a rough towel or any coarse garment, and put on some dry clothes and blankets, shawls, or anything to keep him warm. Continue to rub the arms and legs *briskly* to keep up the circulation. If he gets cold, put some bottles filled with hot water round about him.

5. All this time hold 'smelling salts' to his nostrils every now and then.

6. As soon as the stomach is empty and nothing but water comes up when he vomits, give a strong dose of rum, whisky, or brandy dilnted with twice as much water; and if it comes back at once, repeat the dose.

7. If anyone near by knows how to carry ont what is called 'artificial respiration,' it should be done if the patient gets very bad and stops breathing.

Those in charge of persons suffering from cassava poisoning should not despair. Some of the worst cases have recovered after energetic treatment. Remember that the patient's life is at stake, and there is no time to consider whether 'wetting him will give him a cold or any idea of that kind. What is recommended above should be done without fail.

HOW TO RAISE VANILLA.

A VERA CRUZ PLANTER GIVES MODERN MEXICO'S READERS THE RESULTS OF HIS EXPERIENCE.

So many inquiries about vanilla havo been made recently that it occurred to me that a general reply regarding its planting and production would be of interest to many of Modern Mexico's readers. There are six different varieties of vanilla, namely, Manza. Mestiza, Simarona, Ponpona, Tabalina and Tarro, These are all Mexican names. The first, Manza, is the only variety cultivated in this Republic. The Mestiza and Simarona are used only to make Picadura.

There are two methods of planting vanilla. Some planters clean up the underbrush and cut out the larger trees, leaving the smaller trees standing, on which they tie up the vines. The other method, which I consider the best, is to clear the ground entirely and then burn off all underbrush. The land is then planted with Higuera trees, 500 or 600 to the acre. Two or three crops of corn may be raised on the land while the trees are attaining a sufficient size to bear the vines. When the trees are five or six feet tall, or when about two years old, the cutting, or vanilla vine, should be planted. It should be about a meter long, one-third of it covered with rotten leaves or grass or with two inches of soil at the base of the tree. The rest of the vine is trained up the trunk of the tree and tied in its erect position, a bit of bark from the tonote tree being used to hold it. Two vines should be planted to each tree and affixed to the northern side to avoid exposure to the noonday sun. The season for planting is from February to November, excepting one or two dry months. The cultivation of vanilla consists in simply cutting weeds and grass about a foot high two or three times a year, and in pruning the trees in order that plenty of sun and air may reach the vines. Another operation. that of fructification, is necessary when the vanilla vine is in bloom. It is simple, and can be learned by any intelligent man in ten minutes.

The total cost (all sums in Mexican money) of cutting and fructifying vanilla vines is about $40 per hectare (nearly 2½ acres). The price of cuttings for planting around Cazones is about $10 per 1,000; at the Colonia de San Rafael, about $25 per 1,000. When three years old each vine will bear from 10 to 50 beans (or vanilla), which ripen from November to January. The price ranges this year from $95 to $105 per 1,000 beans. Five years ago the price went as high as $140 per 1,000. The vanilla buyers generally arrive on the scene about a month before the crop is ready to be gathered and contract for the number desired. The best climate and soil for vanilla are found in the State of Vera Cruz, from Tuxpam to the mountains of Jalapa. Papantla and Zamora are the centers for curing vanilla beans. The vanilla cured at Papantla has the reputation of being the very best in the world and its price is generally from 15 to 30 per cent. above all others in the market. A. PETIN.

Jicaltepec, V. C. January 10

—*Modern Mexico.*

WITCH BROOM DISEASE OF CACAO.

This disease of cacao trees was first noted from Surinam in 1898. It receives its name of 'Witch broom' from the curious broom-like appearance of the bunches of mal-formed twigs (Fig 8) which are its most conspicuous symptom. An examination of the diseased tissues shows the presence of abundant fungus hyphae but at present it is still uncertain what the fungus is or how it spreads from treo to tree. Professor Ritzema Bos of Amsterdam, to whom specimens were first sent, concluded that the fungus was an *Exoascus,* a close relation of the fungi that cause witch broom formation on birches, cherries, alders, etc., in Europe, but no one has as yet confirmed his result. The disease has recently again been causing great damage to the cacao trees in Surinam, although it is not actually killing many trees. It is accompanied by hardening of the pods so that many estates are losing the greater part of their produce. In the absence of any more definite knowledge of the fungus and of the method by which the disease spreads, the only remedy that can be suggested is the cutting out of the tufted bunches of twigs and of the diseased pods as soon as they are observed and burning them. In the meantime it is of the utmost importance that the witch broom disease should be kept out of the West Indies; for this purpose the importation of all cacao pods, seeds and plants from the continent of South America should be strickly prohibited. Proclamations to this effect have already been issued at Jamaica, Trinidad and Tobago, St. Vincent, Grenada, St. Lucia and Dominica (see *Agricultural News*, Vol. I, pp. 14, 38 and 100.) For a fuller account of the disease, Volume II, pp. 205-6 and 289-91 of the *West Indian Bulletin* should be consulted.—*Agricultural News.*

A SUBSTITUTE FOR DISHORNING.

It is well known that polled or dishorned cattle can be managed and fattened with greater facility than horned animals, and that they can be conveyed by land or sea with less risk of injury. The process of dishorning cattle is one that inflicts great pain on the animals and may even be the cause of death. In a recent leaflet issued by the British Board of Agriculture, a description is given of a method whereby the growth of horns may be prevented. The operation is said to be comparatively painless and is carried out as follows:—'Clip the hair from the top of the horn when the calf is from two to five days old. Slightly moisten the end of a stick of caustic potash and rub the tip of each horn firmly with the potash for about a quarter of a minute, or until a slight impression has been made on the centre of the horn. The horns should be treated in this way from two to four times at intervals of five minutes. If during the interval of five minutes after one or more applications, a little blood appears in the centre of the horn, it will then only be necessary to give another very slight rubbing with the potash.' Caustic potash is poisonous and must therefore be kept in a safe place. It should also be kept in a well stoppered bottle, as it soon deterriorates if left in contact with air. The operation is best performed when the calf is under five days old, and should not be attempted after the ninth day. It is better for one man to hold the calf while another uses the caustic. To avoid injury to the operator's fingers the potash stick should be rolled in a piece of brown paper or tinfoil. The stick should not be moistened too much or the caustic may spread to the skin around the horn and destroy the flesh; for the same reason the calf should be kept from getting wet for some days after the operation; also the operator must be careful to rub on the centre of the horn and not round the side of it.—*Agricultural News.*

COCONUT OIL INDUSTRY IN SULU LAND.

Mindanoa, P. I.

One of the strangest conditions under which your correspondent discovered oils in process of manufacture was on the Sulu Archipelago in the Southern Pacific. Here the natives handle the products of the vast coconut groves of the country in a way that promises rich returns for oils, copra, etc., in the future. The resulting oils are not only utilized in the making of illuminating and lubricating stuffs but are exported to Spain, Japan, and even America,

for manufacture into candle stuffs, soaps, waxes for matches, etc. These materials are likewise manufactured in the Philippines. In addition to the oils secured from the coconut growths by the inhabitants of the Sulu Archipelago, there are a few oil wells in operation from which a limited quantity of illuminating oil is secured annually. If this oil product of the soil were properly developed there is no doubt that in a short while the wells should be as productive as the wells in Cebu. The Cebu wells promise success with improved apparatus. The Sulu wells are worked entirely by the crude hand devices of the natives, and considerable time and energy are expected in obtaining a little of the oil. There are one or two oil springs in working order in the hills, from which the natives secure a little oil at times, but lack of proper refining devices prevents the general introduction of the industry. The natives do not understand either the art of correct refining or how to put up the oils for the markets. They run it into coconut shells and it evaporates quickly. Then these natives get fats, waxes, etc., from the various saps of trees, and by crushing in mortars or rolls some singular formations of minerals and herbs which are unknown, I believe, to the world of science. I showed samples of the mineral stuffs and sections of the sap-producing trees, also specimens of certain oil-producing leaves and herbs, to experts here, who make a business of assaying for the miners, and who have studied oils and chemicals, and these assayists have informed me that these barks, minerals containing oils, herbs and kindred products of the soil are new to them.

All through Jolo, Zamboanago, Cottobatto, Parang, Cebue and other commercial and industrial centers in these portions of the new possessions of American in the Southern Pacific, I found evidences of progress along the lines of oils as procured from the coconut, tree saps, juices crushed from plant-life and the like.

Wherever one visits in the sections of the Sulu group he finds evidences of the manufacture and sale of oils from the coconut and other tropical growths. The supplies of coconuts, barks, herbs, minerals and kindred products from which the natives get oils of some sort are brought into the central stations on the heads of men, women and children on pack animals, and sometimes on the crude carts of the natives. First, the native train from the interior has to pass through the garrisoned portion of the town, where the required passes are shown to the sentries of the United States military, and the natives then pass on to the market in the town or to the manufactories. In the working up of the coconut into marketable form the fruit is first assorted by native women, as this is light work. The women crack each shell of the nut until it opens, exposing the white fruit within. Then the half shell is grasped in the hands and the interior ruit scraped by working the fruit over and over on the edge of a sharp stone, piece of wood or metal, properly set for this operation. The granulated white scrapings may be seen falling to the mat below. Then this prepared fruit is spread for drying in the sun on mats and copra results. Sometimes the stock is sweetened with native sugar. If oil is required the stuff is pressed between rolls or in presses or pounded in hollowed stones or wood pieces, until the oil is gotten out. After the oil is removed the remaining stock is used for copra as well as when the oil is left in.

The oil and copra markets in this part of the world are curious affairs. There are no sides to the building. There is a big nipa roof set up on poles, and under this roof squat the vendors in oils and the products of the coconut. Likewise the makers of oils from the coconut and the herbs and barks of the country may be seen here operating their crude contrivances. There are native police stationed about the market place to preserve order, and these fellows carry knives, spears or shotguns.

There is not much money in the Sulu oil industry for the natives the way that the native manages things, as may be judged by the character of the houses occupied by these people. Their homes are mere shacks with one room, and the entire family lives here. The devices for making the oils is often in the same room. There are pigs and chickens about. Here the father and mother and grown children work several hours per day, turning out an oil or copra product that brings in only a few cents to them, but which is of considerable value in the foreign markets or even at Manila or Iloilo. The natives know only the local price. The men engaged in buying this oil, copra and fatty mixtures from the natives are the ones who turn the money. They buy very cheaply, and often by exchanging very inferior Spanish cloths, lamps, tinware, trinkets and the like for the products. I have seen 10-cent articles buy several dollars worth of good oil or copra from the natives.

Oil of all descriptions is carried back and forth here in the Sulu land very much as it is conveyed in the islands further north. Bamboo tubes and tins of all kinds are used. Kerosene oil cans imported here, with Russian illuminating oils, are popular for native oil conveying, these cans being balanced one at each end of a pole placed upon the shoulder of a native. The native water craft carries oil and copra from the point of production up north to the stations, where the middlemen buy it for exporting to other countries. The prices on the oil begin to jump at this stage. In all of these towns and hamlets one may see natives trotting in and about the shacks with the inevitable bundle of coconuts attached to poles thrown on the shoulder or tied up, bunch fashion, and carried on the hoad.

Some of the oils and fats obtained from the coconut or the gums of native trees or minerals are procured in very odd ways. I saw native men, women and boys with blowpipes blowing drafts of air into masses of flame in process of burning under pans or flat stones, on which fats were being treated for the purpose of obtaining the oils. There are certain herbs which the natives get in the jungle which are pressed for the juices, and these juices have to be fried, as it were, before the oily substances are in proper order for extraction. Because of these very strange customs of getting oils from products the oil industry of Sulu is interesting and amusing. Millions of ants and kindred pests infest the oil devices, the oils and the surroundings, and whether the oils are for burning, illuminating, eating or what not, the ants that get in the way are crushed in with the material and become part of the oil. Oil cakes for purposes of eating are known to contain much insect matter, but this does not affect the sale of the greasy stuff.

A few Americans (usually discharged soldiers), some British and quite a number of Chinese are undertaking to engage in the oil business here. These parties go at it on a better scale than that of the natives.

At one place the men had erected a substantial sawed-lumber building, and fitted it up with a few crude devices for crushing and refining purposes. Some tanks were used. Acids were in use for purifying purposes, but nearly all of the work is done by native help. I happend to arrive at one of these places on a pay day. The natives were receiving from one to two dollars gold each person for the week's work. This money they immediately proceeded to gamble with until they lost practically, all. I am inclined to believe that some day there will be oil mills of modern design in this part of the new United States territory, and that these will be run by Americans, who will find an exceedingly rich growth of never ending products, of coconuts, herbs, tree gums, etc, from which to make oil with very inexpensive native labour. This oil can be exported at profitable prices.—*Oil, Paint and Drug Reporter.*

THE TEA FACTORY OF THE FUTURE.

BY CLAUDE A. LOWE.

The general idea of this article is to present, in an orderly and more or less comprehensive form, the probable future development of the modern tea estate and factory, showing, in some detail and parallel, the various difficulties and inconveniences of present day practice, and the methods likely to be evolved in the near future to override and abolish them.

It has already been pointed out in the editorial and correspondence columns of this journal, that such nostrums as a comprehensive reduction of output—even if all concerned were agreeable to join in the movement—would merely result finally in throwing wide the door to the gleeful competition of foreign teas from China, Java and elsewhere; and even the more obviously practical endeavour to devote a large capital to opening out new markets while meeting with opposition from some planters of exceptional experience and ability, gives no substantial guarantee to the planter that the price of his commodity will permanently rise to the old scale of high profits. Looking at the subject from the consumer's point of view, it will require no great imagination to suppose that the members of the great army of working classes in Great Britain who have got accustomed to obtaining their weekly pound of tea for one price, will refuse to submit to a rise in the same; rather it will probably be found that the grocer who caters for them will be willing, as has happened before with other products, to sell the same quality of tea at the former price without profit for a time, in order to retain or increase their custom for general groceries.

Even from the planter's point of view, the position under existing circumstances would be no firmer in the long run, as, given an increased demand who is to prevent companies or individuals who own undeveloped land, from extending their gardens? Certainly not the Tea Association, and it is not probable that Government will step in with a veto on the subject, and lay themselves open to the charge of fostering the China trade at our expense.

We thus come by a process of exhaustion to the old question of reduction of working costs, but even here, under existing conditions, a dead-lock must soon be reached, as it cannot be doubted that many concerns which continue to pay good dividends, are accomplishing the same as the result of stringent economies, many of which they will be unable to maintain without ultimately bringing about either directly or indirectly a deterioration in the asset value of their estates.

That stress of circumstances has brought about a series of permanent and practical economies is undeniable, and that these same economies have been most immediately beneficial where practised on large concerns combining several estates under one supreme local authority, is equally evident to the seeing observer; it is therefore highly probable that the greater the concentration on a central local office under a really capable Superintendent, the higher will be the economic efficiency attained.

From this point to the Tea Trust or Combine is but a step, and now that we are hearing and reading so much about Trusts and Combines in every branch of commerce, it can hardly be doubted that, sooner or later, the eyes of the monied world, roaming around in search of new outlets for idle capital in bulk, will alight on the confusion of conflicting interests and antiquated farming procedure of the vast tea districts, struggling or sleeping under the protecting arm of the British Raj.

That really serious opposition could be maintained in the face of a movement to acquire whole provinces* in the tea districts is questionable, when we look at the backing off and wrangling that takes place every time the Association calls for combined action on any subject; indeed the mere attempt to fight a really formidable corporation would in itself be suicidal, as one of the first logical effects of consolidation under enormous capital would be the local abolition of the Planters' Association as at present constituted, and therefore any isolated estate would be entirely at the mercy of a conscienceless and invisible power.

Even without this huge and wholesale combination the near future must show a modification of the principle in self-defence, and combine at least whole districts under their own respective centres, in order to produce a certain uniformity of method, and reduce the number of individual units to a comprehensive whole.

Let us enquire now why even on adjoining gardens under one ownership, one so frequently finds factories set up within a couple of miles of one another. It appears when all the *pros* and *cons* are sifted, that the real difficulty resolves itself into a question of locomotion. Because leaf packed into large baskets and carted in a slow bullock gharry or on coolies backs, heats and turns red on arrival or soon after, therefore another factory must be built and a special staff and plant of machinery must be maintained. There are as secondary reasons, the difficulty of managing the withering, and the size of the plant required to deal with what is considered to be an unwidely quantity of leaf, both of which may be summed up under the head of want of courage and enterprise on the part of those concerned.

We will now, however, proceed to consider these objections in detail, and find how they can be overcome in a combination of estates under one ownership working towards a central factory from a radius of eight or ten miles in every direction.

The question of the actual working of the land is not likely to change very considerably. It is possible that machinery may to a modified extent be used for cultivation, but actual plucking must for obvious reasons be always carried out by hand, the only likely change is that the estates will be re-divided into lots of about five hundred acres, and each placed in charge of one European who will be responsible under the Chief Superintendent for cultivation and quality of leaf alone, having nothing whatever to do with the sale or manufacture. We will therefore take the factory of the future and consider, as first in order, the question of transport.

TRANSPORT.

The two methods of rapid transit available for use on tea lands at present, are the narrow gauge railway, and the wire rope tramway; but seeing that in the majority of cases the ground in the vicinity of tea estates is cut up by nullahs and jhoras, and in some districts is actually mountainous, the railway system would be not only cumbersome, but prohibitive in first cost. There remains, however, the wire rope tramway, which is able to make a bee-line for any desired point, irrespective of the contour of the land over which it has to pass. This latter is worked on various systems at the present day, chief among which are (1st) that in which the carrying rope is also itself a traveller; (2nd) the carrying rope is a fixture, and the trolleys hanging therefrom on running wheels are hauled by a lighter endless rope passing round a pulley at the end station and so back to the winding engine, and (3rd) that in which the trucks

[* It is probable that no attempt at consolidation which did not aim at acquiring at least the whole of such a province as Cachar, Sylhet, Darjeeling or the Dooars would be effective, as it would be a *sine quâ non* that the means of communication should be under the Company's control.—C. A. L.]

carry their own electric motor, or are hauled as trailers by a single motor, collecting its current from a fixed wire or pair of wires as it travels along. The second system, known as the "Bleichert" system has at present the greatest vogue, and there are hundreds of miles in working order in various parts of the world to-day, but I am inclined to think that where power is cheap, the third system of electric traction will be the system of the near future.

The motive power for this and all the other factory machinery will be generated on one or two of the rivers or large streams which, more often than not, are running to waste near every tea district, for want of sufficient profitable work to justify the expenditure of the necessary capital to exploit them.

Having got our wire rope tramway laid to the centre of each sub-garden, or a convenient point therein, the signal will be given from the factory as convenient to call in the labour; the leaf being weighed will be emptied into a travelling belt, which will convey it into a small chamber, where it will be chilled to just a low enough temperature to prevent any possibility of heating within the next twenty minutes or so. In the same chamber, it will be fed into tipping cages, divided horizontally into compartments not deeper than six inches each, so that when the trolley is turned upright, the leaf at the bottom cannot be crushed by that above. All the trolleys being thus filled with cool leaf the train will be pushed out into the open way, and set going at a high speed direct to the factory. Here it will be received, not as often now, on a muddy floor, but into the topmost loft direct, and the carriages detached from their motor, will be run off here and there by the attendant boys and tipped down the various shutes in obedience to the requirements and orders of the European Superintendent in charge of the automatic leaf spreaders. Having thus got our leaf into the centre of the web, let us before going into further details of its treatment, consider the general construction of the factory itself.

The factory of the future will of necessity be a very different concern to the present day two or three storey affair, with, so often as not, wide spreading closed verandahs, especially designed to catch the sunshine on their iron roofs, and heat up the very rooms which it is most desirable to keep cool; small withering lofts which render extra outside withering houses absolutely necessary, and from which latter in wet and cold weather, the leaf has to be gathered up, doubly handled, and brought into the factory loft under the influence of the fans to get it withered at all.

The new factory will make allowance for the maximum of leaf within its own compass, or at any rate arrange for storing it harmlessly till there is room for it on the withering machines; it will scarcely be less than sixty to sixty-five feet high to the eaves, allowing in each bay for 15 ft. for the ground floor, and two withering lofts or rooms of at least twenty feet high each, and a receiving loft, though this latter may easily be accommodated in the depth of the roof.

The factory *in toto* will consist of four, five or more bays, converging radially into a central house, in which will be situated the fans and air shaft in use for the whole of the withering apparatus, and for general punkah work and ventilation. The building itself, from floor to ridge, will be constructed of iron and steel throughout, the withering loft, floors and walls being further lined with some non-conducting and combustible material, such as *papier mache*, manufactured by the Company in India from local timber, and intermixed with grain mica recovered from the local river beds, or with crude asbestos fibre: the whole being coated with some one of the so-called "Asbestos paints, even now coming to the front as fire-protectors.

The several bays will probably not exceed sixty to sixty five feet in width, and will each contain, as aforesaid, two withering rooms twenty feet in height running their entire length, and fitted with the necessary withering apparatus, hereafter to be described with its feeding, discharging and ventilating gear complete.

The lower floors will in all cases be devoted to the manufacture of tea, and the various accessories of the trade, store rooms and other heavy work. The rolling and drying departments would probably occupy a whole floor each, fermenting another, and box making in all its branches a fourth. Space would also be found in the building for a repair shop fitted with all the necessary machine tools, and also wood working machinery, and paper-moulders and presses to reduce the cost of outside building operations in those parts where at present expensive Chinamen are employed.

Such being the general outlines of the building, we will turn our attention in another chapter to a tenative forecast of the machinery likely to be employed therein.—*Indian Planters' Gazette.*

(*To be continued.*)

PEPPER VINE DISEASE IN THE WYNAAD.

MR. BARBER'S REPORT.

The following is from interim Report to the Wynaad Planters' Association of Mr. C. A. Barber, the Government Botanist, on his investigations into the pepper vine disease in the Wynaad:—

"I visited the following places:—Neddikarna, Moopenaad (briefly), Nedimballi and Poothacoolie, Cotternaad (briefly), Anda Tode, Moovatie. The bulk of my work was done at Anda Tode and Nedimballi, where vines were carefully dissected out for a couple of days in each place. Since leaving Moovatie, I had the opportunity of visiting about a dozen gardens on my way to Calicut so as to get a glimpse of the mode of cultivation in the plains.

I have come to the conclusion that whatever the trouble be, it is situated in the mound of earth surrounding the root stock. The two factors which seem to point in this direction are—(1) that the canker, which sets in all diseased plants is situated in the mound of earth surrounding the root stock, and (2) that in diseased plants there is an almost total absence of the fine net work of surface-feeding roots which I have always observed in healthy plants. My statement that the canker seems to originate at the collar is based upon the fact that, however, completely that part of the plant may have gone, it is possible within a reasonable period after death to trace the cankerous spots both upwards and downwards into what appears to be perfectly healthy tissues. I take it also from my examination that there are two systems of roots in the pepper vine—one deep rooting and one superficial. The first eight plants which I dug up were diseased, and in these there were hardly any surface roots. I was thus led to the false (as I believe) idea that the pepper vine is a deeper feeder than generally supposed. By the kindness of Mr. Winterbotham, I was able, however, to dig up a fine healthy plant. Then I at once saw that the great mass of roots was superficial and indeed largely confined to the heap of earth which seems to be always piled up around the base of the standard. If these two points are held in view, it will be seen that it is of the utmost importance to examine into the question as to whether the current heaping up of earth round the standard is a proper operation. I may say at once that I saw nothing in the low-country cultivation which would justify it.

Briefly, I do not think it is done in an altogether reasonable manner. Let the question be asked of practical planters, "Given that the pepper vine is a surface feeder and that the bulk of its feeding roots are developed near the main root stock, ought not the mound of earth to be made suitable to delicate feeding rootlets?" I have frequently found this mound of earth so hard that it was with difficulty penetrated

with a knife. I think it ought to be kept in a friable condition, and also that it should be protected as much as possible from the direct heating and desiccating influence of the sun during the hot weather, as wel as the heavy drip of the monsoon. I would therefore suggest for immediate experiment, the scattering of lime over the surface of the mound, as has been done in certain cases at Auda Tode, and its protection from sun and "wash" by a mulch of some sort. As to the forking up of the mound, I leave it to the experience of practical planters. But I would most strongly insist on the great danger to delicate rootlets of any disturbance of the cake-like crust which I have so often met with. When it is made friable there may be advantage in a little forking, but I am not at all sure that this would be necessary.

I do not feel at liberty to make any definite statement concerning the cause of the disease at present. That will come better after I have had the opportunity of making a microscopic examination of the large series of specimens collected in spirits. But I would point out that in my short inspection of the plantations in the plains I have come across a definite and serious disease of the rootlets of the collar. I would, therefore, strongly urge that the idea of obtaining fresh "seed" from this source be abandoned until a clean bill of health may be given. Meantime would it be too much to ask that all who are interested in this matter should, when convenient, make a cursory examination of the rootlets of the mound? They will then be able to justify or criticise my opinion that here are the chief feeders of the plant, and also they will be able to determine whether the disease of the plains is of common occurence in the hills. The diseased rootlets in the plains show very distinct nodules or swellings in their course. They are frequently twisted or swollen at their ends and on being cut open, show little round dots in both transverse and longitudinal sections. The uncovering of patch of mound roots in friable soil should not be injurious and if the disease is present, it should be visible all over the mound, but in hard crust, the individual rootlets will, with difficulty, be seen and smashed to pieces.

I would also suggest that for the present fresh cuttings should not be taken from the mound, but from the tops of healthy vines, if these are found to strike as well.—*Madras Mail*

PRODUCTS IN UGANDA.

We take the following extracts from an official report of Mr. J. Mahon, relating to the plantations made in the Botanic Gardens at Entebbe:—

CACAO.

The two cases of Cacao (Theobroma Cacao) sent out from Kew in August, 1901, have thriven exceptionally well. They arrived during the drought already referred to and as there could be no thought of planting them out I had them all put in pots, and to shade them, had recourse to converting my tent into a greenhouse, and it suited the purpose admirably. Whilst there they were attacked by rats, which gnawed the stems of many quite close to the soil. Trapping several frightened the others away eventually. It was not possible to plant out the Cacao till December, 1901.

Their progress in nine months permanently planted out has been, and continues to be most satisfactory. I am not aware of any country where Cacao is grown commercially at 4,000 ft. altitude. If we prove it can be done here, the experiment will be valuable.

COFFEE.

As an excellent Coffee is frequently found in this country in a wild state, it is perhaps only to be expected that introduced sorts should do well. The London Market Report, recently to hand, on a sample of Nyasa plantation Coffee, grown and prepared here proves that the country can produce Coffee of first rate quality. Some of the books dealing with this country call the indigenous Coffee a form of Coffee arabica. It is nothing of the kind. It is probably a distinct species, and certainly allied to the well-marked large-leaved West Coast types. It responds most readily to cultivation, and grows rapidly after the seedling stage is passed. A congo species (Coffee robusta) bears a striking similarity to it. This latter grows splendidly here. Our plants are from seedlings given by Kew. One plant has just flowered. I believe Coffee robusta has a considerable market in parts of Europe.

Maragogipe Coffee, a south American hybrid, and a splendid cropper, is growing freely. I have a number of seedlings of Sierra Leone highland Coffee (Coffea stenophylla), raised from Singapore seed.

TEA.

grows with but moderate rapidity just here. Our rain fall is not great enough. When we have a period of rains it flourishes nicely. If its cultivation were carried on here even on a moderate scale to meet some of the local demands, it would be necessary, I feel certain, to call in the aid of irrigation. Mr. Scott Elliot, the naturalist and traveller, seemed satisfied from his explorations in the Ruwenzori country that large areas there offered a fine field for cultivating Tea on a large scale.

Vanilla is growing moderately well. Our forest belt on the lake shore suggests a climate where it ought to thrive apace, but doubtless our elevation accounts to a great extent for its tardiness.

The fruits mentioned in the accompanying lists are practically all well-known tropical sorts. We are pushing on their culture as fast as possible, for fruit is one of our scarcest commodities. Our plants are doing excellently, but the majority are not old enough to have reached the fruiting age yet. A number of Pine apple suckers I brought from Kew are now bearing their first crop of fruits; they are choice dessert sorts grown in British gardens. Already a quantity of shoots from these have been distributed to local residents and to some out-stations. This distribution will continue to be carried out whenever opportunities occur.

TIMBER TREES.

A great deal of attention is given to the introduction of timber trees. The fine Mlanji Cedar of Nyasaland makes most satisfactory progress here. Specimens about three years old are now over 15 feet high. A large quantity of seeds of this tree was recently obtained from the Botanical and Forestry Department, Zomba, and distributed widely in Uganda. There is a considerable number of trees planted in the gardens here and about the station. Establishing the useful and ornamental Eucalypti is practically impossible, owing to the depredations of 'white ants' (termites). One avenue alone has been planted no fewer than four times by myself. Fine young trees from 15 to 20 feet high are ringbarked in a short time just below the surface and quickly die. A wide selection of species have been tried; but all seem equally vulnerable to the attacks of this insidious pest. We have tried all methods of fighting it, but with little or no result. It is rather interesting to know that in one of the worst portions of the gardens for 'white ants' the common Guava thrives and is never attacked by the creatures.

West Indian Mahogany, various Coniferæ, palms, and several timber trees of the Straits Settlements, &c., are amongst recent introductions Mahogany will be extensively planted and distributed. A barrel of seeds (through Kew) from the Commissioner of Agriculture, (Barbados), is due to arrive presently. Some seedlings, of a few months old planted out lately are thriving well.

A large selection of a species of Australian Acaciæ useful and ornamental, in addition to other trees from that country, have recently been sown.

FIBRES.

There is already some local enterprise in the matter of exporting native fibres. Sanseviera (Bowstring Hemp) is abundant and there appear to be three or four species. A favourable report was received from London on specimens we sent, and one was valued at £25 per ton. Raphia fibre from the magnificent

Palm so common on the lake-side is, like Sanseviera, extremely abundant. Both of these items could be propagated to any extent by planters here at a trifling cost. We have some common Ramie, or 'China grass' growing very favourably. I consider that many parts of this country are peculiarly well suited to Ramie growing. I am not aware if the difficulty of finding a really suitable and practicable machine to prepare this splendid fibre on the field has yet been overcome.

The indigenous cotton is a very fair sample, and imported sorts which we have experimented with on a small scale do very well; the fibre was favourably reported on in Manchester. The only drawback is a tendency on the part of some varieties of known perennial habit to become annual, dying off as soon as the crop is matured."

[The Mlanji Cedar, Widdringtonia Whytei, was first described by Dr. Rendle in the *Transactions of the Linnean Society*. Our illustration (fig. 69), which we owe to the courtesy of the director of the Royal Botanic Gardens, Kew, shows a young plan growing in the gardens at Entebbe. In our number for June 16, 1894, p. 746, we extracted from the *Kew Bulletin* of 1892, some interesting particulars relating to the tree. ED.]—*Gardeners' Chronicle*,

MANURES FOR PASSION VINES.

The description of the soils is as follows:—

Mr. Arnold's.—Chocolate loose loam.
Mr. Dale's.—Shaley loamy clay.
Mr. King's.—Black soil and a loamy soil.
Mr. Taylor's.—A very loose sandy and gravelly loam.

The commercial manures used were based by the Chemist Mr. F. B. Guthrie, on the assumption that the bearing passion-vine removes from the soil (in a year) about

6½ oz. nitrogen,
1½ oz. phosphoric acid,
4 oz. potash,

as determined by analysis, and costing between 4d. and 5d. per vine.

Complete manures in every instance showed themselves far more preferable than single manures, and the following were the best used:—

"No. 21.—52 oz. dried blood,
9 oz. superphosphate,
6½ oz. potassium chloride.

"No. 23.—40 oz., nipho.
24 oz. Sugar Co.'s 'A' manure.
16 oz. Australian potash.

"No. 22.—43 oz. nitrate of soda.
9 oz. superphosphate.
6½ oz. potassium chloride.

"No. 39.—32 oz. sulphate of ammonia.
18 oz. superphosphate.
8 oz. sulphate of potash.

"This last mixture answers well for the very dry season we have experienced, and is the best for summer dressing. These manures are the best so far used, and side by side with the single manures the comparison is very marked; and as regards the rows left between, and which received no manure, they look half starved and in a hang-fire condition when compared with the vigorous growth of the well-fed vine carrying a crop of well-developed fruit,—clearly proving that commercial manures will pay when we can arrive at the exact requirements of the various soils. It was strikingly apparent in these tests that the results in no two cases were exactly alike, the manure in each class of soil producing difference in growth, &c., more or less slight, but nevertheless noticeable."

To this report, the Fruit Expert, Mr. Allen, adds: "So far as the experiments go, it is clear that on the soils on which they are being conducted it is absolutely necessary to manure if anything like good returns are to be expected. The manured vines are so far ahead of those untreaded that, generally speaking, there is no comparison between them, and while the manured vines are in good condition after carrying their last year's crop of fruit, and promise well for the coming season, the unmanured vines appear to have become exhausted and look as if they had little vitality left for the approaching season. In my opinion, passion-vine growers cannot afford to allow a season to pass without assisting the vines by the application of some manure, and, so far as the present experiments enable me to judge, the complete manures undoubtedly give the best results."

The Chemist, Mr. F. B. Guthrie, reports: "I visited the orchards in which the experiments are being carried out, with Mr. Allen, in November. The results were striking and the differences between the manured and unmanured vines very marked. The experiment is being watched keenly by the orchardists in the district, and provides an invaluable object lesson as to the efficacy of manuring. I arranged with Mr. Allen for a further set of experiments for this season, to test particularly those mixtures which are giving the best results. These are so arranged that the crop for each row can be picked and packed separately, so that the actual money-return from the use of the different manures can be ascertained."

Messrs. Taylor, Dale, and King will keep a record of the quantity of fruit taken from each of their plots of sixty vines to which the manures were applied, so that there will be available reliable figures for future guidance. Mr. Taylor will also keep a record of the quantity of fruit taken from six of his best plots of nine vines, which will be determined by independent inspections.—*Agricultural Gazette of N.S.W.*

GREEN TEA FOR AMERICA.

[BY T. GOSSUPP in *Times of Ceylon.*]

NEW YORK, *February 20th*, 1903.

There has been of late a much larger trade doing it Ceylon green teas, owing to the fact that between February and May, there is generally a shortage of Japan teas and this year has been no exception. The new Japans arrive in this country in fair quantities about June, and between June and December the bulk of the crop is sold (a quantity to arrive in the early part of the following year); but it is a fact that each year there has been a shortage of Japan teas, the quantity shipped from that country being less than the requirements of the United States.

It has, therefore, been a very good opportunity during the last month to introduce Ceylon green teas, but I regret to say that the majority of the uncoloured Ceylons (called basket-fired here) are coloured and packed in Japan half-chests and faced with paper facings, outside the packages, and matted to represent Japan teas. I have written before pointing out the necessity to most of the Ceylon planters to wake up to the fact that if they wish to get hold of the United States green tea trade, they must conform to the wants of this country by shipping pan-fired or sun-dried (both coloured teas) in Japan half-chests, to nett 80lb., the packages faced with paper bearing the following inscription:—

VIA SUEZ CANAL.

Chop Mark: letter as

H V
—— or a Lion, etc.
T

EXTRA CHOICEST FIRST PICKINGS.

GENUINE CEYLON-JAPAN TEAS.

Pan-fired, nett 80lb.

"I have seen recently some very good Indian green coloured teas made by the Deane-Judge pan-firing machine, and these teas are the best that I have

seen since I have been in this country—that is to say, that they are the class of Japan and China greens that are sold here."

I am sending to you, by this mail, samples of Japan teas which, if the planters of Ceylon will only follow carefully, they will find already sale for here, because the cost of production in Ceylon is so much less than that of Japan and, therefore, the Ceylon teas can be sold at more favourable prices to the buyer than Japans, which, in this era of keen competition, is as important here as elsewhere. It is quite possible that, if Ceylon produces the right kind of tea for this market, that they will seriously cut into the Japan exports, and there will be a time when it will not pay many of the Japan planters to ship teas to this country on a favourable basis, and that Ceylon will gradually oust Japan teas altogether.

It must be borne in mind that the ignorance of the grocer in the States is appalling as regards tea. Many a man who has been a tramway conductor will start as a grocer, and, as you can imagine, taking fares on a tramway is not the best apprenticeship to serve before handling or knowing anything about teas. On the other hand, a lot of the wholesale grocers here finance the retail grocers; and, therefore, the retailers have to buy all their produce through the wholesale houses, and it is the wholesale merchants that we have to cater for first. They make the retailer the distributor, and can practically give him what they like, and take advantage of giving them Ceylon greens if they can make more money out of this class of tea than they can out of Japan.

Of the houses in this country who are doing most for Ceylon green teas Lipton leads, having pioneered Ceylon greens into many parts of the country where it was never taken before, selling teas in bulk to many of the large merchants all over the country. Larkin does a certain amount through his packet business, but he does not get at the wholesale as Lipton does, selling invoices of Ceylon greens to merchants who have innumerable channels to distribute the teas through. Finlay-Muir is doing a regular business in this country in Ceylon greens, and their method of colouring and shipping has been the greatest help in getting the teas tried by the merchants, and repeat orders are generally the result.—*Indian Planting and Gardening.*

VARIETIES OF CASSAVA.

In your issue of October 25 last, Mr. W. G. Freeman, scientific assistant of the Imperial Department of Agriculture for the West Indies, directs attention to the poisonous properties of sweet cassava. His statement with regard to the West Indian sweet Cassava is correct, and recently that Department has noted the fact that from time to time people are poisoned by eating sweet Cassava in the West Indies. Bitter Cassava is much more poisonous. In view of the great possibilities of this cultivation in the Tropics, I herewith enclose the result of the analyses by the Government chemist here of the tubers of seventeen varieties of Cassava which I have recently introduced to Jamaica from Colombia. It is important to note that these new varieties are non-poisonous, so that their culture may be turned to account as a leading article of food throughout tropical regions.

In your issue of August 9, 1902, p. 99, you commented upon a report of mine on Cassava as a great prospective industry, i.e., for the production of starch and glucose, for both of which it surpasses all other plants in the quantity producible per acre and at a minimum cost. Thus, 10 tons of Cassava tubers per acre is a moderate estimate; from the common naturalised West Indian varieties, which yield only about 20 per cent. of starch, 2 tons. But my best varieties recently introduced, as will be seen in the Government chemist's report, yield from 30 to 36·50 per cent. of starch. The variety yielding the last-named percentage I have named "Governor Hemming," in compliment to our Governor.

Potatoes in Europe yield an average of about 6 tons per acre, from which the starch obtained amounts to only 16 per cent.

In America, Maize yields an average of about 30 bushels per acre—less than half a ton of starch.

During the last few years, Florida has established Cassava cultivation on a commercial scale, and of splendid quality. Florida, however, can hardly compete with purely tropical regions. At the same time, the Florida farmers have demonstrated to the world the importance of cassava, not only for the making of starch and glucose on a commercial scale, but also as stock-feed from the tubers and by-products. —ROBERT THOMSON, Half Way Tree, Jamaica, March 19, 1903.—*Gardeners' Chronicle.*

THE CHICLE INDUSTRY OF MINDANAO.*

I am writing to you from the locality of Zamboango, one of the largest towns on the island of Mindanao. This narrative will concern the production of the substance known as Chicle and the manufacture of the same into form for the commercial centers of the country. South American Chicle and the gum resulting from the treating and preparing of the same has had a place in the markets of the world for many years. Gums of this nature from this portion of the world are not so well known. It is only very recently that the country has been opened to the extent of permitting Americans an others to investigate into these natural growths of a commercial product.

The Moros for years have secured the milky, white saps from the gum-producing trees of the country by creating wounds in the barks. Oftentimes the blows of knives or pricks with spears form the only means by which crevices and fractures are effected in the rough bark, to the extent of developing a flow or an oozing of the valuable gummy substances. There is a cut made in Fig. 1, showing one of the systems employed by the natives for securing the flowing saps. When the gummy liquids pass from the tree to the tube of bamboo *a*, these liquids are very similar in consistency and appearance to milk. The bamboo tube is usually suspended horizontally by means of the crosspieces, *b*.

Shortly after the mass of liquids is exposed to the air, it begins to harden and in a short while can be cut or broken into cakes. The cakes are often shipped to the coast from the interior in this form or as is the case in some places, the cakes of gum are reworked into desirable order and forms for transportation to other countries or to centers where there are agents who handle the gums of the country. At present writing there is one agent of a foreign commercial concern here who is buying gums at market values in large quantities for shipment.

Another mode of securing this white sap is from the unripe fruitage of the tree, which is very similar to the *sapota* growths of Yucatan.

The natives of Mindanao use some crude devices in the Chicle gum industry. In Fig. 2 is the awkward yet effective, manner in which the masses of gum-like sap can be exposed to the action of the atmosphere without undue wastage due to specks and foreign matters falling in. A series of bamboo tubes are adjusted side by side, as shown, and these are joined with bamboo strips underneath and fastened to crosspieces. The latter are arranged so as to support the whole affair about three feet from the level of the ground. There are openings cut out from each of the tubes at intervals, as shown, and the air can

* From *The Paint, Oil, and Drug Reporter*, New York, September 29, 1902.

impregnate, and with the heat and drying influence of the sun the desired results are secured. After the mass begins to form in the tubes it is forced out before it hardens and cooking follows.

Your correspondent sketched two or three different designs of cook ovens of native make, and shows one of the most practical kinds in Fig. 3. This is erected by first excavating the earth to a depth of about four feet, and three feet square for the fireplace, as represented. Then stones are put in position for the forming of the archlike structure immediately over the fire on which rests the pot of iron containing some of the lumps of Chicle in readiness for dissolving and cooking. This iron vessel is designated *c.* Above this vessel is still another arch of stone, describing a more definite circle. Several native workers are required to keep the fire going and the vessels properly filled. These ovens last indefinitely when properly built, as those I saw were very old indeed. The cooking operation involves several others, such as the sweetening and flavouring. The natives use the common brown sugar product for sweetening purposes. The natives discolor the substance by employing stains squeezed from leaves, herbs, barks, etc. Some of the coloring barks are those from which the dye-substance collectors of the country obtain stains. Reds, yellows, and blues in coloured gums are prominent.

After the gummy stuffs are properly sweetened and flavored they are usually rolled out into sheet like order, so that slabs of the substance can be secured, as in Fig. 4.

After a time the substance is in readiness to shape into loaves, and this is done by the natives in several ways the best I saw being the rolling of the gum into thin sheets, the weight desired, and then cutting through with knives made for the purpose. A white powder substance is scattered over the surfaces of the gum while this is going on, so that the natives can handle the stock without danger of the fingers adhering to and soiling the matter.

They have a process of kneading, which is used in connection with the finer grades of gums, and this device for accomplishing the work is shown in Fig. 5. It is a crude bit of work, as shown involving the use of a tree stump or section, which is chipped out in the middle to form the oval depression in which the round-nosed instrument of hard wood can be turned by manual labor. The particles of the Chicle are granulated in this trough beneath the weight and frictional surface contact of the rounded device.

In Fig. 6 is shown one of the strange devices employed by the Moro Chicle workers for mixing and working the material. This contrivance is made with stone, heavily erected so as to make the walls firm, and the interior is coated with a cementlike surfacing, which results in the smoothing and rounding off of the tub. Inside this tub sets the upright post, *c.* in which there are projecting arms of wood as shown. This affair is revolved by a belt passing from wheel *a* to wheel *b*, on the shaft. Manual or water power is usually employed to give the necessary turning movement to the gearing, *a.* I saw sever l devices like this, but in most cases they were out of order and unfit for service. The gums here, when finished, lack the flavors employed by American makers. The only flavors utilised are such as can be procured readily.

Costly wintergreen, for example, is not known here. Malt, mint, etc., however, are used. The natives chew the gum to quench thirst. They use it much as they use the tooth staining beetle nut.

As to packing for transportation, you can see that the packages are put up in the form like Fig. 7, as a rule. The substance is rolled up in mats, into various packages, and three or four of these packages are tied up together, as in the view. The writer is inclined to believe that there is money in the Chicle industry of Mindanao for capitalists. The gum materials can be purchased from the natives very cheaply, and at the seaports, where the stocks can be properly packed for export.—*India Rubber World.*

COFFEE-GROWING ON THE CLARENCE.

From accounts to hand, it would appear that coffee-growing on the Clarence River has passed the experimental stage, and that the industry is on a fair road to commercial success. Mr. John Bale some eight or ten years ago secured certain rights from the Government to found an experimental station at Wolbin Island. There he planted out several acres of young trees, which are now in full bearing. Already he has harvested 30,000 lb. of berries, and has still another 10,000 to gather. This means that each tree's yield is from 50 lb. to 60 lb., or fifteen 1 lb. tins of the prepared article. Retailed at 1s. per tin, the revenue represents a handsome income, as the trees are planted in rows about 20 feet apart. At this rate, and providing that a market can be secured for the product, the industry, on the same basis of success, ought to give returns much more handsome than any of the sub-tropical crops raised on the North Coast. The drawback to farmers used to returns ranging from monthly to yearly, is that there is no yield from the coffee trees till they are 4 years old, and then they are not in full bearing.

Mr. Bale has for many years devoted much of his time to crop experimenting. He has demonstrated that many crops, other than those now raised, can be profitably cultivated on the fertile Clarence as commercial ventures.

Besides raising the coffee in its raw state, he has also roasting appliances and modern grinding machinery, and turns out the coffee in labelled tins ready for the market.

In the latter end of 1896, Mr. Bale submitted samples of his locally-grown coffee to the Department of Agriculture. The samples were brought under the notice of Mr. C. Skelton, who had been engaged for seventeen years as a coffee-planter in Ceylon. He was greatly impressed with the quality of the berries, and some months afterwards, under arrangement, visited the Clarence and other Northern River districts, with the object of reporting on the suitability of the soil and conditions generally for extension of the industry which was proving so successful in the admirably-adapted site elected by Mr. Bale.

In the *Agricultural Gazette* for October, 1897, page 744, Mr. Skelton published his opinions concerning the capabilities of the districts mentioned. As many present traders of the *Agricultural Gazette* have, perhaps, not seen the report, some extracts from it are now reproduced:—

"In all three districts—Clarence, Richmond, and Tweed—I saw large tracts of land, cleared and uncleared, well suited for coffee-culture; soil and climate are all that could be wished for. I saw growing in the different districts, strong, healthy, well-grown trees, in many instances laden with fruit. With the wonderful fertility of the soil, and the general suitability of those parts of the Colony for the purpose, it is surprising that the industry has not progressed beyond the experimental stage.

"The conditions for planting here being somewhat different from India, and Ceylon, where cheap coolie labour is obtainable, I believe it would be an advantage to set the coffee trees about 7 feet apart, or even more, so as to permit of the employment of a light one-horse scarifier to keep down the weeds, and also to allow of the passage of some sort of vehicle between the trees in gathering the crop. With the exception of planting and pruning, which latter commences after the second crop has been gathered, nearly the whole of the work can be carried out by ordinary labour. The picking of the berries is essentially women's work. A good picking woman can gather twice as much as almost any man, her fingers being so much more nimble."

The chief risk to be avoided in coffee-growing is that of frosts, but Mr. Skelton observed very many sites on well-sheltered hillsides where there would be little risk of injury from such a cause.—*Agricultural Gazette of N.S.W.*

CULTIVATION OF FRUIT IN FLORIDA.

With a view to promoting the cultivation, on a large scale, of pineapples, oranges, etc., in Jamaica, Mr. Robert Thomson, late Superintendent of the Government Botanic Gardens of Jamaica, has recently investigated the methods employed in the fruit plantations of Florida. His report to the Jamaica Board of Agriculture discloses many interesting futures in the cultivation of tropical fruit. For pineapples, which are grown to many districts, a system of shed culture has proved successful. Until about twelve years ago this fruit was grown in the open, but one or two severe frosts destroyed nearly the whole of the plants, and it was found necessary to afford them protection, both against frost and the tropical sunshine. The sheds are made of close boarding 7 to 8 feet high and partially covered with thin laths, opening being provided to admit the requisite light and air to the plants; during the frosty nights canvas sheets are placed over the sheds as an extra protection. The plants flourish very well under these conditions, and 80 to 95 per cent. of them bear fruit; about 200 acres of land are under cultivation, and average pinery consisting of five to twelve acres. The cost of erecting sheds, which last about 7 years, average $300 per acre, the canvas costing about the same; the suckers, which are planted to the extent of 9,000 per acre, cost $900 and the fertilizers about $100 per acre annually. The first crop, which is taken within twenty months of planting, is calculated to pay all expenses; the price obtained per crate of twelve to sixteen fruits is about $3 for the best varieties, and less for smaller fruit, a little difference in size making a considerable difference in the price. Some of the growers replant after each crop, some after two crops, very rarely at longer intervals.

Jensen, on the Indan river, one of the southern districts, contains several thousand acres of pineapple plantains; only a small proportion are under sheds, the growers relying, as a protection from frost which is much less prevalent, on the very close planting of the suckers (12,000 per acre), and on the greater hardihood of the varieties they cultivate. From this district 200,000 crates, containing about 6 million fruits; are shipped to the northern cities annually; the yield of fruit per acre is about 8,000 to 9,000, and on occasions up to 15,000; the replanting is usually done every eight to ten years, but in Mr. Thomson's opinion half that interval only should elapse. The food for the plants is furnished by fertilizers. In all the districts visited, the soil was found to consist of 96 to 98 per cent. of sand or silica, one analysis showing 99·4 per cent. of insoluble residue; the fertilizers are mixed by the grower to suit his own conditions of cultivation, they contain ammonia and potash and are thrown between the rows of plants and raked in to the top surface of soil. The average annual rainfall is from 50 to 60 inches. Jamaica at present exports annually about 65,000 fruits, the yield per acre being very low and capable of great improvement; the soil is not sufficiently sandy and is too rich, but there are many parts of the island highly suitable and which are not under the slightest cultivation.

Prior to 1895 the cultivation of oranges was the greatest industry in northern parts of Florida, but in that year a severe frost killed every tree and ruined several thousand growers, but at the present time many plantations are being cultivated further south; before 1895 the annual export was about five million crates, but after the frost referred to it was 100,000 crates, rising 150,000 last year. Great care is given to the packing of the oranges, an important point to which insufficient attention appears to be paid in parts of Jamaica, which has now a much larger export of oranges than Florida.

A growing industry in Orlando is the cultivation of cassava; this plant appears to grow well on the sandy soil, the annual yield per acre being about 9 tons. From the cassava tubers the production of starch and the manufacture of tapioca and dextrine is to be taken up. The cultivation will probably be successful, since there will be a considerable local demand for cassava as a cattle food, and it will furnish starch to the great cotton factories further north, and owing to its high content of starch (17 to 20 per cent.), and sugar (3 per cent.) and low fibre value (1·68 per cent.), it appears a more suitable material than corn from which to manufacture glucose. As a food for cattle cassava is stated to be better and cheaper than either cotton seed or corn, and it will grow under conditions unfavourable to other food-stuffs. In view of this Mr. Thomson recommends the extensive cultivation of cassava in Jamaica; it is very profitable, no fertilizers being needed, although a small quantity is required for its growth in Florida.—*Imperial Institute Journal.*

ORANGE CULTIVATION IN JAFFNA.

The efforts now being made to establish the cultivation of oranges on a large scale in several British Colonies, and especially in the West Indies, renders it opportune to draw attention to an interesting article on the above subject in the current number of the German journal *Der Tropenpflanzer* (No. 7. 1902, 341), contributed by Messrs. Aaronohn & Soskin, in which a full account of the trade in, and cultivation of, Jaffna oranges is given. It appears that, altogether even varieties of citrus are cultivated in that district, the following being their names and characteristics:

Citrus aurantium (Portugese orange). This is the Jaffna orange proper, and is the one so largely imported into England. It is probably a native of Portugal, but is now cultivated in two varieties which have little in common with the original stock. The popular in England is known locally as *Schamuti* and differs from the second and less common kind, *Beledi*, in being larger and having a thicker skin and, no seeds.

Cinrus Bigaradia (Seville orange).—This variety is only grown as a stock for grafting purposes, as it has been found that an orange tree raised on this species bears fruit for a longer period than when grown in any other way.

Citrus medica (citron).—The two kinds of fruit raised from this species never come to England, but are exported to the countries bordering on the Mediterranean, and to some extent also, they find a market among the Jews.

Citrus limonum (lemon).—This plant is never grown in Jaffna for the sake of its fruit, but, like the bitter orange, is used as a stock on which to graft the sweet orange. It is stated that the best and oldest orange trees of Jaffna were entirely raised on lemon stocks, but the experience of the present planting community is that trees so raised only bear fruit for six or seven years, and are, therefore, less profitable than those propagated from the bitter orange.

Citrus limonum var. dulcis (sweet lemon.).—This species is also employed only as a grafting stock where orange trees are to be grown on the light sandy soil characteristic of some parts of this district. The trees so raised have the advantage of bearing in a short time. The sweet lemon itself is popular with the Arabs, and is, to some extent grown at Akka.

Citrus Nobilis (Mandarin orange). —This tree has been grown in Palestine only for a short time, but has spread rapidly. The fruit bears carriage well, and is therefore suitable for exportation, whilst the tree is small, and fruits readily.

Citrus decumana (grape fruit).—This species is rarely seen, and is nowwhere cnltivated as a orop in the country.

The prodnction of oranges in the neighbonrhood of Jaffna is oarried on both by Arabs and by Enropeans but tbe methods adopted by the two classes are identical, with the exception that the European planters bave, as a rule, adopted machinery whero possible. One of the cbief factors in sncoessful orange cultnre is efficient irrigation, and every garden is provided with a well, from wbich water can be pnmped either by the primitive Arab methods or by the use of oil engines, to all parts by means of stone canals. The ground is dug either by direct manual labour, as the Arabs prefer, or by a plough cutting to a depth of from 19 to 38 incbes. In this prepared soil seeds of the bitter orange or cnttings of the sweet lemon are placed, and the young plants produced from tbese receive no further attention beyond regnlar watering. After two years' growtb, they are taken up and planted out in the orange groves. This transplantation takes place all the year round, without distinction of seasons. The young trees are planted very thickly, often not more than fonr or five sqnare yards being allotted to each. After a further two years' growth in tbe orange garden proper, preparations are made for grafting the trne Jaffna in the yonng stocks nsually towards the end of the snmmer season, althongh there is considerable risk at this time of the graft being killed by the cold weatber which is apt to oome on snddenly. Tbe trees begin to yield well fonr or five years after tbe ingrafting bas taken plaoe; tbey receive comparatively little attention, but are watered about once a week and tbe ground is tnrned over tbree or four times a year, in order to facilitate the passage of water to the roots. The chief enemies tbe orange-planter bas to contend with are a group of insects resembling wood-lice, which infest all parts of the orange trees and various vegetable parasites, which attack both old and young plants, and rapidly destroy them. The Arabs take no precautions to prevent the spread of tbese fungi, and even plant fresh young trees in the neighbourhood of old dead trunks covered witb vegetable parasites of old kinds, so that an Arab orange garden often presents a pitiable spectacle to the eye of a modern oultivator. As regards the future of orange cultivation in Jaffna, the autbors are of opinion tbat the present careless methods of the Arabs will, if persisted in, lead to a great falling off in production, as bas already occurred in other orange-growing districts, sncb as Majorca, Sardinia, and St. Mignel; wbilst, if a rational onlture under European supervision oould be secnred, a considerable extension of tbe industry might be made, eince, in face of the decreasing ontpnt of the otber orange-growing districts over-production is soarcely possible.—*Imperial Institute Journal*.

BAMBOOS.

With reference to tbe flowering of the Bamboos and tbeir alleged death in consequence of the prodnction of seed, we append an extract from an official report drawn up by Major-Gen. C. B. Lucie-Smith, when Deputy commissioner of the Chanda district, in tbe Central Provinces of India, a tract of country some 10,000 square miles in extent, over more than half of which in 1869 the forest rolled league npon leagne, one mighty wave of trees and Bamboos Gen. Lucie-Smitb was for some years in tbe West Indies and Sonth America, bnt he never heard tbat tbe Bamboos growing in those countries died after flowering.

"Tbe uses of the Bamboo," he wrote, "are almost infinite, and it could probably be the least spared by the people of all the products of the forest. It is of two kinds—the oommon, and the Kutung Bamboo. Tbe first grows in all light soils, and in each clump tbere will be one or two oanes which shoot up above tbe otbers, witb only a small hollow at the core, being tbe "male Bamboo," so prized for the shafts of hog-spears. Tbe Kutnng is mnch larger than the common species, attaining a height of sixty feet, witb a corresponding thickness of stem, and grows chiefly on the banks of streams. In the Khalsa country it is found principally in the dense Mohurlee forest, but tho Zemindarees have it in great abundance.

"During the rains tbe young cane shoots from ground, and being then tender, though of considerable thickness, is boiled and eaten by the Gouds. It seeds at irregular intervals, and the prodnce is carefully collected for food. With the effort the Kutnng dies, and people of all classes believe that seeding only takes place during years of scarcity. My own experience is tbat in each year since 1864 various clumps of Kutung bave seeded in snccession."—*Gardeners' Chronicle*.

FRUIT CULTIVATION IN CEYLON.

The importation of frnit plants into Ceylon by Mr. A. J. Pearson has been again satisfactory especially in regard to the various species of the citrus tribe which flourishes all over the island, and tbe imported varieties can be easily propagated by eitber one or tbe other process of grafting, bndding, layering, inarching, etc., etc., with tbe useless bitter orange and wild lime which grow in nearly every np-conntry aud low-country garden. This is the most reliable way of propagating the species, as seedlings in the case of oranges and lemons seldom turn ont true to seed. Lemons are doing as well as oranges, and up-conntry baskets of excellent and large frnit from fonr-year old trees have been seen in Colombo. The imported varieties also grow very well in Colombo, and oranges, lemons and olives have been grown in pots and transferred later on into tubs. These plants have put on remarkable growth and, beiug root-bound, the trees show a tendency to run into fruit early. Olive (*olea*), which bas been cnltivated in the East from remote times, is another tree tbat grows almost all over tbe island, and tbe different imported varities, the eatable and the oil-yielding kinds can no doubt be propagated by grafting with the wild olive (*Elæocarpus serratus*; Sinbalese *weralu*). The pears, plums, peaches, nectarines and apricots natnrally require a temperate clime, and the imported varieties are doing very well up-conntry. In this direction too tbe stock can be improved by grafting, and the old peach trees which are to be fonnd in tbe region of Bandarawella and Badulla can by a simple prooess be converted into modern fruit bearers. Neotarines can be treated with peaches by budding and grafting, and it is not an nncommon thing for peacbes and neotarines to be found growing on tbe same branch. Tbe fig, which is another excellent frnit can also be grown in different parts of tbe island. Several varieties have been imported by Mr. Pearson and it will be interesting to know if the cnltivated kinds can be grafted witb some of tbe wild species growing in Ceylon.

OLD BOOTS IN VINE BORDERS.—I was asked to examine some old Vines recently, and found in the border many old boots and sboes. They had apparently been bnried nnder tbe idea tbat tbey were of mannrial valne. Most of us bave heard of tbe folly of buryiug carcases of animals in Vine borders, but I was not previonsly aware tbat their bides bad been nsed for the pnrpose after being tanned and made into boots.—T. COOMBER, Hendre Gardens, Monmouth.—*Gardeners' Chronicle*.

CLOSE OF THE PEARL FISHERY.

ANOTHER FISHERY NEXT YEAR.

Official secrecy as to the date of the closing of the Pearl Fishery has been very well preserved and few can have been prepared—unless it were by the "burst" of the little monsoon in Colombo on April 15th,—for the announcement made by our correspondent in his telegram the next morning. The total yield of the Pearl Fishery, owing to the fact that the last day's oysters (90,650) have been reserved for experiment purposes —whether at Galle or elsewhere our correspondent does not say—is just above what we recorded yesterday, R815,569·75, or £81,557 calculated at R10 to the £ sterling, the official estimate being put at R825,000 or £82,500 a figure which has only once been beaten in the history of Ceylon Pearl Fisheries since 1838 as recorded in the *Ceylon Handbook and Directory*. That occasion was in 1891 (the last) when £96,374 18s. was collected from the fishery which lasted 43 days. The present fishery can only be said to have lasted 38 days and has yielded an average of £2,265 *per diem*; as against £2,241 6s in 1891. The result is one on which the authorities deserve the fullest congratulation and the "Ridgeway" Pearl Fishery will be remembered as amongst the richest events of an almost unbrokenly prosperous administration.

TOTAL GROSS RECEIPTS R825,000—THE SIXTH LARGEST RETURN ON RECORD IN BRITISH TIMES.

We find we did not, in the above article, take account of some of the phenomenally rich Pearl Fisheries which occurred in the early days of British rule. The result of our further examination of the old records (which will be found reproduced at page 523 of our "Handbook" for 1898-9) is seen in the following comparison:—

Pearl Fisheries in British Times giving largest Returns:—

Year.	Gross Receipts. R.	Expenditure.	Days Fishing.
1797...	1,100,000	1,918 pagodas	No record.
1798...	1,400,000	12,729 ,,	,,
1808...	842,574	19,636 rupees	,,
1814...	1,051,876	36,343 ,,	,,
1888...	804,247	80,000 ,,	42 days
1891...	963,749	100,000 ,,	43 ,,
1903...	825,000	(?)	38(?) ,,

It will be seen, therefore, that only on five previous occasions—out of a total of forty-one Pearl Fisheries in the British era —have the gross receipts been in excess of those accruing for the present year. Sir West Ridgeway in the last year of his prosperous rule will receive a larger amount than did any of his predecessors, back to Sir Robert Brownrigg, in any one year, with the sole exception of Sir Arthur Havelock from his one fishery in 1891. At the same time, if all accounts be true, the expenditure this year,—especially if the cost of Professor Herdman's Mission and Mr. Hornell's experiments be added in,—will be heavier than the 100,000 rupees approximately spent twelve years ago—although that was the largest outlay ever incurred in any one year up to that date by the British Government. Nevertheless, there ought to be a handsome net amount to credit for disposal by the Governor with the advice and consent of his Executive and Legislative Councils. St. Louis Exposition is certain of a full vote for its Ceylon Court, and we suppose the long-promised extension of the Museum buildings will be no longer delayed. Such objects have always been regarded as having at peculiar claim on Pearl Fishery receipts, and, therefore, we may further fairly anticipate that the claim of Colombo to a really worthy and satisfactory Observatory for astronomical and marine as well as meteorological purposes, will not be overlooked. Not only has our present Governor to be heartily congratulated on the result of the Fishery just closed; but it would appear that there is every reason to anticipate that his successor will have no less good fortune in the same direction during his first year of office,—with, we would fain trust, a continuance of Fisheries for two or three years to follow, even if the returns be not so large. Pearl Oyster Fisheries in the past have generally come in successive groups of three or four years. Thus Sir Henry Ward got four fisheries from 1857 to 1860; Sir James Longden got three fisheries from 1879 to 1881; Sir Arthur Gordon four from 1887 to 1890, followed by that of 1891. On the other hand the years 1863, 1874, 1877 and 1884 gave detached fisheries with NONE in the preceding or succeeding years. There is every reason to expect that the fishery just closed is to be the first of "a group" which, we trust will, on the whole, be as prosperous as any in the Ceylon record. So mote it be. And further may we not hope that before this spell of good fortune expires, the experiments of Messrs. Herdman and Hornell may be so crowned with success as to show us how to secure a permanent annual return from Pearl Oyster culture on, or near to, the coast of Ceylon.

RUBBER TAPPING IN THE MYSORE GOVERNMENT GARDENS.

BANGALORE, April 8th.

CENTRAL AMERICAN RUBBER.—(Castilloa elastica.)—Three trees seeded during the months of April and May, bearing collectively about 3,000 seeds. Of this same number a thousand seeds were sold to the Conservator of Forests in Travancore, at R5 per 100. This tree will succeed well on coffee estates throughout the Province, and it is recommended that abandoned estates may be planted up with it. In the matter of supplying rubber hereafter, it should do for the malnad what the *Ceara* rubber tree is expected to do for the maidan.

CEARA RUBBER.—(Manihot glaziovii.)—Tapping experiments made on this tree have continued to prove instructive not only in gauging the approximate yield of caoutchouc from a given tree, but also in recording the best season, time, and manner of tapping. It has also been noted very clearly that some trees yield

much more copiously than others. This result may in some cases be due to the position of the trees as regards shade, soil and moisture. But irrespective of these important factors there can be no doubt but certain trees are physically more productive than others under any condition of growth.

Tapping experiments were made on a tree of the latter class, only 10 years old, with fairly good results, and the tree has not diminished in vigour, nor would it have done so had 5 lb caoutchouc been extracted instead of 2¼ lb. The flow of milk sap from the trunk of the tree was best during the months of October, November and December, very heavy rain having fallen in the latter part of September. Only five tappings of the root limbs were made in this experiment, which is an insufficient test. Root tappings are most productive during the first half of the calendar year, when the tree is deciduous and the ground dry. During the remainder of the year the trunk should be more productive than the root. The results of tapping a number of trees at different periods and in different ways, throughout the year, are given, and show how irregular the flow of sap is when tapped at the wrong season and in the wrong place. They also show that 14 root-tappings produced 17 ounces of caoutchouc against 12 ounces in the same number of trunk tappings. In making these experiments, the curator had to work with primitive materials and unskilled labour, so that the percentage of waste was considerable.—*M. Times.*

CACAO PLANTING IN SAMOA.

In his report for the year 1902, the Acting British Vice-Consul at Apia states that the mainstay of Samoa is cacao. There is, he says, little reason to doubt that 20 acres of cacao in full bearing yield a substantial income. On the other hand, there are drawbacks, *e.g.*, the possibility of hurricanes which will throw the plantations back three years, and the danger from disease.

Persons should not go to Samoa to plant cacao unless they have at least a capital of 1,000*l.* In five years' time, from the date of planting, the trees should be in full bearing, provided they are well attended to during that period. Some people say they will bear sooner, but as an average statement the above is correct.

Samoan cacao was recently quoted at 95 pf. per lb. in Hamburg, equivalent to 5*l.* per cwt. The trees have, in most existing small plantations, produced at least sufficient to pay expenses in the fourth year, and when in full bearing from the fifth year onward, have so far exceeded the average output of other countries. Hitherto no disease has manifested itself, and as a safeguard the Government has wisely prohibited the importation of seed from other countries. No doubt continues the Vice Consul, there is a great future in Samoa for plantation companies, assuming that the price of cacao does not fall with increased production. There should be with proper management, very heavy dividends. Some particulars of a plantation company now at work are contained in the report.

The Vice-Consul adds that various enquiries from Englishmen reach his Consulate respecting Samoa. For their information it may be said that that country offers no inducement to needy immigrants of any nationality. Knowledge of the German language by persons seeking employment in Apia is necessary. Trading and storekeeping are completely exhausted.—*Board of Trade Journal,* March 26.

WHITE-GROWN SUGAR.

QUEENSLAND'S INCREASE IN GROWERS.

Melbourne, April 19.—Prior to leaving for Sydney on Friday last, Sir George Turner inquired from the Sydney and Brisbane authorities as to whether, as anticipated in a recent publication issued by the Mossman Central Mill Company, there would be only a few new applications this season for a rebate on white-grown sugar. He received a reply from Brisbane to the effect that, while 1,511 farmers registered in Queensland last year as growers of sugar by white labour, the number this year was 1,898.—*West Australian,* April 20.

A TRIP TO THE ANNAMALAIS.

A GREAT FUTURE AS A COFFEE COUNTRY.

Mr. D Edwards, well-known in Colombo commercial circles and in Ceylon generally, has last month, paid an interesting ten days' visit to the Annamalais. In conversation with an *Observer* representative on his return, Mr. Edwards gave some interesting information especially regarding the journey to the Annamalais which he suggested might be noted

FOR THE BENEFIT OF PROBABLE PROSPECTORS.

"Leaving Colombo by the ss. 'Africa' on 9th April," he said, "and Tuticorin by rail next morning I reached Podanur on the 11th at 7 a.m. On the 12th I travelled by *tonga* to Pollachi, 25 miles, slept the night at the travellers' bungalow and "tonga-ed" on to the foot of the Ghaut the following day, a further 13 miles. Now for the climb! 16 miles by short cuts to my destination, the biggest piece of real hard work I have ever done. I should mention there is

A CART ROAD ALL THE WAY TO THE ANNAMALAIS,

but the heavy rains last November played havoc with the culverts on the face of the Ghaut, and wheel traffic has not yet been resumed. At the present moment, however, some hundreds of coolies are employed on the work, and it is expected, that in two months some carts will be going through the whole way. The Annamalais greatly resemble Haputale in lay of land, soil, climate, &c., and I shall be surprised if this district is not better known before long. The climate is perfection.

THE RAINFALL AVERAGES ABOUT 138 INCHES.

This may be considered heavy for coffee, but it is not so in this district, where the soil is very porous with deep loam. There is not the slightest indication of wash. The dry months are December to April—just what coffee requires. Even at present low prices, coffee at four years old is leaving a fair margin of profit. The crop now setting is very fine indeed and stripping will again be necessary to save the trees from over-bearing. Coolies are plentiful and the average of

THE CHECK-ROLL IS ABOUT 28 CENTS, AGAINST OUR 34.

I made a point of seeing cooly rice and

thought very highly of the samples shown me. It was native milled, clean and wholesome food. On my return journey I covered 54 miles across the plains from the Annamalais to Podanur, riding, walking and "tonga-ing" which is my record for the tropics."

While at the Annamalais Mr Edwards stayed at Parlei estate, of which Mr Marsh is manager, with two European assistants, Messrs. Congreve and Vincent. About 19,000 acres of land are opened up and about 3,000 acres are planted with Coffee, Cardamoms, Cinchona and Tea, while some Rubber is being tried. The cardamom crop, Mr Edwards thought, phenomenally good. On one estate, Valpari, there were 900 acres of cardamoms and 300 of coffee.

TEA IS STILL IN ITS INITIAL STAGES.

Monaco estate, with 200 acres and a finely equipped factory, and Lord Stanmore estate with 125 acres under cultivation, being the ones growing it. Regarding labour, Mr Edwards noticed a general air of prosperity in the cooly districts which he certainly thinks

NOT CONDUCIVE TO IMMIGRATION

at present, especially as Government is now carrying on extensive irrigation works. Large and extensive tracts of land and fields are being irrigated, and the people are industriously cultivating paddy in the fields, and tobacco and chillies on dry land.

Mr Edwards, although for about 30 years resident in the East, had never previously visited India and is loud in his praises of his visit which he thoroughly enjoyed. Mr Edwards leaves for home by the "China" in a fortnight's time.

TEA CULTIVATION IN THE ANDAMANS.

The areas under cultivation aggregated 518½ acres. Navy Bay 301½ acres, Goplakabang 187 acres, and Kalatang 30 acres. No extensions were made nor abandoned plots resumed. The Navy Bay and Kalatang Gardens were hoed four times and the Goplakabang Garden thrice. The Navy Bay Garden was also forked three times; this means of cultivation could not, for want of labour, be carried out at the other gardens. All three estates were manured, where necessary, with castor cake and cowdung; 900 lb. of the former were used on the Navy Bay Garden, 600 lb. on the Goplakabang, and 500 lb. on the Kalatang Gardens, respectively. The pruning was satisfactorily performed. At Navy Bay 45 acres were low pruned and 44½ acres of the previous year's low pruning had 6 inches of good wood left on them. At Goplakabang ¾ lb. of the acreage were cut three fingers over 1st year's pruning, and the bushes of the remainder cut back two prunings. At Kalatang a little more than half the garden was cut back 2 feet 4 inches below the pruning of 1894; the remainder of the garden, as also the abandoned extensions, were cut three fingers above last year's cutting. Nine thousand two hundred and forty-four seedlings were planted to supply vacancies in the Navy Bay Garden. The seedlings were carefully weeded, manured and forked and protected from the heat. They appeared healthy and strong at the close of the year.

NURSERIES.—Four maunds of Manipuri tea seed from the Mokum Tea Estate were planted out. The seedlings raised from this seed will be used in filling vacancies during the ensuing rains. The two old nurseries at Goplakabang and Kalatang were not plucked from May. The plants were pruned to allow growth of good pruning wood this year. This was achieved and 6 inches over the previous year's cutting were taken off. The plants will be forked and cleaned. No watering was needed as rain fell in February. No seedlings were raised, nor could vacancies in the Goplakabang and Kalatang Gardens be supplied for want of labour, on which account also no drainage work could be undertaken.

DISEASE.—The thread blight at Goplakabang was as destructive as ever, but the bushes in the Kalatang Garden were not as badly attacked as those at Goplakabang, nor was the attack so severe as in the previous year. The bushes were frequently examined, and the parasite, where found, cut away.

OUTTURN.—The tea manufactured amounted to 169,287 lb. against 166,064 lb. in 1900 01. This shows an increase of 3,223 lb. over last year. Of this quantity the Navy Bay Garden contributed 85,5000 lb., the Goplakabang Garden 46,439 lb. and the Kalatang Garden 37,248 lb. The only decrease was in the Goplakabang Garden, due, it is said, to want of cultivation owing to paucity of labour.

INCOME AND EXPENDITURE.—The cost of the manufacture of tea per pound was Rs.0-5-9.71 against Rs. 0 5-2.63 last year, shewing an increase of Rs.0 0-7 3. The increase is due to Rs.6,258, cost of new machinery, being included in the cost of manufacture. The income of the gardens was Rs.50,320 and the expenditure Rs.61,465 against Rs.42,544 and Rs.54,167, respectively, last year. There has, therefore, been a loss of Rs.11,145 this year against a loss of Rs.11,623 last year. There would have been no loss but a profit had (1) 37,515 lb. tea (value Rs.11,528) not been retained for shipment early in April 1902, towards the supply of Commissariat Department contracts for Madras and Burma, and (2) 18,180 lb of broken tea in Burma been sold before the close of the year and the value credited in the accounts. The stock in hand at the close of the year was 38,895 lb.—at close of last year was 6,506 lb.

SALES.—The contracts entered into with the Madras and Burma Supply and Transport Departments were for the supply of 106,864 lb and 31,136 lb of tea respectively, or a total of 145,000 lb. Of this quantity the Navy Bay Garden contributed 71,236 lb, the Goplakabang Garden 36,250 lb, and the Kalatang Garden 37,514 lb. The contract rate during the year was Re. 0-5 0 against Rs. 0 6 0 per lb in the preceding year. Contracts for the supply of tea to these Departments have again been secured for the ensuing year to the extent of 107,250 lb for Madras and 51,050 for Burma but at a further reduced rate. Two thousand eight hundred pounds of tea were supplied to the local Commissariat Department at Re. 0 8-0 per lb and 2,600 lb will again be needed by this Department next year. Sales to local residents took place from the three gardens. Twenty-eight thousand four hundred and thirty-five lb. of broken tea in bulk of 55 and 60 lb. chests were shipped during the year to Rangoon for sale. Of this quantity account sales were received for 10,255 lb. before close of year: the gross price realised was Re. 0 4-0 per lb.

MACHINERY.—The two factories of Navy Bay and Goplakabang which manufacture all the tea turned

out contain the following machinery. Two 10 H P horizontal engines, two 12 H P locomotive boilers, three Jackson's rapid tea rollers, two 20 tray up-draft and two large down-draft Davidson's Sirocco dryers, two Davidson's small tea sorters, two Jonas' Taxidianemeters, two Reid's tea cutters, two Davidson's Sirocco suction fans and one Potters 48' Disc fan. Of the above machinery one of the rapid tea rollers was recovered in July and one of the Sirocco dryers in September from the Secretary of State for India. All the machines were in good working order at the close of the year.

PROSPECTS.—Mr King estimates the next outturn of tea at a lakh, sixty-five thousand five hundred pounds, *viz.*, 85,500 lb. from the Navy Bay Garden, 45,000 lb. from the Goplakabang Garden, and 35,000 lb. from the Kalatang extension.—*Indian Planting and Gardening*, April 18.

PARS FOR PLANTERS.

(*By One of Them.*)

1.—IN THE GARDEN.

Don't do your heavy pruning with a hoe :—it is bad for the hoe.

Don't cut yourself with your knife when pruning :—the sharp points on the bushes are there for the purpose.

Don't sit on a newly-pruned bush :—you will have to walk your pony home.

Don't pluck leaf with a sickle:—you might cut yourself.

Don't rest your foot on the scale when weighing in :—especially if you wear "Small Policeman's."

Don't swear when the hail starts cutting off a fine second flush :—it will go on cutting just the same.

Don't run your drains uphill :—if absolutely necessary, a steam pump is cheaper.

Don't report to your Agents that the bushes are covered with webs spun by redspiders :—they may reply by return of post.

Don't arrange your garden and make a programme for the Agent's travelling Superintendent :—he will certainly take the other road.

Don't bluster when your coolies go out on strike :—it does not haste matters ; take the opportunity for a big shikar.

Don't wipe the floor with the biggest Sirdar on the garden in the presence of his coolies :—they may return the compliment.

Don't, when newly out from home, call things by their vernacular names in the *Burra Mem-Sahib's* bungalow if you have learnt the words on the *Mela* :—better verify the information.

Don't keep your Assistant out the whole day on one work, with just bare time for meals, for weeks on end: —he lasts longer with a rest and change occasionally.

Don't instruct your Manager on planting matters: —he has probably been as many years in Tea as you have months.—*Indian Planters Gazette*, April 18.

MICA DEPOSITS IN INDIA.

Mr. T H Holland contributes an interesting and important article on "The Mica Deposits of India" to the *Memoirs* of the Geological Survey. He discusses the mineralogical and chemical characters, the geological occurrence and distribution, the uses of mica, and the mining practice. Crystals or 'books' of muscovite-mica have been obtained in Nellore District, measuring 10 feet across the basal planes, but usually they are much smaller. This mica occurs in granite-pegmatite, and being the most delicate mineral in the rock, it is the first to show the effects of crushing earth-movements, so that large quantities of valuable mineral have been destroyed ; but the author observes it is on account of the remarkable stability of the Indian Peninsula, the geologically long and perfect quiescence it has enjoyed, that India is able to boast of the nest mica deposits in the world.—*Pioneer*, April 18.

THE FUTURE OF INDIAN GREEN TEA.

In Indian tea-growing circles a good deal of attention is being paid to green tea, and the way in which the manufacture is being taken up, despite the rise in the price of black common qualities, shows that our leaders are taking a sound view of the future prospects of tea generally. Permanently inflated prices for common teas are not—on the face of things—likely to be brought about nor are they even greatly desirable unless they can be secured without prejudicing the sales of the better qualities, a result which has never hitherto been attained. Even now the price of well-made green tea from common producing gardens compares favourably with blacks, and when the inevitable reaction comes and "teas for price" come back to more normal levels of value, green teas will show up even better than they do now. In the circumstances our Indian business men are wise in not relaxing their efforts to put a really first-class article in green tea upon the markets of the world, and so far, it must be admitted, great success has attended their efforts. Of course, there are better things to come and we understand that arrangements are well forward for

A CENTRAL FACTORY OR HONG AT CALCUTTA

where the most approved and recent systems of pan-firing green teas for finish will be carried out under the management of an expert. Teas finished in this manner in Calcutta have already been accorded a high place in the estimation of American and London tea men, and Messrs. George White & Co, in their Annual Report to hand, make special mention of the Calcutta process. Pan-firing needs very special knowledge and application owing to the delicate gradations obtainable by the modifications possible in the process, but whereas the trouble is greater than that necessary for merely polishing green teas cold, the extra trouble is amply repaid by the superior results to be obtained. It is highly desirable that measures should be taken for ensuring some sort of uniformity in the green teas India is now in a position to put forth in fair quantities. In this connection we may quote a valued London correspondent whose intimate acquaintance with the tea world entitles him to speak to the point. "A desideratum," he says in writing to us, under date 27th March, "is a

UNIFORM NOMENCLATURE FOR OUR GREEN TEA.

We have now 'coloured and uncoloured with' the several variants of 'finished and unfinished,' 'true green' and 'faced' tea, all more or less inexact and confusing. It is a matter' continues our correspondent, 'that could be settled by your Calcutta Association in conference with the heads of the trade in New York and Canada. An official pronouncement on the subject of green tea is what is wanted.' Now, of course, we know that the confusion has been largely introduced from Ceylon, where green tea was an unfamiliar article when the manufacture was taken up, and perpetuated by those districts in India where the manufacture had been forgotten by long disuse, so that the article became new to them. In our North-Western districts there has never been any confusion, except on the point whether green tea could be made by methods hitherto unknown to those parts. Still, as our correspondent remarks, it is unfortunate that so many misconceptions and misdescriptions should have arisen. With regard to the China type teas made in the North-West no confusion is possible. All China type teas are pan-fired and so possess the distinctive colour in the dry leaf. To men accustomed to this process the uncoloured

TEAS ORIGINALLY PUT FORWARD IN CEYLON AND BENGAL DID NOT APPEAR AS GREEN TEAS AT ALL

and a great deal of talk was wasted in endeavouring to stamp them as 'Oolong' and 'Namouna'—quite different articles. But with Japan teas the case is different and both coloured and uncoloured green teas are produced in that country, the technical description being 'basket-fired' and 'pan-fired.' Basket-firing answers to our hot air drying on mesh trays and produces a tea olive or brown-black in the dry leaf. Pan-firing describes itself and produces the green grey colour which the Japanese heighten with artificial colouring matter to the prejudice of the tea. Here then we have the necessary nomenclature if we require to describe our teas; 'basket fired' and 'pan fired' will describe our teas as well as the Japanese article, that is for all these grades that are intended to reproduce Japan. For China type hyson, gunpowders, etc., no such description appears necessary for the trade.

THE TERM "FACING"

or "faced," we are informed by a reliable New York authority, does not apply to the teas but to the packages, which in the case of Japan and China are generally "faced" with paper. The Calcutta Hong or factory now to be established will probably be able to put these matters on a good footing, and as a leading Calcutta firm are interesting themselves in the establishment, it is probable that Indian green tea will be organised on recognized lines before long. —*Indian Planting and Gardening*, April 18.

DR. WEBER ON RUBBERS.

In the literature bearing upon india-rubber we very frequently find the statement that even the most carefully prepared and purified rubber on exposure to the light and atmosphere soon loses its white colour, and turns dark brown owing to oxidation. I am in a position to declare this statement entirely erroneous. I possess samples of Castilloa rubber prepared by myself on the large scale, and which for over eight months have been exposed to air and light without the slightest change in their colour having taken place. The fact that these samples are entirely free from every trace of albumen goes a long way to prove that the well-known discoloration of india-rubber is really due to the albumen it contains.

Even washed and dried rubber may be very far from being a pure product. Cases are by no means exceptional of even the better qualities of African rubbers in the washed and dried state containing not more than 85 per cent or even less of actual pure rubber. This is a point which certainly fully deserves the attention of the rubber manufacturer. By way of an example, I quote the analysis of a washed sample of black Kassai, which, on receipt at the factory, was not considered altogether satisfactory, but was, in spite of this, taken into work, with the result that no end of trouble arose about the goods manufactured from it. These were the results of the analysis (of the washed and dried rubber be it noted):—

Resins ...	.. 5.3	per cent.
Albumen ...	... 7.4	do
Oxygen ...	... 5.3	do
Ash ...	... 2.3	do
	20.3	per cent.

From these figures it will be seen that this washed and dried rubber which the manufacturer assumed "to be practically pure" rubber. contained not more than 80 per cent as actual rubber, the rest consisting of rather considerable percentages of impurities.—*India-Rubber Journal*, March 30.

TEA PLANTING IN THE KANGRA VALLEY.

The class of Tea Planters who seem to fare best in the Kangra Valley are, from what I hear from the Kangra *chowdri* here, the native planters, who, as a rule, have only small gardens, but are grain growers as well, they make nothing but green tea. The price of tea estates has, I fancy, come down with the fall in tea, writes the Kulu correspondent of the *C. and M. Gazette*. I know one of the oldest plantations, the owner of which told me that he had paid £4,500 sterling for it, in 1863. At his death in 1879, though it had been greatly improved, as well as enlarged in the outturn, it only fetched R25,000 less than one half, even at the then rate of exchange. The most remarkable price for tea that ever I heard of, was the yield of a garden down Assam way, owned by a company of Bengali babus, their entire season's crop sold in the open market at *nine pies* per lb. It must have made a curious brew! Cinchona planting was also tried to some extent in the Kangra Valley but the experiment seems to have been soon abandoned, the winter climate being found unsuitable to the trees, if I remember rightly.—*Indian Daily News*, April 20.

THE GENTILE ISLE OF PALMS.

brings a stronger sun, a more generous warmth Two or three days out from Liverpool winter resolves into the sweetness of spring. The grey seas change to brilliant blue It is a gentle, lovely welcoming into the choicest pleasance that Nature can offer in all the range of all the seasons. The traveller is made free of the delights of summer without the long weary writing for those seasons in the land that has bred the men who have done and are doing the work of the world. Assuredly Las Palmas in Grand Canary that gentle Isle of Palms, not a place for the workers of the world, except as a resting place from the struggle—a temporary refuge from the turbulence of modern existence. Long living here would turn the Briton to kinship with the laughing, lazy, amorous, pleasure-loving children of the sun. A month will send him back to his northern home, a giant refreshed with the best of Nature's wine. Las Palmas is perfect. It is far enough south for the northerner to catch his first glimpse of the Southern Cross. It is far enough north for the men who march on the outposts of Empire along the African cost to come here for recuperation. At this time of the year it is a favourite rendezvous of the English. The Elder-Dempster tourist tickets give a first-class return, with a fortnight's board at the Hotel Métropole for £15. Las Palmas is becoming more and more every year a resort which can compare in popularity with Nice, Mentone, or any pampered city of the Riviera. Grand Canary is 900 miles nearer the equator than any place in the south of France.

TROPICAL SURF,

The surf thunders on its shores as it does in all tropical climes. The microbe is unknown; ozone of the sea is fatal to the bacillus with murderous intent. Mosquitoes are not numerous, and they are of a harmless kind. Moreover they are only out by night, and every bed is furnished with nets through which the inquisitive insects cannot pass to their human prey. The person who occasionally happens to lie awake for a few moments in this somniferous air at night may hear their sharp ping-pong cry and know that they are assaulting his net in vain. In spite of its s...

trapical position, Grand Canary is not unpleasantly, hot. The climate is dry, bracing and warm. There is no cold in winter, and no extreme heat in summer. The average winter temperature is 63deg. or 10deg. higher than at Mentone. Just now it is 65 in the daytime and 55 at night. Rain falls mostly during the night—the best time for all concerned. There are no sunset chills, no heavy dews in the evening, no frosts and no hot winds such as those which sweep across Morocco and Algeria. I do not think it is possible to convey a better impression of the climate than to say that people are bathing every day from the hotel, and that they do this all the year round. This is always done in the clear sunshine and under cloudless skies. The palm from which the town takes its name are scattered everywhere within the zone of the sea level. Date palms grow and produce their fruit amid the white houses that climb the slowly-rising hill on the sides of which Las Palmas is built.

AVENUES OF EUCALYPTUS.

Avenues of eucalyptus trees line the dusty roads that wind in and out in endless circles from the town to the highlands of the interior. The pepper tree mixes with them in a catholic spirit. Sharp, fierce aloes lurks everywhere, keen reminders that we are on the threshold of the tropics. Tropical vegetation is strangely cruel and ferocious. Orange groves nestles in protected valleys, sugar canes grow on sunny uplands, vineyards cover the long slopes of the hills. Maize fields are cultivated by the peasants, the corn being threshed in the open on earthen threshing floors by patient oxen. The banana, however, is the plant most in evidence. The whole island moves on a banana pivot. The moment we land from the liner out in the roadstead the banana confronts us. Long, raking carts, loaded to a perilous height with cases of the fruit, are grouped on the quays. The mules which draw them are feeding as they stand. Some, loose, are waiting for the least justification to kick at something. All along the road these mules and these carts, moving in slow, tranquil procession, are met. They descend laden in the morning from the interior. They unload on the quay during the day. At evening they climb the hills, slowly sauntering homewards in the same impervious way. Life is very quiet in the Isle of Palms. For exercise there are golf, lawn tennis, and cricket. For diversion there are fishing and excursions innumerable. Mountain climbing on muleback is followed by the adventurous. The lovely wild scenery and the vagaries of the mule afford all that a reasonable biped can conscientiously demand. Mules are hired for half a crown a day. Donkeys which will carry any weight up to 16 stone cost the same.

CARRIAGE EXCURSION.

The usual manner of making an excursion is by carriage. We feel two genially happy to walk much. The cabby always asks three times what he wants in the expectation of being bid down one-third, and so getting twice his legal fare. Three horses running abreast make the usual team. They will cover thirty or forty miles a day without discomfort, and then cheerfully take their stand on the ranks outside the hotels to wait for chance customers. The cabman is very independent, and pulls up regularly at houses of call to quench his thirst. We wait his convenience, and then resume our journey. On Sundays the correct evening occupation is to join the church parade in the Alameda de Colon, the fashionable square or plaza. Here all the beauty and the chivalry of Las Palmas congregate after vespers. This church parade under the stars is a typical Spanish custom and remains whatever Spaniards have mingled their blood and their traditions as a result of conqest or colonisation. The native (not the aboriginal) element is seen to advantage at such a time. Half a score of cafes do a flourishing trade. Tartanas a sort of inverted Irish car, are hired by the hundred. Cavaliers ride in on horses or mules. Visitors from alien climes throng to the Alameda in light evening dress. The girls of Las Palmas come in mantillas, which become them wondrously well, and which, unhappily, they are disposed to abandon for European headgear. Above all there is the band. It is a typical scene in a land of pleasure. On other evenings we sit out on the verandah as in England we might on a warm July evening. Twinkling lights in the bay show where the great liners have anchored for a brief pause on their way home from the African coast, the Cape, or still more distant shores.—*Home paper.*

NEW ZEALAND APPOINTMENT FOR DR MORRIS'S ASSISTANT AT DOMINICA.

The appointment of Superintendent of the Botanic Gardens and City Reserves at Dunedin, New Zealand, has been accepted by Mr. David Tannock, Officer in Charge of the Agricultural School in Dominica, West Indies, which is under the Imperial Department of Agriculture administered by Dr. Morris, C M G. Mr. Tannock will leave the West Indies for England next month, prior to taking up his new appointment.—*Morning Post,* March 20.

HUNAN AND THE CAMPHOR TRADE.

Since the loss of Formosa, the camphor trade has been lost to China. The Chinese endeavoured to make good this loss by trying to grow the tree in China itself. News has now come that the trial has proved to be successful in the province of Hunan. There are now countless camphor trees several feet in diameter in the province, and it is expected that with care it will be possible for Hunan soon to be able to export annually several thousand piculs of the drug. The market is at present dependent chiefly upon the supply from Formosa and Sumatra, and in consequence the price keeps high.—*Bangkok Times,* April 8.

MORE ABOUT THE EUCALYPTUS.

Mr. Benjamin Judkins of San Diego, in speaking of the descriptive 'write up' of the eucalyptus tree which appeared in the February issue of THE RURAL CALIFORNIAN, among other things, says: "Few people in California know the real value of the three species of that tree, viz: The blue gum, red gum and white. There are over one hundred and thirty-four varieties. The sugar gum is the favorite which the Australian governments plant along their highways and round some of their buildings. It grows a straight grain stem if well cared for, and will stand most dry weather. These three varieties are said to contain the best medicinal properties for health of all the others. If there is one thing more valuable than another in

these trees, it is the eucalyptus extract which will be found in future to have more uses than is now known. In Melbourne the extract commands twenty-five cents per quart, and is used for various purposes. The wood while burning in the stove has a wonderful effect on health. The leaves when young and soft are often picked, and mattresses and pillows made of them, even when green, and in this way lives have been prolonged."—*Rural Californian* for March.

A COLLECTION OF MOSQUITOES.

Mr. E H Aitken, at the monthly meeting of the Bombay Natural History Society on Thursday, the 16th instant, said that it was proposed to make as complete a collection as possible of the mosquitoes of India, and the Committee hoped that members would help by sending them specimens of the kinds which paid them attention. The importance of a knowledge of the different species of mosquitoes could scarcely be exaggerated in the light of recent discoveries; but of the many medical men in India whom it concerned to know them, few had the opportunity or time to make large collection, and without a reference collection, identification was very difficult if not impossible. To make and keep such a collection would be altogether in line with the honourable career of usefulness which had distinguished the Society in the past, and there could be no question that it ought to be commenced at once. Mr Aitken then showed how mosquitoes were killed, pinned and preserved, and said if members were not disposed to take the trouble of performing the operation themselves they might send live mosquitoes to the Secretary in small bottles or glass tubes. A vote of thanks was passed to Mr. Aitken, and the meeting then terminated.—*Times of India*, April 20.

TROUT-FISHING ON DERWENTWATER.

A meeting convened by Mr Tindall Harris was held at Keswick yesterday afternoon, at which the riparian owners of Derwentwater and other were present. Canon Rawnsley, who was in the chair, explained the object of the meeting, which was to restock Derwentwater with lake trout and to take such steps as were necessary in killing off pike and perch and in watching the spawning beds. He quoted Frank Buckland's *dictum* after his visit in 1878, that this district was the most magnificent fish farm in Her Majesty's dominions, and went on to show that, with a splendid bottom feed, a rise of the green drake, and water undisturbed by boating for three quarters of the year, there was a fair chance of making Derwentwater as good a stretch of trouting water as Lake Vyrnwy or Loch Leven, while the lake was so situated in relation to Lancashire and the North as to be of great concern to the fisherman who had neither time nor money to go as far afield as Scotland or Ireland. An executive committee was elected, and an appeal for funds decided on.—London *Times*, April 1.

THE BAMBOO PARTRIDGE.

(TO THE EDITOR OF THE "INDIAN FIELD.")

Sir,—Is the so dubbed bamboo partridge a distinct species or only a freak of nature? Is it ever seen in the plains? or like the Spur Fowl of the Nilgiris only found in the hills. An acquaintance asserts the bird is not a partridge at all, but a quail.

AVIS.

[These very handsome birds (*Bambusicola Fytchii*) are probably a connecting link between the pheasants and partridges. They form a small group of game birds in the Burmo-Chinese country and occur in the Khasi and Garo Hills, the North Cachar and Naga Hills and in Manipur. They approach the pheasants in the shape of the wing and are rather closely allied to the Spur Fowl.—ED.]
—*Indian Field*, April 23.

"ORANGE" PEKOE IN CHINA AND HOW IT IS MADE.

Scarcely less fragrant than the flower fields of France are the tea orchards of China and Japan, that are ready for the first picking of leaves. The leaves have a delightful fragrance, and, too, in Southern China orange trees are often grown in the same plantations, for the tender tip leaves of tea that are to be cured as Orange Pekoe, are cured on screens above trays of orange petals. In drying, the tea actually takes up a perceptible perfume from the orange blossoms. This tea commands a fabulous price in the market, and most of it is kept in China for the court and provincial mandarins. It would seem as if April were specially favoured with fragrant crops. The coffee season has begun on the plantations of Brazil, to continue for several months. There is thyme, sage and mint in France, and pepper in the East Indies.—*Little Chronicle*, March 28.

THE CAMPAIGN AGAINST MALARIA.

A NEW DEPARTURE.

In a communication made by him to the April number of the *Indian Medical Gazette*, in the shape of gleanings from the *Atte della Societa per gli Studi della Malaria* (Proceedings of the Society for the Investigation of Malaria), Lieutenant-Colonel Giles, I M S (Retired), gives an interesting account of certain observations which if verified, are not unlikely to lead to a new departure of great importance in the campaign against malarial disease. It is an established fact, says the *Statesman*, that the physical conditions known to favour the development of malaria, even when combined with the presence of swarms of anophheles of the susceptible species, may exist without giving rise to the disease. Hitherto this fact has been attributed to the absence of infected human beings, and in many instances it may be unnecessary to look further for an explanation of it. But it has been ascertained that in a multitude of cases not only does such immunity co-exist with the proximity of active foci of the disease of great virulence, but the introduction of infected persons into the immune areas is unattended by the development of malaria. The inference is thus suggested that the mosquitoes of the immune areas are for some reason insusceptible of infection. No explanation of such an immunity is, however, in many cases to be found in change of local conditions, where the areas in which it occurs had been violently

malarious in comparatively recent times; and it thus becomes evident that some hitherto unknown factor is at work.—*M. Mail,* April 27. [Regarding that unknown factor we may have something to say shortly.—ED. *C.O.*]

SENSATIONAL ADVANCE IN THE PRICE OF PEARL SHELL.

At the recent London public sales of mother-o'-pearl shell from Queensland an advance in price of £1 to £4 per cwt was registered. This article, which is in much request at the present time, has been steadily rising for years, and since January last, an advance of over £100 per ton has taken place in the superior grades. The particular cause of the late heavy rise in market value is the fashion prevailing in the United States for pearl buttons for ladies blouses. It will be *à la mode* in the coming summer for blouses to have three large pearl buttons in front, and to be fastened at the neck and wrists with smaller buttons and links of the same material. So fashion decrees in New York and the brokers, hastening to obey, cabled over to their agents at the London sales "Buy white shell at any price."—*Daily Chronicle,* April 10.

MR. KINGSTON AND THE KANAKA QUESTION.

"YELLOW AGONY" AND "BLACK CURSE."

Brisbane, April 17.—At a luncheon, which was tendered to the Minister for Customs (Mr C C Kingston) in Cairns, yesterday, Mr Draper severely criticised the Federal Government with regard to white labour. Mr Kingston, in replying said that he had never had and never would have any sympathy with the Kanaka. A white man could do all that a Kanaka could do, and if there were an industry that must have the "yellow agony" or "the black curse" to keep it alive—a proposition which he did not admit—then that industry must be swept off the face of Australia which was a white man's land.—*W. Australian.*

PLANTING NOTES.

TROPICAL QUEENSLAND—we have always maintained—should be made into a "Crown Colony"; but the majority of the white Colonists will not hear of this and they are now engaged in the bold experiment of acclimatising the European race and excluding Kanakas who are capital labourers for sugar and other plantations and are ready to come over very freely. But neither they, nor Chinese, nor pedlars, nor coolies from India, are to be allowed to gain a footing on this soil. We are not hopeful of the experiment succeeding—in spite of the increase of white sugar farmers and the vehement support of men like Mr. Kingston, the latest of whose violent language on the subject appears elsewhere.

TEA IN AMERICA IN 1902.—Elsewhere we quote the latest information from the *American Grocer.* The same paper gives some interesting figures as to America's total Drink Bill. The cost at retail of all beverages, consumed in 1902 alcoholic and non-alcoholic stimulants was $1,369,098,276, as follows: Alcoholic drinks $1,172,565,235; Non-alcoholic stimulants—Coffee $149,891,030; Tea $39,612,011; Cocoa $7,000,000. The quantities of the four leading beverages consumed for the year ending June 30th, 1902, were as follows: Coffee 1,498,910,304 gallons; Beer 1,381,875,437 gallons; Tea 396,420,115; Spirits and wines 157,206,554 gallons.

THE LABOUR COMMISSIONERS' REPORT—is in Ceylon ahead of the Labour Commissioners themselves. Mr. Kingsford sends it to us today, pointing out that the Commissioners recommend that the Planters' Association should station an agent in South India for recruiting and that he should be sent early next month as that is the month in which coolies usually think of emigrating and rival recruiting agents are already at work. We trust therefore that Estates willing to support the agency will respond to Mr. Kingsford's appeal with the utmost despatch. Another departure recommended is that Telugu districts should be tapped first in order to work up their connection with Ceylon; further that a Labour Bureau in Kandy, specially appointed, should collect all important information bearing on labour in the Madras Presidency and publish it at intervals; and thirdly that a strong Sub-Committee should study not only the regulations affecting South Indian Labour emigration but also the conditions involved in rival agencies being at work and in the coolies' innate dislike to exile. Messrs. Hill and Turner have evidently done their work thoroughly and have fully appreciated the necessity for speedy steps being taken.

THE VITALITY OF POLLEN—is a matter of high practical interest to all cultivators who are engaged in the fascinating work of establishing new varieties of useful plants by means of the process of cross-fertilisation. At the recent international conference on plant breeding held in New York, in the course of a discussion upon the subject, it was mentioned that the pollen of the tomato blossom will retain its vitality for fully six months. That this is so receives confirmation from the practice of collecting pollen during the late summer and autumn months from plants grown out of doors for the purpose of fertilising tomatoes grown under glass in the winter. It was also stated that the pollen of the grape retains its vitality for at least two months, and that of the date palm for a year or more. The pollen of the carnation, again, may be kept alive in closely stoppered tubes for several weeks, and thus sent from one part of the country to another. In the preparation of pollen for keeping it is recommended to dry the material thoroughly, and then to put it in well stoppered bottles. In the case of plants grown in moist climates the drying of the pollen should take place in the shade, but for those growing in arid regions the drying may be more quickly effected in the sun. The pollen of certain plants is said to be commonly distributed through the West Indies on dry blotting paper enclosed in pasteboard boxes, and in this way retains the vitality for upwards of three weeks.—London *Times* March 30.

THE STANDARD TEA COMPANY OF CEYLON, LIMITED.

TWELFTH REPORT OF THE DIRECTORS TO THE SHAREHOLDERS

to be submitted at the General Meeting, to be held on Wednesday, 22nd April, 1903, at noon, at the Offices of the Company.

The Directors submit Statement of Accounts to 31st December, 1902. The Profit and Loss Account shows a profit on the working of the Estates in Ceylon of £12,443 13s 8d, which with the amount brought forward from last year, less interest and home charges, shows a sum of £11,634 2s 51 available for division. In August, 1902, the Directors, under the powers entrusted to them, distributed an interim dividend for the six months ending 30th June, 1902, of 5 per cent (10 per cent per annum), absorbing £2,975. They now recommend a Dividend at the rate of 10 per cent. (making 15 per cent. for the year) absorbing £5,950, the placing £500 against reserve and £1,000 against depreciation; and the carrying forward to the next year £1,209 2s 5d. The Coffee crop was 61 cwt.; it realised about £70. The Tea crop was 1,183,972 lb, against 1,105,995lb. in 1901.

The Export Tax, called "Tea Cess," cost the Company R3,000, or £200, calculated on the first half of the crop at 20 cents per 100 lb, and on the latter half at 30 cents, to which it was raised in June. The average Exchange for the Company as drawers in Colombo was 1s 4 3-16th d, against 1s 4 5-32nds d. in 1901, and 1s 4 7-32nds d in 1900. Price for Ceylon Teas were generally about the same as last season. Of the Company's Teas produced during 1902 : those from the St. Leonard's factory sold at about ⅜d per lb. lower price than 1901 Teas ; those from Gordon, ½d per lb higher; those from Gouravilla, at about ¼d per lb higher. The Uda Pusselawa Railway passing through Eskdale and Liddesdale, the Company received during the year £399 13s 9d for land taken. The amount has been credited in reduction of the cost of the estates. The Company's Properties at the close of 1902 were 3,466 acres, with 2,188 acres of Tea considered in full bearing, viz, :—

in Uda Pusselawa—St Leonards			
Coneygar	902 acres.	530 acres	Tea bearing
Liddesdale	814 ,,	200 ,,	,,
Eskdale	240 ,,	227 ,,	,,
Gordon	386 ,,	304 ,,	,,
Tulloes	419 ,,	275 ,,	,,
in Up. Maskeliya—Gouravilla			
and Up. Cruden	705 ,,	652 ,,	,,

There are also 296 acres Tea in partial bearing, and some 25 acres in addition planted with Tea. Mr. William Rollo, the Director who retires by rotation, being eligible, offers himself for re-election. By Order,

A. TRAFFORD BROOKE, Secretary.

25, Fenchurch Street, London, 8 April, 1903.

BANDARAPOLA CEYLON COMPANY, LIMITED.

Report of the Board of Directors to be presented to the Shareholders at their Tenth Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Tuesday, 28th April, 1903, at 12 o'clock, noon.

The Directors have pleasure in submitting to the Shareholders the Balance Sheet, Estate Working Account, and Profit and Loss Account for the year to 31st December, 1902, duly certified by the Auditor. After providing for Interest on Debentures and all other charges, there remains a net profit of £2,046 12s 11d, to which has to be added £345 6s 11d brought forward from last accounts, giving a total of £2 391 19s 10d, and this the Directors propose to deal with in the following manner:—To pay a Dividend for the year of 6 per cent (free of Income Tax) £1,260, to write off estate account £500, to write off building and machinery account—10 per cent on £4,739—£473 18s. to carry forward to next accounts £153 1s 10d.—Total £2,391 19s 10d.

The crops secured for the year amounted to 599,185 lb. Tea (including 19,161 lb. from purchased leaf), and 372 cwt 2 qrs 24 lb. cocoa, against 468901 lb Tea, 303 cwt 0 qrs 18 lb cocoa, during the previous season; the average yield of Tea per acre being 626 lb, as compared with 575 lb in 1901. The average prices realised for the Company's Tea shew a slight falling off as compared with the previous year, being 6d per lb in London, and about 29½ cents in Colombo, against 6¼d and 33 cents respectively; but an increased income has been derived from Cocoa, of which the crop exceeded the Manager's estimate by over 72 cwt. The rate of exchange for the year averaged 1/4 19-64ths per rupee. At the request of the Board, the Manager has recently gone very carefully through all the Company's Title Deeds, &c., and he reports that the Company's holdings now amount to a total of 1,760 acres, of which 1,654 are Freehold, and 106 Leasehold. The following statement gives particulars of the acreage as fully and accurately as possible:—Tea in full bearing 782 acres, tea in partial bearing 6 acres, cocoa in bearing 224 acres, cultivated area 1,012 acres, grass, ravines, &c. 12 acres, reserve, jungle, &c. 736 acres.—Total Acreage 1,760 acres.

The Reports from the Visiting Agent, Mr. Joseph Fraser, continue to be of a very satisfactory character. In his last Report he writes as follows:—"The Tea in all three divisions looks vigorous and healthy. There is a remarkable absence of insect and fungoid pests; in fact, I may safely say I have never seen the Tea, on this estate, all over, looking better or more promising than it does at present." The Board consider this reflects great credit on Mr. Anderson's management of the property. Of the Debenture issue, £2,500 matured for payment on 1st January, 1903, and this amount was renewed for three years at the former rate of interest—five per cent per annum. In accordance with the Articles of Association Mr. George G. Anderson retires from the Board at this time, and, being eligible, offers himself for re-election. Mr. John Dalgleish, C.A., also offers himself for re-election as Auditor. G. W. PAINE, Chairman.

16, Philpot Lane, London, E.C., 8th April.

HIGHLAND TEA CO., OF CEYLON, LTD.

REPORT OF THE BOARD OF DIRECTORS, to be presented to the Shareholders at their Seventh Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Monday, 27th April, 1903, at 2-30 p.m.

The Directors have pleasure in submitting to the Shareholders the Balance-sheet, Estates Working Account, and Profit and Loss Account for the year to 31st December, 1902, duly certified by the Auditors. The net profit for the year amounts to £1,898 1s 4d, to which has to be added £74 13s 9d brought forward from last accounts, giving a total of £1,972 15s 1d, and this the Directors propose to deal with as follows: —An Interim Dividend paid on 30th September, 1902, at 2 per cent (free of Income Tax), amounted to £640, it is now proposed to pay a Final Dividend of 3 per cent (free of Income Tax) making 5 per cent for the year £960; to write off Estates Account £250, and to carry forward to next Accounts £122 15s 1d—Total £1,972 15s 1d.

The above profits shew an increase of £398 17s 10d over the figures for 1901, and, but for the unfavourable weather experienced in Ceylon during the closing months of the year, the expansion would probably have been considerably more. The crops secured from the Company's properties amounted to 241,913 lb, or 413 lb per acre of Tea in bearing, against 241,481 lb for the previous season, and the prices realised averaged 7½d per lb for the Tea sold in London and 42 cents per lb for the sales in Colombo against 7¾d per lb and 45 cents per lb respectively for the 1901 crop. The reports from both Chrystler's Farm and

Glenorchy Estates continue to be of a satisfactory nature, and the prospects for the current season are encouraging. In accordance with the Articles of Association, Mr. R. C. Bowie retires from the Board at this time, and, being eligible, offers himself for re-election. Messrs. Cape & Dalgleisb, C.A., also offer themselves fer re-election as Auditors. By order of the Board, LYALL ANDERSON & Co., Agents and Secretaries.
16, Philpot Lane, London, E.C., 7th April, 1903.

EDERAPOLLA TEA CO., OF CEYLON, LTD.

REPORT OF THE BOARD OF DIRECTORS—to be presented to the Shareholders at their Seventh Ordinary General Meeting, to be held at the Office of the Co., 16, Philpot Lane, London, E.C., on Tuesday, the 21st April, 1903 at 11-30 a.m.

The Directors beg to submit to the Shareholders the Report and Accounts of the Company, duly audited, for the year ending 31st December, 1902.

The total outturn of Tea from the three Factories, inclusive of 17,040 lb made from bought leaf, amounted to 533,049 lb, shewing an increase, compared with last season, of 24,991 lb a result which must be deemed satisfactory considering the very unfavourable weather experienced during the last four months of the year.

The average price realised for the whole crop was 5·873d. against 6·186d per lb secured for the previous year, and the average rate of Exchange was 1/4 23/64ths, against 1/4 3/8ths for 1901.

The net profit on the year's working amounts to £1,356 14s, which, with £183 4s 8d brought forward from last accounts, gives £1,539 18s 8d to be now dealt with, and this it is proposed to apportion as follows: —Amount as above £1,539 18s 8d; To Dividend of 5 per cent (free of Income Tax) £1,275—To carry forward to next account £264 18s 8d.

Your Directors have had under consideration for some past time the desirability of manufacturing Green Tea and have now decided, on the recommendation of their Ceylon advisers, to make it at St Helen's Factory and to continue the ordinary Black Tea manufacture, at Ederapolla and Ardross. During the absence of Mr Arthur Watt on furlough from May last until February of this year, Mr H E Watt acted as General Manager in Ceylon, and the Board desire to place on record their high appreciation of the manner in which he conducted the management of the Estates.

The Debentures amounting to £3,500 which matured on 1st January, 1903, have been renewed at 5 per cent interest per annum, as follows:—£450 for 3 years; £3,050 for 5 years. In accordance with the Articles of Association, Mr R Porter retires from the Board at this time, and, being eligible, offers himself for re-election. Messrs Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.

G. W. PAINE, Chairman.

15, Philpot Lane, London, E.C., 7th April.

RAGALLA TEA ESTATES, LIMITED.

Report of the Directors to be submitted to the Shareholders at the Eighth Annual Ordinary General Meeting to be held at 30, Mincing Lane, E.C., on Monday, 20th April, 1903, at 12 o'clock noon.

The Directors beg to submit their Report, and also Statement of Accounts duly audited, for the period of 12 months ending 31st December last—Showing a net profit for that period, after making liberal provision for depreciation of £3, 804 12s 11d add the balance of last account £126 7s 8d.—Total £3,931 0s 7d.

Out of which the following dividends have been paid: —1902, 1st July—Preference Shares £1,050; 1903, 1st January Preference Shares £1,050—£2,100.—Total £1,831 0s 7d.

From which the Directors recommend a dividend of 4½ per cent, free of Income Tax, on the ordinary shares £1,755 Leaving a balance to carry forward of £79 0s 7d.

The tea crop for the season amounted to 713,045 lb showing a shortage of 31,955 lb on the estimate, and the net average price obtained was 6·90d per lb, against 6·97d per lb realised last season. The average rate of exchange was 1s 4·20d per rupee. The Directors have written off for depreciation a sum of £1,300 which covers the whole of the capital expenditure of the year amounting to £994 0s 8d.

The crop for the present season is estimated at 793,000 lb. It is fully expected that the Government Railway extension to the Company's Ragalla property mentioned in the last report will be completed before the end of the present year. The Company has received from Government for the sale of land acquired for the extension the sum of £340 12s 6d, which, with the approval of the Trustees for the debenture holders, is being used for adding to and improving the bazaar buildings on the property.

The following are the acreages of the Company's estates:—

Name	Tea.	Coffee & Cinchona	Timber	Patna &c.	Total
Ragalla and Halgran Oya ..	913	15	174	288	1390
Kelburne ...	700	9	208	64	981
	1613	24	382	352	2371

It is with very great regret the Directors record the death of their colleague, the late Mr M P Evans. His place on the Board has been filled by the appointment of Mr William Dunn.

Under Clause 97 of the Articles of Association Mr Hannen retires from the Board, and being eligible offers himself for re-election.

The appointment of Auditors rests with the Shareholders, and Messrs. Fuller, Wise and Fisher offer themselves for re-election.

C E STRACHAN & C HANNEN, Directors; P E HARVEY, Secretary.

London, 9th April, 1903.

THE EASTERN PRODUCE & ESTATES COMPANY, LIMITED.

REPORT.—To be presented at the Sixteeth Ordinary general meeting, to be held at Winchester House, Old Broad Street, at 12 o'clock noon, on the 22nd April 1903,

The Directors submit Report and Balance Sheet for the year ending 31st December, 1902.

The profit for the year is £19,540 15s 8d, which, added to £7,221 12s 11d, balance from last account, amounts to £26,762 8s 7d.

From this has to be deducted:—Interest on Debentures £3,262 10s; Debentures for £7,500 drawn and paid off, with bonus of 5 per cent. on 31st December 1902, £7,875; Interim and Final Dividends of 2½ per cent. on the Preference share capital £56 9s 6d. Interim Dividend of 1¼ per cent. on the Ordinary Share Capital paid 4th November, 1902 £3,728 2s 6d Total £14,922 2s 0d leaving a balance of £11,840 6s 7d., which it is proposed to apportion as follows:—Final Dividend on the Ordinary Shares of 1¾ per cent., making 3 per cent. for the year £5,219 7s 6d. Balance to be carried forward as provision for retirement of Debentures in the current year £6,620 19s 1d. Total £11,840 6s 7d.

The Debenture debt has been reduced by the usual annual payment of £7,500 out of profits, and now stands at £65,000.

In furtherance of the policy recommended and approved at the Extraordinary General Meeting of the Company held in April last with regard to the conversion of the balance of the Debenture issue into Capital of a permanent form the Directors have, as a first step, called up the £4 per Share unpaid Capital on the 753 issued Preference Shares of the Company; and as a more convenient arrangement the final

dividend on these Shares for 1902 was paid on 31st December last; future dividends on the Preference Shares being payable half-yearly on 30th June and 31st December. The Directors also decided to offer to the Debenture-holders, whose Bonds were drawn for payment on 31st December, 1902, the opportunity of re-investing the amounts in Preference Shares of the Company, which resulted in the placing of 359 fully-paid £5 Shares issued at par as from 1st January, 1903. The Preference Share Capital of the Company now issued is therefore represented by 1,112 fully paid Shares, of which 753 only appear in the Balance Sheet, the remainder having been issued subsequently to 31st December, 1902.

As shown in the schedule below, the Company, on 31st December last, had 11,007 acres under Tea cultivation, of which 10,857 were over four years old. The yield of Tea in 1902 was 4,004,313lb, the average gross sale price being 6·39d as compared with 6·61d in 1901, the recent improvement in market value not having been sufficient to compensate for the very low prices which ruled previously. The average rate of exchange was 1s 4 5-16d as compared with 1s 4 11-32d in 1901. Looking to the future, it is satisfactory to observe from the statistical position of British grown Tea, that there is substantial reason for anticipating a more remunerative condition of affairs than has prevailed during the last three years. In accordance with the Articles of Association, two of the Directors, Mr C B Smith and Mr Edward Wahab, retire from office, and, being eligible, offer themselves for re-election. The retiring Auditors, Messrs. Welton, Jones & Co., offer themselves for re-election. RALPH A. CAMERON, Chairman and Managing Director.

41, Eastcheap, E.C., 6th April, 1903.

SCHEDULE OF THE COMPANY'S ESTATES AT 31ST DECEMBER, 1902.

Arapolakande, Asgeria & Bulatwatte, Colonna, Condegalla, Doombagastalawa, Dromoland, Hope, Ingurugalla & Berrewella, Kirrimittia, Kumaradola, Kumbukkan, Labookellie, Meddecoombera, Norwood Rothschild, Sogama, Vellai Oya & Dandukelawa, Wevekellie.

Under Tea	11,007	acres.
Do Cocoa	593	do.
Do Cardamoms, Rubber & Sundries	363	do.
Do Forest, Grass & uncultivated Land	4,628	do.
Total ...	16,591	acres.

POONAGALLA VALLEY CEYLON COMPANY, LIMITED.

REPORT OF THE BOARD OF DIRECTORS

to be presented to the Shareholders at their Seventh Annual Ordinary Meeting, to be held at the Office of the Company, 16, Philpot Lane, London, E.C., on Tuesday, the 28th April, 1903, at 2·30 p.m

The Directors have pleasure in submitting to the Shareholders the Balance Sheet, Estates Working Account, and Profit and Loss Account, for the year to 31st December, 1902, duly certified by the Auditors. The Net Profit for the year, after payment of Debenture Interest and all other charges, amounts to £1,650 4s 5d, and, after deducting therefrom the debit balance shewn in last Balance Sheet, there remains £632 7s 2d, which the Directors propose to carry forward to next accounts. The following figures furnish a comparison between the season now closed and the previous year:—

	1902.	1901.
Total Tea Crop secured ..	417,376 lb	396,593 lb
Total Coffee Crop secured..	217 bushels	140½ bushels
Average Price realised for Tea—		
Sold in London ..	7⅛d per lb	7d per lb
Sold in Ceylon ..	45½ cents Equivalent to about 8⅛d in London.	36 cents Equivalent to about 7d in London.
Total Rainfall ...	116·23 in.	69·61 in.

The estimate of Tea Crop for the year was 450,000 lb, and there seemed every prospect of this being secured, until the last quarter of the year when persistently wet cold weather set in and upset all calculations; of the 116 23 inches of rain for the year, the last three months were responsible for 52·77 inches, and flushing was consequently greatly retarded. As indicated in last Report a further area of 20 acres Jungle has been cleared, and planted up with Cardamoms, making a total of about 45 acres under that product. The Visiting Agent, Mr R Morison, reports that the appearance of the Tea throughout the group generally is very satisfactory, for which credit is due to the Manager, Mr R G Coombe, and to Mr W S Coombe, who has proved a very efficient Acting Manager during the absence of the former on furlough. In accordance with the Articles of Association, Sir George A. Pilkington retires from the Board at this time, and, being eligible, offers himself for re-election. Messrs Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.—By Order of the Board, LYALL, ANDERSON & Co., Agents and Secretaries.

16, Philpot Lane, London, E.C. 8th April, 1903.

BURNSIDE TEA COMPANY OF CEYLON, LIMITED.

REPORT OF THE BOARD OF DIRECTORS,

to be presented to the Shareholders at their Seventh annual ordinary meeting, to be held at the office of the Company, 16, Philpot Lane London, E.C., on Wednesday, 29th April, 1903, at 12 o'clock noon.

The Directors beg to submit to the shareholders the report and accounts of the Company, duly audited, for the year ending 31st December, 1902. The total crop of tea from the four estates was 426,062 lb., the Burnside Group contributing 347,775 lb. and Midlothian 78,287 lb., the former shewing an increase compared with last year of 67,940 lb. and the latter 4,838 lb. The average price obtained in London for the Burnside Group tea was 6·25d per lb., against 6·047d for the previous year, and in Ceylon 29 cents, against 32½ cents, while the corresponding averages for Midlothian were 8·336d per lb. and 38 cents, against 7·108d and 37½ cents. The average rate of Exchange was 1/4 3/16ths per rupee. Included in the crop figures are 4'215 lb. Green Tea made towards the close of December as an experiment by Mr Tait, the Manager of the Burnside Group, who deserves great credit for having at a very trifling cost constructed appliances on the estate capable of turning out a considerable quantity of Green Tea per day. The quantity in question and some 4,000 lb. more made subsequently were sold in Colombo at fair prices, but it has been deemed advisable, for the sake of still further efficiency, to purchase at a moderate cost a special steamer, and it is intended, as long as it proves remunerative, to make a portion of the leaf gathered into Green Tea. Mr Porter proceeded to Ceylon in September last and since November has taken the personal management of Midlothian estate, and his Co-Directors are deeply sensible of the benefits which have been derived from their colleague's temporary presence in the island. After payment of debenture interest and other charges the result of the year's working is a profit of £183 15s 5d, by which amount the debit standing at profit and loss account is reduced, and now appears as £883 10s 5d. The estates are all in good heart and present prospects, excepting the labour question, are more favourable than they have been for some time past. In accordance with the articles of Association, Sir George A Pilkington retired from the Board, and, being eligible, offers himself for re-election, Messrs. Cape and Dalgleish, C.A., also offer themselves for re-election as Auditors.—By order of the Board, LYALL, ANDERSON & Co., Agents and Secretaries.

16, Philpot Lane, London, E.C., 9th April, 1903.

THE SOUTH WANARAJAH TEA ESTATE.

REPORT OF THE DIRECTORS.

The Directors have pleasure in submitting their report, also statement of accounts duly audited for the year 1902.

	£	s.	d.
The profit for the season, after writing off £150 for depreciation, is ..	1500	16	7
Add balance of last account ...	8	2	7
	1,508	19	2
Out of which a dividend at the rate of six per cent. on the preference shares has been paid ..	471	16	11
Leaving a sum of ...	1.037	2	3
From this the Directors recommend the payment of a dividend at the rate of five per cent., free of income tax. on £20,000 ordinary shares ...	1,000	0	0
Leaving a balance to carry forward	37	2	3

The tea crop for the season, including that made from bought leaf, amounted to 561,440 lb., and the net average price realised was 5·1d per lb. It will be noticed that the cost of production of the entire crop is only 3¾d per lb., a rate which shows that every economy is practised on the estates.

The average rate of exchange was 1s 4·18d per rupee.

Owing to the low range of prices ruling during the gerater part of the year, the results are not so good as they were for the previous season, but the Directors recommend, after providing £150 for depreoiation that a dividend of five per cent., free of income tax be paid on the ordinary shares.

The Directors are pleased to state that they have recently acquired, on behalf of the Company the Poyston estate, in the Bogawantalawa district at a cost of £13,000, of which there remains on mortgage to the vendors a sum of £7000 at six per cent. per annum interest, the balance £6000 having been paid in cash in January. The estate is of high elevation and the recent rise in the price of tea adds considerably to the value of the purchase. The cash in hand on 31st December, including a deposit of £6,000 part of the purchase money of the Poyston properties, since paid away.

The buildings are in good order and the estates in a satisfactory state of cultivation and the Directors desire to give expression to their appreciation of the efficient and careful management on the estates by Mr W R Tatham and his staff.

The acreage of the Company's estates is as follows:—

	Tea.	Grass, etc.	Total.
South Wanarajah ..	230	25	255
Dartry Group ..	636	44	680
Poyston ..	302	18	318
	1166	87	1253 acres

It is with very great regret the Directors record the death of their Chairman the late Mr M P Evans. His place on the Board has been filled by the appointment of Mr W Dunn.

Under Article 97 Mr Oswald C Magniac retires from the Board, and, being eligible, offers himself for re-election.

The Auditors, Messrs Fuller Wise and Fisher also offer themselves for re-election.

THE NUWARA ELIYA TEA ESTATES COMPANY, LTD.

Report of the Directors to be presented to the Seventh Annual General Meeting of Shareholders, to be held on Monday, the 27th day of April, 1903, at Winchester House, Old Broad Street, London. E.C., at twelve o'clock noon.

The rectors beg to submit he accounts of the Company for the year ended 1st December, 190 together with the Auditors' Report thereon. The crop account shows a profit from the working of the estates of £19,341 8s 9d. The profit and loss account including £1,791 11s 6d brought forward from 1901, and the payment of debenture interest, income tax, &c., shows a credit of £17,592 1s 1d, from which £2,000 has been written off for depreciation, leaving available for distribution £15,592 1s 1d ; an interim dividend of 3 per cent free of Income Tax, was paid on 23rd October, 1902, absorbing £6,000 ; it is now proposed to pay a final dividend of 3 per cent, free of income tax, making 6 per cent for the year, which will absorb a further £6,000—£12,000 ; and to carry forward the balance of £3,592 1s 1d. The weather during the past season was not generally favourable, and the crops from the Company's estates, although in excess of those of 1901, fell below expectations. The average rate of exchange for the year was 1s 1⅛d per rupee, and the cost of the crop, free on board steamer or delivered to buyers in Colombo was 4·79d per lb. The average nett price realised was 8·28d per lb, equal to about 9·33d per lb gross on the London market. The following Table shows the results of the working of the individual Estates for the past year:—

Estate.	Acreage in bearing in 1902. Full.	Partial.	Tea Crop.	Average yield per bearing acre.	Profit per bearing acre.		
			lb.	lb.	£	s.	d.
Park ..	242	22	159,145	602	9	11	9
Portswood ..	322	30	186,373	529	8	3	7
Naseby ..	176	20	84,574	431	4	19	2
Pedro ..	391	109	283,693	567	8	2	6
Concordia ..	333	149	223,725	464	8	3	8
Court Lodge.	366	—	165,914	453	6	18	6
Hethersett ..	400	20	196,902	468	5	15	0
	2,230	350	1,300,326	504	£7	9	11

The yield from Tea in full bearing was 522 lb per acre, and that from Tea in partial bearing 386 lb. per acre, as compared with 532 lb and 262 lb. respectively in the previous year. As on 1st January, 1903, the acreages of the Company's properties stand as under:—

Tea in full bearing 2,156 acres ; Tea in full bearing leased lands 98 acres ; Tea in partial bearing 321 acres; Tea not yet in bearing 22 acres—Total land under cultivation with Tea 2,597 acres. Timber trees in clearings and belts 51 acres ; Forest 124 acres ; Patna, scrub, building sites, and waste 265 acres—3,037 acres. The estates are reported on as being in good heart and condition, and if the improvement which has taken place in the general tea position should bring about a higher range of values for teas such as those produced by the Company, its future returns will be on a more satisfactory scale. The retiring Directors are Mr Wharram Megginson and Mr Alexander Thomson, who, being eligible, offer themselves for re-election. Messrs. Cooper Brothers & Co., Chartered Accountants, offer themselves for re-election as Auditors of the Company. —By order of the Directors, FRITH, SANDS & CO. Secretaries.

London, 17th April, 1903.

PRODUCE AND PLANTING.

Mr George Seton, in sending to us some interesting particulars respecting the value of Indian and Ceylon

TEA SHARES

during the past month, chronicles a further

improvement. It will be seen that the market value of the share of the forty-five representative companies chosen by him for particular observation has again advanced during the past month; also that the improvement has extended nearly "all along the line":—

		£
Face value 45 companies' shares	...	9,500 000
Market value July 1, 1897 (highest point)		12,000,000
Do Jan. 1, 1902 ..	..	7,000,000
Do April 1, 1902 ..	..	6,745,000
Do Sept. 1, 1902 (lowest point)	..	6,050,000
Do Jan. 1, 1903 ..	..	6,600,000
Do Feb. 1, 1903 (corrected)	..	6,750,000
Do March 1, 1903 ..	...	7,000,000
Do April 1, 1903 ...	...	7,175,000

As the grand total of the share and debenture capital together of the 170 (or thereabouts) tea companies registered with sterling capital in the United Kingdom amounts to about £19,000,000. The fluctuations of the entire volume, based on these figures, may thus be roughly estimated:—

		£
Face value of (about) 170 companies	..	19,000,000
Highest market value, July 1, 1897	..	24,000,000
Lowest market value, Sept. 1, 1902	..	12,100,000
Present market value, April 1, 1903	..	14,350,000

Taking 100 as representing the top value, the lowest level would be represented by just above 50 and the present value by nearly 60. There are indications, Mr Seton further observes, that there will now be some pause in the advance until it can be clearly seen how the profits for the past year's working will pan out. Most of the Ceylon companies, whose financial year synchronises with the calendar year, either have already disclosed, or will this month, disclose their results, while the greater number of the Indian companies will issue their reports before the month of May is out, so that onlookers will not now have very long to wait for the information desired.

The following from a correspondent who sighs for the old-fashioned

PROFITS ON TEAS

appears in the *Grocer*:—"The great idea with retailers nowadays is to obtain every article in packet form, so as to save the payment of larger salaries than are due to those who have not learnt, but merely obtained a smattering of the grocery trade. Some thirty to forty years since the profits on small goods were 40 per cent. to 50 per cent. on returns, and the grocer who blended teas on his own premises to suit his customers, could easily obtain from 2d to 3d more than his non-blending competitor, though both of them obtained from 40 to 50 per cent profit on returns. Hence it is no surprise to me that failures in the grocery trade are frequent and disastrous, because many young men set up for themselves who have never learnt the difference between putting on 50 per cent. to the cost price and realising 50 per cent. out of the selling price. They and older members seem only to desire a great run of custom, and by keen competition and the hateful policy of the 'nimble ninepence,' seek to cut out each his neighbour, overlooking the fact that to sell teas from 12½ per cent. to 25 per cent. profit is but to exchange cream for skim milk. The secret of the tea trade does not lie giving one's legitimate profits to the general public indiscriminately by listening to the dictation of merchants and manufacturers as to the profits they should be open to sell for, as much of their success depends upon annual returns. By dictating to the retailer the merchant makes a rod for his own back when he finds that failure results from insufficient profits, especially on tea."

ADULTERATION OF TEA.

Dr Alfred Hill, medical officer of health for the City of Birmingham, has resigned his position after a period of forty years' service. Interviewed by a local newspaper reporter, Dr Hill said the methods of the food adulterator are daily becoming more scientific and his devices more subtle. At one time pepper was extensively adulterated, but now it is rare to find a case where the quality has been wilfully reduced for commercial purposes. Tea which was formerly treated with minerals rolled up in the leaves and heavily coloured with Prussian blue and French chalk, as equally pure. Cocoa is still capable of being largely adulterated, sugar and starch in some instances being freely introduced. Under the specious plea of rendering the article soluble it was often robbed of much of its virtue.—*H & C Mail*, April 10.

TEA IN AMERICA IN 1902.

During 1902 the agitation of the removal of the duty on tea caused dealers to allow stocks out of licensed warehouses to run down to the lowest possible point and the result was that deliveries during the year were lighter than usual. Deliveries are accepted as representing consumption, but cannot be regarded as actually defining its extent. The imports were light and the per capita consumption smaller than for several years. The net import in 1902 was 74,275,153 pounds, with an average import cost plus the duty of $16,669,704. The net imports, assumed to represent consumption, have for ten years past been as follows:—

	Net imports. Pounds.	Average import cost per pound. Cents.	Consumption per capital. Pounds.
1893 ..	88,131,088	16.0	1.33
1894 ..	91,801,565	15.1	1.36
1895 ...	96,437,042	13.5	1.40
1896 ..	93,340,248	13.5	1.33
1897 ...	112,907,548	13.1	1.58
1898 ..	67,697,295	14.2	·93
1899 ...	72,834,816	12.3	.98
1900 ...	83,303,177	12.4	1.09
1901 ...	88,502,554	12.3	1.14
1902 ...	74,275,153	12.4	.94

The following tables show the net imports and yearly consumption:

	pounds.
Tea in warehouse, June 30, 1900	29,425,381
Net imports, June 30 1901 ...	88,502,554
Net imports, June 30 1902 ..	74,275,153
Total supply, two years ..	192,203,088
Less in warehouse June 30, 1902	33,635,042
Net supply, two years ..	158,568,046
Average yearly consumption ..	79,284,023

It is conservative to estimate the average retail cost per pound in 1902 at 50 cents, and that one pound of tea as ordinary brewed will make five gallons of beverage, on which basis the consumption in 1902 was 396,420,115, gallons, at a cost of $39,642,011, or 10 cents per gallon—with the duty of 10 cents removed we may look for increased use]
—*American Grocer.*

AN AMERICAN SCHOOL GARDEN.

AN OBJECT LESSON FOR CEYLON.

Whether School Gardens may be succeeding in Ceylon, or whether the new cult is to have here only a flare-up, and then die out, accounts from the United States show that in that great Republic, where most social experiments are tried, tested, and "sized up;" the School Garden, as an educational agency, has come to stay, and a literature has been born of it. In all new countries the cultivation of the beautiful is apt to be postponed indefinitely; comfort and convenience being the chief things looked to, and the hideousness of many of the domestic surroundings of the well-to-do classes in their young rising towns and villages, have only to be seen, to be properly appraised and appreciated. As a rule when a country or town is just beginning its career, there is too much to do, which *must* be done, to allow in the affairs of common life any approach whatever to the æsthetic in taste. Even when circumstances have changed—to more money and ease—and there is both the capacity and field for a display of natural ornament and beauty, these are apt to be long of appearing, unless forced on by some power from without. In the domestic environs, everybody has the same uncovered uglinesses, and is content with them; but it only wants a start to be made, an example to be set, and an object lesson to be displayed, to awaken the slumbering sense of the beautiful and the fit, and change the whole appearance and features of a place. It is claimed for the School Garden in America that it has an influence which extends far beyond its own boundaries, an elevating and humanising effect on the every-day life of the parents and guardians of the children who attend, which is reflected in the desire to grow plants for ornament as well as for use; a discontent with the untidy and the slovenly, and a willingness to spend both time and money in efforts to efface all evidence of the squalid and unseemly. Fences are no longer allowed to remain in a tumble-down condition; sheds and outhouses are mantled with the clinging creeper; the pathways are kept weeded and neat; and the whole plot presents a marked contrast—in beauty—with the sordid and mean aspect of the place owned by a family that is untouched by the influence of the School Garden. The illustrated papers have, from time to time, special articles on the theme, and picture what it is possible to do in most unpromising circumstances. Some schools have as yet made but a small beginning—a ledge or corner devoted to flowers; yet to have begun is the main thing. "The making of a definite garden," says a sympathetic American writer, "is an epoch in the life of each school; it makes the progress of the school in pedagogical ideals." The Hampton Institute of Virginia —founded for the higher education of the Negro and Indian youth—has the largest School Garden in the United States, covering two acres in extent. This is divided into some two hundred plots, and to each plot there are assigned two scholars who share in the work and the produce. The Institute has a Director of the Agricultural Department who supervises and instructs in the work of the garden. To prevent the work degenerating into either play or drudgery, and to give it dignity and interest, supplementary lessons are given in the classroom with experiments on the growth; how best to disperse seed, the comparative value of soils, and the nature of the work which insects—beneficial and injurious—accomplish for the agriculturist. A study is made of the decorative value of flowers, leaves and berries, and the principles laid down are worked out in the pleasing form of bouquets for the table. An extensive and interesting curriculum—which shows that when our American cousins take up an idea, they make the most of it. It will be long before any school in Ceylon, approaches—even at a great distance—such thorough working of the School Garden as is seen at the Hampton Institute of Virginia; and yet the advantages a tropical climate has in the matter of plant-growth over the temperate of semi-tropical are great, indeed. Ceylon is a paradise for the botanist, and ought to be an ideal spot for the School Garden. There is, of course, the question of manual labour which in Ceylon is too often regarded as undignified and unbecoming; but to educate the people into a healthier view of this subject, would be one of the many good results of a successful carrying out of a general system of School Gardens. Enthusiasm is needed both on the part of the Educational Department and the school teachers to make the scheme a success, and harvest for the colony the benefits it has conferred in other lands. The old days when the "three R's" were deemed a liberal education for the common people have passed for ever; and amid the incoming of new methods, and themes of study for the instruction and equipment of the rising race, the advent of the School Garden as an educational agency takes a prominent place, with its numberless potentialities for good, and its atmosphere of sweet graciousness.

Since writing the above, we are glad to recall that the School Garden has in Ceylon begun to have its literature, thanks to the industry of Messrs. J. C. Willis, E. E. Green and C. Drieberg, Superintendent of School Gardens. Already three pamphlets have been issued from the press, with Sinhalese translations, entitled: "How to lay out a Market Garden," by Mr. Drieberg; "Silkworms and Silk," by Mr. Green; and—one which forms the Royal Botanic Gardens Circular No. 22—"School Bungalow and Resthouse Gardens," by the Director. America, however, has still a good deal to teach us both in theory and practice.

PROGRESS IN BRITISH CENTRAL AFRICA.

Mlanji, Feb. 20.

The British Central African Co., Ltd., has issued a circular to planters and others inviting them to cut sleepers, and

sleeper logs for our railway and intimating that the Company will be ready to take delivery in April or May next, at prices ranging from 2/6 to 5/ per sleeper, sleeper log, or pair of either. So you will see business is meant at last.

The first shipment of material for the line is on the way out, and operations are to be started in earnest on the trace in April. So we will get our railway, although it may be too late to be of any service to the coffee industry; for it is fast becoming an enterprise of the past.

Whole districts have been let out of cultivation with the exception of a few estates that have money or minor products to depend upon for making ends meet.

TOBACCO, CHILLIES AND COTTON ARE GETTING

A FAIR TRIAL

on a big scale for the home market by the large Companies and private individuals in a small way. Rubber is also being grown: Ficus Elastica and Ceara are the only varieties of rubber producing trees that have been introduced. We have, of course, some indigenous trees, and the vines Landolphia, but the yield from them is small, although the rubber is of good quality.

Mlanji can grow tea well; a few acres, three years old, here simply surprise everybody who has seen them. The growth is equal to five and six year old tea in most districts in Ceylon, due probably to the magnificent virgin soil we have got. Messrs. Willisford and Ferrier, of the Blantyre and East Africa Co., Ltd., who were here lately, were agreeably surprised at our tea prospects in Mlanji and wondered why planters did not go in for it extensively long ago. One remarked: "There is a fortune in tea here with your cheap labour." I have managed to get planted now over 100 acres of tea, and Mr. Lauderdale has also got a few acres and is extending like myself. So we will prove in the course of a few years what can be done with the cup that cheers.

Ceylon need not be afraid of a rival in British Central Africa tea, for although we have a huge country to work on, the rainfall is too small—from 20 to 45 in. per annum—over the whole country and that rainfall only on from three to four months in the year. During the other eight or nine months there is hardly an inch falls. It is different with us, however, as proved by the following table kept here for the past ten years:—

	Days.	Inches.		Days.	Inches.
1892	...110	90·08	1897	... 97	64 67
1893	...132	89 78	1898	...118	118 62
1894	...138	82·39	1899	.. 129	88·69
1895	...125	106 01	1900	..101	82·07
1896	... 96	95 40	1901	...112	84·31

The bulk of our rain falls from December to April, but hardly a month passes here without a few inches. Our superior rainfall to the other parts of British Central Africa, is due to our situation on the S.-E. slopes of Mlanji mountain, which runs up to an elevation of nearly 10,000 feet. So I put our heavy rainfall down to the moisture-laden clouds coming in contact with the cool atmosphere of the mountain. On the other side of Mlanji they get a drizzle, when we get heavy rain. The division is much the

SAME AS YOUR CENTRAL AND UVA PROVINCE,

and the same remark might be applied to Mlanji S.-E. and N.-W. as used to be made in coming up from the Uva side. "Change coats for Nuwara Eliya."

The African Lakes Co. have brought out an expert for cigar-tobacco, Mr. L. Van Lemhoff who had many years' experience in Sumatra and recently finished an engagement of three years as Government expert for Natal. Mr. Lemhoff decided on Mlanji for his experiments and has set to work to give the tobacco, cigar leaf, a fair trial. No expense or trouble is being spared on some 40 to 50 acres of a clearing which the writer saw last month. A train of oxen, six in number, were at work ploughing, turning up the soil to the depth of some 15 inches. This has been done over the whole clearing three or four times, as well as harrowing, so that one can push a stick into the soil as if it were a bag of flour. Some four large sheds about 80 feet by 30 and 15 feet high, regular Sumatra style of buildings, are in course of erection to house the tobacco. Sticks and telegraph wire have been procured for hanging the leaves upon.

Nurseries are certainly a marvel of neatness and style, beds laid out 10 feet by 4, with good paths between and all covered with a frame of sawn timber 8 in wide, covered with calico to shade the seedlings. This frame also keeps off insects, and is only removed to water the plants.

If Sumatra seed-leaf tobacco, for cigar wrappers, does not succeed under the most careful management, and the fair trial it is getting from Mr Van Lemhoff and his assistant, it is doubtful if this valuable leaf will do anywhere in B C A. A very fine pipe tobacco is grown as well as a leaf quite good enough for fillers, if not for wrappers, from Havana seed-leaf. No Sumatra seed-leaf tobacco, however, has been tried before.

MR. LEMHOFF'S EXPERIMENTS

will be watched with much interest because, if success crowns his efforts, there will be a fortune in cigar wrapper tobacco-growing in this protectorate. The Blantyre and East African Co., Limited, have got two American tobacco men out, to cure yellow leaf for the London, and other markets, and this Company has got a considerable acreage ready for planting up on their different estates at Zomba, Blantyre, Cholo and Mlanji. We hear of clearings even up to 100 acres in extent on some estates, which is rather a big undertaking at first go off and will tax their uttermost ingenuity to provide house, room handle and cure with our unskilled labour. May their efforts be crowned with the success they really deserve.

COTTON

of the Egyptian variety is being planted up with this rainy season, by Industrial Missions and some private planters to test this product in a practical way. A sample sent home by us some three years ago was

valued at 4½ to 5 per lb. With our heavy freights it is a question whether cotton will pay to grow in B C A. The number of pounds per acre, and the cost of landing this product in London including the cost of cultivation, when carefully worked out, by experiment, will prove whether cotton will be worth cultivating in B C A. The Manchester Chamber of Commerce has offered to spend £50,000 in West or East Africa on cotton, if we can prove that it will grow to pay. This is a pretty canny offer from a wealthy Chamber. They might give the money to our poor Government to experiment with.

Something must be done for this country by Government, for it is going back sadly. Imports and Exports have dropped to about one-third of what they were five years ago; so the future of the country is not at all bright. It remains to be seen what our new products are to do, for coffee is practically a failure as a permanent industry owing to insect pests, and unfavourable climate. The exports of coffee will probably not exceed 200 tons this year, Five or six years ago it was up to 11,000 tons. We want Lord Stanmore and Mr. J Ferguson here to bring B C A. into a state of prosperity—for it is at present just as Ceylon was about '85-'86 through the failure of coffee, owing to leaf disease—and, I may add, a number of independent Ceylon planters, who now know what failure is or to be beaten at any undertaking.

Efforts are being made by

OUR COMMISSIONER, MR. SHARP,

to get our agricultural products into the Transvaal and Orange River Colony, at a reduction of duties, if a free exchange of produce cannot be secured. Should we get preferential duties for our tobacco and tea, there is an unlimited market in South Africa, and it will pay well.

Mr H Storey, a well-known Matale and Madulkelle proprietary planter, with his cousin, came to B C A in September on a shooting trip on their way home; and made an excellent bag of all kinds of game during their couple of months in the country. They were surprised to find that elephants could be shot a few miles off coffee plantations here. A planter, the Superintendent of Eldorado Estate, shot two small elephants in December, out of a decent sized herd, only about 2 miles as the crow flies from Mount Zion Estate. It would seem that elephants are likely to come back to this country (and be seen in herds of hundreds as in days of yore), now that their persecution has been stopped. H.B.

THE S. I. TEA EXPLOITATION FUND.

THE SALE OF TEA.

The South India Tea Exploitation Fund, which has been organised by the Travancore tea planters, is doing excellent work in the way of creating a taste for tea and popularising its consumption among the masses of this Presidency. An interesting and practical scheme has been set on foot, principally at the initiative of Mr H M Knight, of the Kanan Devan Planters' Association, to push the sale of tea in the Presidency so as to bring it within the reach of the poorer classes of the community.

The scheme is based on the lines laid down by the Indian Tea Markets Expansion Commission of Calcutta, which is managed for the Indian Tea Association by Messrs. Andrew Yule & Co. The object was to introduce the consumption of tea among the native population of India by the sale of both packet and brewed teas, and to achieve this end a certain number of planters contributed quantities of tea to be utilised by the South Indian Tea Exploitation Fund. In January last, Messrs. Parry & Co., as the Agents of the Fund, started the sale of brewed tea in the principal towns, of Southern India. They made arrangements for the establishment of stalls in various towns where tea is brewed and taken round by hawkers for sale in the streets. The scheme has been working in Madras and the mofussil for the last four months with considerable success. In this city brewed tea is being taken round to the Government offices and the principal mercantile firms from stalls which have been established in all the principal thorough fares. The sale is managed entirely by Brahmins under the supervision of Messrs. Parry & Co. Brewed tea is sold in cups at the popular price of 3 pies per cup, which ought to make it available even to the poorest of the population. The sales have been steadily increasing month by month since January and promise to show a remarkable development in the near future. Through the energy and enterprise of Messrs. Parry & Co. packet tea and brewed tea are available at extremely moderate prices in all the important towns of the Presidency, from Cocanada to Tuticorin. Messrs. Parry & Co. have taken the initiative in this matter, and they hope that, now that they have demonstrated the success of the scheme, the sale of tea will be taken up by petty dealers all over the Presidency, and the sale of tea and a liking for the beverage extended far and wide among those who have not hitherto been accustomed to drink it.—*M Mail*, May 5.

PREPARATION OF GUTTA-PERCHA AT SINGAPORE.

Thus *the Sourabaya Courant*: The Netherlands Gutta-Percha Company at Singapore, a venture set up in Holland, goes on preparing at Passir Panjang as much gutta as possible from leaves. At first it had much trouble in getting a sufficient stock of leaves. This is now no longer the case, and, as a rule, it can count upon a supply large enough to allow of a continuous and adequate output of gutta.—*Straits Times*, April 27.

INSECT PESTS IN INDIA.

THE NEW ENTOMOLOGIST.

Calcutta, May 3.—Mr Maxwell Lefroy, Entomologist appointed by the Agricultural Department of the Government of India, arrived in Calcutta last week. Mr Lefroy's experience has been largely gained in the West Indies, and though insect pests, which trouble agriculturists in India, differ considerably from those in that quarter of the globe, training in a tropical country will give him immense advantage.—*Times of India*, May 4.

THE COLOMBO TEA SALES AND, ESTATE AVERAGES FOR 1902.

ADVANCE IN QUANTITY AND SOME RECOVERY IN PRICE.

Recently we gave the total quantity of tea sold in the weekly auctions in Colombo during 1902 on account of estates which support the local market. Below will be found the details ; and this time another advance in number of marks and quantity is recorded. The names dealt with number 505. We began these yearly averages in 1894 when 90 estates only had to be dealt with. High Forest stood first for 1900 and Naseby for 1901, both with 59 cents; but for 1902 there is no stand-out figure like that. The following is the formidable list ; and, as a sign of the times, and of the growing importance of the Colombo market as a distributing centre for the whole world, it may be mentioned that a rumour exists that a large London firm of brokers is shortly opening a Colombo branch :—

	lb.	Av.
Naseby	88500	56
Monkswood	162000	54
Devonford	75000	53
Sutton	46500	53
Glassaugh	223000	51
Aldie	25800	51
Florence	146000	50
Palmerston	90000	49
Summer Hill	129500	49
Ardlaw & Wishford	85000	48
Agra Ouvah	342000	48
Gonapitiya	173500	48
Poonagalla	436000	47
Glenorchy	92500	47
North Cove	59500	47
St. Johns	150000	47
Udaveria	93000	47
Broughton	64500	47
Mansfield	89500	45
Forest Creek	284000	45
Mossend	40200	45
Mocha	212000	45
Glasgow	386000	45
Seenagolla	115500	45
Waldemar	134700	45
Stafford	53000	45
Bramley	85000	44
St. Vigeans	16000	44
Queensland	117000	44
Ormidale	36000	44
Lindupatna	85500	44
Devon	59000	44
Erlsmere	92500	44
Strathspey	66000	44
Inverness	140000	44
Preston	91000	44
Blinkbonnie	80000	44
Glentilt	272500	43
Walla Valley	87500	43
Dessford	56500	43
Adisham	125000	43
Agra Elbedde	80000	43
High Forest	451000	43
Middleton	310000	42
Annandale	91000	42

	lb.	Av.
ChrystlersFarm	72000	42
Maha Eliya	108500	42
Fairlawn	89100	42
Hatton	84000	42
Dunbar	95500	42
Highfields	47500	42
Corcen	82500	42
Mahanilu	73000	41
Carfax	67000	41
Simla	26000	41
Robgill	61500	41
Ireby	106500	41
Cleveland	71000	41
Avoca	88000	41
Templehurst	71500	40
Drayton	187000	40
Marlborough	500000	40
Invery	46500	40
Templestowe	192000	40
Theresia	67000	40
Lochiel	58500	40
St Clair	153000	40
Munukattia	80000	40
Brownlow	260000	40
Scarborough	99000	40
Agrakande	43500	40
Meeriatenne	49000	40
Galleheria	79000	40
Mincing Lane	13000	40
Abbotsford	19500	40
Baudara Eliya	414000	40
Forres	27000	39
Newmarket	170000	39
Castlereagh	184000	39
Kallebokka	108500	39
Clarendon	96500	39
Stamford Hill	114500	39
Holbrook	88000	39
Lonach	78000	39
Detanagalla	11900	39
Killarney	128000	39
Weygalla	61000	39
Bunyan & Ovoca	278000	39
Kolapataua	84000	39
Midlothian	78000	39

105

	lb.	Av.
Abergeldie	16000	39
Mt. Everest	90000	39
Hornsey	162000	39
Tymawr	153000	39
Trafalgar	80000	39
Ellerslie	27000	39
St. Paul's	134000	39
Dambagas-talawa	79000	39
Luckyland	5300	39
Kirklees	173500	38
Attampettia	82000	38
St. Heliers	85000	38
Nillomally	213000	38
Kelaniya and Braemar	95500	38
Ben Nevis	57000	38
Marigold	93000	38
Dotala	52000	38
Harrow	140500	38
Wewebedde	29000	38
Bittacy	64800	38
OldMaddegama	74000	38
Callandar	67000	38
Grange Gardens	67600	38
Roeberry	340000	38
Dalhousie	55000	38
Kandahar	55500	38
Gangawatte	188000	38
Yuillefield	87000	38
Cabin Ella	95000	38
Darrawella	185000	38
Moray	290000	38
Belton	11500	38
Penrhos	212500	37
Agra Oya	78500	37
Kincora	90000	37
Bowlana	77000	37
Bargany	67500	37
Mousakellie	50500	37
Eastland	48500	37
Galphele	92000	37
Nahavilla	154000	37
Richlands	35000	37
Battalgalla	118500	37
Allacollawewe	50000	37
Monte Christo	51500	37
Waganila	36300	37
Tientsin	88000	37
Hyde	80000	37
Rajawatte	40000	37
Waitalawa	116500	36
Rickarton	166000	36
Malvern	42000	36
Oonoonagalla	163500	36
Cotswold	41000	36
Ottery	171500	36
Winwood	149300	36
Maha Uva	250000	36
Donnybrook	14000	36
Columbia	79000	36
Rahatungoda	124000	36
Bowhill	51000	36
Gonavy	173000	36
Gingranoya	87500	36
Elemane	99000	36
Erroll wood	79500	36
Choisy	160500	36
Galloola	134000	36
Lameliere	174000	36
Kahagalla	47000	36
Macaldeniya	58000	36

	lb.	Av.
Tonacombe	343500	36
Mawiliganga-watte	188000	36
Sylvakandy	372000	36
Pine Hill	188000	36
Dunkeld	190000	36
Gampaha	235000	36
New Valley	134000	36
Oonoogaloya	164000	36
Brecon	45500	35
Nyanza	98500	35
Glenanore	21500	35
Agratenna	20000	35
Yahalatenne	55000	35
Osborne	83000	35
Passara Group	206000	35
Madulkelle	85000	35
Deaculla	119000	35
Tunisgalla	135500	35
Dromoland	70000	35
El Teb	101500	35
Delta	288000	35
Coldstream Group	130000	35
Haputalewelle	36000	35
Panmure	75000	35
Glengariffe	115000	35
Myraganga	289000	35
Ravenscraig	74000	35
Dunnottar	61300	35
Mount Vernon	116500	35
Cullen	27500	35
Doonhinde	42700	34
Ashburton	62000	34
Ferndale	87000	34
Dickapitiya	85400	34
Dalukoya	37000	34
Mount Clare	21000	34
Yelatenne	23500	34
Galkanda	45000	34
Rothes	25000	34
Nellicollay-watte	39000	34
Dammeria	281000	34
Nahalma	176500	34
Matale	84000	34
Vogan	372000	34
Great Valley	254000	34
Ingrogalla	57000	34
Putnpaula	174000	34
Panilkande	99000	34
Rookwood	251600	34
Glendon	152000	34
Irex	68500	34
Kinchin	41500	34
Udawella	24500	34
Rondura	24000	33
Theberton	104000	33
Kinross	50000	33
Birnam	34700	33
Kehelwatte	10500	33
Panawatte	180500	33
Algooltenne	143000	33
Sindumally	186000	33
Beverley	66000	33
Hanwella	109000	35
Cloyne	86500	33
Pallegodda	324000	33
Bulugolla	119500	33
Moneragalla	58000	33
Clyde	82000	33
Kelani	163000	33

	lb.	Av.
Lyegrove	32500	33
Peru	17500	33
Mt. Temple	209000	33
Kandaloya	167000	33
Higham	119000	33
St. Catherine	27000	33
Woodstock	25700	33
Mousa Eliya	106000	32
Parsloes	102500	32
Battawatte	221000	32
Baddegama	45000	32
Troy	32000	32
Glencorse	153000	32
Laxapanagalla	109000	32
Tempo	138000	32
Maragalla	35500	32
Galapitakande	140000	32
Oakwell	29200	32
Stranraer	45500	32
Ardross	12100	32
Pansalatenne	70000	32
Weemulla	12000	32
Elston	180000	32
Glenalla	80000	32
Siriwatte	24000	32
Bandarapolla	90000	32
Badulluoya	27000	32
Neboda	225000	32
Thedden	55000	32
Mora Ella	85000	32
Rambodde	84000	32
Waragalande	55000	32
Walahanduwa	93000	32
Blarneywatte	10400	32
Craigingilt	32900	32
Hayes	31200	32
Gweruet	32700	32
Orwell	78000	32
Nugagalla	55000	32
Dea Ella	65000	32
Longville	49000	32
Avisawella	246000	32
Hangranoya	143000	32
Halgolle	30000	32
Tismoda	95700	32
Mahatenne	72000	32
Bopitiya	111500	32
Wadhurst	18000	32
Manickwatte	40000	32
Mapitigama	81500	32
Morahela	150500	32
Navangama	34000	32
Talgaswela	166000	32
Hangurauketa	18000	31
Taprobane	49000	31
Riverside	18000	31
Katugastota	11500	31
Pinkandi	13600	31
Maldeniya	132500	31
Ingoya	94000	31
Ambalangoda	70000	31
Holton	64000	31
Pusponc	162000	31
Handford	49000	31
Yogama	123500	31
Nakiadeniya	68500	31
Erracht	172000	31
Yelverton	58000	31
Tillington	62000	31
Perth	156000	31
Walton	46400	31

	lb.	Av.
Murraythwaite	72500	31
Hapugastenne	56000	81
Shawlands	10500	31
Lammermoor	17000	31
Ranasingha-patna	64000	31
Deniyaya	130000	31
Farnham	89500	31
Forest Hill	57000	31
Oonankande	61500	31
Glenalmond	48500	31
Ravana	26500	31
Massena	74000	31
Polatagama	375000	31
Neuchatel	197000	31
Aigburth	117500	31
Anningkande	25500	30
Cooroondoo watte	134000	30
Yarrow	136000	30
Nahavilla	61000	30
Mousakande	825000	30
Harrangalla	242000	30
Rayigam	270000	30
Ninfield	40000	30
Velana	26500	30
Swinton	60,000	30
Nugawella	22,000	30
Freds Rhue	100000	30
Purana	46000	30
Aberdeen	94700	30
Dryburgh	63000	30
Deville	15000	30
Ferriby	100000	30
Wattagalla	174000	30
Mowbray	29000	30
Meddegodde	92000	30
Coodoogalla	48500	30
Torrington	159500	30
Strathisla	24700	30
Woodend	207000	30
Kitulgalla	84000	30
Salem	37000	30
Weoya	176000	30
Udapolla	38000	30
Tembiligalle	156000	30
Ganapalla	252000	30
Amblakande	61000	30
Good Hope	187000	30
Edward Hill	62000	30
St. Helens	116000	30
Iugeriya	75000	30
Alloowihara	17500	30
Bambragalla	7800	30
Udabage	91000	30
Morentenne	10000	30
Labugama	46000	30
Mary Hill	62000	30
Cocoawatte	71500	30
Bollagalla	81000	29
Narangoda	10300	29
Poilakaude	197000	29
Digdolla	82000	29
Gangwarily	141500	29
Gansarapolla	29000	29
Havilland	34500	29
Hiralouvah	35000	29
Dickhena	85000	29
Bogahagoda-watte	37000	29
Dalukolawatte	12000	29
Sembawatte	16000	29

	lb.	Av.
Anningkande	43000	29
Mahawale	118500	29
Clunes	174000	29
Ruanwella	185000	29
Morankande	86000	29
Knavesmire	320000	29
Ambragalla	82000	29
Kurulugalla	100000	29
Eila	234000	29
Beausejour	68500	29
Havilland	70000	29
Halbarawa	52800	29
Koslanda	61500	29
Coslande	67000	29
Elchico	53500	29
Charlie Hill	31500	29
Laurawatte	97200	29
Narangalla	32000	29
Dover	86500	29
Wyamita	19000	29
Damblagolla	88000	29
Karangalla	38000	29
Polgahakande	76000	29
Cresta	29000	29
New Anga-mana	145000	29
Roseneath	51000	29
Ahamed	10000	29
Kanapediwatte	203500	29
N. Pundaloya	72500	29
St. Andrews	22000	29
Gampai	74500	28
Alpha	13000	28
Hentleys	36700	28
Choughleigh	55000	28
Melvilla	17500	28
Morton	81000	28
Hopewell	76500	28
Owilakande	112000	28
Citrus	81000	28
Yataderia	323500	28
Siriniwasa	128500	28
Jak Tree Hill	71000	28
Vincit	58900	28
Bodava	68000	28
Harrisland	22200	28
Avington	87700	28
Lyndhurst	56500	28
Hapugasmulle	24000	28
Oolapane	31500	28
Selvawatte	29000	28
Wanarajah	12800	28
Wewawatte	20500	28
Hobart	47000	28
Torwood	180000	28
Geragama	204000	28
Weyungawatte	143000	28
Mahayaya	26500	28
Katawella	31000	28
Lechimey	10000	28
Tavalamtenne	38500	28
Horagalla	24000	28
Pasmalie	33500	28
Walpita	82000	28
Findlater	20500	28
Hanagama	146000	27
Southwark	29500	27
Cumbawella	35000	27
Heatherley	15000	27
Park Hill	15000	27
Balade	17500	27

	lb	Av
Bloom Park	9800	27
Atherton	12500	27
Kudaganga	39000	27
Monrovia	103000	27
Kotagaloya	67000	27
Uragalla	10000	27
Carney	39500	27
Merrow	21500	27
Ratwatte	60000	27
Sirikandure	95500	27
Ambalawa	57000	27
Eilandhu	22000	27
Stubton	31700	27
Warakamure	239000	27
Maligatenne	14000	27
Hatdowa	62200	27
Paradise	46000	27
Kottagodde	15800	27
Pindenioya	88000	27
Dehiowita	13000	27
Bowella	73000	27
Dalveen	31000	26
Ella Oya	13800	26
Welgampola	21700	26
Salawa	52300	26
Mutu Eliya	22000	26
Horagaskelle	11000	26
Penarth	37000	26
Depedene	92500	26
Laukka	50000	26
Galpotta	13500	26
Pussella	18000	26
Yspa	17000	26
Panapitiya	20000	26
Kosgalla	12500	26
Moragalla	41000	26
Bellongalla	91500	26
Galkadua	23000	26
Yatiyana	29000	25
Palm Garden	32000	25
Kadienlena	10500	25
Ossington	12000	25
Labuduwa	23000	25
Paragahakande	21800	25
Captain's Garden	39000	25
Kanatota	40000	25
Galagama	14500	25
Patulpana	14500	25
California	27500	25
Galgedioya	42000	25
Florida	46000	24
Kalupahaua	34500	24
Romania	9500	24
Hapugalla	13500	24
Kitulkande	13000	24
Raglan	21500	23
Eladuwa	16500	23
Kosgahahena	9000	23
Trewardene	16500	23
Castle Hill	65500	22
Battalawatte	10500	22
Ambalapitiya	9200	22
Saduuulla	8200	22
Lowlands	17000	21
Mahagoda	8000	21
Kerenville	9500	21
Allington	19500	19
Clarendon	24500	17

ST. LOUIS EXHIBITION.

MR. W. H. FIGG'S REPORT ON HIS VISIT TO ST. LOUIS.

In pursuance of a request from Mr. Kingsford, Chairman of the Planters' Association, I consented to visit St. Louis and investigate conditions, and if satisfied with them to make preliminary arrangements for the Colony's representation.

INTRODUCTIONS.—After accepting the mission I cabled to Ceylon asking for Letters of Introduction from the Ceylon Government to assist me with the authorities in America. I have to thank His Excellency the Governor for his great kindness in sending me personally written letters to H M Ambassador at Washington, (Sir Michael Herbert) and to the Commissioners of the St Louis Exhibition. After presenting my letter at the Embassy at Washington, I proceeded at once to St Louis and lost no time in meeting the heads of the various departments.

INSTRUCTIONS.—From the perusal of my instructions received through Mr Kingsford it will be seen the following were the points dealt with:

(A) The question of the erection of a building to contain all Ceylon's exhibits, or whether Ceylon's products should be displayed in their various departments in the main buildings.

(B) In the event of a separate building being necessary: (1) the site, (2) the style of architecture, (3) the probable cost.

(C) The conditions under which Ceylon Tea could be sold in the cup and in packets.

(D). The appointment of a representative in St. Louis, to act pending the arrival of the Commissioner,

EXHIBITS.—Immediately after meeting the Secretary, Mr Stevens, I was introduced to Mr F J V Skiff, the Chairman of the Committee of Exhibits, who invited me to meet his Committee, who were then sitting. This Committee, consisting, as it does, of the Directors of the various Departments, into which the Exhibition is divided, is virtually the Executive. It was, therefore, of great assistance to me to meet at the outset of my investigations these gentlemen. At the invitation of the Chairman, I briefly addressed the meeting, setting forth the object of my visit. After some general discussion I found there was a very strong feeling against Ceylon's exhibits competing, unless the products were displayed in their various classes in the main buildings. It was clear to me that although this condition was not made absolutely a *sine qua non*, it was to the interests of the Colony to fall in with the views of the Committee, particularly as three-fourths of the Ceylon Exhibits would come under the head of Agriculture. The balance would be divided between Forestry and Mines and Metallurgy. Taking the above into consideration I came to the conclusion that Ceylon ought to show in the main buildings and have a Court and garden of its own in a good position.

AGRICULTURE.—This important building is an enormous structure covering 1,600 by 500 feet and is said to be the largest in the world. I have provisionally secured a space of 2,400 square feet marked on the accompanying blue print and append copy of letter from Mr F W Taylor, the chief of this Department, which gives all necessary particulars. We are particularly indebted to Mr Taylor for the friendly consideration and assistance he tendered us and I gladly accepted his very courteous offer. I commend to the attention of the Committee his suggestion in regard to the forwarding of suitable plants for decoration of the house and grounds, and hope that the Director of the Botanical Gardens will see his way to exhibit, on behalf of the Colony, and also to assist with a collection of suitable plants.

FORESTRY.—Next in importance to Ceylon, after Agriculture, is the Department of Forestry. I have provisionally secured space, 50 × 60 feet, in a suitable position to be fixed hereafter on completion of plans now being prepared by the Director of Works. Dr. Tarleton H Bean, the Acting Chief of the Department of Forestry, is most anxious for Ceylon to make an exhibit similar to the one made at Paris. His letter covers all the ground necessary and is appended together with a circular referred to therein.

MINES AND METALLURGY.—In this Department I felt a little doubtful in arranging for space, but Mr, Holmes, the Chief of the Department, is very desirous that we should send exhibits. I enclose a letter received from him, and as plumbago is such an important article of export to the United States, his suggestions are worthy of careful consideration. Should it be decided to make a display in this department, I recommend that early steps be taken and such space as will be necessary applied for without delay.

SITE FOR BUILDING.—After going over the ground carefully I decided that the space marked on the accompanying plan was the best for our purpose: (1st) Because it appears to be in the opinion of those best able to judge—a point where most of the visitors to the Exhibition are likely to pass. (2n) Because the gardens laid out by the Director of Horticulture will abut on our allotment and greatly enhance its attractiveness. Here I may mention that Mr Taylor, the Director of Agriculture, has kindly consented to undertake the laying out of our grounds, continuously with those of the Horticultural Department, using palms and other tropical plants. (3) The position is conveniently close to the Agricultural and Forestry Main Buildings, thus facilitating supervision by our Commissioner.

SPACE FOR BUILDING.—The space at our disposal is 125* x 250 feet, closely approximating the original application from Ceylon for 4,000 square feet. I enclose letter from Mr Isaac Taylor, Director of Works, with site marked on the plan. I informed Mr Taylor that the building would probably follow a Kandyan style of architecture and that plans and specifications would be submitted to him for approval. It is important that there should be no delay in moving in this matter and plans should be sent to our agent. I would recommend a light, airy building, as the climate of St. Louis during summer is very hot.

COST OF BUILDING.—I had an interview with the Chief Architect of the Exhibition who very kindly went into the matter with me, and so far as he could make a rough estimate on the data I could give, thought that we might figure on 7½ to 8 cents American per cubic foot. As I consider it certain that the general products will be exhibited in the main buildings, the size and design of the Ceylon

* Supposed to be a mistake for 150 ft.—ED. T. A.

structure can be regulated accordingly, care being taken to provide room for the kitchen, scullery, and private offices for the Commissioner. In view of the climate of St. Louis, ample wide verandah space should be provided. On receipt of plans and specifications, our agent will call for tenders and submit same before closing contract. Arrangements should be made to permit of cabling consent to proceed.

Concessions:—The permission to sell Tea in the cup and in packets is one of the most important and difficult matters I had to deal with. Although I impressed upon the authorities that in obtaining their sanction we had no idea of making profit from the sale of these articles, yet the rights of the Restaurateurs, for which they had paid between $1,500,000 to $2,000,000, had to be protected. The Director of this Department, at the commencement of our negotiations, laid it down as a condition that 25 per cent of the takings must be paid to the Exhibition. This I could not agree to, but finally arranged to obtain full privilege for the sale of tea from our building in cup and packets and right to issue and display suitable advertising matter on terms set forth in the accompanying letters from Mr Norris B Gregg, Director of Concessions and Admissions and Mr J V F Skiff, Director of Exhibits.

Acting Agent.—In terms of Mr Kingsford's request to appoint a representative to act for us, pending the arrival of our Commissioner, I have, with the sanction of Mr. Stevens, appointed Mr. Russell Stanhope, the Secretary to the Committee on Foreign Relations, on a remuneration to be decided by our Commissioner. I enclose letter from Mr. Stanhope accepting the appointment and from Mr. Stevens conveying his sanction. I have deposited $300, receipt enclosed, with Mr. Stanhope, to meet sundry expenses, and have instructed him to communicate with you direct as occasion may require. A most important matter is the execution of the contract between the Ceylon authorities and those of the Exhibition. Mr. Stanhope is having this drawn up in the terms of the correspondence accompanying this Report.

General.—In conversation with those who have had experience over here in former Exhibitions, I feel it right to tell you that it is decidedly advisable that native servants should be sent over from Ceylon to serve the tea in the Ceylon grounds. Mr. Larkin, of Toronto, is most anxious to obtain some tea plants for exhibition purposes and I have promised to write asking you to take steps to get some germinated tea seed packed in Wardian cases and sent to him as soon as possible. He is in a position to take full care of them when they arrive in Toronto, if we can only get them there alive. As regards small packets of tea for distribution free in the Exhibition, Mr. Larkin strongly recommends that these packets should be made of lead and not tin. The reason for this is to let people have as nearly as possible a facsimile of the packet which they would buy hereafter in the various stores of the United States of America. My visit to St. Louis has impressed me with the magnitude of the undertaking. It would make this report too lengthy to enter into details here, but I have requested Mr. Stanhope to send you full information from time to time, more especially as to the progress made with the buildings and the probability of the Exhibition being opened in time.

THE "TEA" TORTRIX: THE GREATEST EXISTING TEA ENEMY.

The item on the agenda of the Dimbula Planters' Association at their meeting of the 28th April of most general importance to the tea industry was the discussion on the "shot-hole borer." Mr. Bosanquet, whose opinion carries weight wished for legislation, but —while Mr. Welldon took the view that there should be none without the consent of the district—the meeting voted for Lieut. Colonel Farquharson's amendment in favour of cooperation "with Government, but against" Government interference. This is certainly the most satisfactory view to take. But the shot-hole borer is a comparatively small matter compared with the threatening aspect which the spread of the "tea tortrix" is beginning to wear; and so we are of opinion that by far the most valuable contribution to yesterday's meeting was Mr. Welldon's on this subject, although not one down on the printed agenda list. Dimbula is ever prompt to make measures against approaching danger and the present one that threatens is far greater than the "shot-hole borer" which prevails most in Gampola and Pussellawa and appears to confine itself to medium and low elevations. The "tortrix" on the other hand, as Mr. Welldon shows has been doing much damage in Maskeliya and the latest reports from that district are anything but reassuring. Indeed we hear of its being responsible for reduction of crop on one estate by about one-twelfth or one-fifteenth, at least. Egg-massess in another case—are being collected at the rate of 20,000 to the acre; and one day's collection even totalled as much as 243,000 egg-masses These figures give some idea of the pest Maskeliya has to fight with—when we state that according to the Government Entomologist, each egg-mass contains on an average 250 eggs. The remedy which has been put in hand is to lop up the grevilleas [as high as possible—these handsome trees, it is thought, being responsible for a great deal of the damage. The moths deposit their eggs very freely on the leaves of this tree, the "silky oak," and when the leaves drop off on to the tea, the result may well be imagined, It becomes, therefore, necessary to take in hand both grevilleas and tea at the same time. It should also be mentioned that it is suicidal to prune tea when the pest is in the moth and egg stage—the reason being that the caterpillar stage is then reached about the time that the young flush is coming on and the flush is at once eaten down and lost. The moth and egg stage is now, we believe, prevailing in Maskeliya and the caterpillar stage should be attained in three weeks' time. This information should be of interest to the strong committee for Dimbula appointed yesterday; and superintendents should at once examine their fields very thoroughly and closely to see if they can find traces of the pest, and report to the Committee, whose secretary Mr. Welldon has kindly undertaken to be. As this gentleman said, it is generally found in small patches first, but once it spreads it is

very hard to cope with. Mr. Green's circular on the *Tea tortrix* gives all the information that is required; and he mentions that the loss from the pest has been estimated in Maskeliya at R10 per acre. The pale yellow eggs appear on the upper surface of the older leaves, turning to white when the green caterpillars (paler green as they get older) emerge; the caterpillars make their shelters by joining leaves together. The chrysalis, half an inch long, is deep red; and the moths, of a pale reddish brown. These are the elementary points for identification. In conclusion—as we warn all planters at high elevations to give the matter immediate (even if renewed) attention—we may add that the tortrix attacks not only grevilleas and tea, but also acacias, albizzias and even the eucalyptus. It was first noticed by Mr. Green in 1889, in Dimbula: but it has never been more worthy of careful and systematic eradication than now.

CHINA TEA IN 1902.

(From the Returns of Trade for 1902.)

Although the quality showed some improvement as compared with that of 1901, there seems a concensus of opinion amongst experts that the Teas from all districts, except Ichang, have fallen off deplorably in quality and style during the last 20 years. The Chinese will take no advice and refuse to listen to any suggestions regarding change in cultivaton and manufacture while their great rivals in India and Ceylon pay the closest attention to all details and are ever on the look-out for improvements. Strong representations made in the spring induced the Chinese Government to reduce the Export Duty to one-half, but it still remains too high, being at least 12½ per cent on common teas; and, as *lekin* and other internal taxes were not interfered with, although in some districts they almost equalled the Export Duty, it is to be feared that this half-hearted step towards putting China teas on a level with untaxed competitors will not be of much benefit to the trade. The transport of some three millions of pounds by the Siberian Railway was a new departure which will be watched with great interest, and one which might lead to important developments if the Chincse could be induced to pay more attention to quality. Some reduction in the heavy Import Duty charged in Russia would be of great assistance to the trade, especially as Russia is now the principal purchaser of Black Teas. The total export of all kinds of Tea was about 31 per cent higher than in 1901; but the shipments to Great Britain showed no improvement although the deliveries from bond in London from June to December were better by 3 millions of pounds. The United States took 168,501 piculs of Black Tea, as against 96,820 piculs in the previous year, and 126,196 piculs of Green Tea, as against 86,747 piculs. This is explained by the fact that the War Tax of 20 gold cents per pound was to be removed on the 1st January, 1903, and stocks had been reduced to a minimum to escape the expense of bounding. Moreover, it is anticipated that lower prices in consequence of the removal of the Duty will increase the demand. Black Tea via Kiakhta rose from 17,7?5 to 66,464 piculs presumably because the route was safe again after the late disturbances. The export of Brick Tea showed a considerable advance, Black Brick having improved from 244,565 to 493,103 piculs, and Green Brick from 48,957 to 29,932 piculs. Congou Tea consumed east of Irkutsk was formerly free from Duty, which has now been imposed; the consequence has been that its place is being taken by Brick Tea, of which a finer quality is now demanded. Ceylon Dust, which is blacker in colour than China Dust, is imported to improve the quality and appearance of the Bricks. It may be mentioned that the export of Green Tea from Ceylon to the United States, which was till lately the monopoly of China, rose from 797,796 pounds in 1901 to 1,963,456 pounds in 1902. It is to be regretted that the Chinese Government and the Tea guilds do not take more energetic measures to assist this valuable but moribund trade.—*Hongkong Daily Press*, April 11.

MANUFACTURE AND RELATIVE OUTTURN OF GREEN AND BLACK TEA.

EXPERIENCE OF CEYLON MANUFACTURERS.

Considerable interest has been evinced among green tea manufacturers in Ceylon by the statements made by "G. T." in our columns "you can *never* get the same outturn from green teas as you can get from black" and from the mild insinuation by Mr. Judge, that if that is so in Ceylon we are not quite up-to-date in manufacture. In addition to the emphatic opinion we published on April 18th, which stated that only careless manufacturers in Ceylon could endorse the statement that green tea cost more than black, we have applied for and received the opinions of two green tea manufacturers which we have pleasure in giving below:—

Mr. J A Hunter, of Sunnycroft, Veyangoda, writing on 24th April, says:—

DEAR SIR,—In reply to your enquiry as a to respective outturn of black and green teas, I am pleased to state, in the interests of this new industry, that I find the outturn of greens the same as that of blacks. The short outturn so much complained of in greens is entirely brought about by the wasteful system of manufacture adopted. To save cost of firing, the general idea is, to squash as much moisture as possible out of the freshly steamed leaf, by rolling it 40, or 45 minutes, and then putting on pressure. This juice is then allowed to find its way to the nearest stream, carrying with it a considerable amount of the essential oil of the tea leaf, leaving the finished article all that the poorer, and the outturn so much the shorter.

P.S.—If all moisture in green leaf is got rid of by evaporation the outturn of greens is bound to be the same as black is. There are cheaper ways of evaporating the excess of moisture than by hot air from a dryer.

J. A. H.

Another manufacturer, at a higher elevation, writes under the same date as follows:—

DEAR SIR,—In reply to yours of the 22nd instant, I have only made green tea for a little over 2 months and have scarcely had time to

tell whether I can get as good an outturn from making green tea as from blacks. My opinion is that there is very little difference, and my figures go to prove it so far. In February I turned out 23·60 per cent of made tea and in March 24·72 per cent, that is on the gross weight of green leaf brought to the factory, no deductions having been made for wet leaf. I don't think I could have turned out more of black tea.

ROYAL BOTANIC GARDENS: ADMINISTRATION REPORTS.

The greatest interest in regard to the Peradeniya Department, during the past year must undoubtedly attach to the work done at the Experimental Station (Gangaruwa) under the supervision of Mr. Herbert Wright. But in the Reports which have just appeared there is not much recorded on this topic and it is understood that a separate Report is to appear. Meantime it has fallen to the Acting Director, Mr. Carruthers, to furnish the main or introductory Report on the Botanic Gardens and Scientific Department, and this is supplemented by statements, generally very concise, from each member of the Staff. First of all the functions of the Departmental officers are defined as follows:—

The botanical survey of the Island.

The study of various physiological and pathological botanical questions in relation to the economic plants of the Island.

Experimental agriculture.

Experimental horticulture.

The demonstration and encouragement of horticulture at various elevations.

The distribution of seeds and plants that are not to be obtained from local seedsmen.

The giving of advice and information on botanical, agricultural and horticultural matter.

The care of the health of the crops of the Island.

The introduction and trial of new plants suitable for economic cultivation.

As usual, we give elsewhere in full all we are told under the heading of "Economic Plants," and it is of special interest to learn how very thoroughly fungoid disease—affecting 96 per cent of the cacao trees on Gangaruwa, when taken over,—has been subdued and an entirely new face put on this cultivation on the Experimental Station. What we are told respecting Para and Castilloa rubber and camphor (see page six) is of special interest; and coconut planters will be interested in the reference to their industry and to the value of mimosa as a nitrogenous manure. It seems hopeless to expect any revival of much importance in respect of cinchona growing, in view of the experience of careful planters in our leading districts, namely, that cinchona will not grow in their teafields as amongst coffee (tea has probably more and wide spreading roots). The only chance for it is in a virgin forest clearing by itself or among young tea and both forest reserves and young clearings are few and far between. A good deal more might be made of pepper and vanilla in many directions, especially at a low elevation. Cacao planters are warned to fight their enemies more continuously; but has enough been done by the Mycologist himself?—is a question we have heard asked. Cardamoms promise well. The Entomologist is indefatigable, and his comparatively full Report, as well as contributions to "Indian Museum Notes" and to other publications, indicate Mr. Green's devotion to his work. We reserve remarks on the Reports of the Curator and Scientific Assistant and on the Hakgalla and Minor Gardens' Reports for another time.—One feature of the whole Reports which we must not omit to mention is the finely finished illustrations—quite an innovation in Government Administration reviews—for which Messrs. Kerr & Co. are responsible. Other such publications, which come under the head of Scientific and Miscellaneous, might well be brightened by imitations of this example from Peradeniya.

PHILIPPINE GUTTA AND RUBBER.

Instructions, says the *Manila Times*, have been received from Washington by the Custom authorities of the Philippines to keep a vigilant look out for Chinese merchants engaged in smuggling rubber and gutta percha out of that archipelago. Detailed search on the part of forest rangers of the Government employ has brought to light some very curious facts in regard to the traffic, seriously involving Chinese exporters. Not only has the expedition confirmed the belief that the forests of Mindanao, the Sulu Islands, and parts of other islands abound in gutta percha trees and rubber vines, but the Government laboratory in Manila has demonstrated from samples brought in that these Philippine products are equal to the best Sumatra and Borneo gutta percha, and perhaps not inferior to the highest grades of Para rubber.

BIG SECRET TRADE.

It was evident that gutta percha and rubber were finding their way out of the islands through unlawful channels. It has been discovered by the United States scientific explorers that large Chinese firms in Singapore and Borneo are conducting an immense secret trade with the Philippines in the matter of gutta percha and rubber, thousands of pounds being smuggled out of the archipelago to Sandakan, Borneo, and there skilfully adulterated with colouring matter and sold as Borneo and Sumatra products. In many parts of the Philippine Islands whole tribes of natives are engaged in gathering rubber and gutta percha for these Chinese smugglers. The system is thoroughly organised. The worst thing about this industry is not that the customs houses are cheated out of the export revenue that should be levied, but that the wild tribes of southern Mindanao and other sections are destroying these valuable forests. With no thought for the future they cut down trees and vines to get the sap, or milk, as it is called. In some of the smuggling villages some of the native agents admitted that they made their living by gathering rubber, but would not admit that they had traded also in gutta-percha. In some of the coast towns it was discovered that these Filipinos had rubber and gutta-percha secreted under the floors of their cottages. It was tied to strings and kept floating in the sea water. This not only kept it effectually out of sight, but served also to make

the products harder and prevent loss of weight until it could be disposed of to the Chinese smugglers.

VALUABLE PRODUCTS.

From various districts samples of gutta percha and rubber were brought to the government laboratory at Manila, where it was subjected to a careful scientific analysis. These tests disclosed the important economic fact that the Philippine gutta percha will doubtless become as valuable for cable insulation and other purposes as the best gutta percha obtainable, while the rubber, with proper coagulation and drying, it is thought, will be equal to the best commercial rubber now on the market. While some of the gutta-percha trees found were new and hitherto unknown varieties, many of them belong to the general species, dichopsis gutta, the tree which has furnished the gutta-percha for most of the submarine cables of the world. Samples of these Philippine products were submitted to the chief electrician and to the cable engineer of the U S cableship "Burnside," who pronounced the gutta percha to be of very superior quality, and inasmuch as many cables will ultimately be laid between the Philippines and Japan and Asia the presence of insulating material in the archipelago is of extreme importance. That the government at Washington may be made fully aware of the necessity for taking some action in controlling these priceless forests, samples of guttapercha are now on the way to the United States where they will be subjected to most careful tests by eminent scientists. In the meantime forest rangers have been detailed to patrol the mountains where the gutta-percha trees grow in greatest abundance, while customs officers will keep a sharp look-out on the coasts where Chinese craft are engaged in the smuggling trade. Secretary Root is being urged to take the entire traffic of gutta percha of the Philippines and put it in the charge of government scientists. The plan is to reserve these forests as State property and the rubber and gutta percha to be collected by the officials of the forestry bureau, or to permit private enterprise under strict conditions over specified areas.

COMPETITION IN THE SALE OF TEA IN INDIA.

Messrs. Brooke Bond and Co., Ld., are now actively competing for the trade in India. Quite recently a Director of the Company interviewed the Commissioners, who assured him that they cordially welcomed the addition of his Company to the exploiting power of the Indian Market. The well-known Lipton is also pushing Indian Tea in India more vigorously than ever, and other European distributing agencies are showing increased activity. Several European owned estates are also supplying tea in packets or boxes direct from the garden and generally a tide of co-operation is setting, which cannot but be regarded with the greatest satisfaction. The Commission, however, has not only stimulated European trading in Tea, but has aroused the interest of the Indian shop-keeper. This community is beginning to get the idea that it will pay to handle tea. The Commissioners are doing their utmost to foster the trade in this direction, by giving every possible facility to those who make the venture. They are pleased to report that during the past three months a large number have followed the lead given by the Commission and are now vending brewed and leaf tea on their own account.—*From Messrs. Andrew Yü and Co.'s report for the period ending January 1st 1903.*

AN ENTERTAINING MELBOURNE TEA HOUSE

BY "CYNTHIA."

A few months back saw the transformation of a dingy set of offices in Elizabeth-street to a something which compels the attention of any passer by. A broad shop window, behind which is displayed a series of suggestive little scenes, with a bank of tea plants for a background, was the first thing that got the public in the habit of pausing in front of Griffiths Bros.' new tea house. 'That firm has got hold of a smart window-dresser' was the almost invariable comment of the casual observer, and a dissertation on the subject of up-to-date advertising was safe to ensue. The quaint, carved figures were grouped so fantastically that it was speedily recognised that only an artist could have had the arranging of them. 'It's not tea, I want,' complained one woman gazing through the glass, 'it's one of those little brown men or that ridiculous china pot.' She who hesitates is proverbially lost.

PAUSE TO ADMIRE A CINGALESE GOD

and the first thing you know you are ordering tea at 1/9 a pound. As happened to the woman in question, happens to the majority of appreciative folk who take their walks abroad with their eyes open. The firm confesses that one branch of its trade has almost doubled since it withdrew from the stately seclusion of Flinders lane. And if the firm has gained, so has the city. An attractive shop window is something to be sincerely commended, and though this one, as it so turns out, owes absolutely nothing to a professional window dresser, it can hold its own with any in Melbourne. Small folk are beginning to insist in going round by Elizabeth-street to 'See the elephants,' while children of a larger growth take the same course ostensibly to see the tea plants. Elephants, be it stated, are a prominent feature in the window. A large painting of three Cingalese carriers at present occupies the window. One of them has quite an important history of his own, and is intimately associated with

THE AFFAIRS OF A CERTAIN TEA PLANTATION

in Ceylon. One loses nothing by passing on from the window to the sale room. If shop proprietors would only recognise how profits may be increased by picturesque surroundings, how much pleasanter a thing shopping would become! In the sale room in question a judicious arrangement of mirrors and pot plants makes the sale of tea appear a mere incident. In two alcoves and several other nooks and corners tiny tea tables are arranged. At these tables present and prospective customers are served with tea. Smart 'buttons' execute all orders for refreshment and you cannot pay a bill or even lodge a complaint without being offered a perfectly made cup of tea. Electric fans keep the place delightfully cool and comfortable, while the civility with which this firm has always been associated makes dealing with it a pleasure.

A CHAT WITH ONE OF THE POWERS THAT BE

in the firm elicits the fact that the increase in business has rendered it expedient for Griffiths Bros. to bespeak the whole output of one of the

best tea planters in Ceylon. As a matter of fact, their arrangement means something more than this, since the plantation is being worked more or less under their direction. The plantation in question has a yield one is diffident about putting down in plain figures. History relates that Australians, next to Russians, consume more tea per capita than any other people. Even then figures connected with the tea trade are staggering, even when the said figures are merely those of an individual firm from one single source. The tea from this lately acquired plantation is of a character that can hardly fail to maintain the reputation of the firm dealing with it. It is no cheaper than any other good tea. The fact has been long since recognised by every level-headed housewife that cheap tea is very poor economy. Other housewives have yet to learn that a tea at one and ninepence a pound goes twice as far as tea at a shilling, beside being infinitely more wholesome into the bargain. You may buy tea from this firm at as low a figure as prices go in the tea trade, but you will do it against the better judgment of any educated individual who sells it to you.

CEYLON IS BY NO MEANS THE ONLY MARKET from which Griffiths Bros. get their teas. China and India furnish their quota, tea from the latter place having been practically introduced to Australia by this firm. No one tea is universally popular, a blend of Chinese and Indian tea commanding a better sale than the unmixed tea from either country. Beside tea, the firm deals largely with coffees and cocoas at its warehouse in Flinders Street. Regarding this warehouse, more anon. It contains the elements of much interest, and is deserving of more attention than can be given it in the terminal paragraph of a dissertation on a tea house.

TEA-GROWING IN VICTORIA.

As a last word on the tea question, I may tell you that the tea plant may be induced to grow without any difficulty in Victoria. It is doing well in Mr Griffith's garden at Bayswater, and it makes an exceedingly pretty ornamental shrub. Economic conditions are against it being grown for commercial purposes, as the land can probably be turned to greater profit by other means. At the same time, it is an interesting item to add to your garden, the flower as well as the foliage having much to recommend it.—*Melbourne Leader*, April 11.

PLANTING JOTTINGS.

'Mid Dimbula, May 1st.—The landscape is looking green again and tea bushes are budding. The 45 days' drought up to date has made

SHORTAGE OF FLUSH

for this month universal. Rainfall for the month is 6·70 in., making 13·02 to date, against 21·43 last year.

"The secrets of nature have been opened out to us on a thousand lines." Width has been given to our intellectual horizon. "Those who share the same pursuits are drawn in spite of themselves into sympathy and goodwill. The acrimony of controversy has almost disappeared." So said Froude! Having read with great interest "Agricultural Ledger No. 1 of 1903" on "Tea Pruning" I read with the greater astonishment your quotation from *Indian Gardening and Planting*. "O. P.'s" remarks on same, and his tirade against its worthy authors:—"Too evident effort at

BELITTLING THE MENTAL PROPORTIONS OF THE AVERAGE PLANTER"!

. . . "The amazing assumption that planters are generally not up to their work"! . . . "The planter must not be called names or have it suggested that he is an amateur at making his bread and butter"!! I had read the "Agricultural Ledger" referred to without discovering any "evident effort to belittle the planter", and I have re-read the ledger and absolutely fail to discover any reason for offence. The idea of an Agricultural Ledger is a great one. The amount of good resulting from such a ledger must be immense. Sir George Watt is deserving of the planter "sympathy and goodwill" more than that of anyone else. That the Ceylon planter is not of the type to assign Agricultural Ledgers to the "obscurity of dust and cobwebs" is evidenced in the present keen interest taken in

MESSRS. GEORGE STEUART & CO.'S COMPETITIVE PRUNING ESSAY.

The scientific side of the case is not *only* of "academic interest to practical men", but has in Ceylon and elsewhere been made the basis of much practical experiment. I am sure that Sir George Watt in his Agricultural Ledger work has the "sympathy and goodwill" of at least every Ceylon planter.

One thing given emphasis to in the *Observer*, as if emanating from Sir George Watt, was the principle of pruning just above a bud. This very point was emphasised by Mr Kelway Bamber ten years ago in his book of 1893, where he remarks upon the difficulty of working out such a principle with the type of labourer at the planters' disposal.

There is a most interesting article on

"EXPERIMENTAL MANURING"

in the last issue of "Amateur Gardening" which says the analyses of the ash of plants are not an infallible guide. For instance, the ash of the turnip contains 50 per cent potash and 16 per cent phosphoric acid, which would naturally lead one to suppose that a heavy dressing of potash manure would make an immense difference to the growth—whereas experiment shews that phosphates have a far greater effect than potash. Fourteen years' experience teaches the writer that "analyses may be helpful, but carefully conducted experiment is by far the truest guide to success." Ceylon tea manuring is very largely based on analyses; and what is not based on analyses is merely the adoption of some current prescription. Mr. W Lennon, in his paper on tea soil cultivation read before the "Luxerpore Valley Society of Planters," quoted in *Indian Gardening & Planting* of 10th January, stigmatises the sheep like tendency of planters in thinking that what is good for the goose is good for the gander, and emphasises that a variety of soil requires a variety of treatment. Perhaps it is not so much a sheep-like tendency, as that most planters have not a free hand to "experiment" with the tea under their charge. There ought to be special tea laid aside for no other purpose than that of "carefully conducted experiment."

GENERAL CEYLON TEA ESTATES, LTD.

DIRECTORS.—James Sinclair, Chairman; Keith F Arhuthnot, T J Lawrauce, and T C Owen.

The Directors heg to suhmit herewith the accounts of the Company and their report for the year ending December 31st, 1902, showing a profit of £9,553, 8s 9d.

After allowance for debenture interests and other charges, there remains a sum of £1,214 2s 2d at the credit of profit and loss, to which has been added a halance of £2,210 19s 10d bronght forward from the previous year, making a total of £3,425 2s, out of which the directors have written off a sum of £2,000 on account of depreciation of plant and machinery, and propose to carry forward the balance of £1,425 2s

The crops from the Company's estates amounted to 2,318,881 lh tea, exclusive of bought leaf (116.011 lb), 2,314 hushels of coffeo, and 262 cwt. of cocoa: against estimates of 2,581,190 lb, tea, 2,530 bushels of coffee, 250 cwt. of cocoa.

The tea cost, sold in London, 5·21d, and realised 6·05d per lb. The exchange for the year averaged 1s 4 17-64th d.

The yield per acre was 430 lb. over the fields in full bearing, after allowing 200 lb. per acre for the partial bearing fields.

The present cultivated area is as follows:—

	Acres.
Tea in bearing	5,298
Tea in partial bearing ..	179
Not in hearing ..	167
Cocoa	149
Coffee	68
Total cultivated arsa	5,861

The past year was one of very severe depression in prices, which during the summer, tonched the lowest point ever experienced. The estimated tea crop, owing to labour difficulties and very unseasonable weather during the last three months, fell short of the estimate hy 262,309 lb. Since January last, however, a marked change for the hetter has come over the tea market, owing to the favourable statistical position of the article, and there seems every reason to helieve that the industry has again entered npon a period of prosperity.

A new factory had to be erected upon Hemingford estate, at a cost of £2,115 7s 5d, to replace the old building, which was reported as dangerous. This and other expenditure has been charged against revenue, and makes the cost of production appear high. Eliminating these charges, the cost of the Company's teas sold in London was 4·98d.

Mr. Keith F Arbnthnot, the Director, retiring by rotation, being eligible, offers himself for re-election.

CEYLON TEA PLANTATIONS COMPANY, LIMITED.

REPORT OF THE DIRECTORS

to be snbmitted at the Sixteenth Annual Ordinary General Meeting of Shareholders, to be held at the Office of the Company, on Monday 27th April, 1903.

The Directors have the pleasure to snbmit the General Balance Sheet and Profit and Loss Account for the year ending 31st December, 1902, duly audited.

	£ s d
The net amount at credit of Profit and Loss Acconnt, including Balance bronght forward at 31st December, 1901, and after providing for General Expenses, Directors' Fees, Income Tax, &c., is	46,554 16 9

Dividends the on 7 per cent Preference Shares were paid for 1902 (less Inoome Tax) amouting to £5,320 1s 2d; an Interim Dividend of 7 per cent on the Ordinary Shares was paid 29th October, 1902, amounting to £11,716 12s; it is proposed to pay a final Dividend of 8 per cent on the Ordinary Sharos making 15 per cent in all, free of Incomo Tax, which will absorb £13,390 8s; to write off for Depreoiation £10,000; and to carry forward to next year a Balance of £6,126 19s 7d—Total £46,551 16s 9d.

It is with pleasure the Directors are in a position to report that the year's working enables them for the sixteenth year again to recommend the usual dividend of 15 per cent., free of income tax, to the Ordinary Shareholders.

During the past year the average price of British grown tea showed no improvement on that of 1901, but owing to diminished supplies and a steadily increasing consumption, prices have now materially improved. The excessive rainfall and sunless weather, which prevailed during the last six months of the year, effected the yield of tea on the Company's estates, which was 71,514 lb. short of the previous year's output. The following shows the quantity of tea accounted for in the profit and loss statement:—

Estate tea lb. 3,885,821. Bought leaf tea lb. 369,683. Tea manufactured for others lb. 304,477. Total lb. 4,559,981. The average gross price for the tea sold in London and elsewhere, including bought leaf, was 7·24d., compared with 7·41d the previous year, and the rate of exchange 1/4 15-64d, the same as last year. During the year the Company manufactured 513,489 lb. of green tea for the American and Canadian markets, as compared with 78,278 lb. in 1901.

The coconut crop was a favonrahle one, and amounted to 1,740,968 nuts, or 339,200 nnts in excess of the previons year. The Company has hecome interested in a patent process for treating the kernel of the coconut, and the necessary machinery is now being installed on one of their estates. From this new mode of manufacture the Directors have good reason to hope for remunerative results.

Progress has heen made in the further planting out of Para Rubher, which will be continued dnring the current year on any of the Company's land considered suitable for this product.

The Board has again to acknowledge the good services rendered by the Ceylon Manager and his Staff during the past year. Under Clause No. 69 of the Articles of Association, Mr David Reid retires on this occasion from the Board, and heing eligible offers himself for re-election. The Auditors, Messrs Harper Brothers, Chartered Accountants, also retire from office, and offer themselves for re-election.—By Order of the Board, WM. JOHNSTON, Secretary. London, April 18.

ACREAGES OF TEA ESTATES AT 31ST DEC., 1902.

Estates.	Districts.	Tea in bearing 1902.	Tea not in bearing.	Other Products.	Jungle and Timber Clearing.	Patana and Waste.	Total Acreages.
Marriawatte	Gampola	458	—	—	101	23	582
Atgalla	do	450	4	—	50	27	531
Dunedin	Kel. Valley	474	—	—	58	—	532
Dewalakande	do	552	—	—	92	—	644
Sembawatte	Yackdessa	150	—	—	274	251	675
Mudamana	Kel. Valley	391	—	—	83	—	474
Ingoya	do	522	—	54	283	—	859
Walkaha	Dimbnla	247	—	—	23	20	290
Tillyrie	Bogawantalawa	617	—	—	137	2	756
Scrubs	N. Eliya	111	—	—	30	10	151
Alton	Maskeliya	413	10	—	23	12	458
Tangakelly	Dimhula	823	—	—	50	37	910
Waverley	do	364	—	—	—	4	368
East Holyrood	do	687	—	—	—	46	733
Rosita & Lochiel	do	640	—	—	83	65	788
West Holyrood	do	480	—	—	16	21	517
Yoxford	do	394	—	10	—	69	473
Glenlyon and Polmont	do	613	4	—	51	15	683
Pitaratmalie	Hapntale	501	411	10	578	105	1,605
Total Acreages		8,887	429	74	1,932	707	12,029

ACREAGES OF COCONUT ESTATES.

Estates.	Provinces.	Coconuts. In bearing.	Not in bearing.	Other Products.	Jungle.	Patana and Waste.	Total Acreages.
Andigama	North Western	30	901	—	169	43	1143
Mawatte	do	133	340	—	29	2	504
Jakwila	do	17	327	—	—	4	348
Sirangapahe	Western	338	153	28	—	2	521
Total Acreages		518	1721	28	198	51	2516

STATEMENT SHEWING RESULTS OF WORKING SINCE THE FORMATION OF THE COMPANY.

Year.	Acreage of tea in bearing.	Yield per Acre.	Sale price of tea (London).	Total.	Net Profits.	Dividends. Ordinary.	Preference
	Acres.	lb.	d.	lb.	£		
1887	1,251	403	13·00	598,779	13,257	15	None issued.
1888	1,405	394	10·50	850,352	10,258	15	
1889	2,773	338	11·00	2,014,334	23,370	15	
1890	3,947	387	11·00	2,939,766	31,002	15	
1891	5,168	414	9·27	4,291,591	31,233	15	7
1892	6,584	376	9·38	4,666,699	37,146	15	7
1894	7,167	419	8 85	4,966,928	43,986	15	7
1894	7,879	372	8·84	4'825,498	48,603	15	7
1895	8,073	437	8·09	5,306,904	51,926	15	7
1896	7,998	470	8·14	5,483,596	48,986	15	7
1897	8,067	495	7·85	5,524,145	42,199	15	7
1898	8,067	460	7·97*	5,075,181	41,381	15	7
1899	8,199	485	7·86	5,058,147	43.062	15†	7
1900	8,412	526	7·15	5,362,892	41,011	15	7
1901	8,461	467	7·41	4,680,740	37,199	15	7
1902	8,386	463	7·24	4,559,981	37,937	15	7

* From this date the figures represent the average price of the teas sold in London and elsewhere.

† And a Bonus of 3 per cent.

KELANI VALLEY TEA ASSOCIATION, LD.

REPORT OF THE DIRECTORS.

To be presented to the shareholders at their seventeenth ordinary general meeting, to be held at the Office of the Company, on Wednesday 29th April 1903, at 2 30 p.m.

The Directors beg to submit to the Shareholders the Report and Accounts of the Company, duly audited, for the year ending 31st December 1902, and they regret that the results is so unsatisfactory.

The crop obtained from the four Estates amounted to 570,163 lb against 549,906 lb in the previous years the average price realised for the Tea sold in London was 5·812d against 6·206d in 1901, and the average price for the Tea sold in Colombo was 28 cents.

The average rate of Exchange was 1/4 11-32nds compared with 1/4 3 8th in the previous year. As will be seen, the average price obtained for the year under review is considerably less than that for 1901: this is due to the very low prices ruling for the greater part of the year, and mainly accounts for the reduced profits shewn. After paying Debenture Interest and other charges the balance at credit of Profit and Loss Account, including the amount brought forward from the previous years is £432 0s. 9d., which your Directors propose shall be carried forward to the current season's accounts.

The Board considered it advisable to make a chan in the Superintendence of Wereagalla and Paruse Estates, and they therefore dispensed with the servic of the Manager of of those Estates, and appointed his place Mr M J Paine, who took over charge in Ju last. On the strong recommendation of the Manag i Director, who is at present in Ceylon, and Mr Mitchel the Board have sanctioned the making of Green Tea at Weresgalla Factory.

In accordance with the Articles of Association, Mr J W Stocks retires from the Board, and being eligible, offers himself for re-election.

Mr J B Laurie, C.A. also offers himself for re-election as Auditor.

G W PAINE,- -Chairman.

16, Philpot Lane, London, E C, 17th April 1903.

THE PANAWAL TEA COMPANY.

REPORT OF THE DIRECTORS.

The Directors beg to submit the general balance sheet and profit and loss account for the year ending 31st December, 1902, duly audited ;—

The net amount at credit of profit and loss account, including balance brought forward at 31st December 1901, after providing for general expenses, Directors, Auditors' fees and income tax.—£1,576 9s. 2d.

Dividends on the 7 per cent cumulative preference shares were paid for 1902, in full, amounting to—£371 0s.0d.

It is proposed to pay a dividend of 7 per cent on the ordinary shares for the year ending 31st December 1902, which will absorb £1,190 0s. 0d.

Less income tax at 1s. 3d. in £74 7s. 6d.—£1,115 12s. 6d.

To add to reserve, fund bringing it up to £1,800,—£80 0s. 0d.

Leaving a balance to be carried forward to next season of £9 16s. 8d.—£1,576 9s. 2d.

The Direotors recommend the distribution of a dividend at the rate of 7 per cent. (less inoome tax at 1s. 3d. in the £) on the ordinary shares of the Company for the year ending 31st December, 1902.

The Directors have to report that the condition of tea growing industry appears to be gradually improving.

During the past year further progress has been made with the planting of para rubber in the ravines and in suitable land in the jungle. The acreage of the Company's properties stood on 31st December last at—Tea in full bearing 590 ; Jungle partially planted with para rubber 341½. Total 931½ acres.

The crop realised for 1902 was 275,563 lb.

The visiting agent (Mr F J Clements) in his last report on the properties mentions that there was a lack of sunshine during the past season, but that the cultivation of the estate and the condition of the machinery, &c., are generally satisfactory.

Mr John Holgate Batten, the Director, retiring by rotation being eligible, offers himself for re-election.

THE MADULSIMA COFFEE AND CINCHONA COMPANY, LTD.

REPORT

to be presented to the twenty-third ordinary general meeting of the Company, to be held within the Office of the Company, 4A St. Andrew Square, Edinburgh, on the twenty-first day of April 1903, at 12-30 o'clock afternoon.

There is submitted herewith the Crop Account for season 1901-1902, together with a Statement of Profit and Loss Account, and the Balance Sheet showing the financial position of tho Company at 31st December 1902. It will be seen that the Crop Account shows a surplus of £4998 13s 8d. After crediting Profit and Loss Account with this sum, providing for Interest and Home Charges for 1902, and applying the sum £1000 in reduction of the value at which the Company's Estates appear in the Balance Sheet, there remains at the credit of Profit and Loss Account the

sum of £4301 6s 4d. Out of this sum the Directors recommend payment of the Preference Dividend for the year at the rate of eight per cent, subject to deduction of income-tax. This Dividend will absorb £2296, leaving £2005 6s 4d to be carried forward. After payment of this Dividend there will remain seventeen per cent of arrears of Dividend on the Preference Shares. The Tea Crop amounted to about 632,000 lb, averaging 6 15-16d per lb gross, as compared with 476,000 lb, averaging 7 31-32d for the preceding year. For the current season it is estimated that the crop will amount to 590,000 lb. The average rate of exchange was 1s 4 3-32d per rupee, as compared with 1s 4½d for 1901 and 1s 4 3-16d for 1900. The Company has now 1470 acres of Tea in bearing, and 45 acres of young tea, making a total of 1515 acres under Tea. The Directors having ascertained that Mr. W. G. Lang is willing to join the Board (to fill the vacancy which occurred in 1900), his election will be proposed at the Meeting at which this Report falls to be presented. Mr. Pitman, in order of rotation, retires from the Board at this Meeting, and is eligible for re-election. An Auditor for the current year falls to be appointed. Mr. Findlay B. Anderson, the present Auditor, offers himself for re-election. By Order, E. A. DAVIDSON, Secretary.

THE HAPUTALE COMPANY, LIMITED.

REPORT

to be presented to the fifteenth ordinary general meeting of the Company, to be held within the registered Office of the Company, 4A St. Andrew Square, Edinburgh, on the twenty-first day of April, 1903, at 12·45 o'clock afternoon.

There is submitted herewith the crop account for season ending 30th June, 1902, together with a Statement of profit and loss account, and the balance-sheet showing the financial position of the Company at 31st December, 1902. It will be seen that the crop account shows a surplus of £3,809 1s 1d. After crediting profit and loss account with this sum, and with rents, &c., &c., received, and after applying the sum of £700 in reduction of the value at which the estates appear in the balance-sheet, there remains at the credit of profit and loss account the sum of £3 998, 5s. Out of this sum the Directors recommend the payment of a Dividend on the Preference Shares at the rate of four per cent, subject to deduction of Income-tax. This Dividend will absorb £2,308, 10s 10d., leaving £1,689 14s 2d. to be carried forward. After payment of this Dividend, the arrears of Dividend on the Preference Shares will amount to thirteen per cent as at 31st December, 1902.

The Tea crop amounted to 350,000 lb averaging 8 9 32d per lb gross, as compared with 8 9-10d for 1901 and 9 23-32d for 1900. For the current season the estimate is about 350,000 lb. The average rate of Exchange was 1s 4 5-64d per rupee, as compared with 1s 4 3-32d for 1901 and 1s 4 3-16d for 1900. The Company has now about 1394 acres under Tea, of which 1019 acres are in bearing. The Directors having ascertained that Mr W G Lang is willing to join the Board (to fill the vacancy which occurred in 1900), his election will be proposed at the Meeting at which this Report falls to be presented. Mr Pitman, in order of rotation, retires from the Board at this Meeting, and is eligible for re-election. An Auditor for the current year falls to be appointed. Mr Findlay B Anderson, the present Auditor, offers himself for re-election.—
By Order, E A DAVIDSON, Secretary.

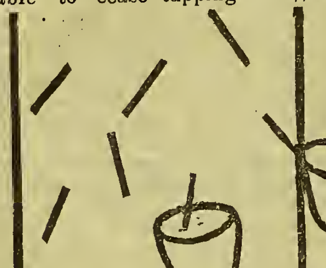
RUBBER TAPPING AT THE STRAITS.

During the past few weeks, a number of high Government officials, planters from the Native States, and other persons interested in the development of the Peninsula, have been making a regular morning *rendezvous* of the Economical Gardens at Cluny Road. The cause of this has been the remarkably interesting demonstrations of the result of experiments lasting many months, in the matter of extracting the *latex*, or sap from the Para rubber trees that have been planted there for experimental purpose. In view of the fact that within the next few years, Para rubber is expected to rank next to tin as the staple product of the Straits, anything affecting its cultivation of harvesting becomes a matter of prime public importance. The main item of interest about the demonstrations rests in the fact that Mr. A D Machado, who has carried out the experiments, and now cheerfully demonstrates the results thereof every morning, has found it possible to "milk" a tree every second day for six months in every year without in the least hurting it or impairing its growth, and at the same time he can secure the greatest possible amount of the valuable *latex* from which the rubber is subsequently formed. Heretofore the system in vogue has been to make large gashes in the bark of the tree and catch the *latex*, or white sap, as it flowed therefrom, in tin cups or other receptacles. In the more advanced plantations, the plan followed has been to make a so called "herringbone" gash, with contributory smaller gashes leading into it, looking like the bones of a fish as shown in the cut below. The spine, or main gash in this system would measure from eight to about fifteen inches long, by from a quarter of an inch to three-quarters-of-an-inch wide, according to the size of the tree, and the side gashes would be proportionately larger or smaller. Mr Machado, however, has discovered that the best results are obtainable from a series of little incisions—mere nicks—measuring 2 inches long by only ⅛ inch wide, four of which only equal one narrow incision of 8 inches by ⅛ inch in the bark of the tree. Such a series of tiny wounds is utterly harmless, and it produces a supply of *latex* as ample as does the great "herringbone" cut which was often capable of seriously injuring, and even of killing a tree. The proof of the pudding being in the eating, it is as well to state at once that from 100 trees, averaging from 12 to 15 years of age, and planted much too closely together to admit of their being properly developed Mr Machado draws an average of about 3 lb. of dried rubber daily, and he expects the supply to be maintained for six months—working half the trees each day during that period. Then the trees will be given a rest for six months, while another 100 will be tapped, and then the original 100 will be tapped again.

In response to queries on the subject Mr Machado has furnished the following data as regards his experiments and the results thereof :—

Tapping operations were begun on the 4th March, but it was not till the 20th March that 100 trees were regularly tapped with 4 incisions to each tree. Each incision is 1½ inches long by ⅛ of an inch wide. Four incisions would mean in length 6 inches of a cut to each tree, barely more then a scratch one may say. One noticeable feature is that some trees yield much more copiously than others, and this may be due to the position of the trees as regards shade, soil and moisture. Irrespective, however, of these important factors, there can be no doubt that some trees are physically more productive than others, for much the same reason that one man is stronger than another and so on. The 100 trees operated upon occupy a triangle 176 feet by 220

feet by 250 feet, or barely more than ¼ acre, from which it will be observed that they are much too close—a condition by no means favourable for the production of *latex*. Still, results go to show that the present output, as obtained by means of small cuts, is all that can be desired. The flow of *latex* is more copious on the morning of a day following a heavy shower of rain than on a dry day ; in fact, in very dry weather it would be almost advisable to cease tapping altogether.



ROUGH SKETCH, SHOWING THE OLD AND NEW SYSTEMS OF "MILKING" RUBBER TREES.

The above sketch represents the trunk of a Para rubber tree, nine inches in diameter, and shows the relative sizes of the incisions made according to the plan commended by Mr A D Machado, and the old "herring-bone" system, as depicted lower down near the root of the tree. The incisions made under the new regime are only one-and-a-half inch long, by one-eighth of an inch in width. The cups shown under the incisions are roughly soldered tin affairs, made out of old oil cans. They are simply thrust into the bark of the tree immediately under the incisions, and the *latex* flows into them. Prior to being affixed to the tree, a little water is poured into each cup, so that the *latex* or sap, may not dry too soon and stick to the bottom. After about half an hour, the cups are taken away and emptied into a big enamelled-ware dish, where the *latex* is quickly coagulated by the addition of about a tablespoonful of acetic acid to the product of 50 trees. The emptied cups are rinsed out in another dish, and the *latex* therefrom is also coagulated. The mere rinsings of these cups from the 50 trees give about half a pound of rubber. The way the *latex* is extracted and prepared is simple in the extreme. As soon as a cut is made, either with a small axe or a chisel, a tin cup, enlarged at the apex and tapering towards the bottom—called in the Amazons a *tijellina*—is inserted beneath the wound, and into it the *latex* flows. At six o'clock tapping begins, and by 6-30 a.m., tapping is over. At 7 a.m. the cups are gathered in, the *latex* passed through a sieve to ensure cleanliness, a little acetic acid is poured in to hasten coagulation, and the *latex* is then poured into enamelled soup plates and in about half an hour's time coagulation is complete. The *latex*, which at this point resembles stiff blancmange, is then put into a press and whatever water remains is pressed out. It is then placed over a kitchen fire (wood fire) to dry, after which, if the sheets are thin it assumes a dark yellow colour and is transparent. Drying in the sun will not do, as this causes the rubber to turn sticky. Taking the average for the last 12 tappings, the average daily output of pressed rubber has been 87 oz or lb 5·44. There will be a loss in weight of 40 per cent. when the rubber is thoroughly dry after smoking—leaving, say, 3 lb of dry rubber for each day's tapping. At the present rate of tapping, these trees will stand tapping for 90 days, tapping them preferably every alternate day, or say 6 months in all. This means 3 lb a day for 90 days, 270 lb at 4s a pound, the price at which this rubber is valued in London, and the result is a return of £54 per 100 trees per annum. At half this figure the profit still remains stupendous. Self-coagulated rubber is said to be better in quality than rubber prepared with acetic acid, but the time taken for rubber to coagulate by itself is from 16 to 20 hours, whereas, with acetic acid, from the time the incisions are made to the time the rubber is pressed and ready to be smoked, occupies just two hours, a matter of some importance where time is of some object. The system of tapping now carried on—oblique incisions—is the one in vogue, in the Amazons. The "herring-bone" system has been described by M. Bonnechaux, a gentleman who for some years was a rubber collector in the Amazons, as little short of barbarous and it is said that it speaks volumes for the vitality of these trees in that they have survived the ordeals thereby entailed. In the Amazons these trees would have succumbed to the torture. That it is harmful is proved by the fact that one of the 100 trees now being operated upon had a herring-bone incision made on it, and is now producing next to no milk. It is well to reiterate the fact that the trees now being tapped are planted much too near each other, and are growing under excessively unfavourable conditions generally. In spite of this, they yield an average of 3 per lb. tree per annum. The average circumference of the trees is 2 feet 10 inches, the largest being 5 feet 1 inch, and the smallest 1 feet 3 inches.
—*Straits Times*, April 16.

CAMPHOR SUBSTITUTES IN THE CELLULOID INDUSTRY.

The important part played by camphor in the celluloid industry is a matter of common knowledge. Indeed, it may be said that without camphor there would have been no celluloid in the past. Its use, however, is not without several drawbacks. In the first instance, camphor is a rather expensive product, and one, moreover, the price of which is subject to very considerable fluctuations. Many attempts have therefore been made to find a satisfactory substitute for this product, but until comparatively recently these attempts did not achieve any particular measure of success.

In the last few years the importance of finding a satisfactory camphor substitute has been increasingly realised, and the efforts of a large number of chemists have been directed towards this end. The most obvious product to employ for this purpose is, of course, the product known as artificial camphor, a terpene hydrochloride. This substance appeared to work entirely satisfactorily, but it was soon observed that celluloid articles manufactured with this substitute after a short time lost their transparency and the delicacy of their colouring. Eventually, they became altogether brittle, and therefore useless. Although it was discovered that these effects were due to the presence in the artificial camphor of certain impurities, the cost of effecting the necessary purification was found to be excessive. It appears that this difficulty has now been entirely overcome by the discovery of an extremely cheap process for the refining of the artificial camphor, and it is stated that the pure product yielded by this process is greatly superior to real camphor in the manufacture of celluloid articles. In the meantime, however, a very large number of compounds have been patented, all of which are claimed to be satisfactory substitutes for part or the whole of the camphor used in the manufacture of celluloid. No doubt a considerable proportion of these alleged substitutes will never pass beyond the experimental stage in the manufacture of celluloid, but there is no doubt, on the other hand, that quite a number of them answer their purpose in a very satisfactory manner, and will prove a most useful addition to the resources of the celluloid industry.—*India-Rubber Journal*, April 13.

PRESERVING BOOKS IN THE TROPICS.

The books should be lightly painted over by means of a camel's-hair brush, both outside and inside the covers (and especially along the margins and backs where paste has been used), with a mixture as follows:—

1 oz. Corrosive sublimate.
1 oz. Carbolic acid.
2 pints methylated or white rum spirit.

This solution (if carefully applied) will effectually preserve books with either paper, cloth or leather covers from cockroaches and other insects. No harm will be done to the books, and after the mixture has dried they may be handled with perfect safety.

Every new book received should be at once treated in this manner. The result will be that they will keep in as good order in the tropics as in temperate climates.

Bookbinders in the tropics are recommended to use a paste poisoned by adding half an ounce of copper sulphate (or blue stone) to every pound of paste.—*Agricultural News* Jamaica.

CITRONELLA OIL.

(*To the Editor, "Chemist and Druggist."*)

SIR,—Our experiences as exporters of citronella oil from Ceylon may possibly prove of interest in view of the discussions and articles appearing in your journal on the adulteration of this export.

The prevention of excessive or, in fact, any adulteration rests mainly in the hands of the home importers, who would obtain a very fair oil if they would pay a fair price, but who, availing themselves of the cutting competition which was started a few years ago, so reduced the price of the oil that it has been an open secret for some time past that the distillers were unable to produce it at a profit to themselves unless they resorted to adulteration. This policy of cut-throat competition will exist as long as home buyers are content with Schimmel's test, which, according to our experience, admits of an adulteration of about 15 per cent. of petroleum. His Excellency Sir West Ridgeway, in his recent speech at the opening of the present sitting of the Legislative Council, referred to the subject of the increasing adulteration of this Ceylon export and the consequent discredit which was coming over the trade. We immediately inquired of the Director of the Botanical Gardens as to the steps Government contemplated taking, and were informed that they proposed to plant up an acreage with the grass in order to demonstrate to the distillers that a better oil could be produced. We suggested that Government should rather cause every shipment exported to be analysed by the Government analyst; buyers could then obtain an analysis of the shipment before accepting it, and it would ultimately result in exporters being compelled to send such certificates with each shipment. Winter's oil, which, we notice, has formed the subject of one of the experiments mentioned, has always been exported by us as their agents. It is obtained from a grass imported years ago into the island by Mr Winter, and is not identical with that cultivated by the natives; in fact, it is only grown on his estates, and its distillation is supervised by a European manager, so that there is no question about its purity.

Our experience having shown us that Schimmel's test was unreliable, we worked out and adopted a test of our own, which gives, in our opinion, very satisfactory results, and for the disclosure of which we have had at least one offer. We have for many years in consequence been compelled to pay a higher rate for oil satisfying our test than we should have had to pay had we adopted the milder standard of purity, and, being adverse to shipping oil which would not pass our standard, we lost ground in the trade in proportion as the adulteration and the consequent difficulty in obtaining pure oil increased. In truth, the quality had fallen off to such an extent that during the past three years we have exported but a quarter of the quantity yearly than we had done during the previous six years.

The test we employ is distinctly a practical one, and we have always obtained good results from it, though we would by no means claim that it is better or surpasses a thorough quantitative and qualitative analysis at the hands of an expert analyst. Contrary to the opinion of Messrs. Parry and Bennett, and with all due deference to these gentlemen, we do not think that any resin-spirit as a distinct article is the medium of adulteration. We have an intimate acquaintance with the districts where the oil is distilled, and are not aware of any other oil or resin-spirit being made which could be used as an adulterant; but, in our opinion, the adulterant is the same as it has been for the last ten or fifteen years—namely, petroleum or, as it is more commonly called here, kerosene. The only change that may possibly give rise to the suggestion and presence of resin-spirit is that change in kerosene which has taken place within the past few years, for the Russian bulk petroleum installations have almost altogether ousted the former American qualities, and, being carted from door to door as it is, a cheap, handy, and well-known adulterant is at hand to every native wishing to increase the quantity of his distillate. The differences between the two petroleums mentioned are very marked, and if

Messrs. Parry and Bennett were to experimen with a pure oil and Russian kerosene we think it very probable that they would arrive at the same results as they have done in the adulterated samples they have examined.—Yours faithfully,

CHAS. P. HAYLEY & Co.

—*Chemist and Druggist*, April 18.

VALUE OF THE TREE TOMATO.

Mrs. T B Shepherd, an eminent florist and who resides in Ventura, says that when the value of the tree tomato as a fruit is once fully appreciated acres of it will be planted. It bears from seed the second season, and a young plant set out in the spring grows six feet and comes into bearing by Christmas. The foliage is large and handsome, the branches spreading. The fruit is pendant in clusters below the foliage, is the size of a large egg and of a beautiful orange salmon colour when ripe. It has a decided sub-acid taste, slightly resembling the tomato. It is delicious raw, served with sugar and cream or cooked as sauce, and for jelly or jam is very fine. It will keep for weeks, as it does not bruise on account of its very tough skin and the solid nature of the fruit covering the seeds which are like those of the tomato. It is a showy plant for house and conservatory, and a most beautiful plant in the garden. It is a native of South America, and is known as the poor man's fruit."—*Rural Californian*, for March.

PLANTING NOTES.

PROFITABLE POULTRY.—Nearly 8s per hen profit was made for the year ending 1st November by I B Koons, of Lehigh county, Pennsylvania, U S A, who started the year with thirty-eighth Plymouth Rocks. They laid 4,118 eggs, which at an average of 11d per dozen brought a little over £15. Chickens sold and used brought £4 15s, and the increase in the flock of forty-two head was valued at £4, making a total income of £23 15s. The expenses for feed were £10, leaving a net profit of £13 15s 5d. During the year four fowls were lost through disease. This shows that fowls—well cared for—are profitable live stock.—*Agricultural Journal.*

THE "TEA TORTRIX."—Our remarks on the "tea tortrix" on page 832, in view of the notice drawn to it at the previous day's meeting in Dimbula, were none too strong and—in higher districts especially—if work for the pluckers is short, a careful round should be made, of search for tortrix egg-masses, and coolies paid according to the quantity brought in. This is what Mr E E Green has to say on the pest in his Administration Report—to which we alluded yesterday:—

(*Capua coffearia*, Neitner).—This pest, which has attracted attention on and off for the last six years, has given considerable trouble in parts of the Maskeliya and Dikoya districts during 1902. Two separate visits were made to Maskeliya to study the insect, resulting in a more accurate knowledge of its life-history which has enabled me to suggest remedial measures that should be sufficient to keep the pest in check. The eggs of the insect have been determined, and it has been found possible to collect and destroy them in very large numbers at a very small cost. A circular on the subject was prepared in December, accompanied by a plate showing the insect in all its different stages. Through the courtesy of the Acting Surveyor General this plate was executed by the lithographers of that Department.

THE RESHIPMENT OF TEA FROM AMERICA TO LONDON.—*Apropos* the letters of a firm of merchants which have appeared in recent issues of the *Observer* on this subject we note the following in the *American Grocer*, April 1st:—"Further large quantities of Congou teas have been sold for export to London. There was talk among brokers that several large English firms have standing bids here, which, however, are 3/8c. per pound below sellers' views here. At the bid prices, the above English firms, it is said, are ready to clean up all supplies of Congou teas in this market." The same paper also states that the new crop Japan it is expected will arrive there in the early part of May. Formosa and Congou will arrive about the same time, while new crop Ping Suey will not come in until June.

INTELLIGENCE *v.* PESTS.—We commend the following from an American journal to the attention of our cacao planters, each of whom ought to do his duty in fighting any fungus or canker, for his own as well as the general benefit, without compelling legislation:—

When the cultivation of oranges for profit in Southern California began, the orchardists were met in the outset by the ravages of scales which threatened to destroy their young orchards. No known means of combating the pest was available, but such means were soon discovered and the powers of the legislature were invoked to compel all orchardists to unite in destroying the pests. The same is true in the islands. Difficulties will be encountered at first, but the intelligent farmers will win in the end.

CONSUMPTION AND EUCALYPTUS.—Dr. Gandevia and others in Ceylon interested in consumptive patients should see a fair trial given to the following remedy as reported by the Berlin correspondent of a London daily paper:—

"An important discovery has been made by a German savant which, if it does not exterminate tuberculosis altogether, is expected by its advocates to go further to reduce the ravages of this dread disease than any other curative agency known. Under the supervision of Professor Sommerfeld, a physician of great reputation, the new method was tried at several hospitals for about six months, at the end of which time the most gratifying results were recorded. Of 100 cases of tuberculosis, including all stages of the disease, sixty were pronounced entirely cured. The process is as follows: Oil of eucalyptus is mixed with sulphur and charcoal, and this mixture is then evaporated over specially-constructed alcohol lamps. The vapours inhaled by the patients killed the tuberculosis bacilli. In some cases the patients were kept day and night in the atmosphere thus impregnated until they showed signs of relief. I have interviewed Professor Sommerfeld, who is anything but a notoriety seeker. He said he did not wish to encourage any over-sanguine hopes, but he was sure that "sanosin," as the new curative agent is called, constituted an enormous advance towards the extermination of tuberculosis."

CASTILLOA RUBBER.

We cannot well understand what Mr. G. C. Pearson writing in *Modern Mexico* as quoted below means, when he condemns Ceylon as unfit to grow Castilloa rubber, profitably. We cannot see that the figures quoted for yield by him in respect of Mexico and Central America are so much more favourable than those of the late Dr. Trimen on which the condemnation is apparently based. Mr. Weber got 2 oz. rubber from 6-year old trees and reckoned he could have doubled this per annum or 4 oz. Dr. Trimen reported over 7 oz. hard rubber from his trees of same age. From 12-year old, Mr. Weber got 8·6 oz; Dr. Trimen from 11-year old 25·7 ounces—so that how Mr. Pearson can say the Ceylon figures are unfavourable, is very puzzling. But there is some confusion; elsewhere, we are told Mr. Weber's result equalled 11½ oz. rubber from a 6-year old tree, and Mr. Pearson himself reports 3¼ oz. from a tree 4½-year old, and rather more from other trees of same age. That the yield depends on climate and soil as Mr. Pearson tells us, is fairly well-known, but it depends also on the methods of tapping, the most suitable varying according to climate. It is thought by those best able to judge that a series of "V" cuts, made spirally round the tree, will be the best suited to the trees grown in the Ceylon climate.

Referring again to the subject of figures, the more businesslike are those given in a report in the *India Rubber World* of the experimental tapping on a regular plantation. The details will be found on page 844, and the result is 112 lb. rubber per acre of 200 trees, 7 years' yield; 174 lb. at 8 years; 240 lb. at 9 years; and 314 lb. at 12 years—or 1 lb. 9·12 oz. per tree, against 1 lb. 9·7 oz. got by Dr. Trimen from 11-year old trees. So that Ceylon again scores.

The great fact, remains, namely, that there is a ready, profitable market for all the rubber likely to be available for a long time to come.

THE YIELD OF THE CASTILLOA TREE

(*Written for "Modern Mexico" by George Cullen Pearson.*)

Well may an English writer in a recent article say that 'the question of the amount of rubber yielded by the castilloa is characterised by a degree of discrepancy perfectly appalling.' To instance this: According to Cross, the well-known Kew botanist, a castilloa of from 18 to 24 inches in diameter produces 13 pounds of rubber annually, and that exceptionally large trees may give as much as 100 pounds!

Collins observed 'that a 6 year old castilloa possessing a diameter of 19 inches' (where can such a development be found?) 'on being tapped in April in the dry season, furnished 20 gallons of latex from which 49 pounds of rubber were obtained,' and he further declares that this is the average yield of all trees, the trunk of which before branching out reaches a height of from 18 to 27 feet above the soil.

Dr. Morris, one of the foremost botanists, now, I believe, director of the Botanical Department in the West Indies, states that a catilloa when first tapped should yield 16 pounds of rubber. If my memory is not at fault, Dr Morris has stated that the first tapping should take place at 6 years.

In Nicaragua it is found (in consular reports) that a castilloa tree yields from four to six pounds of rubber annually. In the U. S. Consular report for October, 1896, I find that 'if the trees have matured properly' in the sixth or seventh year from eight to twelve pounds of rubber can be taken from each tree biennially!

The Bureau de Informations Agricoles de Mexique is more conservative, giving the yield of castilloa trees when 4 to 5 years old at 2 pounds 6 ounces of rubber.

Certainly the range is wide enough according to these statements, selected from many similar, showing that the yield of rubber, even of trees not exceeding 6 years' growth, may be anything from 2 pounds 6 ounces to 49 pounds annually.

Now, I am not in a position to prove that these statements, coming as they do from official and authoritative sources, are not correct. I can only say that having given considerable attention to all points connected with rubber culture, my own experience does not bear them out. And I prefer, in common with all who have seriously taken up the cultivation of rubber, to base my calculations of the probable returns on facts as ascertained by actual experiment. The following are the results as obtained myself of the yield of the castilloa:—The greatest amount of rubber I have secured from one tree was 12¾ pounds, which I obtained from 30 lb. of milk—about 46 per cent of solid rubber. This was the result of tapping a tree growing on my property which measured two meters nine inches in circumference—87 inches—at six inches from the ground. I may here state that an old *hulero* (native rubber collector) who has worked much with me and in whose statements I have learned to place exceptional belief, a man of long experience, who has collected rubber in all parts of the Republic, told me that the most he ever found a tree to yield was 20 pounds of solid rubber, which he obtained from an exceptionally large tree measuring three meters in circumference—117 inches—growing in a wild part of the State of Oaxaca. He believed the tree to be from 40 to 50 years old. On November 24th last I tapped six trees, averaging 40¾ inches in girth with a net result of 7 pounds 15½ ounces of rubber. These trees were comparatively lightly tapped. If they had been operated on in the wholesale fashion of the native collector at least half as much again would have been obtained. On November 30th I tapped two trees of the respective circumference of 63 and 60 inches, obtaining therefrom 6 pounds 2½ ounces of rubber. As to the age of these trees I can say nothing, as they are wild trees growing on the property. On December 3rd I tapped a rubber tree planted by myself, age 4 years 4 months, girth 26 inches, height 27 feet, the result being 2½ ounces of rubber. Eight days afterward I again tapped the tree and obtained ¾ of an ounce of rubber, making total product 3¼ ounces. A few days later I tapped ten trees, age 4 years and 4 months, average girth 23 inches, obtaining therefrom 22 ounces of rubber. These trees could all have been bled again, the second operation in no way affecting the tree, as I proved by the first-named experiment. In both cases the quality of the rubber after preparation was excellent. On December 7th I tapped a tree of the age of 3 years and 4 months: result ¾ ounce of rubber of poor quality, sticky and little life in it. It need hardly be re-

marked that these experiments were made not for marketable purposes, but in order to see what the increase in yield might be in each successive year.

In order to compare these figures with others, I will quote those obtained by the writer of the article previously referred to. Mr. Weber gives the following as the results of his experiments made at the plantation of Las Cascadas on the Isthmus of Panama :—

	Per tree.
Five-year old trees, mean yield of 77 trees..	2·3 oz.
Six-year old trees do. do. 61 ,, ...	2·0 ,,
Eight-year old trees do. do. 61 ,, ...	1 8 ,,
Tweleve-year old trees do. do. 61 ,, ...	4·3 ,,

Mr. Weber states, and in this I quite agree, that 'the trees can with perfect safety be tapped twice yearly ; thus the annual rubber yield may be taken at double that in the last column of the table.' He further observes that he considers his figures as rather below than above the mark. It will be remembered that Mr. Weber gives the amount of rubber contained in the latex at from 26 to 31 per cent. This is far lower than I have ever obtained. According to Dr. Ure and Professor Faraday, the percentage of pure rubber in the latex is 45 per cent. I have never found the milk of the castilloa give less than 39 per cent, and in one case, with unusually thin milk from an old a :d much-tapped tree, I obtained as high as 49 per cent. If, then, we take the yield of a 6-year old tree at 1 lb. 13 ounces, as given by Mr. Weber, the result would be at 40 per cent, say 11½ ounces of rubber, which is, I think, a perfectly safe and conservative estimate. I have no doubt, as Mr. Weber states, that trees can with perfect safety be tapped twice a year, and though the yield may not be doubled, a very material increase of production will result.

My experiments have shown me that trees that have been already bled yield their latex much more freely than those bled for the first time. This was most noticeable in operating on a number of trees on my own land when I found that the milk flowed more readily and copiously from those that had been apparently maltreated for years than from splendid trunks which did not bear a scar. It is also evident that the yield of the castilloa depends much more on soil and climate than has been hitherto supposed.

Dr. Trimen, the superintendent of the Botanical Gardens in Ceylon, gives the following results from trees grown in that island :—

Age of Tree.	Yield of latex. lb. oz.	Per cent of rubber. in latex.	Hard rubber. lb. oz.
Six years ...	1 13	26	0 7·5
Seven years ...	2 5	26	0 9·6
Eight years ...	3 1	29	0 14·2
Elven years ..	5 3	31	1 9·7

These results bear out the statements so often made by those acquainted with Ceylon that the castilloa cannot be profitably grown there, owing to shallowness of the soil and the underlying rock bed. It may be that the climatic conditions are also unfavourable, so that planting of the castilloa has in many cases been abandoned,*

Another cause which undoubtedly greatly affects the yield, or at least the free flowing of the latex, is the amount of rainfall in the season preceding the tapping. The fall of rain during the wet season of 1902 was up to the beginning of November not over 50 per cent of the rainfall in normal years. It is stated on reliable authority that so small a rainfall has not been known for the past 20 years. I am speaking of the central parts of Vera Cruz and the adjoining State of Oaxaca, though I believe the same paucity of rain was remarked in other parts. Clearly owing to this deficiency of rain, many large trees on the property which in former years yielded abundantly gave not more than half the former amount obtained, the milk running sluggishly and coagulating rapidly. The principal yield was thus furnished by the *grenia* (the rubber which dries in the cuts on the trees). As an instance of this from 13 trees, averaging in circumference 33 inches, I obtained only 126 ounces of milk, which gave me 3 pounds 3 ounces of rubber, or 42 per cent, while the *grenia* collected from the trees amounted to 5 pounds 12 ounces ; total, 8 pounds 15 ounces. It was my intention to tap all these trees a second time, but the bad weather of December, when the heaviest rains in the year fell, and subsequently other occupations prevented me from making the desired experiment. But I am firmly convinced that a triennial tapping can, with perfect safety, be carried out, the trees in no way suffering if sufficient time be allowed to lapse between the two operations.—Oaxaca, March 10.
—*Modern Mexico* for April.

* Quite a mistake so far as recent years are concerned.—ED. *T. A*,

RUBBER PLANTING AND EXPLOITATION,

RESULTS OF RUBBER TAPPING AT SAN MIGUEL.

An exact record was kept of the results of some recent tapping of rubber trees (*Castilloa elastica*) on the 'San Miguel' plantation, owned by the Tabasco Plantation Co. (Minneapolis), Minnesota), located on the Macuspanâ river, in the state of Tabasco, Mexico, which are summarised below. There are on this estate about 400 large rubber trees, which were planted in the shade of cacao and coffee. These trees were not only grown in cacao and coffee, but under the shade of 'mother' trees (not rubber) planted for shading the coffee while the rubber was getting a start. The secretary of the Company, Mr. James C Fifield, in communicating these results to *The India Rubber World*, writes:—"A fact well-known to the rubber planters is that trees planted in the shade require a much longer time to attain their maturity and full size than those planted in the sun. In fact, the most casual observer could not fail to notice the astonishing difference in size between the trees grown in the sun and those in the shade. It is believed that the size of a rubber tree has more to do with the amount of rubber which it will produce than its age." In the table which follows is given the age of the trees, except that the age of those placed at 10 and 12 years is not accurately known ; the circumference of the trees three feet from the ground ; the weight in ounces of the *latex* secured ; and the average yield per tree of dry rubber (including a small amount of scrap pulled from the trunk of the tree after tapping). The details follow :—

Age.	No. of Trees.	Average Girth.	Ounces Latex.	Ounces Rubber
7 years ...	257	33.80″	11.80	9.30
8 years ...	14	37.75″	20.70	14.25
9 years ...	7	40,14″	21.28	18
10 years ...	4	43.25″	26.75	17.50
12 years ...	21	50.50″	40.50	28.90

Based upon the above figures, the rubber product from an acre of land containing 200 trees seven years old would be 112 pounds ; at eight years old, 174 pounds ; at nine years old, 240 pounds ; and at twelve years old, 314 pounds.

The following account of the rubber tapping at San Miguel was prepared by Mr. Boyer, the plantation manager :—" We were very fortunate in securing for the plantation a native rubber tapper, who has been raised in the rubber district, and for many years has successfully tapped both wild and cultivated rubber trees in the states of Chiapas and Tabasco. With this experience he was able to obtain the best results without injury to the trees. The first step in tapping a rubber tree is to clean a small place around the tree, a small gash then being made in the bark with the point of a *machete* and a leaf inserted therein, which serves as a spout to run the milk into pails. This leaf is placed about fifteen inches from the ground. From this point the cuts are made upwards at an angle of 45 degrees and extending in each direction a sufficient distance to include three-fourths of the circumference of the tree. Directly above this, a distance of one meter, another cut is made exactly like the first, the milk flowing down the side of the tree into the first cut and on into the pail. These cuts are repeated on the entire body of the tree, or until the branches are encountered. You will at once see that all the milk has not been secured, but a sufficient amount left to maintain the tree in good condition for another year. The next tapping, which will be made in a year from now, will be made on the same side of the tree, three inches above the cut made this year, and the following year three inches above that, so that it will be possible to make thirteen tappings on one side, or twenty-six on both sides ; or in other words, a tree can be tapped twenty-six years without re-tapping the old cuts. The instrument used by the natives is a *machete*, or long knife. The bark of a ten-year old rubber tree is about three-fourths of an inch thick. The rubber trees on San Miguel are of the variety known throughout Mexico and Central America as *Castilloa elastica*. This variety is divided into two classes, the first of which is known as the yellow rubber tree, or 'hule amarillo,' this being the male. The milk from these trees flows very freely, having a rich yellowish colour. It flows so freely that there is scarcely any left in the cuts after tapping. The other variety is known as the white rubber tree or 'hule blanco,' this being the female. The cuts made in these trees are not made at a 45 degree angle, but horizontally, a sufficient distance to include three-fourths of the circumference of the tree. The milk from this tree oozes into and fills the cuts, flowing down the tree several inches. The milk is very thick, requiring several days for it to dry so that it can be gathered. Of the two varieties the yellow is regarded as superior. The milk, gathered in pails, is taken to the rubber drying house where it may be converted into rubber through either of the following processes, both of which we have used : First, it is spread on a cement floor to a depth of three-fourths of an inch, this floor being so situated that the milk is constantly in contact with the sun's rays, thus drying very rapidly. After it is dry the sheets are rolled up into convenient sizes for shipment. The second process is through coagulation with a native vine known as 'bejuco de necta.' During the coagulation the rubber is left porous, and as it contains more or less water it is necessary to remove the same by using a press. It requires more time to prepare rubber by the first process. The average shrinkage in converting milk into solid rubber is 2.3, or in other words, 2.3 pounds of rubber milk will produce one pound of rubber. I have personally attended to the tapping and the figures herein given are absolutely correct."

'CEARA RUBBER' IN EAST AFRICA.

The last *India Rubber World* contained a reference to the interest in rubber of the Deutsch Ostafrikanische Plantagengesellschaft on their plantation at Lewa, in German East Africa. A letter from Berlin offices of that company informs us that the species planted is *Manihot Glaziovii*—the rubber of Ceará—of which they now have 250,000 trees standing. Recently 4,000 5-year old trees were tapped, yielding about ¼ pound of *latex* each, of which they estimated that 30 per cent in weight was lost in drying. This would give a yield of 700 pounds of dry rubber for the 4,000 trees, which, considering the age of the trees, and the good quality of the product, is considered very encouraging.—*The India Rubber World*, April 1.

THE MALARIAL CAMPAIGN: SIR WILLIAM MACGREGOR'S AMSTERDAM VISIT.

The report, by Sir William Macgregor-Governor of Lagos, of his visit to Amster, dam, in connection with the water-supply there, as applicable to the Capital City of the West Coast of Africa, which reached us some days ago, is a comprehensive, clear and exhaustive document. It reflects its author on every page, and shows in the keen intelligence, patient research and thorough mastery of detail, those high qualities which have built up the imperial reputation of the West Coast Governor, and have earned for him a stand-out character among the men of gubernatorial rank. Lagos, like all our settlements on the African West Coast, has long suffered from a bad reputation. It has been regarded as a kind of penal settlement, where white men found an early grave, or, if fortunate enough to return home, arrived hopelessly undermined in health. It was a surprise when Sir Wm. Macgregor was appointed its Governor, for the splendid work he had achieved during his time in New Guinea certainly entitled him to a healthier and higher post. If the call came as a disappointment to Sir William, he has successfully hidden away his chagrin and allowed it in no way to affect his public work. Indeed, if anything, it has made him more strenuous, and when he is called on to resign the reins of office, his personality will be visible, and remain visible for good, far into the future years. As a fully qualified medical man, the health conditions of Lagos have had more than usual interest to him as Governor ; and, while it would have been excusable in the enervating and depressing atmosphere of its deadly climate to have followed the *laissez faire* policy of his predecessors, Sir Wm. Macgregor, has made improved conditions of his province, his objective, and has spared neither trouble nor pains to effect the removal of causes telling against the health of this Capital. It was in connection with a better water-supply for Lagos, that this high official made in November last, such an exhaustive study of the system which obtains at Amsterdam, for the topo-

graphical and physical conditions of the Dutch City are in many respects nearly similar to those of the African town. Amsterdam has three different sources to furnish it with water for domestic and general purposes—well-water, river-water and water from the sand dunes. It is from latter that the principal supply of potable water is obtained, and it was the hope that the sand dunes of the Lagos coast might be similarly utilised for the requirements of Lagos that brought Sir Wm. Macgregor to Holland. The visit is likely to be very fruitful in good, and to improve much the hygienic conditions of the West Coast Capital. Fever is the scourge which is most dreaded on the West African Coast, and the Lagos Governor has thrown himself heart and soul into the Malrial Campaign. One dces not require to read between the lines of his report, to notice how earnest he is that while the *anopheles* mosquito may be reduced if not exterminated, nothing that can otherwise be done for the improved sanitary conditions of his province should be omitted or overlooked. In Holland since the introduction of the "dune" water, the mortality from typhoid has been reduced from 1·910 per 1,000 inhabitants of 40 years ago, to 0·215 of 1880 to 1889, the latest statistics quoted; while Malaria all but disappeared through the destruction of the larvæ of the mosquito by the introduction of sea water into the canals for flushing purposes. Temperature, as well as the salinity of the water, has much to do with the increase of mosquitoes; and as the heat at Lagos has a very much higher range than it obtains at Amsterdam, the results noted there will hardly be a safe guide for the African tropical town. The destructive action of salt-water on the mosquito larvæ is a more hopeful subject; but the minimum degree of salinity sufficient to arrest the development of the mosquito larvæ, has yet to be determined. And in this connection its determination has its own importance for Colombo—if the "fly" nuisance of our own inland sheet of water is only to be remedied by turning the latter into a semi-saltwater lake. Appended to Sir Wm. Macgregor's report is an interesting paper on "Malaria in Holland," by Dr. H. J. M. Schoo of Krommonie. Dr. Schoo's experience in some respects runs counter to the opinion of other experts—for while he traces malaria to the puncture of the *anopheles,* he denies the protecting quality of quinine, which other authorities recommend to be taken when in feverish localities. He had for many years kept his district free of malaria by the long and liberal use of the drug, but the fever had re-appeared in an epidemic form, and he had not found that his people were less affected than in other places where but little quinine was used, and only for short periods. "I cannot, therefore, believe," he says "in the prophylactic influence that Koch attributes to quinine." It is, however, a comfort to know that although quinine may not prevent malaria it can cure it, and acts like a poison on the blood parasites which appear with the malady, especially on the gametes of which the blood is full. Dr. Schoo says "a single dose of sulphate of quinine, arrests completely the development of the gametes." The cause of the Dutch malarial epidemic, which broke out after some twenty years of immunity is a puzzle to explain, and Dr. Schoo is inclined to find one of the latent centres in the soldiers and others who had returned to Holland from the over-sea colonies with malaria in their systems. This is, apparently, the "unknown factor" in the communication of malaria referred to in our columns but a day or two ago. The centre of the Malarial Campaign is in Lagos, and although Sir Wm. Macgregor may not be the head of it, he is certainly the heart and soul of the enterprise, and displays all the energy and skill of a successful and sympathetic leader. All over the world where the dread fever has its haunts, the Lagos influence is felt, and if the African West Coast Governor had done nothing else to deserve grateful recognition, the impulse he has given to this branch of scientific research entitles him to the honour of having secured one of those famous victories of Peace, which are no less renowned than those of war.

STUMP ROT IN TEA AND COFFEE.

INDIAN CRYPTOGAMIST'S LETTER.

The following is the letter by Dr. E J Butler, Cryptogamic Botanist to the Government of India, on "Stump Rot and its Treatment," which was read after Mr Graham Anderson's memo. on the same subject at the recent meeting of the South Mysore Planters' Association :—

This history of the ordinary cases of stump rot as I have seen it on one Coffee estate in Coorg and on numerous Tea gardens in Assam and Dehra (there being little doubt from what I have seen that the Tea and Coffee diseases are for all practical purposes identical) is as follows :—

A shade tree is cut down or more commonly "ringed" and the stump left to rot in the ground. Some time afterwards, it may be in a few weeks or perhaps not for 18 months or more, the tea or coffee bushes next adjacent to the site of the stump begin to wither and die off. Then a circle further out dies, and year by year the circle grows. On exposing the roots, the old stump is seen to have undergone a peculiar rot which results in a condition by which the outer layers become converted into a soft mass of earth and bark in which whitish cobweb-like patches can be seen here and there. This rot, which usually begins at the base of the tree stump, extends out along the main roots to where these adjoin the roots of a tea or coffee bush. These latter take the rot, and if they are dug out before quite dead, it will be noticed that a knife can be driven in quite easily for an inch or so into the bark of the "collar," with which earth and white patches are found intermingled just as on the tree stump. Having once attacked the coffee roots the rot can pass from root to root even across a few inches of earth and can apparently extend indefinitely. The cause of the diseae is a fungus which has been identified at Kew as *Rosellinia radiciperda* (Massee). Though

it is possible that this may commence its destructive action by directly attacking a living coffee root no such case has yet been proved, so far as I know and certainly the usual thing is that the fungus, requires to start on a dead root of some shade tree until having acquired a certain vigour by living on the dead roots, it can then pass on to attack living ones. What you refer to as "mealy bug" may be instances of direct attack without any intervention of a rotting stump, since from your description it closely resembles the condition produced by *Rosellinia radiciperda* in some cases which I have seen.

The evil appears to be on the increase, and in stances have been reported from Assam of the stumps left on clearing the jungle in opening out new gardens, taking the rot and killing off much of the tea two or three years after the clearing was effected.

In dealing with the matter the first thing to be borne in mind is that certain trees only serve to originate the rot. In the tea districts these trees are gradually getting known, and there is a tendency to avoid them as much as possible. Two which have been found very commonly to start the disease are the silver oak (*Grevillea*) and the Bor (*Ficus elastica*). It would be of great value to obtain a list of such trees for the coffee districts by circularising the planters whose estates are known to be affected. Where the tree is not known specimens of leaves, flowers and fruit, pressed between blotting paper and sent to me, will serve for identification. Unfortunately the *Grevillea* is of value on account of its copious leaf production. Still if, as I suspect, it be found as dangerous in South India as in Assam, it will have to be abandoned, and I cannot but think taking into account the great richness of the forest flora of India, its replacement by an equally good shade tree will not be a difficult matter. The Dalbergias should be avoided, for even if they do not affect coffee, the Sheisham (*Dalbergia latifolia*, Kanarese *Biti*, Tamil *Iti*) itself suffers from a root fungus very similar to (*Rosellinia radiciperda*) which kills many trees in Behar, and which I saw destroying trees in a Coorg coffee estate.

I do not think you could fail to have opinions of great value from planters whose estates are badly diseased for some years as to what trees may be recommended as insusceptible to rot, and I am clear that the question of what shade to employ is one of very great importance not alone as regards stump rot, which I repeat is increasing, but also from the influence certain trees exert on the coffee growing under them.

When the disease has appeared the treatment is to run a trench two feet deep and one foot wide around the infected area remembering, since the rot commences some time before the bush shows signs of it above ground, to include one row of healthy bushes within the trench. If this measure be taken immediately the disease is detected, a loss of not more than half-a-dozen bushes may be secured, Where large lateral roots from the stump are encountered on running the trench it should be carried further out, but small roots of an inch or two in diameter are not likely to start the disease if the trench be early made, and when divided by the trench may safely be left to rot beyond its limits.

The longer the disease be left to progress the greater the danger of the fungus getting established from the centre along the smaller roots of the stump and the greater the need to carry the trench far enough out to include these roots. The trench should be drained, as it appears probable that the fungus can pass across it if allowed to remain full of water.

Once the trench is made and the bushes within it have ceased to bear they should be pulled out and the ground well turned over to a depth of at least two feet, several times, and lime mixed with it. If lime cannot be used (it appears to be harmful to tea and may be so to coffee) a little sulphur or a solution of iron sulphate which is cheap and may be used in 5 per cent solution (1 oz. to the pint) can be relied on to destroy the fungus. Then after a year the diseased area may safely be replanted,—*Madras Mail*, April 29.

PROFIT IN PLANTAINS.

The wealth which exists in plantains grown for their fruit and fibre has on several occasions been referred to in our columns, and Mr V T Venoatraman Iyer, of Valavanur, S Arcot, who has made experiments in this direction, and even gone to the length of having the fibre which he has manufactured valued in London, has also favoured us with the results of his interesting experience. Today we publisb an account of the experiments made under the superintendence of Mr K Narayana Iyer in the Government School of Arts at Trevandrum. Mr Narayana Iyer hopes that from his facts and the figures it will be evident to all that great advantages are likely to accrue to the public, both commercially and artistically, "in continuing further trials with plantain fibre for textile purposes, and in designing and making all possible improvements with the help of qualified maistries in the looms and other weaving processes, as well as in utilising all other materials obtainable in the country, at comparatively cheaper rates, in introducing other weaving industries."

These Travancore experiments were made at first "on a very small scale, and a few square inches were woven and different fast colours were tried successfully." The extraction of the fibre was found to be a simple process, and inasmuch as the edible and valuable portion of the tree was not affected, the fibre being extracted from the sheaths which are at present wasted, it would appear likely to be a lucrative one. Afterwards, more elaborate experiments were made, and Mr Narayan Iyer sums up the results of these under 10 headings, and gives details of the advantages of a new pattern hand loom which has been devised at the School. Of 29 varieties of plantains tried, 12 were found to yield fibre silky in colour and gloss and sufficiently strong for weft thread suitable for weaving cloths of fine texture. The remaining varieties were fit only for coarse weaving and cordage, The fibre was also found to possess peculiar advantages over other known varieties of fibres used for textile purposes, possessing "almost an exact resemblance to silk in the polish of the thread which it is found to retain even after it is dyed with any colour or boiled or washed." It needs, moreover, no spinning operations, but is ready for the loom soon after its extraction. Mr Narayana Iyer also found the fibre to be very light—a great advantage in this country—being one third the weight of cotton thread, and it is especially recommended for native turbans. Thick plantain fibre could, he suggests, be used for thick garments, curtains, carpets, etc., and a small carpet made of it was sent to the Delhi Art Exhibition. As regards cost, plantain fibre compares favourably with cotton, 1 oz. of plantain fibre, costing 1¼ anna, going as far as 3 ozs, of cotton which cost 4½ as. With the assistance of a new and improved machine, which we are told is now being made and by means of which a longer fibre will be obtained, there should be a bright future for plantain fibre.—*M. Mail*, May 15.

THE STEAM TRAWLING INDUSTRY.

IN THE NORTH OF SCOTLAND AND IN CEYLON.

[It is an unhappy coincidence that the following very interesting, instructive and encouraging account of fishing by steam trawlers off the North of Scotland, should reach us just after the Colombo experiment has been closed, with a heavy loss to the spirited promoter, though we see it stated now that the total debit does not nearly reach the 1½ lakh mentioned to us by one who ought to be an authority. Before, however, the writer of the following account condemns the stoppage of trawling off Ceylon, he must explain the failure of a trial on an even larger scale by a Scotch Firm in Bombay which brought out and started a fully-equipped trawler, and gave it an ample trial, we believe; but without results to warrant a continuance of the enterprise. Surely, it must be that fish are not so plentiful in the Indian Ocean and that the local markets are also not sufficient to take off any increased quantity at a profitable rate?—Ed. *T.A.*]

(*Communicated.*)

It cannot be said that Colombo is rash in entering upon new enterprises, or in adopting up-to-date methods of prosecuting existing industries. It has for years been a marvel to many, who have witnessed the great success of trawl-fishing elsewhere, why Ceylon should still lag behind and remain content with a meagre suppply of the fish which abound round her coasts, food so much more wholesome and suitable for the tropics than the tough beef produced in the country. In every new enterprise, however, there are always difficulties to contend with. Sentimental croakers will arise to plead for the poor fishermen, who, from time immemorial, have earned a scanty and precarious living by the old methods.

I am old enough to remember the populous villages in Scotland, the inhabitants of which earned their bread by hand-weaving, and recollect the howls of execration with which the introduction of machinery was met. I recollect too, in Ceylon, when the railway to Kandy was proposed, the poor cartmen and the village providers of fodder, formed the theme of many pleading letters. Coming nearer home the introduction of the Linotype is causing many wails from young compositors, who begin to wonder if it is worth while serving seven years to learn type-setting. Old methods must pass away, and time be economised in this busy age. The catching of fish by baited hook and line is only for men whose time is of little value.

Trawling, by the way, is no new innovation. In all probability it was practised in the Sea of Galilee 1900 years ago. Certainly the fish then were caught with a net, and not by the miserable make-shift of a line and hook. Moreover, there are many of the best fishes that won't take the hook, and since the introduction of trawling to Aberdeen, there has been added to the supply many excellent fishes never before heard of, or seen in our markets, chiefly flat fish equal to the English sole and also turbot, which do not readily take the hook, are now plentiful here.

Very likely, the same would happen in Colombo where some change from the everlasting searfish, good as it is, would be welcomed. But, it is argued, "the sea would soon be emptied and the greedy trawlers when the market was likely to be over-stocked would throw the good food overboard, in order to keep up prices." As a matter of fact we have never seen the market over-stocked, and the more fish that is taken out of the sea, the more rapidly seems the supply to increase, "*practically inexhaustible*," says Professor Mackintosh, of St. Andrew's, the best authority we have on the subject.

	cwt
Fifteen years ago we landed of *all kinds*	176,103
Last year we totalled ...	1,547,21

And the strange thing is that instead of being in excess of the demand, the prices realised are quite 100 per cent over what they were 15 years ago, so many more have learned to appreciate this excellent food, who, owing to the lack of facilities for carriage could not before procure it.

We are glad to see Colombo has made a start in the right direction, and that its one trawler has found a few good, and some rare fish. It is to be hoped the enterprising owner will not be too easily discouraged by the early struggles incidental to all such undertakings. It is in the hope that it may be useful to those interested that I am led to offer a brief history of the Steam Trawling Industry in Aberdeen. The inception of Steam Trawling in Scotland ought, perhaps, to be credited to Mr. R. W. Duff, late Governor of New South Wales who in 1881—as then M.P. for Banffshire—seeing the loss of life by the ordinary frail fishing craft, wrote a letter to the newspapers pointing out that in his opinion, the time had come for the introduction of steam-boats in the catching of fish, and to evidence his interest in the matter, he promoted a Company at Granton, called The General Steam Company, Ltd. This Company, is still in existence. It had its ups and downs, but is now a thriving industry. Twenty-one years ago, two shrewd Aberdonians put their hard heads together, and thought out the prospect of introducing trawling to the Granite City. They quietly went south, and, taking a consulting Engineer with them, proceeded to Dublin of all places, and there invested in an old tub of a tug boat, called "The Toiler," which under her own steam soon paddled her way to Aberdeen. "The Toiler," cost £1,500, was quickly put in ship-shape for her new work, and went to sea on 22nd March, 1882, the crew consisting of her owners and two friends. Only one drag was made; the haul was not a big one, but sufficient to allow of a distribution amongst the party, and this was the first trawled fish ever caught by an Aberdeen boat. Next day "The Toiler" began her regular business, returning with 3 boxes of haddock

which formed the first auction sale of fish in Aberdeen, and realised 37/. The first month's fishing realised £207. At the end of six months a balance was struck, showing a gross revenue of £1,772 1s ; the expenditure came to £1,002, 17s, leaving a balance of £769 4s. Out of which a dividend of 100 per cent per annum was paid. A grand beginning, certainly! But somehow this rate of dividend was never repeated. For several reasons thereturns began to wane. *Not, indeed,* for want of fish, the enormous resources having only just been tapped, but the old wooden clinker boat, herself, began to show symptoms of decay, and finally through bursting of a pipe, she sank to rest in the waters of the Moray Firth. She had, however, done her work ; proved the feasibility of profitable steam trawling, and was soon followed by a fleet of fine screw steamers—fit to face any storm, even in the North Sea. The local fishermen of Torry, Fittie, Finnan and adjacent villages, were all this time by no means disinterested observers. At first, they jeered at the attempts of the land-lubbers, and laughed at the mishaps, but as big hauls began to arrive—tons to their basketfuls—they could not repress their annoyance; which gradually grew into fear and horror, as they saw visions of the sea being emptied of fish, and nothing but starvation left for themselves and families. In this state of mind they approached the Powers-that-were, by sending a large deputation to interview and lay their grievance before the Lord Provost. The gentleman, who occupied the civic chair at that date, was the late Mr. P Esslemont, afterwards M. P. for E. Aberdeenshire. The deputation was ably led by a gentleman who, by the irony of fate, is now one of the largest steam trawl-owners in Aberdeen ! His views underwent a remarkable change and probably the interview of that afternoon had much to do with his conversion ; for Mr Esslemont was a long-headed man and did not mince matters. His advice in effect was "Go and do likewise." This advice was not appreciated by the bulk of the fishermen who returned to the street to swear at large. But their leader did not join with them in this frame of mind. Like a sensible man he resolved to move with the times, and having resolved, spoke to his brethren as follows:—" No doubt, my friends, the sea may soon be emptied of fish but before this happens, I am determined to have a shot myself by the new process." This is 15 years ago and to this day Mr W is busy at the shot : albeit, one of the wealthiest men in Aberdeen. And the fish are not all caught yet! On the contrary, they seem more abundant than ever, Government appointed one of its Royal Commissions to thoroughly enquire into the grievances of the old line fishermen, and to ascertain if there was any ground for their fears. Lord Dalhousie was Chairman, and amongst the other members were Lord Tweedmouth, Professor Huxley, W S Caine, &c.

One of the fishermen was subjected to rather a warm cross-examination by Huxley, in reference to his statement that *the trawlers damaged the spawn at the bottom of the sea.* "Are you aware, sir," asked the great scientist, " that neither your cod, haddock nor whiting spawn ever goes to the bottom at all ?"—The witness's reply was that his evidence was not sufficient to say positively. —The Professor tersely observed that "all this about spawning grounds at the bottom of the sea had no very strong foundation."

The number of steam trawlers now engaged in fishing at Aberdeen is fully 200 and weekly being added to. A boat costs £5,000. As much as £7,000 has been earned by one boat in a year ; a gross average of £4,000 will, however, if the expenses are fairly moderate, be sufficient to allow a dividend of 15 per cent. The grand total value of fish landed in Aberdeen last year was £811,976 ; and if we make allowance for additional value imported by curing, and profits of merchants, the industry is worth at least £1,000,000 yearly to the City. Colombo has a population almost equal to Aberdeen and a fishing ground perhaps not inferior. How would she like to have " £1,000,000 stg." added to her income ?

Don't say there is not sufficient market; for like the Canadians *you can eat what you can, and 'can' what you can't !*

The following is a table showing the quantities of the various kinds of fish landed in the market here during 1902:—

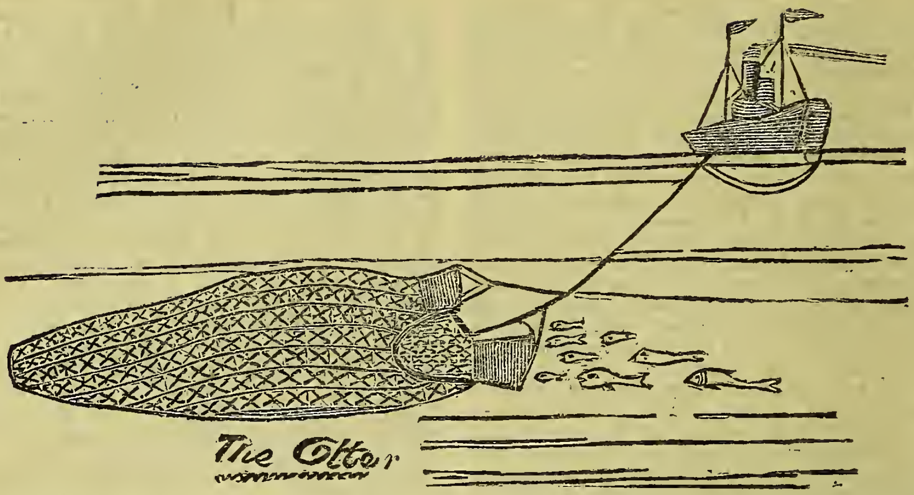
	cwt.		cwt.
Cod	172,338	Dabs	2,035
Codling	6,371	*a* Whitches	24,409
Ling	76,699	*a* Megrims	11,860
Tusk	7,019	*a* Squid	2,114
Saithe	30,953	Conger Eels	1,241
Haddock	610,000	Hake	23,824
Whiting	99,370	Skate	51,181
a Turbot	3,384	Other Kinds	17,435
Hallibut	23,877	(The other kinds include	
a Brill	438	many enemies of the	
a Lemon Soles	15 694	more useful fishes, dog	
a Plaice	26,243	fish, shark, &c.)	

a These are new to the Aberdeen Market as never seen here before the introduction of trawling.

This is exclusive of herring and salmon, both of which have greatly increased in quantity, owing, it is supposed, to the destruction of so many of their enemies by trawlers.

Over 200 tons are frequently landed in one morning ; but by noon, all are cleared away and the hose turned on, when the acres of cement smell as sweet as the polished floor of a spacious ball-room. £311,100 has been spent on the erection of this building. There are few more interesting object-lessons now in Scotland than to see the boats arrive and deposit their varied cargoes, and summer tourists ought not to miss this scene :

" The sun is up, and, bathed in golden beams,
The plain Fish-market like a palace gleams,
Scotland than it can furnish not, I ween;
In all her broad domains a busier scene ;
Vessels discharge, not singly, but by scores,
Carts, drags, and lorries, crowd in open doors,
Hundreds each day traverse its long extent ;
On pleasure some, but most on business bent,"



The briefest history of trawl-fishing would be very incomplete without a description of the "Otter" which has now been generally adopted in place of the "Beam." Few people, perhaps, know anything about the working of trawling gear, or how the fish are caught. The beam trawl might be described as a triangular purse-shaped net, with a mouth kept open by a horizontal wooden beam, usually about 50 feet in length, raised from the bottom of the sea 3 or 4 feet, by pieces of iron, shaped like a sleigh, so as to slip over the bottom as easily as possible. To the beam is fastened the net about 120 feet in length contrived with pockets so that the fish cannot escape when once they enter.

This clumsy contrivance has now been altogether abandoned in Aberdeen for the "Otter," which, it is safe to say, has revolutionised the industry—increasing the catching-power by 100 per cent, especially as regards round fishes, such as cod, haddock, etc., which swim a little distance from the bottom of the sea. After the introduction of the "Otter" the prosperity of the Aberdeen fishing went up by bounds.

The principle of the thing and *modus operandi* are simplicity itself.

Two boards 4½ feet square are fixed at the mouth of a net, which on being dragged through the water are forced apart, thereby opening the trawl. Not only are more fish netted, but the apparatus being less unwieldy, the work of the fishermen is greatly lightened. Professor McIntosh, of St. Andrew's, in his very interesting work "The Resources of the Sea," says:— The trawl is usually down for five hours on the Great Fisher Bank, though trawlers working nearer home regulate the time by the nature of the bottom, the trawling period on hard ground being three hours, on soft ground five hours, the rate of speed while trawling is about 2½ knots an hour, though on muddy ground a higher rate of speed may be maintained."

The Moray Firth, as is well-known, is closed against Scottish trawlers; but absurdly enough, open to foreigners who are constantly at work there:—"Slowly," he says, "the conclusion has been reached that the closure of regions of the open sea in a country like Britain presents few advantages worthy of the constant strain and irritation of class against class, or of the considerable annual expenditure. The closure is powerless to prevent the capture of small fish and so far as history and observations go, there is no ground for alarm in regard to the permanence of the food fishes."

Aberdeen is, of course, the chief centre of trawl-fishing in Scotland and it is not without some pangs of regret that one sees the ancient fishing villages along the coast being abandoned. The older fishermen will never take to trawling, much less to life in a large city; but the younger generation takes kindly to both and knowing the fishing grounds so well, their services are valuable. The trawling-fisher is altogether a different type from the sturdy old salt we were won't to see in blue jersey and sou'-wester.

The modern trawler, while ashore, affects the dandy, struts in high-heeled shoes, with bowler hat cocked jauntily to one side, gold ring on his fingers and a good cigar in his mouth; while his speech indicates that he is none of Scotia's sons, his aspirates betray the fact that he was bred in the far South. An attempt was lately made to transport and settle a small fleet and crew at a northern township called "The Broch," but our Anglo-trawler positively refused to remain there. "Why! there is no *'all* there," said one to me, meaning that there was no Music Hall to furnish them with amusement when they came ashore, and no doubt their life is a rather monotonous one. The Englishman is not so fond of reading as the average Scot, who can always while away an hour with a book. I have already indicated that the industry yields handsome profits, but I ought to add, that these profits do not always reach the

pockets of the shareholders. Like some Syndicates more intimately connected with Ceylon, the office expenses, mismanaging directors, &c., often absorb every farthing of the ample profits. There is, perhaps, less difficulty in tracing the leakage of trawling profits than that of Tea Companies. The fishing grounds are free to all, and, as a rule, all come in pretty equally fished. Yet, while some pay from 15 to 35 per cent yearly. Others, for years, have not paid a penny to the poor shareholders who found the bulk of the capital. A strict enquiry might reveal the fact, that while one director supplies the gearing, another the coals, the Manager may supply the ice and in addition draw his 5 per cent on sales—which, in a small fleet would amount to over £1,000 per annum. The unsuspecting investor rarely thinks of guarding against such extortion. It seems probable, however, that many such directorates will be placed under a legislative ban, when a little enquiry will show that there is not a Trawling Company in Aberdeen; not a Tea Company in Ceylon; but should give a decent return to the shareholder, if fairly and squarely managed.

P.S.—I find I rather under-estimated the daily deliveries at about 200 tons—*300* may be nearer the mark. Indeed yesterday (8th April) the figures were 373 tons.

FISHING AND TRAWLING.

We find there is more in the argument put forward by Dr. Gandevia against indiscriminate "trawling" than we had supposed. We have been enlightened by an interesting and important paper which has just come into our hands, entitled,—

The Possibilities of Fishery Improvement in Jersey, with Notes on the Present State of Marine Pisciculture and Fishery Regulation, by James Hornell (Director of the Jersey Marine Biological Station).—Reprinted from 'The Journal of Marine Zoology and Microscopy.'*

* Mr. Hornell, we need scarcely say, is the scientist who has been called to his assistance by Professor Herdman, F. R. S., and who has taken charge of experimental pearl-oyster culture (a Marine Laboratory) in Galle Harbour. He is the author of several other learned papers in home scientific journals, for instance:—Report on the Schizopoda, Cumacea, Isopoda and Amphipoda of the Channel Islands, by Alfred O. Walker, F.L.S., and James Hornell (Reprinted from 'Journal of Marine Zoology and Microscopy,' Vol. II. No. 7; Sept., 1896).—Notes on the Marine Worms of the Channel Islands, by Mr. James Hornell (Reprinted from the Transactions of the 'Guernsey Society of Natural Science' for 1895.)—The Use of Formalin as a Preservative Medium for Marine Animals, by James Hornell (Reprinted from 'Natural Science,' Vol. II, No. 46, Dec. 1895.) But of greater importance is a volume of 'Microscopical Studies in Marine Zoology' with twenty full-page plates of original illustrations, being a reprint of articles from the 'Journal of Marine Zoology' and which was published in book form in 1901.—All these show that Mr. Hornell takes high rank as a Marine Zoologist and authority on Fisheries.

The substance of this essay was first delivered as a lecture under the auspices of the Jersey Natural Science Association and its scope may be judged from the following synopsis:—

1 The continuous decay of inshore fisheries, here and abroad; the chief causes locally.

2 Remedial measures pursued elsewhere,

3 Scope and Programme of the investigations and experiments requisite locally.

4. Summary of the Fishery Laws having force in Jersey; their inadequacy to meet present requirements.

5 Forecast of the probable outcome of an adequate local fishery investigation.

Here then are the opening sentences of Mr Hornell's lecture essay:—

During recent years, in well-nigh every fishing hamlet in Great Britain the plaint of lessened catches in the places where fish formerly abounded has been practically unanimous. The total catches landed on the quays have, however, not decreased; on the contrary, by the employment of powerful steam trawlers able to fish far from home, by the longer journeys made by sail-trawlers and by the larger liners, and by the invention of improved methods and appliances, the fish supply of Great Britain has materially increased, but an increase entirely obtained from extra-territorial waters. The inshore fishermen, such as we have in Jersey, the men who fish in small undecked boats, have no share in this prosperity; these men find their own particular grounds rapidly becoming depopulated, and unable to seek the more distant fishing-grounds, are compelled either to seek new occupations or to languish on earnings that are miserably insufficient. Along the French coast a similar evil state of matters exists; thus, my esteemed friend Dr. Cann, Director of the Station Aquicole at Boulogne, and the foremost authority on pisciculture in France, writes:—'In the Eastern portion of the English Channel, the majority of the banks formerly frequented on account of the number and the quality of their fish, have long since witnessed the loss of their reputation; they are even partially abandoned.' And again:—'The diminution of fish catches on the banks which line our Channel coast can no longer be disputed.' . . . 'The decrease of our small Northern fishing ports is more eloquent than any statistics upon this point.'

And among the causes of such decrease, Mr Hornell indicates,—

Trawling within the three-mile limit is considered by liners as highly prejudicial on account of the wholesale destruction it effects. In Scotland trawling is now prohibited, both within the three-mile limit and also in certain of the great bays or Friths, and many authorities are extremely anxious to have the range of prohibition extended further, so that the territorial waters shall form a zone of, say, seven or even thirteen miles in width, wherein trawling shall be rigorously suppressed.

In dealing with remedial measures Mr Hornell refers to "protective laws" in the past, to the good done by Fisheries Exhibitions, which have promoted Fisheries Committees among which that of Lancashire, directed by Professor Herdman, takes the lead. Protective bye-laws have been passed; but more important is the inception (first in America) of "marine fish hatchery" which in Norway and Scotland especially has

become an important institution. The Fishery Board of Scotland instituted a Hatchery at Dunbar which in 1895 had an output of fry as follows:—

The output of fry from this hatchery in 1895 was:—Plaice, 38,615,000; cod, 2,760,000; turbot, 3,800,000; miscellaneous, 1,050,000; a grand total of 46,225,000.

and we read,—

It is worthy of note that the authorities consider the services rendered by the Fishery Board for Scotland fully justify the indefinite continuance of the grant of £23,000 per annum.

In the case of Jersey, Mr Hornell recommended a thorough investigation, followed by a series of Experiments, together with the establishment of an Education and Information Bureau, more especially for the benefit of the fishermen. The total cost he estimated so moderately as £150 to £200 a year and yet he was confident of very notable results in a few years. We do not know whether the suggested experiments were taken up; but it is well to know that the Ceylon Government has at hand in Mr Hornell so experienced and excellent an authority on any questions arising or connected with our Fisheries. May his experiments in Pearl Oyster culture prove an unqualified success.

CULTIVATION OF RAMIE.

[TO THE EDITOR OF THE "DAILY CHRONICLE."]

SIR,—I am very pleased to see that at last the value of the Rhea, or Bohmeria fibre, is recognised, according to Dr. Edwards-Radclyffe. It requires no more cultivation than the ordinary garden nettle; in fact, three decades since every effort was made to exterminate it in sub-tropical regions. The fibre is splendid in texture, lightness, and tensile strength when freshly woven, but "shorts" by continuous bending or folding. This is due to the presence of formic acid, which cannot be eliminated entirely by the process of decortication. There is a process termed the "Sochon" process, the invention, I believe, of W E Sochon, which, if still extant, seemed to provide an inexhaustible market for the rough fibre. Briefly, it consisted in the formation of a vegetable leather, synthetically, which could not be done with any fibre not containing free formic acid. This leather I have tried for aeroplanes and model balloons, and it is impervious to hydrogen, comparatively, with dressed silk, and resembles goldbeaters'-skin, the weight per square foot being less by eighteen per cent. And in this state it allows of folding and creasing; and if the process no longer exists I should think it would be due to the lack of material, and it may be resuscitated in some form if the market for raw material is rendered open according to your correspondent's account. In these days of air-ships, war-kites, and racing yachts I do not think a really good product of nature should be left "out in the cold."—Yours faithfully,

FREDK. WALKER, C.E.

Oxford, April 15.

[TO THE EDITOR OF THE 'DAILY CHRONICLE."]

SIR,—As sole importers of ramie prepared by the new French method, we should be glad if you would allow us to confirm the statements of your various correspondents with regard to the benefits that would arise from the growing and cultivation of ramie grass in the British Colonies. At the present time our manufacturer has to obtain his supplies from China, where, largely, the grass grows wild in abundance. Nevertheless, great difficulty is found in securing immediate requirements at reasonable prices. British manufacturers have long recognised the possibilities of ramie, but the methods hitherto used in preparing the grass have been defective. These troubles have at last been overcome, and, in consequence, the demand for ramie is daily increasing. With a plentiful regular supply of the raw grass, cotton "rings" or "combines" need, therefore, trouble the public no longer The British Colonies cannot be too strongly urged to cultivate this ramie grass. The cost of production and shipment should not be great or prohibitive, and we may add that we should of course prefer the British to a Foreign grown grass. This might be an encouragement to those interested, and we trust that you will accordingly find space to publish this letter.—Yours fathfully,

(For Van Geelkerken and Co., Ltd.)
H E A COOPER, Director.

79, Mark-Lane, London, E.C., April 15.
—*Daily Chronicle*, April 17.

THE HULETT TEA PLANTATION IN NATAL

is the largest of its kind in South Africa, in fact, in all Africa, for tea is not grown in any other part of the Continent. 'I believe,' says a writer in the 'Magazine of Commerce,' 'its greatest output for one day is 10,370 lb. of tea and the estimate for a recent season is 1,000,000 lb. Its acreage is extensive, and beside a large factory and quite a village of huts for the Indian employees. it also has a railway of its own—a 2 ft. gauge line—being the first light railway laid in Natal, and costing £20,000 to lay. The native labour mainly consists of coolies, of whom there are about 1,000.—*Grocers Journal*, May 2.

"PLANTING ROADSIDES WITH SHADE TREES' —is an item in P. W. D. estimates now-a-days; but why not select really useful trees? At one time it was proposed to plant palmyra palms all along the North road for 100 or 150 miles. In France and Belgium, the country roads are, more and more every year, lined with fruit bearing trees.

GREVILLEAS—do not seem to be responsible for the spread of "tea tortrix" alone, but—as will be seen by the paper (see page 846) read to the Mysore Planters from the Indian Cryptogamic Botanist—it is found to start the disease of "stump rot" in tea bushes. At least this is the experience in Assam. We wonder if it has been noticed generally in many districts in Ceylon. What do our planting correspondents say?

AN "ENTERTAINING MELBOURNE TEA HOUSE."—The phenomenal success of Ceylon tea in Australia does not appear to have yet reached its zenith by any means. On page 835 under the above heading we quote an interesting article, showing Messrs. Griffiths Bros. (whose representative, Mr Shelley, was lately in Ceylon) have by the erection of an elegant tea house been popularising our staple. We trust the venture may be a complete success and profitable to the merchants as well as the producer.

TO THE PLANTING WORLD.

Seeds & Plants of Commercial Products.

Hevea Brasiliensis.—Orders being booked for the coming crop August-September delivery 1903, booking necessary before the end of April, quantities of 100,000 and over at special low rates. Plants available all the year round, 100,000 and over at special low rates. A leading Rubber planter in Sumatra, who purchased 50,000 seeds in 1899, and 100,000 in 1900, writes us, under date 15th November, 1900:—"I received your letter of 20th October, from which I learn that you added another case of 5,000 seeds to replace the loss, &c. I am satisfied hereby, and even after this adding I am satisfied by the whole delivery of this year." Special offer, post free on application.

Castilloa Elastica.—True superior variety cultivated in Mexico, seeds from specially reserved old untapped trees. Orders booked for October-November delivery 1903, immediate booking necessary; large quantities on special terms; Plants in Wardian cases.

A foreign firm of Planters writes under date 11th October, 1901:—"We beg to enquire whether you would procure us 100,000 Castilloa seeds, in which month we might expect them, and what would be the average price." Special offer, post free on application.

Manihot Glaziovii.—Seeds and Plants available all the year round, 100,000 and over at special low rates. A Mexican planter in sending an order for this seed wrote on the 22nd August, 1900:—"If they arrive fresh and germinate easily I may send you larger orders, as they are for high ground where the Castilloa does not thrive."

Ficus Elastica.—Seeds available in May-June; booking necessary before the end of March; also plants.

Mimusops Globosa (Balata) wood of the tree is much sought for buildings, fruits sweet like a plum and eaten, oil from seeds, said to yield as much as 45 lbs. of dry rubber per tree per annum, the milk is drunk and when diluted with water used as cow's milk, grow from-sea-level up to 2,000 feet, orders being booked for seeds and plants, price on application.

Cinnamomum Zeylanicum (Cinnamon superior variety).—New crop of seed in April to June; booking necessary before the end of February, also plants.

Coffee Arabica-Liberian Hybrid.—A highly recommended leaf-disease resisting hardy new variety of Coffee (cross between Arabian and Liberian). New crop March-April; immediate booking necessary.

A foreign Agricultural Department writes dating 9th September, 1901:—"Please accept our order for 175 lbs. of Tea seed and for 2,000 Coffee beans. In regard to Coffee seed I would say that this will be the first importation made by this department, and we will leave the selection of the varieties to be sent to your judgment."

OUR DESCRIPTIVE PRICE LISTS.

The following six Descriptive Price Lists are now being forwarded with Circulars and special offer of Seeds and Plants of Rubber and other Economic Products:—

1. Tropical Seeds and Plants of Commercial Products, enlarged edition for 1902-1903.
2. Seeds and Plants of Shade, Timber, Wind-Belts, Fuel and Ornamental Trees, Trees for Roadsides, Parks, Open Spaces, Pasture Lands, Avenues, Hedges, and for planting among crops (Tea, Coffee, Cacao, Cardamoms, &c.)
3. Seeds and Plants of Tropical Fruit Trees including Mango grafts.
4. Bulbs, Tubers and Yams.
5. Orchids—Ceylon and Indian.
6. Seeds and Plants of Palms, Calamus, Pandanus, Cycads, Tree and other Ferns, Crotons, Roses, Dracinas, Shrubs and Creepers.

Special Arrangements made with foreign Governments, Botanical and Agricultural Departments, Planters and others for supplying seeds and plants of Commercial Products in larger quantities.

"South Africa."—The great authority on South African affairs of 25th March, 1899, says:—"An interesting Catalogue reaches us from the East. It is issued by William Brothers, Tropical Seed Merchants of Henaratgoda, Ceylon, and schedules all the useful and beautiful plants which will thrive in tropical and semi-tropical regions. We fancy Messrs. Williams should do good business, for now that the great Powers have grabbed all the waste places of the earth, they must turn to and prove that they were worth the grabbing. We recommend the great Powers and Concessionaries under them to go to William Brothers."

Agents in London:—Messrs. P. W. WOOLLEY & Co., 90, Lower Thames Street.

Agent in Colombo, Ceylon:—E. B. CREASY, Esq.

Agent in British Central Africa:—T. H. LLOYD, Esq., Blantyre.

Telegraphic Address: William, Henaratgoda, Ceylon.

Liber's, A.I. and A.B.C. Codes used.

J. P. WILLIAM & BROTHERS,

Tropical Seed Merchants,

Henaratgoda, Ceylon.

Correspondence.

To the Editor.

INSECT FOR DESTROYING LANTANA.

Cavite, Philippines, April 28.

DEAR SIR,—I think that the Ceylon Government should get the Mexican insect which is destructive to Lantana (see annexed cutting). Insects and eggs might be obtained from the Government Entomologist, Hawaii.—Yours truly,

T. H. STEPHENS, Dentist.

(*Extract.*)

San Francisco, March 17.—Professor Koebele, Government Entomologist of Hawaii, has discovered an insect that is destructive to lantana. Koebele has been spending some months in Mexico in search of such an insect and has since been ill in Oakland, suffering with Mexican fever.—*Manila Times.*

[But does lantana deserve to be destroyed? It has done much towards renovating abandoned land in Ceylon.—ED. *T.A.*]

DEAD FISH IN THE COLOMBO LAKE.

April 20.

DEAR SIR,—Many years ago, at the time the late General O'Brien was Acting Governor, there was a severe drought in Colombo. The dry season commenced about the end of January and lasted for months before the rains set in; and the fish in the lake were seen dead, floating on the water, and the margin of the lake was getting dry and exposed to the fierce rays of the sun, the public in Colombo was greatly alarmed at this and expected an epidemic of some kind. The cry was so great that the Acting Governor had to pay occasional visits to the exposed banks of the lake to satisfy himself, that all that needed to be done was properly carried out. The crows, our scavengers, had a good time and the dead fish was soon removed. No epidemic of any sort occurred. The probable cause of the fish in the lake dying may be attributed to the rapid sinking of the water in the lake and the water becoming saturated with sewage. It may also be partly due to the rise in the temperature of the water from the fierce rays of the sun during the day, and to more sea water being admitted into the lake from the lock-gate as the river must be brackish in the dry season. This is only a supposition and it is left for science to settle the question.—Yours truly, X.

RHEA FIBRE FOR THE WEST INDIES

Bulls, Rangitikei, New Zealand, March 15.

DEAR SIR,—Some months ago I was in one of your issues a short para, relating to the growth of Rhea fibre, and as I have not been able to obtain any information regarding the plant out here I am going to trouble you in the matter. The points upon which I am seeking information are:—

(1.) Can the fibre be grown in the climate of the Bahama Islands?

(2.) What is the period between planting and maturity?

(3.) What plant is necessary for milling the fibre and who are the best people to supply the same?

I am aware that it is not the editorial custom to reply personally to enquiries like the foregoing, but my excuse must be the inaccessibility of this place to any centres of reference.—I am, dear Sir, Yours faithfully, RICHARD H. DALHOUSIE.

[Seeing that the Rhea Fibre plant grows in Ceylon (its profitable cultivation here has yet to be effected) from sea level up to Nuwara Eliya, 6,300 feet above the sea, we have no doubt it will grow on ordinary soil in the Bahama islands; but sisal fibre is the great product already cultivated there, although, we fear, not very profitably. To the second question, we should say from 1 to 2 years according to soil from seed to maturity, "Death and Ellwoods" patent machinery has been most spoken of, though there are rivals; an enquiry through any large Machine and Iron Firm would bring the needful information.—ED. *T.A.*]

Since writing the above, we have come across the following in the *Indian Planters' Gazette* of April 11th:—

"RHEA is undoubtedly one of the coming crops which Behar planters look forward to as a saver of the situation, and as many of our constituents are purchasing and planting out roots, the following hints for cultivating it, given by those clever pioneers of the industry, Messrs. Jules Karpèles and Co., will doubtless be welcome.—Light Sandy land free of water-logging. Plants should be planted for permanent cultivation 4′ × 4′ apart. In purchasing roots buy them in *lumps* and place them in the ground as received 2′ × 2′ and after one year's growth divide them into pieces of about 8″ long and transplant them as described above 4′ × 4′ by burying them 2 to 3 inches below ground with about 1 inch of root above ground. Planting should be done in the months of July and August. After two years the plants should be ready for decortication. Keep the cultivation clean of weeds by hoeing and ploughing between the bushes, and every two or three years prune away below ground the old roots which accumulate at the side and top of the *roots*, to induce the growth of stems from the fresh roots below the surface. The stems when ready to be cut should be about 6 feet high and the bark should appear brown at the base to 15 inches from the ground. Plant the roots in well-manured land and keep giving back to the soil what is taken from it either in the shape of the refuse from decortication or the addition of other manures."

THE LABOUR QUESTION.

PRELIMINARY REPORT OF THE CEYLON LABOUR COMMISSIONERS.

Rookwood, Hewaheta, April 22.

SIR,—I enclose for publication the preliminary report of our Labour Commissioners, Messrs. Turner and Hill. Additional information will be available at the Planters' Association Committee and general meetings, on the 1st and 2nd proximo.

The Commissioners recommend that we should station an agent in South India for recruiting purposes, and that he should be sent early in May, if possible. I shall be glad if estates who are willing to support a recruiting agency will send in their names to Mr Philip, stating also the number of coolies required A registration fee of 10 cents per cultivated acre per annum would probably meet the expenses of the agency, and in addition the coolies would cost from R15 to R20 per head, according to the distance they would have to travel in India and Ceylon. It should be to the advantage of all estates to maintain such an agency, as estates now well supplied with labour are equally interested in the establishment, if possible, of a new form of recruiting. If the cost of bringing over the coolies is borne by the estate, a saving in head-money should be effected, and as this amounts on an average to over R12 per annum, the cost of recruiting would, in eighteen months, be recovered I wish to ascertain at an early date, what support would be given to a recruiting agency; but promises now made will not be considered binding until a more detailed scheme can be submitted.—I am, Sir, yours faithfully, A. C. KINGSFORD,

Chairman, Planters' Association of Ceylon.

(*The report referred to.*)

In accordance with the resolution passed at the general meeting of the Planters' Association held at Kandy on February 17th, 1903, Your Commissioners have visited Southern India and beg to submit the following preliminary report.

Your Commissioners left Ceylon on the 16th of March, and proceeded straight to Madras to present their credentials. They found that G. O. 244 (*vide* appendix) had been sent out to all Collectors and District Officers in the Madras Presidency, and, having got all the information they could from the officials in Madras, they left for Chingleput, and proceeded through North Arcot, S. Arcot, Tanjore, Trichinoply, Madura, Tinnevelly, Coimbatore and Kistna.

The Indian officials gave them all the information at their disposal and helped them in every way and they personally have to thank them for their kind hospitality throughout the trip.

Your Commissioners having travelled through the Presidency for six weeks have come to the following conclusions: That the scarcity of labour is due to the following causes;

1. The 9,000 crops of all grain during 1902 and 1903 and the increased acreage under ground nut in the Trichinopoly, S. Arcot, Tanjore and other districts—a ground nut has been imported from Mauritius which is said to give three crops a year and thus affords employment practically throughout the year.

2. The want of organisation with regard to recruiting.

3. The greater inducements held out to labourers to emigrate elsewhere. Your Commissioners were asked to report on the whole question of labour and actual recruiting did not come within their province unless it could be effected without interfering with the more important part of their mission. They found it impossible to recruit unless they devoted practically their whole time to it as recruiting necessitates either staying in one central place while sub-agents are out in the villages possibly for a month or being at the beck and call of a telegram from a sub-agent which might take one 200 miles in order to verify a statement as to number of coolies and amount required for advances. Your Commissioners came across two cases where coolies had been borrowed "for this occasion only" and when it came to putting them into the train, it was found that they were employed in a neighbouring mill or some other work.

The district of Coimbatore should be a good ground but the poorer the people the more conservative they are and they prefer to earn a living wage of 2 annas at home, rather than exile and 5 or 6 annas a day.

The Telugu districts north of Madras, are also favourable for emigration, if the difficulty of the language can be overcome, and the extra expense of trainage allowed for.

Your Commissioners beg to offer the following suggestions which they think are necessary with a view to establishing the immigration of labour to Ceylon on a sound basis.

1. That a reliable Agent should be appointed whose duty it would be to have a thorough knowledge of every taluk in the Presidency, and his first work should be in the Telug Districts in order to work up a connection with Ceylon from that part of the country.

2. That a labour bureau should be started by the P A in Kandy, whose duty would be to collect and publish all available informtion as to crops, weather, and health of each taluk (division) of each district in the Madras Presidency.

3. That a strong sub-Committee with legal help should study the New Madras Labour Act. The Straits Settlements Labour laws, and the Emigration Act of India, to see whether any similar ordinance in Ceylon would benefit the Planting Community or failing any new ordinance, what inducements should be offered to immigrants in order to make Ceylon more favourable in the cooly's eyes than other countries.

Your Commissioners would only add that action should be taken at once, as May appears to be the opening month for coolies generally to think of emigrating and your rivals are already in the field.

Your Commissioners have collected a lot of figures and interesting matter, which they will lay before the Committee on their return to Ceylon, all bearing on the conclusions and suggestions mentioned in this report.

Your Commissioners visited Tataparai (Tuticorin) Pamban, Ammapatam and Tondi, the four ports from which all the immigrants to Ceylon book; and think that until the railway from Negapatam to Pamban or wherever the Indian Government decide to think up is finished, it would be very bad policy to close the parts of Ammapatam and Tondi as they consider the country inland most favourable for coolies, if properly worked.

(Signed) EDGAR TURNER. JOHN HILL.

Madura, S India, April 17th, 1903.

[Some further matter may be added later together with the appendices referred to.]

CEYLON TEA IN SOUTH AFRICA.

P.O. Box No. 263, Germiston, Transvaal, April 9.

SIR,—I address you on a subject that affects Ceylon tea in South Africa, and must ask you to submit copy to the English Press in Colombo. During the month that has just passed, a Conference has been held at Bloemfontein, under the presidency of the High Commissioner, Viscount Milner, whereat delegates from Cape Colony, Natal, Orange River Colony, Transvaal and Rhodesia, met to discuss mutual affairs, and they resolved on certain changes in the Customs Tariff, though they are not to be made public till 1st July, this year. I learn that it is intended to make the duty on tea on a par with the Natal and Cape duties, that is, 6d a lb.—whereas at present 20 per cent has to be added to invoice price: and in this value is to be included all packing which is being sold with the articles, and on that value 7½ per cent, *together with a special duty* of 5s in the 100 lb. is charged. As it is, packing, duty, and charges, on my last invoice came to 5·380d per lb. of tea, and on the previous shipment 5·366d; this is quite enough for the tea to have to carry. If we take ·42 cents of the rupee as cost, at an average rate of exchange it works out at 6·982d per lb. Is it fair to an English Crown Colony to tax that tea 6d a lb. as duty? This is to protect Natal-grown stuff. One of the largest Natal tea and sugar growers is now leader of the Natal Opposition, and the parties are pretty even in numbers. This gentleman was, I believe, one of the members of the Conference, and here you have the key to the position. As a part result of this Conference, last week's "Gazette" repealed the duty on produce grown in British South Africa, except in as far as spirits were concerned; while all along the produce of Natal has been carried over its railways at a specially reduced rate. If the Chamber of Commerce, the Planters' Association, and the "Thirty Committee" pull together on this point as they should, there is time for a strong remonstrance to be lodged with the High Commissioner before such duty is imposed.

Once imposed, Sir, you will have far less prospect of being heard to effect.

As far as the tea trade here is concerned, I may state that large quantities of groceries, including tea, are being sold by auction on account of the Field Force Canteens, and also the Army Supply Department. So far the "Field Force," since the war, have sold, according to figures given by the Colonial Secretary the other day, goods to the value of £88,000—and £78,000 worth still remains to be sold—on an average goods being 30 to 50 per cent below what they can be landed at in the Transvaal.—Yours, &c.,

ARTHUR H. GREEN.

COLLAR-PRUNING FOR TEA.

Lower Dimbula, April 26.

DEAR SIR,—In reply to Mr. A. Cooke I know of no one in Ceylon who has "collar-pruned" the same tea-bushes *twice*, for the simple reason that there has not been time to try it. Up till 5 years ago, if my memory serve me, this operation was a mere name in Ceylon, known to us from Indian tea literature. Your Nagpur correspondent may confuse two operations on the *same* stem under this name. First:—A "coppicing" or "stumping," leaving a stem of 6 in. or more projecting above the surface of the ground from which would spring a candelabra growth of suckers—if it (the stump) was not killed back by drought in the meantime. Second:—The real operation—cutting off at the junction of the stem with the roots. This results in a growth of straight suckers, from the junction and along the roots for a few inches. These are *allowed to run* up for 12 or 15 months till they are 2 ft. 6 in. to 3 ft. high when they may be plucked with the rest of the field with the object of making them bush out, more than that of getting leaf. At the usual pruning—(every two years) they are levelled over with the knife at, say, 20 in height above ground, never less, and fall into plucking with the rest of the field in due course, whippy growths having been cut out. At the end of two years more they would be cut to a lower level, say 16 in. and more thinning out of stems done and side growth encouraged. Again for two years they would be plucked like the rest of the field and (6 years from collaring) then pruned a step higher and thinned of superfluous stems, leaving, say, a 5 or 6. stemmed bush, which, so far as I can predict ought to go on for 10 years more or less till these stems in their time become effete, I refer, of course, to medium and high jât, tea—not to bad hybrids, which no man knows how to treat—except, perhaps with an axe and mamoty!

Except in cases of cutting down seed-bearers and fire-damaged bushes to produce bushes of many stems, I think collar-pruning in Ceylon has been confined to bad jâts; and the results cannot be said to be on the whole satisfactory. They just flush for half the time of good jâts and show their ugly Ethiopian integuments again which neither knife nor saw can change—ay! nor guid manure either! In the Indian tea districts I take it that the successful collar pruning, has been done in the case of *originally* good jât bushes, which have become hollow-stemmed, hide-bound, sapless an effete, from age, from many prunings and from the ravages of white ants, etc. on the decayed core, resulting from heavy pruning and the collection of rain water in the hollows so caused.—Yours faithfully,

STILL UNCOLLARED.

TEA COMPANIES—AND TEA COMPANIES?

The Watte, April 30th.

DEAR SIR,—Why is it that some Tea Companies, or rather their Directors, give such full information about their properties (as well as crops) in their Annual Reports; while others are absolutely silent as to acreage of tea, young and old, and other products? What are shareholders about, that they do not insist on a schedule wit

full particulars for each estate, the same as the C. T. P. Company, the Eastern Produce, Nuwara Eliya, Ceylon Land and Produce, and other such large Companies invariably give? Some of the smaller Companies* are the worst sinners and give the most meagre Reports.—Yours, &c.,

DIOGENES.

[* "Directors" of course are to blame and the only cure in the cases complained of is for them to be "heckled" at the annual meeting; but we understand "Diogenes" refers more to sterling, home, rather than to Rupee, local Companies' Reports as the ones deficient in information.—ED. *T.A.*]

CHINA AND JAVA TEAS IN GREAT REQUEST IN LONDON.

May 2.

SIR,—While once again lowcountry and cheap teas generally are in great request in the Colombo market and are fetching much above intrinsic value compared with price for high-grown, what will become of fine plucking and green-tea making? We shall see. But meantime there is authentic news of large quantities of China teas from New York and of Java teas from Holland, being imported to London to make up for the absence of common Indian and Ceylon teas. Surely there is in this something to make us planters, (in the lowcountry)

STOP AND THINK?

INDIA AND GREEN TEA.

Calcutta, May 4.

DEAR SIR,—Judging from the discussion excited I seem to have served a useful purpose in challenging "G T"'s statement with regard to alleged deficiency of percentage of weight in green tea compared to leaf against percentage of black. I note the useful remarks of a Ceylon merchant in your issue of 18th April as well as the record of Mr. Hunter of Sunnycroft and your other correspondent in issue of 27th April and am glad to see that our Indian experience of careful green tea manufacture is confirmed in the island. The comparison I made upon Indian and Ceylon green tea was, as you know, purely suppositions, being based upon "G T"'s figures, and I am glad to see that the writer's experience is not general in Ceylon. There is no reason as I took the liberty to point out why it should be even partial, except that your assured bounty enables producers working even on such faulty lines to keep afloat, of which more below. The "note of admiration" I inserted was intended to convey that I considered the comparison called forth by "G T" too good (from an Indian grower's point of view) to be true, and I thought that a hint that there were better standard to work to would be useful to "G T" and others (if any) in a like predicament. In reply to his second communication in yours of 22nd April, the matter is really beyond such experiments as he proposes. The results I gave you were based on an amount of crop exceeding half-a-million pounds, and it is confirmed by Ceylon experience as shown by your other correspondents. The matter is not of small importance. I suppose all tea men are interested in their various ways quite as much as myself in the success of the green tea industry, and damaging statements based on faulty working are likely to check a desirable development which also works in the interests of black tea producers. A manufacture at such a disadvantage in point of cost of production as stated by "G T" can only be kept going by the compensating bonus, and even in Ceylon the bonus cannot be continued for ever The green tea industry must get on its own leg, or die. In India our tea agency firms have put the bonus out of their calculations so far as compensation for cost of manufacture or deficiency in price of the article compared with black is concerned. We are working without any definite promise of a bonus, the London I T A Committee's proposals on the subject being quite *ultra vires* considering that the decision of the matter rests entirely with the new "Twenty Committee" to administer the Cess, unconnected with the Association. If the bonus is given at all, it will only be a small one. This is understood by those who are going in for the manufacture and they would leave it alone if they did not hope to make it pay for itself, thankfully receiving anything that may be given them towards cost of initial installations of machinery, not towards equalising prices or making up for increased cost of production or loss in manufacture. It seems to me that this view of the question is sound. Compensation for extra initial expenditure, more or less in the interests of the whole industry, is sound in principle. An attempt to supply inherent defects in results, on the other hand, cannot succeed in the long run. We, in India, have got to make green tea pay by itself in the near future, or we have got to drop it and this necessity makes our Indian men who take up the process especially keen and critical. There would be no chance of their continuing the attempt with such a handicap as 4 cents extra in cost of manufacture as per "G. T." If your long-continued bonus system encourages such lame ducks to play with green tea for a time, only to throw it up as soon as the bonus is withdrawn, as they must do it seems to me that you are spending a certain proportion of your Cess funds to no permanent good. The matter needs looking into. Only such green tea makers as can show results giving a reasonable hope of establishing the new industry as a paying branch of tea manufacture deserve support. In India this result will be obtained by the restricted support which I am, at present, informed will only be accorded, and I am in a position to know more of the difficulties than the facilities of the matter. As a typical instance of the manner in which our men are working, I may say that one of our *very* prominent tea agents, who is a power on every Committee, while putting one or two of his gardens into green tea, is totally opposed to *any* bonus being given. He was deterred at first from taking up the process at all by just such uninformed statements as those of your correspondent's with regard to weight of output in green till I showed him the testimony of the managers who calculated on the half-million pounds of crop as above mentioned.—Yours faithfully,

CHARLES JUDGE.

DESICCATED BANANA: A NEW INDUSTRY.

May 5.

DEAR SIR,—As I know you are interested in all industries connected with Ceylon, I am sending you a sample of semi-desiccated banana, or plantain, sent me from home, which the sender informs me is usually supplied from the West Indies, and which is used in large quantities by bakers for fancy cakes instead of, or along with, orange-peel.

As there appears to me to be an opening for business with home in this stuff, I write to ask you if you know of any house out here that deal in it, or if it has ever been tried.—Yours sincerely, ENQUIRER.

[This letter should have appeared before. Can any one tell us if a local experiment has been made? Respecting plantain "flour" we have had a good deal of discussion; but the "desiccated plantain" is new. Why should the local mills not desiccate plantains as well as coconuts? But is the supply of fruit sufficient? At present the Colombo fruit market, we suspect, requires all the plantains that can be sent to it; and the West Indian islands with their much richer soil and proximity to England and the United States can supply the fruit both natural and desiccated at a rate, probably, to beat Ceylon? Still there should be no harm in trying an experiment at one or other of the local Desiccating Mills.—ED. *T.A.*]

DESICCATED PLANTAINS AND FRUIT CANNING.

May 15th.

DEAR SIR,—I am glad to see the Old Rag taking up, as is its wont, the questions of new products and new industries. There is awful waste of fruits in the Island. Partly owing to the temperature which is fatal to the keeping of ripe fruit for more than two or three days, and partly owing to the rush with which crops like mangoes, jambus and country pines come on, scarcely more than one-half of the low-country fruit is consumed. If canning fruit is set up, it should pay. Fancy our getting canned pine-apples from the Straits! But plantains are always in season, and their cultivation and production can be indefinitely increased if desiccating be started on a large scale. Vavasseur's and the Orient Company have facilities at hand for the enterprise; but Lipton and the Australian Stores may be first in the field. I have sun-dried ripe plantains sliced in two, and they both keep well, and are as tasty as figs, or they may be stewed. Pity there is not more enterprise in our midst.—Yours truly, LOWCOUNTRY.

DESICCATED BANANAS.

May 15.

SIR,—With reference to "Inquirer"'s letter *re* desiccated bananas and your note on same, I wish to point out that the supply of plantains would be unlimited in Ceylon if a fair price could be offered. They will grow luxuriantly in dry country with irrigation and give freight to the new Railway Line. At present the producer can only get an average of R30 per 100 bunches, when in the West Indies, according to Mr Fawcett of the Public Gardens, Jamaica, the average of the contracts are £8. 15. 0. per 100, or R131. Half of this would be very remunerative in Ceylon and allow for cultivation, where at present the banana is generally grown as a by-product. That enormous difference in price would justify "Inquirer" to think that there is a very profitable industry to create.—Yours truly,

A. VAN DER POORTEN.

[The sooner an experiment is made in desiccating, and shipping, an appreciable sample, to try in London, the better. Could Mr. Vanderpoorten himself not prepare such a sample and test the market? We fear the voyage is too long from Colombo to Europe to be able to send bunches of green plantains.—ED. *T.A.*]

PLANTING IN B. C. AFRICA: COFFEE, TEA, TOBACCO.

AN ADVERSE REPORT.

May 16.

SIR,—With your permission I will make a few remarks on an article in *Tropical Agriculturist*, 1st May, on "Planting in British Central Africa" referring to a "fortune" to be made in Tobacco—and Tea, written by a bit of "young enthusiasm" from Ceylon. I was right through the Blantyre District in June-July, last year, from "Katunga's" to Zomba *via* Blantyre, and again in November from Zomba to Blantyre and from Blantyre *via* Cholo to Chiromo, so that I passed through a considerable portion of the planting district. As your correspondent says, coffee is almost a thing of the past. Whatever induced any man to plant coffee there, is more than I can understand. The lay of land is excellent, soil is very good, elevation good, but—the *average* yearly *drought* may be reckoned at *seven* months. Rainfall is, I believe, about 60 in. in Blantyre, badly distributed. Where our old friend, Mr Henry Brown, is, on the magnificent M'lanje mountain, the rainfall is a little more, and there by care and unceasing attention a man may scrape along. A few men have made money in coffee by having the luck to get a rather better rainfall than usual at first or second crop season and then *selling* their estates. The life of the coffee seems to be about 4 years from a planter's point of view. The young stuff seems to come on in spite of the drought, but as soon as it has borne one or two crops it simply snuffs out. As to Tea and a "fortune" in local consumption, at 3s per lb., the whole of British Central Africa cannot contain, I fancy, more than 300 white people, so where does the consumption come in? As to exporting it—well, wait for the railway, if it ever comes, and even then cost of transport will kill it. As for Tobacco, a coarse kind can be grown and at present there is a somewhat precarious market for it in S. Africa as "Boer" tobacco. The foregoing is the real state of things, according to my enquiries and observations. As to labour, it is cheap but not permanent. Each male native has to work a month in each year or pay double hut tax (6s) instead of (3s). They are sent to Blantyre in thousands each

year by the outstation Collectors or Assistants. Hence the force is not permanent and men are always *new*. Cost of transport of goods *via* the 'Shire' and Zombesi steamers is pretty heavy, plus the cost of overland carriage after that: British Central Africa, is a great transport highway for Central Africa, the lakes and surrounding territories—that is about all.—Yours faithfully,
H. STOREY.

DESICCATED PLANTAINS AS A LOCAL INDUSTRY.

A STEP ONWARD.

May 17.

DEAR SIR,—I am much obliged for the interest you have taken, and the information you have given me, regarding desiccated pl antains.

I am going to write home by this mail, and ask for a large sample of, and prices given for, desiccated plantains. On receipt of this I will be glad to communicate with Mr. Van Der Poorten, or any other low-country planter, interested in the product. It is a pity that there should be any waste out here in the better-flavoured plantains when a demand is ready at home.—Yours truly,
ENQUIRER.

PLANTING NOTES.

AGE OF TREES.—The best authorities on trees state that the English oak may live to the age of 1,500 years, only cedars, sequoia, and baobab having a still louger life. Poplars reach only 50, elms 335, maples 516, birches 576, oranges 620, cypresses, walnuts, and olives 800, planes 1,000, and limes 1,100 years.—*Agricultural Journal.*

THE EARTH-NUT—or pea-nut (*Arachis hypogœa*)—has come to be considered one of the best foods for poultry, whether laying hens or growing chickens, excelling maize, wheat, or oats. Unlike the first two it does not over-fatten, and keeps the birds in good health. They are thrown with tops and all, and keeps hens busy all day.—*Agricultural Journal.*

"DESICCATED BANANAS': A NEW INDUSTRY FOR CEYLON.—We trust a trial will be given by some one or other of our coconut desiccating mills to the drying and preparing of Ceylon plantains as suggested by our correspondent "Enquirer" in another column. We omitted to quote one important paragraph from Sir John Grinlinton's letter. It is after he speaks of the large shipments from the islands:—"The bananas in the Canary islands and Teneriffe are not nearly so good as those produced in Ceylon." Since writing the above we have been favoured with the following information from Sir Wm. Mitchell:—"Referring to the enclosed ("Enquirer"'s letter) Mr. Chas. Stouter (who went to Paris with the Commissioner) got a gold medal for his exhibit of plantain flour. I had it analysed for him in Paris, and it was thought a great deal of, for its antiseptic properties amongst other things. Shipments were recommended, but I fear the cost of laying it down in Europe was too great to be covered by the price obtainable. The desiccated plantains might well become a new industry, only I fear the cost will stand in the way."

TEA IN SOUTH AFRICA.

It is a pity that Mr. Arthur Green's important letter, which we publish on page 856, did not come some weeks earlier, so that it might have been considered at the Planters' Accociation meeting and at that of the Chamber of Commerce—both of these meetings having had very much of their interest taken from them at the eleventh hour. Although no resolution could be come to, the matter might still be noticed, as a subject to be taken up at the very next opportunity. It is against all but a very narrow reason, that a heavy—though not, of course, prohibitive—duty should be placed on the East Indian grown teas in the interest of a comparatively small acreage under tea in Natal. As Mr. Green shows, with all expenses and charges paid before he can sell tea in the Transvall, the article costs a pretty considerable figure; and if tea is to be popularised in South Africa it must be by cheapening it to the utmost possible limit. The climate is not so far different from that of Australia that the new colonies would be unlikely to follow its excellent example as the leader of the tea-drinking world. In order to attain this, however, heavy taxes must be lightened. The "Thirty Committee" and Chamber of Commerce, we have no doubt, will do their part promptly. But that part will be neither so effective as would be a message to His Majesty's Government from Sir West Ridgeway, pointing out that the principles of inter-colonial free-trade are being interfered with, in favour of a very small section in Natal; whilst the prospects of development of trade in the new colonies for a large industry in India and Ceylon will be hampered by a 6d South African duty on tea. Sir West Ridgeway's prompt protest against any proposed increase in the home tea duty on a previous occasion is well and gratefully remembered, and speedy action in the present case might lead to results of which Ceylon would become increasingly conscious and full of recognition, when the present Governor is ruling—not so very many months hence—over the fortunes of those rich new colonies to which we have referred.

COFFEE PLANTING IN BRITISH NEW GUINEA: THE LEAF FUNGUS AT WORK: EFFECT OF DROUGHT ON THE BEANS.

THE FUTURE OF B. N. GUINEA.

Mr. Donald Mackay sends us the following interesting "notes" from Singapore:—

When at Port Moresby I was shown

COFFEE LEAVES,

showing Hemileia Vastatrix fully developed. These were from a plantation some 40 miles inland belonging to Messrs. Burns Philp & Co. of Sydney and many other places in Australia and the Islands. I took the liberty of recommending the Manager to send you the diseased leaves with the view of your obtaining expert opinion on the fungus growth and receiving suggestions as to the remedial measures that might be adopted. I felt that in the interests of a pioneering industry in a new country you would be only too glad to help the infant colony to whatever the dearly bought experience of Ceylon could give, in an effort to extirpate the disease while in its first stages and before it had over-spread and gone beyond remedies. I felt the more impelled to suggest an appeal to you well-known

experience on account of what I took to be a sort of hopelessness which saw nothing better than abandonment of the enterprise altogether. There are only two

COFFEE PLANTATIONS

at or near Port Moresby, one about 50 acres owned by Messrs. Burns Philp & Co., and the other about 100 acres owned by someone whose name I forget. They were too far for me to visit during our stay in port even if there had been roads worthy of the name to enable a journey to be quickly done.

I understood that the disease had not spread over the whole area, but was confined to the outlying corners where it had broken out. Possibly this may mean that the disease of fungus came out of the forest). Nothing had been done in the way of remedial measures and they seemed quite at a loss what to do. I told them that the vapour of carbolic acid and the fumes of sulphur had been tried in Ceylon without any better result than a temporary stoppage in the progress of the disease and a temporary recovery in the output of foliage. Even if hot lime applications would be of avail there is no lime anywhere near and, wanting roads for carts, figging up the trees with manure is out of the question as a matter of reasonable expense. The age of the coffee in Messrs. Burns Philp & Co.'s plantation runs up, I fancy, to 6 years. I did not find out for a certainty, where the seed came from, but I am inclined to think from East Java, where I saw leaf disease in 1897. I have advised them to seek the co-operation of Government in sending some competent man to Java to see how things are there with regard to coffee and the conditions under which it is grown as regards shading, pruning and cultivation generally. It may be that shade would mitigate if it did not prevent the attacks of the fungus. Dutchmen do not believe in growing coffee without shade and their experience goes a long way back in their own island and climate. The climatic conditions in New Guinea must be pretty much skins to those existing in Java though the soils may be different, the latter being volcanic, and the former now more or less volcanic. There is immense scope for coffee growing in the numerous valleys of the uplands, where the rainfall is more abundant and its failure a matter of unfrequent occurrence. Coffee is grown here and there on the mainland of Australia, but New Guinea by its situation and conformation should be the coffee-growing country of the Commonwealth. As an example of the

RESULT OF DROUGHT

it might interest you to see

COFFEE BERRIES

of this year's picking after drought from Burns Philp's estate as compared with the berries from last year's picking from the same estate before the drought took effect in New Guinea. The small shrunken beans tell their own tale of the severity of the drought in a land of high, forest-covered mountains that is supposed to be always attracting and distributing moisture. It only shows how, though in a modified degree, Australian droughts react on New Guinea though separated by considerable seas.

The future of

BRITISH NEW GUINEA

is what the Commonwealth, who are now taking it over, may choose to make it. If the Central Government go in for spending money in opening up the country, great results will follow in enterprise, in establishment of plantations of all tropical products, especially cocoanuts in which there has been next to nothing done on any large scale. If Government continue the starvation policy hitherto followed, then private enterprise will leave New Guinea alone and go to the other islands of the Southern Seas for a field of investment.

The coffee leaves referred to, have not yet reached us; but the experience of Ceylon is not encouraging to any one trying to fight *hemileia vastatrix*. At the same time, a better fight could be made over small isolated plantations in New Guinea than on our extensive planted districts. The first and most potent means of getting rid of the fungus should be to gather and burn all affected leaves, if possible as soon as the yellow pin spot appears. If in addition sulphur and lime can be applied, all the better; but burning the affected leaves should in any case be done.—The contrast between the properly grown sample of parchment beans sent us and the small pealike beans matured in the drought, is very striking. No doubt a good cup of coffee can be got from the tiny beans; but it would take a big lot of such beans to fill a bushel or weigh a cwt.

THE SHRINKAGE OF TIMBER.

Some little known facts as to the shrinkage of timber are disclosed in the latest Report on the Punjab Forests. It is calculated that during the last ten years there has been a loss in the timber launched on the river from the Pangi forests amounting to 157,000 cubic feet of deodar in the log and 94,000 cubic feet in scantlings. Similarly, from the Bashahr forests in twenty years there has been a loss of 834,000 and 196,000 cubic feet, respectively. This is by no means all due to theft or accident, for observations taken at Chamba show that between forests and sale depots identified logs lose 13 per cent in volume from shrinkage. It is calculated by the Divisional Officer of Bashahr that for every 100 cubic feet of logs cut in the forests not more than 72 cubic feet are received in the depots, 19 per cent of the loss being due to shrinkage, while only 48·5 per cent of the scantling despatched reaches the sale depots. It is to be observed that the Punjab Government is already looking forward to the time when "all the chief fuel preserves of the Forest Department in the Punjab plains will have been surrendered for colonisation," and we are told that to retain any large area of these *rakhs* under natural jungle growth would be prejudicial to the success of irrigation schemes now maturing as well as bad economy. In the zeal for irrigation it is to be hoped that the importance of trees as affecting climate will not be forgotten. Only a few days ago we called attention to a report from the Punjab, in which reference was made to the ruthless denudation of the Punjab forests for fuel, and the opinion was expressed that already this denudation had had an appreciable effect on the climate and rainfall. There is some talk of an extension of irrigated plantations; but so far as we can gather from the Report, these are to be regarded only from the financial point of view: if they do not pay a substantial profit they will not be extended.—*Pioneer*, May 15.

Monthly Shipments of Ceylon Black Tea to all Ports in 1902-1903.*

(Compiled from Chamber of Commerce Circular.)

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January ..	9056013	7720436	612958	323101	151984	127883	714247	1738760
February	7455219	7983166	919709	372474	121158	150846	1020948	1337353
March ...	8198179	7192958	896513	568942	91081	138065	1713916	737977
April ...	8521388	8411101	988698	936633	93198	142852	2081904	1510067
May ..	9638555		238239		80669		2000522	
June ...	12563050		1934976		166479		1828695	
July ..	10724781		1779011		108785		1747960	
August ...	7396614		1065599		208894		1574498	
September	6652202		795315		70262		1857897	
October ..	6559765		360844		79943		1567796	
November	6386229		937757		213619		1033030	
December	9072552		285785		60628		1577381	
TOTAL ..	102,899,489		11,599,953		1,206,140		18,718,794	

	America.		All Other Ports.		Total.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.
January	125795	538166	389215	584321	11050212	11032667
February	115332	743733	385705	615790	10018071	11203362
March	566263	417750	311191	270198	11777143	10625890
April	807390	363052	290137	531685	12782715	11895390
May	242651		436410		12637046	
June	403005		714471		17660676	
July	464858		846036		15671431	
August	461229		678095		11384929	
September	563981		688730		10628487	
October	483085		655827		9707260	
November	282794		547508		9400936	
December	558864		626319		12181529	
Total ...	5,048,137		6,569,644		146194397	

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom.		Russia.		Continent of Europe.		Australia.	
	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902. lb.	1903. lb.	1902 lb.	1903. lb.
January ...	64021	95535	..	...	...	3000	...	...
February	24839	52407	4420	...	...	1430	...	..
March ..	14800	59458	24210	...	...	...	..	...
April ...	13676	94220	8000	10411	...	...	...	...
May ..	70103	...	..	...	...	...	..	...
June ...	87340	...	74225	...	...	...	...	..
July ...	40574	...	..	...	...	...	...	...
August ...	70900	...	..	...	...	...	...	..
September	50771	...	..	...	...	...	...	...
October ...	68679	...	..	. .	...	...	...	..
November	48076	...	..	...	...	...	..	...
December	40423	...	..	...		...	..	...
TOTAL ...	644,443		127,115				...	

	America.		All Other Ports.		Total.	
	1902 lb.	1903. lb.	1902. lb.	1903. lb.	1902. b.	1903. lb.
January ...	113332	26534	...	..	177353	363883
February ..	26480	567474	515		56254	621616
March ...	62313	551016	100	...	101423	610474
April ...	53610	313963	9165	...	84451	448594
May ..	32676	...	3280	...	106059	...
June ...	84184	...	4500	...	250249	...
July ...	194016	...	...	...	234590	...
August ...	105982	...	1600	...	178482	...
September ...	333704	...	6800	...	391275	...
October ...	281168	...	..	...	349847	...
November ...	156653	...	20080	...	224809	
December ...	365843	...	2240	...	408506	...
Total ...	1,968,456		48,280		2,796,844	

* It is impossible to get the figures for the last month in time for publication; but see pages 862, 863 for certain information.

SHARE LIST.

ISSUED BY THE

COLOMBO SHARE BROKERS' ASSOCIATION.

CEYLON PRODUCE COMPANIES.

Company	paid p. sh.	Buy- ers.	Sell- ers.	Tran- sactions.
Agra Ouvah Estates Co., Ltd.	500	950	1000	1000
Ceylon Tea and Coconut Estates	500	..	...	—
Castlereagh Tea Co., Ltd.	100	100	102½	102½
Ceylon Provincial Estates Co. Ltd.	500	585	600	...
Claremont Estates Co., Ltd.	100	..	...	...
Clunes Tea Co., Ltd.	100	...	80	—
Clyde Estates Co., Ltd.	100	..	50	...
Doomoo Tea Co., of Ceylon Ltd.	100	92½	...	..
Drayton Estate Co., Ltd.	100	...	...	...
Eila Tea Co., of Ceylon, Ltd.	100	35	40	..
Estates Co of Uva, Ltd.	500	..	275	..
Gangawatte Tea Co., Ltd.	100	100	—	..
Glasgow Estate Co., Ltd.	500	1200	..	...
Great Western Tea Co., Ltd.	500	...	700	...
Hapugahalande Tea Estate Co.	200	...	...	...
High Forests Estates Co., Ltd	500	—	525	—
Do part paid	400	...	400	—
Horrekelley Estates Co Ltd	100	..	100	—
Kalutara Co., Ltd.,	500	..	315	...
Kandyan Hills Co., Ltd	100	..	...	...
Kanapediwatte Ltd.	100	...	80	..
Kelani Tea Garden Co., Ltd.	100	...	35	...
Kirklees Estate Co., Ltd.	100	..	..	...
Knavesmire Estates Co., Ltd.	100	..	62½	—
Maha Uva Estates Co., Ltd.	500	—	...	...
Mocha Tea Co., of Ceylon, Ltd.	500	810	—	—
Nahavilla Estate Co., Ltd.	500	...	400	..
Neboda Tea Co., Ltd.	500	—	..	...
Palmerston Tea Co., Ltd.	500	—	—	...
Penrhos Estates Co., Ltd.	100	..	100	..
Pitakanda Tea Company	500	—	—	..
Pine Hill Estate Co., Ltd.	60	—	47½	..
Putupaula Tea Co. Ltd.	100	—	..	...
Ratwatte Cocoa Co., Ltd.	500	250	—	—
Rayigam Tea Co., Ltd.	100	...	52½	...
Roeberry Tea Co., Ltd.	100	101	—	—
Ruanwella Tea Co., Ltd	100	57½	60	—
St. Heliers Tea Co., Ltd,	500	..	600	..
Talgaswela Tea Co., Ltd.	100	35	37½	37½
Do 7 per cent Prefs.	100	72½	80	...
Tonacombe Estate Co., Ltd,	500	—	..	—
Union Estate Co., Ltd.	500	..	...	..
Upper Maskeliya Estates Co., Ltd.	500	...	...	615
Uvakellie Tea Co. of Ceylon, Ltd	100	82½	85	82½
Vogan Tea Co., Ltd.,	100	87½	60	60
Wanarajah Tea Co., Ltd.	500	950	—	...
Yataderiya Tea Co., Ltd.	100	—	365	362½

CEYLON COMMERCIAL COMPANIES

Company	paid p. sh.	Buy- ers.	Sell- ers.	Tran- sactions.
Adam's Peak Hotel Co., Ltd.	100	..	30	—
Bristol Hotel Co., Ltd.	100	—	75	..
Do 7 per cent Debts.	100	..	—	..
Ceylon Gen. Steam Navigation Co., Ltd	100	..	—	..
Ceylon Ice & Cold Storage Co. Ltd.	100	..	100	...
Ceylon Superaëration Ltd.	100	—	..	—
Colombo Apothecaries' Co. Ltd.	100	—	137½	130
Colombo Assembly Rooms Co., Ltd.	20	15	..	...
Do prefs.	20	...	..	—
Colombo Fort Land and Building Co., Ltd.	100	100	...	100
Colombo Hotels Company	100	285	220	290
Galle Face Hotel Co., Ltd.	100	..	195	195
Kandy Hotels Co., Ltd.	100	132½	...	—
Mount Lavinia Hotel Co., Ltd.	500	—	250	..
New Colombo Ice Co., Ltd.	100	...	100	100
Nuwara Eliya Hotels Co., Ltd.	30	27½	—	..
Do 7 per cent prefs.	100	—	120	—
lic Hall Co., Ltd.	20	...	—	...

LONDON COMPANIES

Company	paid p. sh.	Buy- ers.	Sell- ers.	Tran- sactions.
Alliance Tea Co., of Ceylon, Ltd.	10	8	9	—
Anglo-Ceylon General Estates Co	100	—	52–57	
Associated Estates Co., of Ceylon	10	...	nom	—
Do. 6 per cent prefs	10	—	2–4	—
Ceylon Proprietary Co.	1	—	5–10	—
Ceylon Tea Plantation Co., Ltd.	10	—	24–25	—
Dimbula Valley Co. Ltd	5	—	5½–6	—
Do prefs	5	—	5½–6	—
Eastern Produce & Estate Co. Ltd.	5	—	3¾–4½	—
Ederapolla Tea Co., Ltd	10	—	5–8	...
Imperial Tea Estates Co., Ltd.	10	5	6..	..
Kelani Valley Tea Asscn., Ltd.	5	—	3–5	...
Kintyre Estates Co., Ltd.	10	..	4–5	—
Lanka Plantations Co., Ltd	10	—	3–4	—
Nahalma Estates Co., Ltd.	1	—	nom	—
New Dimbula Co., Ltd.	1	—	2¾–3	—
Nuwara Eliya Tea Estate Co., Ltd.	10	—	...	..
Ouvah Coffee Co., Ltd.	10	..	—	10
Ragalla Tea Estates Co., Ltd.	10	..	9–11	...
Scottish Ceylon Tea Co., Ltd.	10	..	10–12	..
Spring Valley Tea Co., Ltd.	10	..	3–5	—
Standard Tea Co., Ltd.	6	...	11–12	12
The Shell Transport and Trading Company, Ltd.	1	..	2⅞–3⅛	..
Ukuwella Estates Co., Ltd.*	25	..	par	—
Yatiyantota Ceylon Tea Co., Ltd.	10	6	7	—
Do. pref. 6 o/o	10	9	10	—

BY ORDER OF THE COMMITTEE.

Colombo, June 5th, 1903.

* Latest London Prices

RAINFALL RETURN FOR COLOMBO.

(*Supplied by the Surveyor-General.*)

	1898.	1899	1900	1901	1902	Av. of 33yrs.	1903.
	Inch	Inch.	Inch.	Inch.	Inch	Inch.	Inch.
January ..	2·32	·98	3·72	11·91	1·95	3·46	4·16
February ..	1·98	2·78	0·63	3·55	4·57	2·02	3·95
March ..	4·21	0·88	3·71	5·12	6·85	4·82	2·53
April ..	22·81	6·66	15·12	8·71	10·01	11·30	7·62
May ..	5·80	17·73	10·63	6·28	11·89	11·86	20·76
June ..	10·94	9·23	7·83	5·93	9·84	8·32	0·85
July ..	6·15	1·11	6·77	4·52	4·63	4·46	
August ..	0·97	0·62	7·35	0·46	2·78	3·66	
September ..	6·90	1·48	4·00	3·93	8·18	5·04	
October ...	20·60	12·99	9·47	3·91	31·47	14·56	
November ..	17·38	8·58	9·25	19·84	20·10	13·00	
December ..	3·05	4·44	5·20	1·70	6·43	6·21	
Total..	103·11	73·48	83·68	75·86	118·70	88·71	39·87

From 1st to 4th June 0 85 in., that is up to 9-30 a.m. on the 5th June.—ED. *C. O*

CEYLON TEA: MONTHLY SHIPMENTS TO UNITED KINGDOM AND ESTIMATE.

Estimate for	May	1903—	8¼ to 8¾ mill. lb.
Total Shipments	do	1903—	10,250,000 lb.
Do do	do	1902—	9,638,555 lb.
Do do	do	1901—	10,570,686 lb.

[ESTIMATE for June 1903—11 to 11½ million lb.]

COMPRESSED PEAT—from the extensive lake deposits in the valley, near the City of Mexico, is being sold for use in boilers, we read. Why should not the peat deposits at Nuwara Eliya be turned to some use?

COLOMBO PRICE CURRENT.

(Furnished by the Chamber of Commerce.)

EXPORTS

Colombo, June 1st, 1903.

Cardamoms:—
All round parcel, well bleached per lb. R1·03
Do. dull medium do. R0·90
Special assortment, 0 and 1 only do R1·30
Seeds do. R0·80

Cinchona Bark:—
Per unit of Sulphate of Quinine 7c—1½ to 3 per cent.

Cinnamon:—(in bales of 100 lb. nett.)
Ordinary assortment per lb. 47c.
Nos. 1 and 2 only per lb. 54c.
Nos. 3 and 4 only per lb. 39c.

Cinnamon Chips:—(in bags of 56 lb. nett. per candy of 560 lb.) R57·50

Cocoa:—
Finest estate red unpicked per cwt R45·00
Medium do do do R42·00
Bright native unpicked and undried R35·00
Ordinary do do do R30·00

Coconuts—(husked)
Selected per thousand R43·00
Ordinary „ R34·00
Smalls „ R27·00

Coconut Cake—
Poonac in robins f. o. b. per ton R75·00
Do in bags none.

Coconut (Desiccated).
Assorted all grades per lb 16c.

Coconut Oil—
Dealers' Oil per cwt. R13·00.
Coconut Oil in ordinary packages f. o. b. per ton R300·00.—Business at both figures.

Coffee.—
Plantation Estate Parchment on the spot per bus.—R9·50.
Plantation Estate Coffee f. o. b. (ready) per cwt.—R55·00.
Native Coffee, f.o.b per cwt.—None.

Citronella Oil—
Ready do per lb.—53c.

Copra—
Boat Copra per candy of 560 lb. R44·25
Calpentyn Copra do do R44·00
Cart do do do R38·00
Estate do do do R44·00

Croton Seed per cwt—R12·00

Ebony—
Sound per ton at Govt. depot R180—Sales of 25th May.
Inferior R105—

Fibres—
Coconut Bristle No. 1 per cwt R12·00
Do „ 2 9·00
Do mattress „ 1 2·75
Do „ 2 1·85
Coir Yarn, Kogalla „ 1 to 8 16·50
Do Colombo „ 1 to 8 12·00
Kitool all sizes None
Palmyrah None

Pepper—Black per lb None

Plumbago—
Large lumps per ton R600·00
Ordinary lumps do R625·00
Chips do R350·00
Dust do R250·00
Do (Flying) do R125·00

Sapanwood— per ton R45·00—Nominal.

Satinwood (Sound) per cubic ft. R5·90—Sales of 26th Jan
Do (Inferior per cubic ft. R4·40 do
Do (Flowered) per cubic ft. R10·70 do

Tea—	High Grown Average	Medium Average.	Low Grown Average.
Broken Pekoe and Broken	cts	cts	cts
Orange Pekoe per lb	53	43	39
Orange Pekoe do	47	41	38
Pekoe do	40	37	34
Pekoe Souchong do	35	33	32
Pekoe Fannings do	38	35	34
Broken mixed—dust, &c	34	29	30

CEYLON EXPORTS AND DISTRIBUTION FOR SEASONS 1902 AND 1903

Countries	Black Tea. 1903 lbs.	Black Tea. 1902 lbs.	Green Tea 1903 lbs.	Green Tea 1902 lbs.	Coffee—cwts. Plantation	Coffee—cwts. N'tive	Coffee—cwts. Total	Cocoa cwts.	Cardamoms. lbs.	Cinnamon Bales. lbs.	Cinnamon Chips. lbs.	Coconut Oil. 1903 cwts.	Coconut Oil. 1902 cwts	Copra cwts.	Desiccated Coconut lbs.	Poonac. cwts.	Coconuts. No	Plumbago. 1903 cwts	Plumbago. 1902 cwts.
To U. K. ..	39[illegible]92915	41818273	490028	174369	3620	..	3620	23881	236162	125388	333176	147267	72402	8202	5498981	997	3189618	40083	85161
„ Austria ..	17808	11428	...	...	...	..	..	107	..	2384	56676	15695	2987	6500	14455	...	12775	...	...
„ Belgium ..	51843	29036	...	..	2	...	2	495	1000	68430	147336	4037	1198	11407	118837	60236	98160	9918	4804
„ France ..	159516	93092	4430	...	...	..	..	516	014	14600	30800	8369	238	30363	48520	100	..	1321	...
„ Germany ..	301401	153983	..	...	...	..	...	2721	45717	299416	401619	4709	3861	95070	361480	40699	300865	26301	24517
„ Holland ...	160	3190	..	...	...	..	..	...	...	10000	44800	614	...	...	93080	..	40680	102	203
„ Italy ..	9348	4700	...	..	...	..	...	...	...	53700	97364	4834	1310	...	..	..	11141	...	...
„ Russia ..	2681925	3656117	10411	32210	..	...	..	...	...	..	..	...	...	36066	..	..	..	717	1244
„ Spain ..	1900	2250	..	..	...	..	...	246	..	1[illegible]8300	25200	..	...	...	26550	..	...	...	..
„ Sweden ..	42351	31792	..	...	...	..	..	..	...	..	..	822	412	...	42350	..	...	...	...
„ Turkey ..	10865	16423	..	...	..	..	...	...	..	500	...	...	...	..	...	...	..	..	...
India ..	222072	262223	955	14031	11	..	11	...	72519	200	..	0103	30968	...	...	...	35100	1711	1582
„ Australia ..	7479946	6856387		...	1150	20	1170	200	...	2100	13664	55	.	..	284378	...	..	288	89
„ America ...	2354698	1641440	2069949	255735	113	...	113	937	190	172423	59942	33245	17371	...	503336	...	11010	113428	104781
„ Africa ..	199329	219465	..	...	4	..	4	..	2978	...	..	228	60	..	25325	2001	914620	..	...
„ China ...	2643567	1128162	3220	..	17	..	17	..	6066	...	..	1831	319	..	1232	..	..	946	637
„ Singapore ...	59057	49772	...	..	...	..	..	1995	1523	...	..	1409	20	..	...	...	..	...	..
„ Mauritius .	24182	31260	...	...	..	...	...	..	..	..	...	..	...	..	..	...	...	..	..
„ Malta ..	137364	133075	..	..	..	...	..	...	..	...	..	..	..	...	...	..	...	...	..
Total export from 1st Jan. 1st June 1903	56289846	55147058	2580293	476345	4917	20	4937	31098	366769	797441	1209977	229148	131146	1576[illegible]8	7018474	104033	4642961	194815	223018

MARKET RATES FOR OLD AND NEW PRODUCTS.

(From Lewis & Peat's Fortnightly Price Current, London, 6th May, 1903.

	QUALITY.	QUOTATIONS.
ALOES, Soccotrine cwt.	Fair to fine dry ..	60s a 80s
Zanzibar & Hepatic ,,	Common to good ..	20s a 60s
ARROWROOT (Natal) lb.	Fair to fine ..	7d a 8d
BEES' WAX, cwt.		
Zanzibar Yellow ,,	Slightly drossy to fair	£6 10s a £6 17s 6d
Bombay ,,	Fair genuine ...	£5 10s a £6 10s
Madagascar ,,	Dark to good palish	£6 7s 6d a £7 2s 6d
CAMPHOR, Formosa ,,	Crude and semi-refined	160s a 175s
Japan ,,	Fair average quality ..	162s 6d
CARDAMOMS, Malabar lb	Clipped, bold, bright, fine	1s 6d a 1s 9d
	Middling, stalky & lean	1id a 1s 1d
Ceylon.—Mysore ,,	Fair to fine plump ..	9d a 2s 6d
	Seeds ..	1s 1d a 1s 3d
,, Tellicherry ,,	Good to fine ..	1s 6d a 2s
	Brownish ..	1s 3d a 1s 6d
Long ,,	Shelly to good ..	9d a 2s
,, Mangalore ,,	Med brown to fair bold	2s 6d a 2s 9d
CASTOR OIL, Calcutta ,,	1sts and 2nds ..	2d a 2¼d
CHILLIES, Zanzibar cwt.	Dull to fine bright ...	31s a 40s
CINCHONA BARK.—lb.	Ledgeriana Orig. Stem	6d a 9d
Ceylon	Crown, Renewed	5d a 7d
	Org. Stem	2½d a 6½d
	Red Org. Stem	2½d a 4½d
	Renewed	3d a 5⅝d
	Root	3¾d a 4d
CINNAMON, Ceylon 1sts per lb.	Ordinary to fine quill	8½d a 1s 6d
2nds	,, ,,	8d a 1s 6d
3rds	,, ,,	7½d a 1s 4d
4ths	,, ,,	7d a 11d
Chips	,, ,,	2½d a 10d
CLOVES, Penang lb.	Dull to fine bright bold	6d a 1s
Amboyna ..	Dull to fine	5d a 6d
Zanzibar and Pemba	Good and fine bright	3⅜d a 4d
	Common dull to fair	3⅝d a 3 13-16d
Stems ..	Fair	2d
COFFEE		
Ceylon Plantation ,,	Bold to fine bold colory	90s a 115s
	Middling to fine mid ...	70s a 100s
	Smalls	59s a 62s
Native	Good ordinary	40s a 50s
Liberian ,,	Small to bold	30s a 40s
COCOA, Ceylon ,,	Bold to fine bold	65s a 88s 6d
	Medium and fair	58s a 64s
	Native	50s a 57s
COLOMBO ROOT ,,	Middling to good	7s a 15s
COIR ROPE, Ceylon ton		—
Cochin ,,	Ordinary to fair ..	—
FIBRE, Brush ,,	Ord. to fine long straight	—
Cochin ,,	Ordinary to good clean	—
Stuffing ,,	Common to fine	—
COIR YARN, Ceylon ,,	Common to superior	—
Cochin ,,	,, ,, very fine	—
do. ,,	Roping, fair to good	—
CROTON SEEDS, sift. cwt.	Dull to fair	15s a 25s
CUTCH ,,	Fair to fine dry	25s a 30s
GINGER, Bengal, rough,,	Fair	40s
Calicut, Cut A ,,	Good to fine bold	80s a 85s
B & C ,,	Small and medium	46s a 60s
Cochin Rough ,,	Common to fine bold	35s a 40s
	Small and D's	32s a 34s
Japan ,,	Unsplit	31s
GUM AMMONIACUM ,,	Sm. blocky to fine clean	10s a 35s
ANIMI, Zanzibar ,,	Picked fr. fine pl. in sts.	£10 a £13
	Part yellow and mixed	£7 a £10
	Bean and Pea size ditto	75s a £9
	Amber and dk. red bold	£5 15s a £7 10s
	Med. & bold glassy sorts	95s a £6 15s
Madagascar,	Fair to good palish ...	£4 a £8
	,, ,, red ...	£4 5s a £7 10s
ARABIC E. I. & Aden ,,	Ordinary to good pale	22s 6d a 35s
Turkey sorts ,,		32s 6d a 37s 6d
Ghatti ,,	Pickings to fine pale ...	12s a 25s
Kurrachee ,,	Good and fine pale ...	25s a 27s 6d
	Reddish to pale selected	10s a 23s
Madras ,,	Dark to fine pale ...	15s a 20s
ASSAFŒTIDA ,,	Clean fr. to gd. almonds	80s a 100s
	Ord. stony and blocky	5s a 45s
KINO ,,	Fair to fine bright	3d a 4d
MYRRH, picked ,,	Fair to fine pale	75s a 120s
Aden sorts ,,	Middling to good	65s a 95s
OLIBANUM, drop ,,	Good to fine white	13s a 50s
	Middling to fair	36s a 42s 6d
pickings ,,	Low to good pale	26s a 31s
siftings ,,	Slightly foul to fine	18s a 23s
INDIARUBBER, Ceylon	Fine (grwn. fr. Para seed)	3s a 4s 3d
Assam	Good to fine	2s a 3s 2d
	Common to foul & mxd.	7d a 2s
Rangoon	Fair to good clean ...	2s a 3s 2d
Borneo	Common to fine	6d a 2s 6d

	QUALITY.	QUOTATIONS.
INDIARUBBER (*Contd.*)		
Java, Sing. & Penang lb.	Foul to good clean ...	8d a 3s 3½d
Mozambique ,,	Good to fine Ball ...	2s 6d a 3s 7d
	Ordinary to fair Ball ...	2s a 2s 4d
	Low sandy Ball ...	9d a 2s
	Sausage, fair to good ..	1s 2d a 3s 6d
	Liver and Livery Ball ..	1s 9d a 3s
Nyassaland	Fair to fine ball ...	2s 3d a 3s 6½d
Madagascar	Fr to fine pinky & white	2s a 2s 1½d
	Fair to good black ..	1s 1d a 2s 4¾d
	Niggers, low to fine ..	7d a 2s 2¼d
INDIGO, E.I	Bengal—	
	Shipping mid to gd violet	3s 8d a 4s
	Consuming mid. to gd.	3s 2d a 3s 7d
	Ordinary to mid.	2s 10d a 3s 1d
	Mid. to good Kurpah	1s 9d a 2s 3d
	Low to ordinary	1s a 1s 7d
	Mid. to good Madras	1s 4d a 1s 10d
MACE, Bombay & Penang per lb.	Pale reddish to fine	3s a 3s 6d
	Ordinary to fair	2s a 2s 9d
	Pickings	1s 9d a 1s 11d
MYRABOLANS, cwt	Dark to fine pale UG	5s a 6s nom
Madras cwt	Fair Coast	4s 3d a 4s 6d
Bombay ,,	Jubblepore	4s a 5s 6d
	Bhimlies	4s a 7s 6d
	Rhajpore, &c.	3s 6d a 5s 6d
Bengal ,,	Calcutta	3s 6d a 5s nom.
NUTMEGS— lb.	64's to 57's	3s
Bombay & Penang ,,	110's to 65's	11½d a 2s 1d
	160's to 115's	6d a 11d
NUTS, ARECA cwt.	Ordinary to fair fresh	13s 6d a 15s
NUX VOMICA, Bombay per cwt.	Ordinary to middling	5s 6d a 6s
Madras	Fair to good bold fresh	7s a 10s
	Small ordinary and fair	5s a 6s 9d
OIL OF ANISEED ,,	Fair merchantable	4s 1d
CASSIA ,,	According to analysis	2s 2d a 3s
LEMONGRASS ,,	Good flavour & colour	5d a 5¼d
NUTMEG ,,	Dingy to white	1½d a 2½d
CINNAMON ,,	Ordinary to fair sweet	3¼d a 1s
CITRONELLE ,,	Bright & good flavour	9d a 10½d
ORCHELLA WEED—cwt		
Ceylon ,,	Mid. to fine not woody...	10s a 12s 6d
Zanzibar. ,,	Picked clean flat leaf ...	10s a 14s
	,, wiry Mozambique	10s a 11s
PEPPER - (Black) lb.		
Alleppee & Tellicherry	Fair to bold heavy ...	6d a 6¼d
Singapore ...	Fair	6d a 6⅛d
Acheen & W. C. Penang	Dull to fine	5⅛d a 5⅝d
PLUMBAGO, lump cwt.	Fair to fine bright bold	30s a 35s
	Middling to good small	20s a 28s
chips	Dull to fine bright ..	9s a 15s
dust	Ordinary to fine bright	4s a 7s 6d
SAFFLOWER	Good to fine pinky ..	65s a 75s
	Inferior to fair ..	40s a 60s
SANDAL WOOD—		
Bombay, Logs ton.	Fair to fine flavour ..	£15 a £30
Chips ,,	... ...	£5 a £8
Madras, Logs ,,	Fair to good flavour ..	£15 a £30
Chips ,,	Inferior to fine ...	£4 a £8
SAPANWOOD Ceylon ,,	Fair to good ..	—
Manila ,,	Rough & rooty to good	—
Siam ,,	bold smooth ...	—
SEEDLAC cwt.	Ordinary to gd. soluble	115s a 120s
SENNA, Tinnevelly lb.	Good to fine bold green	5½d a 8d
	Fair greenish	3½d a 5½d
	Common dark and small	1¼d a 3d
SHELLS, M. o'PEARL—		
Bombay cwt.	Bold and A's	
	D's and B's	30s a 140s
	Small ...	
Mergui ,,	Small to bold ..	£8 2s 6d a £12 15s
Mussel ,,	Small to bold ...	17s a 55s
TAMARINDS, Calcutta...	Mid. to fine bl'k not stony	8s a 10s
per cwt. Madras	Stony and inferior ..	4s 6d a 6s
TORTOISESHELL—		
Zanzibar & Bombay lb.	Small to bold dark mottle part heavy	15s a 2's 6d
TURMERIC, Bengal cwt.	Fair ...	11s a 13s
Madras ,,	Finger fair to fine bold bright	9s a 13s.
Do. ,,	Bulbs ..	9s
Cochin ,,	Finger ..	9s 6d a 1's 6d
	Bulbs ...	9s a 9s 6d
VANILLOES— lb.		
Mauritius ... 1sts	Gd. crysallized 3½ a 8½ in	5s 3d a 22s 6
Bourbon ... 2nds	Foxy & reddish 3½ a 8 ,,	3s a 12s
Seychelles 3rds	Lean and inferior ...	5s 6d a 8s 6d
VERMILION lb.	Fine, pure, bright ..	3s a 3s 1d
WAX, Japan, squares cwt	Good white hard ...	70 s

THE

AGRICULTURAL MAGAZINE.

COLOMBO.

Added as a Supplement Monthly to the "TROPICAL AGRICULTURIST."

The following pages include the Contents of the *Agricultural Magazine* for JUNE :—

Vol. XIV.] JUNE, 1903. [No. 12.

IMPROVED MACHINERY.

THE question of the introduction of improved machinery for agricultural operations in Ceylon deserves careful attention, and it is time that some systematic experiments were conducted with a view to test the efficacy of implements which are so largely used in foreign countries. In doing this it is essential that those carrying out the experiments should study the conditions of village labour and village resources. In the first place, it has to be borne in mind that the Ceylon *goiya* carries on his work without any capital so to speak, and is not in a position to raise capital to any advantage, for the scaricity of money will hardly admit of his employing borrowed capital. As the *goiya* is never able to borrow money unless he is prepared to pay a very large percentage of interest on it, it makes it absolutely necessary that he should have implements of the cheapest description. In fact, any implements that are to be introduced should be capable of being made locally without the use of costly materials. These is a possibility of a great deal of work being done in this way, both as regards implements used in tillage operations and those used in the gathering of crops. We will take for example the cultivation of rice, and the main operations employed by the *goiya* in the preparation of a field for sowing. Three methods are in vogue: first, ploughing with the wooden native plough; second, digging up and turning the soil with the mamoty, then puddling the soil by using buffaloes to trample the wet soil. The plough used can be drawn by any ordinary pair of country cattle. Can it be improved without increasing the draught power required for its working? Light Swedish ploughs were tried at one time. They cost about ten times the value of a country plough, they had to be imported, and they required heavier draught, and in some places the work they did was not what was required by the cultivator. The cultivator requires an implement that will stir up the soil and not turn it up. The native plough does this, but cannot the native plough be improved in the light of present knowledge, and in such a way as to do the same work that has to be done now, in a cheaper and more efficient manner, and cannot the improved implement be built by the village carpenter or blacksmit with materials obtainable in the neighbourhood? Is there any possibility of improving the mamoty now in use? Can anything be introduced that will do the work of puddling the mud more expeditiously than is now done by buffaloes? Can a contrivance be devised that will make it possible for a labourer to get the work done by some hand implement instead of animals, or can some implement be attached to the buffaloes, that will expedite the work?

Next we come to the operation of reaping. At present a small sickle is used in reaping the crop. Can this be improved on, or can something be introduced that will enable the reaper to do more work than he gets through at present? There is much room to effect improvements in thrashing and winnowing. These take up a great deal of labour, and wooden thrashing machinery is said to be successfully used in Italy and other places. Cheap winnowing machinery is easily made. These are then the lines on which some investigations and

experiments should be conducted. A single improvement will well repay the labour of experts even if they were to take years to discover it. As a preliminary step it will be of great importance to make a collection of agricultural implements which are in use in other countries. Such a collection will be a very interesting one, and will give some ideas as to improvements that can be effected in Ceylon.

W. A. D. S

RAINFALL TAKEN AT THE GOVERNMENT STOCK GARDEN FOR MAY, 1903.

1	Friday ...	·07	17	Sunday ...	·70
2	Saturday ...	·61	18	Monday ..	3·30
3	Sunday ...	Nil	19	Tuesday ...	·08
4	Monday ...	·12	20	Wednesday...	1·97
5	Tuesday ...	·03	21	Thursday ...	·39
6	Wednesday ...	·04	22	Friday ..	Nil
7	Thursday ...	Nil	23	Saturday ...	·24
8	Friday ...	3.70	24	Sunday ..	·02
9	Saturday ...	·77	25	Monday ...	·30
10	Sunday ...	·13	26	Tuesday ...	·05
11	Monday ...	·68	27	Wednesday...	Nil
12	Tuesday ...	2·16	28	Thursday ...	·06
13	Wednesday ...	1·13	29	Friday ...	·02
14	Thursday ...	4·12	30	Saturday ...	·07
15	Friday ...	·53	31	Sunday ...	·05
16	Saturday ...	5·53	1	Monday ...	·07
				Total in....	26·88
				Mean in...	·87

The greatest rainfall in any 24 hours, on 16th May, 1903, 5·53 inches.

Alex. Perera.

OCCASIONAL NOTES.

We regret the error that has crept into our April number which gives the botanical name of the flowering tree commonly called "Madre-de-cacao," and a familiar sight about Colombo, as *Millettia atropurpurea*. Through some mistake the label bearing the name was attached to a specimen in the Peradeniya Gardens, from where the information given was derived, and hence the confusion that has arisen. The name "Madre-de-cacao" came with the seeds from Central America, but this term, also applied to *Erythrina umbrosa* (another introduced tree in Ceylon), is no doubt a general term for cocoa shade trees. The name *Millettia* was given to the tree in question on high authority, but it would now appear that it belongs to the genus *Lanchocarpus*. Our attention was called to the error by Mr. Ridley of the Singapore Botanic Gardens.

Three of the eight Queensland bananas growing in the Government Stock Garden, Colombo, are now in fruit, namely the varieties labelled Borego, Ladies' Fingers and Cavendish. The only one, which has so far ripened, is the first named. The fruit of this variety is of moderate size with a thin skin and a yellowish mealy pulp of good flavour. Plants of all eight varieties (which have thrown up suckers freely) have been sent out to School Gardens in various parts of the Island.

A fresh nursery of fruit trees has been established in the Stock Garden. A highly-recommended variety of papaw (seeds procured from Bangalore), sapodill., *Acras sapota* (seeds kindly supplied by Dr. Passe of Colombo), and a variety of other fruits (seeds obtained from the Peradeniya Gardens) are to be found in it.

Can any of our readers give us the botanical name of the plant known us "massoy" or "muswe" found in Singapore, and the roots of which are used medicinally? A correspondent will be greatly obliged for the information. We believe the latter name is Malayam. Another Malay plant, the rhizome of which resembles ginger, and is used as an ingredient of a special curry preparation, is locally known as "Lankwas" (spelt as pronounced). The root resembles that of the great galangal, *Alpinia galanga* (Sinhalese kaluwala.)

Experiments made by a well-known planter with Arsenite of Soda (recommended by us) go to show that the poison is ineffective on "illuk," *Imperata arundinacea*, but is very effective in eradicating the sensitive plant known in Sinhalese as "Nida-kumba," *Mimosa pudica*, and "Kalanduru," *Cyperus rotundus*.

That the seeds of the citrus fruit will produce different varieties has been proved over and over again. We have been informed by a reliable authority that among the older generation of Sinhalese there are men, to whom the knowledge is said to come down from the Dutch, who are able to classify the seeds taken from a single fruit, distinguishing different kinds really as certain to produce oranges, shaddocks, &c., the distinction being based upon differences in the shape, size, weight, and general external structure of the seeds.

There has been some correspondence in the local press over the plant known by the native name of "Et-tora" (not to be confounded with Etora, *Panicum repens*, the Ceylon "couch grass") which one authority considers identical with "Uru-tora" *Cassia sophera*. According to Trimen "Et-tora" is *Atylosia Candollei*, described as an ornamental shrub, occurring like broom or furze gregariously on open patanas. The young leaves, according to a correspondent in the local "Times," are used for wounds in cattle.

The plant known as "Rampeh" is botanically a screw-pine, belonging to the order Pandanaceæ, and is named *Pandanus latifolia*. It is a graceful shrub possessing a peculiar odour imparted to rice when boiled with it, the leaves being also invariably used as an ingredient in the preparation of curries. A single loaf can be sold for a cent, but much more is asked in the markets.

Rampeh affects a damp situation and is rarely seen in flower. The common name is derived from the Malay.

———

We reproduce an interesting paper on Diseases of Poultry in the present number, and have no doubt that the useful information it contains will be welcome to local poultry-keepers, among whom there have been evidences of great activity of late.

SORGHUM POISONING.

Sorghum vulgare or the Great Millet, known in North India as Jowari, and among the Tamils as Cholum, is largely grown in India both as a grain and fodder crop, and to some extent also in Ceylon.

The following report by Dr. Maxwell on the poisonous properties of Sorghum under certain conditions is of interest to all who are growing the crop. Hydrocyanic acid, we may mention for the benefit of those who are not aware of the fact, is the same as Prussic Acid, well known as a deadly poison :—

"I have the honour to make a preliminary statement upon given investigations that are being conducted with certain green crops in order to determine the presence, or non-presence, of given poisonous bodies. The results of the investigations, so far conducted, make it advisable that a brief statement should be made at once to our farmers and others using such green crops for feed. Examinations at different stages of growth of sorghum show that the plant in its early history contains distinctly fatal amounts of hydrocyanic acid. The object of the examinations is to determine at what age sorghum and similar plants, containing these poisonous bodies, can be safely used. So far the samples cut, reaching up to an age of seven weeks, still contain highly dangerous, in fact fatal, amounts, if fed in liberal quantities. The chemist, Mr. Brunnich, who has exclusive charge of the laboratory work, is still engaged on the matter, and I hope, before very long, to make a full statement. In the meantime, however, it is strictly advisable to notify the farmers of the almost certain danger, as many have discovered, of feeding young sorghum to cattle. It is indicated that it will not be safe to give cattle free access to sorghum—that is, to eat as much as they like—until it has reached the seeding stage. This question, however, it is hoped to have settled within a few weeks. The Laboratory is also engaged upon other plants, including maize, Kafir corn, &c., with a view to determine their safeness, during their early growth, for feed.

The investigations also promise to prove beyond question a statement previously made by me that the amount of the poisonous body (hydrocyanic acid) present in the plants is very largely controlled by the nature of the soil, or, in other words, by the amount of nitrogen that the soil contains. This fact will make it also clear that sorghum, for example, which is grown upon rich soil, is likely to be much more dangerous during its early stages of development than the same plant grown upon poor soils. These matters, however, will be made clear in a fuller statement as soon as the investigations are completed.

I beg to urge the immediate distribution of this information through the public Press, since this is the particular time when these green crops are being fed to cattle."

DISEASES OF POULTRY.

By F. H. Robertson.

Poultry, like all live stock, are liable to be affected with sickness or disease, especially if not kept in accordance with "Nature's Laws." It is, therefore, necessary that all poultry-keepers should have some knowledge of the ailments of fowls and how to treat them. Not that I am in favour of wholesale doctoring—far from it; rather should the poultry man or woman use every endeavour to keep the fowls in good health by paying strict attention to their many little requirements. At the same time it frequently happens that the spreading of some contagious disease is stamped out by the speedy withdrawal of the bird affected before it has had time to contaminate the rest of the flock. In such cases it is generally advisable to destory the sick fowl. In any case, it is absolutely necessary to be always on the alert for the slightest appearance of sickness. Do not delay, but at once catch the ailing one, ascertain what is wrong, apply the proper remedies, and keep the invaild in the hospital, with which every yard should be provided. This sick pen should, if possible, be right away from the regular fowl runs; and as fowls, even when in good health, chafe under close confinement, it does not do to keep sick ones entirely closed up in a box or basket, so a small run must be provided to allow the birds to move about in when the weather is fine. An enclosure of, say, 12 ft. square is sufficient, situated in a sheltered locality quite away from the ordinary runs; let the sides be covered in all round to a height of about 2½ ft., and to complete the isolation it should be wired in overhead, to prevent healthy fowls gaining access; also to keep the inmates of the hospital in their own pen. A small water-tight house, provided with a perch in the pen, which is wired in front so that the sick birds can be kept indoors if the weather is cold or wet. This system is the simplest mode of coping with sick fowls, as, owing to the smallness of the run, they are easily caught, and a dozen fowls can be quickly handled and doctored in a few minutes.

Apoplexy is not at all uncommon in this State, but it is very sudden in its attacks. The fowl is generally dead before treatment can be administered. Hens found dead on the nest is frequently due to this disease, owing to excessive straining or intense heat. Highly-fed and over-fat fowls, if subjected to undue excitement from chasing or fighting, are liable to go off suddenly. If a fowl is noticed staggering about and going round in a circle, letting cold water run from the tap on to the bird's head will generally bring it round;

failing that, try bleeding by cutting the large vein under the wing.

Bronchitis.—Fowls affected with this complaint give a short, dry cough, generally noticeable at night, when on the perch. If unaccompanied by any other symptoms such as swollen eyes, discharge from the nostrils, or growths in the mouth, it is simply a form of cold, which is generally cured in two or three days by keeping the fowl in a warm coop, fed on soft food only, and add a few drops of aconite to the drinking water. This complaint must not be confounded with roup, which is described later on.

Bumble Foot.—This starts with a corn on the sole of the foot, caused by hard or stony fowl runs, or by birds having to jump from high perches on to a hard floor. If noticed when only the thickness of the skin, it can be cured by paring and removing bird to a soft or sandy run. But if neglected for some time the corn increases, eventually going right through the foot and swelling up considerably on the upper part of the foot, causing great pain and impediment in moving about, besides being very unsightly. When it has reached this stage it is very difficult to cure; but it is cruel to allow a fowl to go hobbling about with this distressing complaint. Great relief may be given by penning the bird up in a coop, thickly covered with straw and poulticing the foot until the parts become quite soft, when the yellow, cheesy matter can be squeezed out; but as this is tedious work, it is much better to take the small blade of a sharp penknife, insert it right through the bad part and cut outwards, completely severing the webb in two; it will bleed freely, but if the operation is done under a running water-tap blood will soon cease to flow. All the yellow secretions can then be removed, and when all are taken away thoroughly wash out with strong phenyle and water, apply crude phenyle to the wounds, and carefully bind up the foot with linen bands, tyingeach one separately, so that the fow. cannot peck them off; the bird then should only be allowed to run on sand or straw until the wound is healed

Chicken Pox.—This complaint is very common in this State; chickens and young birds under 12 months old are very subject to it, old ones being seldom affected. It comes in the form of warts on the comb, face, and wattles. Fortunately this nasty complaint is very easily cured; an unfailing remedy is to paint the warts with crude phenyle, one or two applications being sufficient.

Cholera is another frequent complaint in this warm climate; sometimes only individual birds are affected, and at other times large numbers. The symptoms are dullness of eye, ruffled plumage, staggering gait, general weakness, intense thirst, complete loss of appetite, droppings of a slimy greenish colour at first, then turning white or creamy. This disease comes on suddenly, and frequently kills off birds very quickly. The first intimation of its presence is the finding of several dead fowls, and others lying about in a helpless condition. All affected fowls should be immediately caught and kept in a warm coop. An effective remedy is chlorodyne; pour a few drops on a dry crumb of bread, and give every three or four hours; give little or no water; but as fowls are generally very weak and will not feed, it is necessary to keep up their strength, and for this purpose nothing is better than beaten-up egg, which can be administered by means of a teaspoon or small syringe. Sunburnt or dirty water, putrid meat, want of shade, and filthy surroundings are the chief causes of this disease.

Cold or Catarrh.—This complaint is one of the commonest, and is very frequent among young stock; although not serious if taken early, it is a great nuisance, and retards growth. Late-hatched chickens are more subject to it than the early and more hardy stock. It generally goes through the majority of the young birds, and is very catching, but if the first bird affected can be spotted and killed at once the complaint is nipped in the bud. The symptoms are a slight watery discharge from the nostrils, which if neglected becomes thicker, and in course of time develops into roup; the eyes are often inclined to be watery and puffy.

All affected birds should be removed to the hospital pen, and there fed chiefly on good nourishing soft food, but little grain, and plenty of greenstuff; add to the drinking water aconite, sulphate of iron, or any of the well-known advertised poultry tonics. Each bird should be handled daily, and the nostrils washed out with some antiseptic, such as permanganate of potash (Condy's Chrystals) or phenyle and water, always taking care to thoroughly dry off all moisture. Under this treatment birds improve rapidly, but with some it is impossible to quickly get rid of the affection; a thin, watery fluid continues to exude from the nostrils. Such birds, if they eat well and are of good constitution, may be turned out of the sick pen after about 10 days' treatment, and it will generally be found that they shake off the complaint in a few weeks, especially if the weather is in their favour. The birds that get worse and develop roup, if not valuable, might as well be killed off.

Canker.—There are two forms of this complaint; the first is on the comb. The large-combed varieties such as Leghorns, Minorcas, and Andalusians are most subject to it, especially the cocks. Hens pecking at the comb cause a sore, which frequently turns into canker; it starts with a small yellow scab, which soon spreads and eats into the comb, leaving a hole and causing the comb to hang over. The other form of canker is a yellow growth round and sometimes down the windpipe. To get rid of this disease, when in the throat, remove the growth with a pointed stick or pair of tweezers, and paint with the following mixture:—

1 drachm carbolic acid
3 drachms sulphurous acid
½ oz. tincture perchloride of iron
½ oz. glycerine.

Chlorinated soda is also a good remedy, especially when the comb is affected.

Crop Bound is due to a hungry fowl being allowed to indulge too freely on hard grain. It

is generally easily cured by pouring small quantities of warm water down the bird's throat, at the same time work with the hand the moisture among the grain. Affected birds should, of course, be couped up and given no feed until the crop has emptied itself. Should the crop fail to empty by this means, an operation is necessary, by cutting the crop open at the upper end and removing every particle of food. A surgeon's needle is required for this work, but the necessary curve can be got on any ordinary needle by heating red hot, and then bending as wanted.

Crop Soft.—In this case the crop is swollen up, but is soft to the touch. To empty it, hold the bird by the legs and squeeze out as much of the liquid as possible, but care must be taken not to hold the bird long in this condition, owing to liability of choking. Then place a small quantity of effervescent powder, such as Eno's Fruit Salt, in the bird's mouth and immediately wash it down with warm water; give doses until the crop is fairly full; coop the fowl up for a day or so without feed or drinking water, and a cure will be very soon effected. But do not let the bird have immediate access to feed or water in large quantities.

Egg Bound.—This complaint, generally caused by the bird being too fat, is noticeable by a fullness and constant visiting of the nest in attempts to pass an egg. A good deal of trouble and patience is required in treatment, also great care must be exercised to prevent the breakage of the egg whilst being passed out. The usual treatment is to soften the posterior portions of the fowl by holding it over boiling hot water, and thus thoroughly steaming for a quarter of an hour at a time; also inject salad oil into the vent.

Egg Eating.—Many fowl-yards are troubled with this vice, and some birds are very determined and hard to break off the habit; but it will be found that a mixture of kerosene and mustard made up in an empty egg-shell, and kept continually before the offenders for a few days, will soon cause them to cease breaking good eggs for the purpose of eating their contents.

Feather Eating.—This is a vice prevalent among poultry kept in small runs, over-fed, generally badly kept, and in want of exercise. Lice on the plumage generally starts the habit. Fowls picking at the vermin, a feather or two are drawn out, and thus the taste is acquired. As a remedy, dig over the whole of the run, dust each bird with insect powder, particularly around the vent, at the same time pluck out all lice nits which are found, principally round the vent, damp the plumage with some unpleasant mixture such as Jeye's Fluid, feed rather sparingly, chiefly on grain, which should be partially buried to give scratching exercise. To the soft food add sulphur and salt; give plenty of green stuff; cabbages hung up give good jumping exercise. Moulting cocks in well-kept yards are sometimes attacked by hens, the new tail feathers being the attraction. In this case at once remove the cock to a pen by himself until the feathers are well grown. Frequently the hens turn their attention to the cock's comb, which they pick, making a large, raw sore. This sometimes happens in the breeding season, when the cock cannot be taken out of the pen. The best plan is to every day smear the comb with carbolated vaseline.

Leg Weakness.—This is not a disease, but a complaint, principally confined to cockerels of the long-legged breeds, such as Langshans, the weight of their bodies being too much for their long shanks. Prevention is decidedly better than cure, therefore if breeders of lanky chickens would always mix a little dry bone-meal in the soft food there would be but little leg weakness. It is often the biggest "youngster" in the flock that gets badly infected with the tired feeling, and has to squat on his hocks to feed. If he is not valuable, use him for the table; but if a good pure-bred bird, keep him in a roomy coop or small pen, well covered with sand or straw; give good, sound, nourishing food, plenty of greenstuff, bone dust, and tonic in the drinking water.

Roup is the greatest scourge of the poultry yard in this State, and the want of knowledge how to treat it has led to the loss of large numbers of poultry, and been the means of damping the ardour of many poultry breeders. At the offset, I might say, before going into details about the disease, that it is well worthy of a good deal of consideration being given to the best means of taking all precautions to prevent the disease breaking out. One of the chief causes is in allowing diseased fowls to come into contact with the healthy ones, either by association with the flock of a neighbour's birds or from stock purchased from a diseased yard. Contagion is very easily spread, and although an apparently healthy bird may be bought, yet it will carry the diseased germs with it. Therefore the greatest care must be exercised in introducing strange birds to an already healthy yard. Carefully examine all new arrivals, squeeze the nostrils to see if there is any discharge, examine the throat and windpipe for any appearance of yellow spots, and if there is the slightest doubt about the health, quarantine the new arrival for a week or ten days.

Roup generally starts with a slight cold, the symptoms of which are already described. Should the poultry-keeper be so indifferent or careless as to allow birds to remain running about with colds, roup is likely to develop, and will have got such a hold on the stock that the death of some, and the distressing symptoms shown by others, will at last have had the effect of drawing their owner's attention to the fact that his fowls are seriously ill, and that something will have to be done to prevent further loss or the total extinction of his flock. The symptoms by this time will be well developed—swollen eyes, filled with a thick cheesy matter, nostrils also discharging or clogged up, and mouth much ulcerated, loss of appetite, difficulty in breathing, and great weakness. Of cures there are hundreds, but whatever remedy is adopted, regular handling once or twice a day is necessary, which, besides being disagreeable work, also requires a fair amount of skill in carrying out; and even if a cure is effected it is not wise to use a bird that has been badly infected in the

breeding pen. It may be necessary to use the knife to remove the cheesy matter by making a cut below the eye, extract as much offensive matter from the mouth as possible, wash out all the parts with a mixture of phenyle and water, apply crude phenyle to the bad parts in the mouth, and as a medcine, if none of the advertised "roup cures" are available, add sulphate of iron to the drinking water, or Parrish's chemical food. Feed only on soft food, seasoned with a little salt, ginger, and cayenne pepper. The following prescription is recommended by Lewis Wright :—

Balsam copaiba, 1oz.
Liquorice in powder, 4 drachms.
Pepperine.

Add sufficient magnesia to make a mass, into 60 pills, giving one morning and evening.

Roup, in a diphtheric form, occasionally affects a single bird in an otherwise healthy yard; in which case immediately isolate the infected bird. The symptoms are a sudden and general depression and loss of appetite, accompanied by a swelling in the eye and a growth in the throat. Keep up the bird's strength by feeding on beaten-up egg. Extract the cheesy matter from the eye, and touch the spot where it was extracted from with a minute speck of pure phenyle ; also apply some to the mouth. Other prescriptions for the same complaint are to paint the diseased mouth or throat with sulphate of zinc or the following :—

1 drachm carbolic acid
3 drachms sulphurous acid
$\frac{3}{4}$ oz. tincture perchloride of iron
$\frac{1}{2}$ oz. glycerine.

Scaly Leg is an unsightly affection of the shanks, consisting of a growth of scales and lumps, which are a source of considerable irritation to the fowl. A minute insect, invisible to the naked eye, is the cause of this disease, which by some authorities is said to be infectious, but such has not been my experience. It is fortunately easily cured by first removing as much of the growth as possible by means of soap and water applied by a nail brush. Then, with a small bit of wood, remove all growth from under the scales without bringing blood. Then thoroughly rub in a mixture of sulphur and lard. One or two applications generally affect a cure.—*West Australian Journal of Agriculture.*

HOUSEHOLD HINTS.

The banana is one of the most nourishing of fruits. The amount of nutrient material contained in a pound of bananas is almost equa ln sustaining value to that found in a pound of beefsteak, The amount of nitrogenous or albuminous substance found in banana is about 5 per cent. In the dried banana the proportion is about 20 per cent, or one-fifth. A gruel made of dried banana flour is not only highly nutritious but in the highest degree wholesome, and is often tolerated when ordinary farinaceous preparation and milk are promptly rejected.

Cut flowers will keep fresh much longer if a small quantity of alum is added to the water in which they are placed. A solution should be made by dissolving the alum in hot water, allowing it to cool and then adding fresh water in about the proportion of a pint to a table-spoonful.

The leather coverings of chairs and writing tables may be renovated by being well-brushed and dusted, then rubbed lightly over with a soft brush dipped in white of egg beaten to a froth. The leather when dry will appear quite fresh again.

GINGER PUMPKIN.—Peel and slice $3\frac{1}{2}$ lbs. of pumpkin, place in a preserving pan with $2\frac{1}{2}$ lbs. of sugar and let it stand over night. In the morning drain off the juice and add to it two lemons sliced and 2 oz. of ginger-root. Boil until the syrup is thick, then drop in the pumpkin and boil until cooked through.

LEMON OR ORANGE CHIPS.—Cut the fruit lengthways and take cut all the pulp and soak the rinds in salted water for three days. Cut into chips and boil in plenty of water until very tender, then place on a sieve to drain, make a syrup with a pound of sugar to every one of rind, and a pint of water, and boil the chips in it until the syrup candies on the chips and round the sides of the pan. Then take them out and sprinkle freely with pulvirised loaf sugar, arrange them on a hair sieve, place in a cool room, and let the sugar harden. When dry and firm pack in layers in boxes with rather thick paper between.

ORANGE SNOW.—Soak one ounce of gelatine in a gill of cold water till very soft, then a gill of boiling water and two ounces of castor sugar. Pass three oranges through a sieve and add to the gelatine and sugar. Stir all together over the fire till just on boiling point, then remove from the fire, and when cold and nearly stiff whisk to a stiff froth, whipping in the whites of three eggs. When all is stiff and very white, pile in the centre of a glass dish and edge with sponge fingers. If this is not sufficiently flavoured with orange for your taste simmer a piece of the peel with the gelatine, and take it out before adding the whites of eggs.

TOMATO SAUCE.—Boil 40 lb. of tomatoes to a pulp without adding water, strain to take out seeds and skins ; add 2 quarts vinegar, 3 lb. sugar, $\frac{1}{2}$ lb. salt, 2 oz. garlic. 2 oz. allspice, $1\frac{1}{2}$ oz. cloves, $1\frac{1}{2}$ oz. black pepper corns ; 1 oz. cayenne; simmer gently for five hours till thick as cream, bottle and cork when cold. Strain through a piece of strong mosquito net. Tie the spices and garlic in a net, which saves straining a second time and does not waste the sauce.—

TOMATO SAVOURY.—Scald three ripe tomatoes, peel them, and remove the seeds, bake until tender, and mash through a sieve. Add 1 oz. of fine breadcrumbs, 1 oz. of grated cheese, two well-beaten eggs, salt and pepper to taste. Have ready some croutons of fried bread. Stir the tomato and egg mixture together in an

enamelled saucepan over a clear fire till set. Pile on the croutons, scatter a little chopped parsley on each, and serve at once.

PRINCIPLES OF NUTRITION AND NUTRITIVE VALUE OF FOOD.

(*Continued.*)

"We live not upon what we eat, but upon what we digest." Food as we buy it in the market, or even as we eat it, is not usually in condition to be made into body structure or used as body fuel. It must first go through a series of chemical changes by what is called digestion, which prepare it to be absorbed, taken into the blood and lymph, and carried to the parts of the body where it is needed. Digestion takes place in the alimentary canal, partly in the stomach, but more in the intestine. As the result, the useless portions are separated and rejected, while the parts which can serve for nutriment are changed into forms in which they can be absorbed, taken into the circulation, and utilized.

The alterations which the food undergoes in digestion are brought about by substances called ferments, which are secreted by the digestive organs. The saliva in the mouth has the power of changing insoluble starches into soluble sugar, but as the food stays in the mouth only a short time, there is generally little chance for such action. The saliva, however, helps to fit the food to be more easily worked on by the stomach. The gastric juice secreted in the stomach acts upon the protein, fats, and carbohydrates. The action of all the ferments is aided by the fine division of the food by chewing and by the muscular contractions, the so so-called peristaltic action, of the stomach and intestine. These latter motions help to mix the digestive juices and their ferments with the food.

The parts of the food which the digestive juices cannot dissolve, and which therefore escape digestion, are periodically given off by the intestine. Such solid excreta or feces, include not only the particles of undigested food, but also the so-called metabolic products, *i.e.*, residues of the digestive juices, bits of the lining of the alimentary canal, etc.

The digested food finds its way through the walls of the alimentary canal, and in this passage undergoes remarkable chemical changes, as is seen when we compare the contents of the alimentary canal before they are absorbed and taken into the circulation, with the blood which has been made from the digested material. When finally the blood, supplied with the nutrients of the digested food and freighted with oxygen from the lungs, is pumped from the heart all over the body it is ready to furnish the organs and tissues with the materials and energy which they need for their peculiar functions; at the same time it carries away the waste which the exercise of these functions has produced. It is a characteristic of living body tissue that it can choose the necessary materials from the blood and build them into its own structure. How it does this is one of the mysteries of physiology. The body, as we have learned, has also the power of consuming not only the materials of the food but also parts of its own structure for the production of muscular work, or heat, or to protect more important parts from consumption. How it does this is another mystery, still to be explained.

After the material has been thus assimilated and utilized the resulting waste products must be removed from the body. The chemical elements which this waste contains are of course the same as those making up the structure of the body and the food—carbon, oxygen, hydrogen, nitrogen, calcium, phosphorus, sulphur, etc. Most of the carbon and part of the oxygen are given off from the lungs as carbon dioxid. Hydrogen unites with more oxygen to form warter, which is passed off in vapour from the lungs, in perspiration from the skin, and in urine from the kidneys. Almost all the nitrogen is excreted in the urine. Waste mineral matters are given off to some extent in the perspiration, but mainly through the kidneys and intestines.

The real nutritive value of a food, then, depends not simply on the proportions of nutrients which it contains, but also on the amount of those nutrents which can be made available to the body by digestion for building material and for fuel. Part of the food eaten escapes digestion and is given off from the body in the feces. If we subtract the amount of this undigested residue from the total food the remainder will be the amount actually digested in the stomach and intestines, absorbed through their walls and taken into the circulation. This difference between the amounts eaten and those undigested represents the actual digestibility of food. A part of the food taken into the circulation, however, is later returned again to the alimentary canal mainly in the digestive juices that are needed for digesting the food. The material thus removed from circulation and returned to the elementary canal, which consists of so-called metabolic products, is excreted with the undigested residue in the feces. The remainder of the food taken into the circulation represents the amount retained by the body for building material and for fuel. The difference between the food which is absorbed and that which the body secures, therefore, is represented by the metabolic products. By the present methods of experimenting, however, the portion of the feces that consists of metabolic products cannot be satisfactorily distinguished from the undigested residue. It is very difficult, therefore, to determine the actual digestibility, but comparatively easy to estimate the apparent digestibility of food.*

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* It would be more exact to use different terms to denote the apparent digestibility of food as distinguished from its actual digestibility. It has therefore been proposed to limit the use of the term digestibility to actual digestibility and employ the term availability when apparent digestibility, as ordinarily determined in nutrition investigations, is meant. (See Connecticut Storrs Station Report 1899, p. 69.)

† William Beaumont, The Physiology of Digestion, with Experiments on the Gastric Juice. 2d ed. Burlington, Vt., 1847.

Suppose, for instance, that 15 per cent of the protein in a specimen of bread is excreted, then 85 per cent remains for the use of the body. If the bread has 8·4 per cent of protein, 100 pounds will have 8·4 pounds, of which 85 per cent or 7·1 pounds will be utilized by the body.

The terms digestible, indigestible, etc., as here used refer simply to the food which is or is not available for the general nourishment of the body after the process of digestion is completed. In common parlance, however, they are used more loosely as referring to the ease and quickness of digestion, and to the general healthfulness of food. One kind of food, bread, for instance, is spoken of as "simple" and "digestible," and another, like fruit cake, as "rich" and "indigestible." There is often much practical truth behind such statements, though little is definitely known concerning the time or labour required to digest different kinds of food.

Among the earliest and most famous experiments concerning the time required for digestion in the stomach are those made by Dr. William Beaumont, U. S. A., between 1825 and 1833. His subject was a French-Canadian trapper, a man quite normal except for an aperture through the abdomen into the stomach made by a gunshot wound, and closed only by a valve which had developed over it. By pressing the valve inward the contents of the stomach could be observed or removed at will, thus affording excellent opportunity to study the action of the gastric juice. Dr. Beaumont fed the man on various diets, and noted the different conditions accompanying each. The book in which he describes his experiments † contains a table of the average time required for the stomach to digest various articles of diet, from which many of the statements still current concerning the relative digestibility of different foods are taken.

One of Dr. Beaumont's general deductions was that most of the common foods required from 2 to 4 hours. He says further :

"The time required for the digestion of food is various, depending upon the quantity and quality of the food, state of the stomach, etc., but the time ordinarily required for the disposal of a moderate meal of the fibrous parts of meat, with bread, etc., is from 3 to 3½ hours."

Valuable and interesting as Dr. Beaumont's book undoubtedly is, its conclusions cannot be taken as final, because he does not state the amounts of food consumed. The science of nutrition in its development has also shown many errors in the reasoning. It should in justice be said that Dr. Beaumont recognized the fact that his experiments had to do only with digestion in the stomach, or "chymification," as he terms it. Furthermore, his experiments have been often misquoted and given a different interpretation from that which he intended.

Food does not ordinarily pass from the stomach into the intestine until it has been reduced to a liquid or semi-liquid condition. The length of time required for different foods to leave the stomach has been recently studied by Penzoldt, with healthy men. He used a stomach tube for removing the stomach contents for examination. He found that the amount and consistency of food have a marked influence on the rate of digestion in the stomach. Fluids leave the stomach more rapidly than other materials. From 6 to 7 ounces of water or other common beverages leave the stomach in 1½ hours. Seven ounces of boiled milk leave the stomach in about 2 hours. Hot drinks do not leave the stomach more quickly than cold ones, nor does the quantity have much effect. Solid matter in solution or suspension delayed the passage of fluid from the stomach somewhat. The consistency of solid foods thus seems to have more effect upon digestibility than the amount consumed. The quantity eaten increases the length of time the material remains in the stomach, but not proportionally.

To select a few examples of the time required for foods to leave the stomach : Two eggs (raw, poached, or in the form of an omelet), 7 ounces sweetbreads, 10 moderate sized oysters, 7 ounces white-fish or 3½ ounces of white bread, cauliflowers, or cherries, each left the stomach in 2 to 3 hours. Eight and one-fourth ounces of chicken, 9 ounces of lean beef, 6 ounces boiled ham, 3½ ounces roast veal or beefsteak, 5⅓ ounces of coarse bread, boiled rice, carrots, spinach, radish, or apple, left the stomach in 3 to 4 hours. Nine ounces of smoked tongue, 3½ ounces smoked beef, 9 ounces roast goose, 5⅓ ounces string beans, or 7 ounces peas porridge, left the stomach in 4 to 5 hours.

Generally speaking, the most readily digested animal foods were materials of soft consistency. White meats—for example, chicken—leave the stomach more quickly than red meats or dark meat —for instance, duck. The method of cooking also exerts a very marked influence on stomach digestion. Fresh fish was found to be more readily digested than meats.

As regards vegetable foods in general, the consistency and the amounts of solid material were again the principal factors affecting the time required for digestion in the stomach. Mealy potatoes, for instance, were more easily digested than waxy potatoes, and mashed potato more readily than potato cut up in pieces. Fine breap was more quickly digested than coarse bread. There was not much difference in the time required for bread crust, bread crumb, toast, new bread, and stale bread to digest in the stomach, provided all were equally well chewed.

It must be remembered that digestion continues in the intestine, and that the total time required for the digestion and absorption of the nutrients in any given food material is not shown by such experiments. They find their chief application in prescribing a diet for invalids, as in such cases it is often desirable to require of the stomach only a limited amount of work.

Digestibility is often confused with another very different thing, namely, the agreeing or disagreeing of food with the person who eats it. During the process of digestion and assimilation the food, as we have seen, undergoes many

chemical changes, some of them in the intestines, some in the liver, muscles, and other organs. In these changes chemical compounds may be formed which are in one way or another unpleasant and injurious, especially if they are not broken dowu (as normally they are) before they have opportunity thus to act. Some of the compounds produced from the food in the body may be actually poisonous.

Different persons are differently constitued with respect to the chemical changes which their food undergoes aud the effect produced, so that it may be literally true that "one mau's meat is another man's poison." Milk is for most people a very wholesome, digestible, and nutritious food, but there are persons who are made ill by drinking it, and they should avoid milk. The writer knows a boy who is made seriously ill by eating eggs. A small piece of sweet cake iu which eggs have been used will cause him serious trouble. The sickness is nature's evidence that eggs are for him an unfit article of food. Some persons have to avoid strawberries. Iudeed, cases in which the most wholesome kinds of foods are hurtful to individual persons are, unfortunately, numerous. Every man must learn from his own experieuce what food agrees with him and what does not.

How much harm is done by the injurious compounds sometimes formed from ordinary wholesome food is seldom realized. Physiological chemistry is revealing the fact that these compounds may affect even the brain and nerves, and that some forms of insanity are caused by products formed by the abnormal trasformations of food and body material.

(*To be continued.*)

GENERAL ITEMS.

A practical gardeuer of considerable experience attributes much of his success in fruit cultivation to what he terms his "own methods." In the case of Oranges, Mangoes and other hard-stemmed trees he periodically slits the bark from top to bottom, on two sides, and removes "weedy" and "uncalled for" branches. In the case of the plantain he digs out the entire underground stock of the tree that has borne its fruit, for the reason that the young plants are hampered by a soddeu rotting mass that keeps their roots from developing on the side of the old plant.

Balsamodendrum caudatum is the botanical name of a tiee known in Tamil as "Kilivai," and largely used as a lipe fence stick in the North. It belongs to the order Burseraceae to which "Kekuna," *Canarium zeylanicum and* "Pehimbiya" *Filicium decipiens* (two well-knowu Ceylon trees of large size) also belong.

Au old subscriber writing to us from a station iu Queensland uuder date 13th April, says: "Since last writing prospects have slightly improved, but uuder the most favourable circumstauces we cauuot hope for more than a half crop, and that will not pay expeuses, irrespective of wear and tear, interest and such items. I append a memo of our rainfall here for the last ten years, which may be of interest to you. This is a comparatively uew district, and our records do not go further back. You will observe they are taken for our season September to August, aud not as the official returns (which are entirely misleading) from January to December. I have no records for temperature, but they were very high, with unusually high hot winds for the past three or four years." We only give the return for the last season which is as follows:—September to December, 1901 = 4·27, January to April = 5·45, May to August = ·91, or a total of 10·63 for the season. This is a poor record indeed, and our correspondeut's note as to crop "uil" is uot to be wondered at.

For nearly a century past Germauy has been alive to the supreme importance of training the children of agricultural districts in the intelligent cultivation of the land, aud has been advancing year by year towards the attainment of this end. Opportunities are offered at well-equipped horticultural ceutres to landowners who can attend within easy distance of their homes courses of instruction in forestry, vine culture and fruit-growing, landscape gardening and horticulture, no less than to elementary teachers, farmers, and professional gardeners, the latter classes being assisted by Goverumeut grants for expenses and fees when they are uuable themselves to defray the cost of such practical educatiou. A large proportion of elementary village schools are provided with garden grouud, where the elder children are trained in the grafting aud management of fruit trees, of vegetables, aud of flowers as are best suited to the conditions of the particular district. Even towu schools, it would seem, are not left out of the general scheme, and have their allotted garden plots.—

For the information of a correspondeut who is apparently studying, or at least much interested in Ceylon ferns, we supply the following botanical names corresponding to the common uames sent to us:—

Kekilla, *Gleichenia linearis.*
Maideuhair, *Adianthum capillus-venaris.*
Bracken, *Pteris aquilina.*
Silver fern, *Gymnogramme leptophylla.*
Wel-henduru, (Epiphyte), *Stenochtaena palustre.*
Pamba, *Lygodium* sp.

N.B.—"Badalwauassa" is not a fern but a lycopod, and is botanically known as *Lycopodium cernuum.*

We are informed by a reliable authority that though Patipola appears in official raiufall returns as the wettest station in Ceylon, with a fall of over 200 inches per annum, nearly 400 inches of rain falls per anuum uot far from the Peak. Query: Why is no record kept of the rainfall of this extraordinarily wet region?

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES"

[Under this heading, in future, we mean to give a small "Supplement" with our *Tropical Agriculturist*, from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

DECEMBER, 1902.

DUTCH ARCHITECTURE IN CEYLON.

PART I,

(From Architectural Review for Sept. 1902,)

In a work published in 1900,* Mrs Trotter gives a number of sketches and engravings, from photographs of the "Old Colonial Houses of the Cape of Good Hope," with brief descriptions of them, and the subject has been treated from a more technical point of view in an article published in *The Architectural Review*. by Mr Arthur H Reid (Vol, viii., pp. 147-152 and 220-225) which is also illustrated. The article is a fitting supplement to the book, and the illustrations in both serve to show what interesting and picturesque old buildings still remain in the Cape Colony as relics of the Dutch occupation, which ended in the first decade of last century.

The present writer has been much struck with the similarity in the appearance and details of these buildings to what he has been accustomed to see in the maritime towns of Ceylon. The same gables, doorways, windows, stoeps, garden walls, outside staircases, the same fort gateways, churches, belfries, are to be found in Ceylon as those that we find depicted in these illustrations. The explanation is that the Dutch East India Company that ruled at the Cape for a century and a half, also occupied the maritime ports of Ceylon for almost exactly the same period, leaving the island only a few years before its rule ceased at the Cape. So it comes about that even the cover of Mrs Trotter's book is suggestive of Ceylon, for on it we find the same monogram that confronts us from the gateways of the old Ceylon forts, and on the copper coins that are still to be met with in the bazaars—not now, however, fulfilling their original function, but for sale as old metal. It is the monogram of the company, and in this same shape cut in stone or wood, cast in metal, on cannon, swords and bayonets and coins, graved on glass or painted on Delft, it went wherever the company went.*

The Dutch buildings extant in Ceylon are of course not so elaborate nor in such good preservation as those in the Cape Colony, and the inferiority on the part of Ceylon is sufficiently explained by its tropical climate, with the twofold result of a much smaller colonisation by the Dutch and a more rapid decay of the buildings, perhaps also by the use of inferior materials of construction.

There remain, however, several interesting old Dutch buildings, especially the churches, in regard to which Ceylon would appear, if anything, to have the advantage over the more important colony; and it seems a pity that some attempt should not be made to do for Ceylon what the writers referred to above have done for the Cape, before modern changes sweep away these relics of Dutch rule. The present writer has, during a residence of more than twenty years in the island, taken pains to leave no considerable Dutch building unvisited, as well as to provide himself with sketches or photographs of most of them, and though not an architect, has, in the present paper, essayed a task which might otherwise be unattempted.

The last century saw the removal or modernization of many old Dutch buildings, both by Europeans and natives, especially in the Colombo Fort and Pettah. In the former, the necessities of European trade have removed not merely the fort itself, but also nearly every building within it that had a distinctly Dutch appearance, and to find one now in its streets requires some search. The streets of the Dutch quarter of a Ceylon town† usually had on each side of

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* London. B, T Batsford, publisher, 94, High Holborn,

* By resolution of 28th February, 1603, it was decided that the monogram should be of the shape depicted in Illustration I., p. 108, and that the letters should be blue on a silver field.

† This was either within the walls of the fort, as at Colombo, Galle and Matara, or just outside it—"The Pettah"—as at Jaffna, Negombo, Kalutara, etc,

them a long row of one-storied houses with low-pitched roofs and deep verandahs or steps, the latter supported by tall and slender wooden pillars, while along the outer edge of the verandah of each house was a wooden railing separating it from the street, which was a few feet below it; so that the perspective showed two long rows of these pillars diminishing in the distance. What variety there was, arose from the different shapes of the end gables of each house, the different colours of the woodwork—the Dutch have always been fond of bright colours—and on closer inspection, from the variety of ornamental fanlights and doorway lintels. Nowadays these wooden pillars have in many cases given way to pillars built of brick and plaster, not perhaps to the advantage of the picturesque, and the line of the street is often broken by the substitution for the overhanging eaves of an old house of a new two-storey house with a pretentious plaster façade, embodying the native conception of European architecture—whitewashed and spick-and-span to start with, but in a year or two weather-stained into shabbiness.

I have referred to the forts that were built by the Dutch at every station of importance held by them on the coast or inland as far as their territories extended. A detailed description of these is not necessary, as there is nothing distinctively Dutch about them except in their gateways.* The gateways are usually surmounted by the coat-of-arms of the state or the monogram of the company and the date of the erection of the fort. There was generally a belfry on one of the walls. The Colombo Fort was demolished thirty or forty years ago, when two or three fine gateways were destroyed. That at Jaffna, in the north of the island, owing to the drier climate and the materials of which the fort is built, viz., coral, is in excellent preservation, though it has suffered in the past from vandalism.

At Galle the preservation of the fort, which, like the Colombo Fort, included within it a great part of the Dutch settlement, gives the place the appearance of a walled town. Its demolition was threatened some years ago, but for the present it is safe. There are smaller forts at Batticaloa, Matara and Tangalla, and a few remains at Negombo, Kalutara, and at some places a few miles inland from the coastline.

Next we come to the churches. One at Colombo and one at Galle had been demolished before the British occupation. There are, however, churches in good preservation at Colombo, Jaffna, Galle and Matara, which belong or belonged to the Dutch Reformed Church. There are others in the Jaffna Peninsula, some in ruins, some rebuilt out of all likeness to their original design. Some have disappeared altogether, as at Negombo and Batticaloa, as well as the two referred to as having been demolished at Colombo and Galle. While on this subject, I must take leave to dissent, at any rate as regards Ceylon, from an opinion expressed by no less an authority than Mr. James Fergusson in his "History of the Modern Styles of Architecture" (p. 468), that "the Dutch have done very little in their settlements. Their churches, which are few and far between, are of the worst class of meeting-house architecture." On the contrary, wherever they had a station of any importance, the Dutch in Ceylon erected a church,* and the church was the best building in the station. It was always substantially built; and one is rather surprised to find that the Dutch, though Calvinists, have departed so far as they have done from the meeting-house type in their ecclesiastical buildings. The churches at Colombo (Wolvendahl) and at Jaffna are large cruciform buildings (Figs 6 and 7) with a central tower on lantern; large doorways and windows with arched lintels; pulpit, not in the centre of the walls as in the meeting-house, but at the intersection of the transept and what we should call the chancel or choir, with carved sounding-boards over them, and large pews or stalls for the civil and military officials and for the elders and deacons. At Jaffna the "Commandeur's" pew occupies the angle of the chancel and transepts opposite the pulpit, and stalls on each side of the chancel remind one of the mediæval arrangements (Figs. 9, 10). At Wolvendahl the pulpit occupies one corner of the intersection and a large pew or stall each of the other three corners. On the wall are memorial tablets of stone or wood, with armorial bearings blazoned in colours, supplemented by insignia such as batons, swords, and spurs. Though these buildings are of course designed in the quasi classical or Renaissance style of the period, they are instinct with the mediæval spirit, and their interiors with their massive walls and deeply recessed and heavily mullioned and many-paned windows, are solemn and church-like, with little of the meeting-house about them.

* The gateway of one of the two forts at Matara, in the Southern Province—"The Star Fort," as it is now called from its shape, though its official name was the "Redoute Van Eck"—has over it the arms and initials of Governor Van Eck, carved in wood with a wooden tympanum, on which is carved the monogram of the company, surrounded by a floriated design (see Fig. 3). This woodwork is still in excellent preservation, though it was done in 1763.

* In the populous Jaffna Peninsula alone they had a church in each of the thirty-two parishes into which the district had been divided, and "the substantial walls of many of them were standing" when the American missionaries entered into possession of them twenty years after the Dutch had left the Island. The Batticotta church, even though one-third of it at the "east end" has been partitioned off as a dwelling-house, can accommodate 2,000 people (Report of the American Ceylon Mission, 1896). I think myself, however, that the division of the Peninsula into parishes, as well as many of the church buildings, including Batticotta, were a legacy from the Portuguese, though the Dutch kept up the former and preserved or rebuilt the latter.

Both the masonry and the woodwork are solid and substantial, and altogether these two buildings and the church at Galle contrasts favourably with churches erected in the Island at a later period for the use of the Anglican Church.*

The writer has not visited Batavia, but Heydt,† who visited India, Ceylon, and Batavia about 1736, and made sketches of the principal Dutch forts and other buildings in those countries, gives a drawing and plan of the Dutch Church at Batavia which show a large classical building of a design which I should consider creditable for the place at and period in which the church was erected, with a central dome of good proportions. Possibly this church is not now in existence, but in any case I should say the opinion quoted has been formed on insufficient data.

The Jaffna church is situated within the walls of the fort. Its quaint gables, belfry, central tower, large two-light windows, with a circular opening above the lights under a general arch, giving it a touch of Romanesque, make it very picturesque, especially when seen over the fort wall and moat. The central tower of the Wolvendahl church seems at one time to have partially collapsed, and is now like that of the Jaffna church, rather squat. It is topped with a slated roof of modern construction. Judging from Heydt's picture, the tiled roof of the Jaffna church was in his time more spire-like than it is at present, and the apex was surmounted by the conventional cock, which remained, in fact until well on in the last century.

The Colombo and Galle Churches are still in regular use by congregations of the Dutch Reformed Church, though the Dutch language has been forgotten. The Jaffna Church belongs to the Government, which preserves it for its antiquarian interest. The church at Batticotta is of a different type altogether from these churches. It consists of a long nave with side aisles all under one roof, the aisles divided internally from the nave by massive pillars of masonry, eight or ten on each side and over a yard in diameter. A Dutch inscription over the doorway gives the date as 1678; but this is probably the date of the repair or rebuilding by the Dutch of the church. I am inclined to think from the plan, that this is one of the old Portuguese churches of the Jaffna Peninsula. The inscription runs: ("Doen maken door den Heer Commandeur Laurens Pyl, Anno 1678.") This may refer to the rebuilding only. The façade is apparently Dutch.

This departure of the Dutch from the meeting-house model in their churches* is no doubt due to the fact that in their beloved Netherlands they were accustomed to worship in large mediæval churches, shorn, it is true, of most of their ornamental details, such as tracery, carved work, and painting, and adapted to the Reformed worship, but still in the main preserving their most characteristic features—nave, choir transepts, and tower, elaborate pulpit and sounding-boards, stalls, organ, and organ gallery. When their merchants and officials in the East had to provide themselves with churches, they made them as like as possible in form to the churches of their native land, preserving at least the main features and plan, if not the details, of mediæval architecture. In an age which was incapable anywhere in Europe of building in true Gothic, it could hardly be expected that the Dutch in the East could have done more than they did. The churches at Colombo, Jaffna and Batavia compare favourably with many churches of the same size erected in England at the same period,† and they had, if anything, less of the meeting-house type about them.

The most characteristically Dutch church in Ceylon, perhaps, is the church at Galle. It is of quasi-cruciform shape, with very shallow transepts, but it is the gables that give it its distinctively Dutch appearance. They are the best examples of the Dutch gable to be found in Ceylon. The gables of the Jaffna church are not of so markedly a Dutch shape, while those of the Wolvendahl church are more of the ordinary Renaissance or Italian character.

This introduces me to the subject of the Dutch gable, by which I mean the gable with a wavy outline which one has come to associate with Dutch domestic architecture. The work to which I have referred at the beginning of this article contains a chapter by Mr Herbert Baker, A.R.I.B.A., the archi-

* The pulpits are of the usual hexagonal or octagonal shape, those at Wolvendahl and Galle being attached to one of the walls, and that at Jaffna springing out of a central column. (The photograph, Fig. 12, does not show this, as the column is hidden by the precentor's or clerk's desk in front of it; but this two-decker arrangement may be an addition made in Anglican times, as are the altar rails. Wolvendahl has a quaint crown-shaped sounding-board. The organ galleries at Galle and Jaffna have a very Dutch look about them. That at Galle is at the "west" end and is a regular gallery (Fig. 11). That at Jaffna (Fig. 10) is a platform supported by heavy turned legs, and having a panelled front with a carved wooden valance. The centre panel is a representation of King David harping; this is painted in different colours.

† "Allerneuster Geographisch und Topographischer Schau-Platz von Africa und Ost-Indien." Von Johann Wolffgang Heydt, Willhermsdor" 1744.

* Whether the Batticotta Church is Portuguese or Dutch in plan, it, as well as the other three churches mentioned, is certainly a departure from this model, which regards a church merely as a preaching room. The American Mission report complains of the Batticotta Church that, "The massive pillars which make so brave a show hide the speaker from a considerable part of the room (*sic*), and are about as much a hindrance as a help." Accordingly, it has been made as much like a meeting-house as possible.

† The Church at Jaffna bears the date 1706, that at Wolvendahl, 1749. The Galle Church was probably built about 1755.

tect of Groote Schuur, the late Cecil Rhodes' house in the Cape Colony, on "The Origin of the Old Cape Architecture," in which he traces the development of the Dutch gable, and illustrates this, its most distinctive feature, from the Cape examples, and shows their similarity to examples in Holland and Belgium, in which he thinks this form of gable had its origin.

Though, however, I call this the Dutch gable, I do not think there was anything peculiarly Dutch about it in its origin. The same gable is to be found in use in most European countries soon after the birth of the architecture of the Renaissance. In England it is a feature of what we call the Elizabethan style, and there is a good example of it, for instance, at Mettingham, near Bungay, in Suffolk. The drawing of "A Kentish Homestead," by G C Haité, in *The Architectural Review*, vol. iii., p. 32, exhibits another.* The church at Gsteig, near Interlaken, has a saddle-back tower with gables in the same style, the date being 1650 ; and no doubt many other examples might be mentioned both in England and on the Continent. But the Dutch, once having made the discovery of this form of gable, seem to have taken a special fancy to it, and to have reproduced it, both at home and abroad, over and over again, with every possible variation in detail, and to have stuck to it when other countries had abandoned it for more classical forms, or for no form at all, as in our street architecture of the latter part of the eighteenth and first half of the nineteenth century. Streets and houses in Holland built at the same time would have been diversified by gables of every possible combination of curve and scroll-work and moulding. This gable has accordingly come to be regarded as distinctively Dutch. As Mr Reid puts it, it is "dear to the heart of all true Dutchmen, and in the treatment of it they excelled," and they carried it with them to their colonies. Mr Baker finds three main types of it at the Cape, and we have probably as many in Ceylon.

He describes what he thinks is an Amsterdam type, "two vertical bordering lines, with spreading scrolls at the sides." We have an example of this in the gables of the Wolvendahl Church, though the influence of the classicism then prevalent (1749) is seen in the substitution of a pediment for the wavy outline of an earlier period, the flat pilasters supporting it, and the breaking up of the surface of the wall by horizontal lines so as to suggest that it is constructed of blocks of stone. A variety of this gable is to be seen in a house in the Fort of Colombo. The date is probably 1684.

Mr Baker distinguishes another type of Cape gable by "its peculiar characteristic, the scroll running in graceful lines over the surface of the wall," and considers it admirably suited to plaster. He thinks this type "an undoubtedly original form," and states that nothing exactly like it is to be found in Holland or Belgium, that "a similar type of gable existed formerly in Amsterdam, but none exist at the present day." It is, however, not peculiar to the Cape, for it is to be found in Ceylon, where, as at the Cape, all these gables are plastered over. A good example of it is to be seen in the gable of the Galle Church. Its origin, says Mr Baker, is to be found in Belgium, also "the same peculiar feature of the scrolls running over the walls can be observed in the monster fronts of the rich guild houses in Antwerp and in the simple plaster gables of the Cape farm-house—the rude attempt of a colonial craftsman to copy what he remembered of the buildings of his native town." These features will be noticed also in the Galle example. In Ceylon at the present day we have no Dutch farms or country houses. If there were at any time in Ceylon houses of the Cape style showing one or more gables in the front elevation—and it seems probable that there were, as some of the Dutch officials had country houses standing in extensive grounds—they have disappeared, or have been modernised, and Dutch domestic architecture in Ceylon is the architecture of the street only. For the most part, except in the churches, the craftsman had to confine himself to the end gables of the houses of a street. The front elevation, consisting merely of a roof carried over a verandah supported by wooden pillars, afforded no scope for more elaborate work. The commoner form of gable in Ceylon was, therefore, of a similar type. Each slope is formed of scroll-work, something in the shape of the ordinary "bracket" used in writing moulded in plaster. There is a vase, or a leaf, or a ball, on a pedestal at each end, and another similarly mounted caps the apex.*

Another feature of the Cape gables which struck Mr. Baker was "an unusual double scroll," as seen also in an Antwerp house. The same feature is found in the gable of the Galle church, and I think from this circumstance that its origin must be looked for not in Belgium but in Holland, the home of the Reformed Church.

Simpler forms than any of the foregoing are to be seen in the end gable of what is now a large European store in the Colombo Fort, and in the gables of the church at Matara. In the latter, the *tout ensemble* strikes one at once as very Dutch. The date over the doorway is 1767, but this may be the date of its repair, as in the case of Batticotta, for the church certainly existed in Heydt's time. A still simpler form of gable, which, in my opinion, is of very early date, is to be seen in the façades of the Batticotta and Kalpitiya Churches,† and in the

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* See also some "Kentish Gables" at Ramsgate and Broadstairs of 1616-1678, in *The Architect*, Vol. XXVI. (1881), p. 107.

* Mr. Baker notes that in the Cape gables "a vase is sometimes added where the scroll broadens out."

† The front porch or verandah of the Kalpitiya Church, which has a flat roof and is supported by Corinthian pillars seems to be an addition made early last century.

gateway of the fort at the latter place. The small pyramidal-shaped pinnacles may be compared with those on the tower of the church at Gsteig. They appear also, but more squat in shape, on the gateway of the Mannar Fort.

It may be laid down as an axiom that whenever the Dutch built a gable, how ever simple, they endeavoured to ornament it in some way with plaster mouldings and finials. Reduced to its most primitive form, the gable sometimes consisted of a triangle on the top of a rectangular wall. But there was a moulding of some kind along the sides, and the three angles were surmounted by pedestals with their ornaments. One can always, in Ceylon, detect a Dutch gable by this peculiarity, as well as by the substantial character of the work.

DONDRA.

From an archæological point of view Dewinuwara, or Deundara, or Dondra, as we call it nowadays can claim some importance. It is, as we know, the Southernmost point of the Island; but few are aware that it has much to tell about the past.

Tradition assigns it to Dápulusén, probably the Dapula I. or Dáthapabhuti who was enjoined by his father Silakála to guard the sea-coast. He ruled the Ruhuna, as the country South of the Kaluganga was then called. After a period of three years he succeeded his father A.D. 539, and after the very short reign at Anuradhapura of only six months he is said to have committed suicide rather than suffer defeat from his brother Moggalana, who was the rightful heir to the crown.

Pattayame Lekama, a poet of some celebrity in the 18th century, in his "Kowminikondala," the Buddhist Jayaddisa Jataka, records:—

DEVINUWAREHI PORANA
DEVOLKARAWU NARANA
DAPULUSEN NARANA
SARANA SEVENEHI WEDUNU PURANA.

In view of its geographical position its sacred associations and its being the haven of trading vessels from Arabia, Persia, and China, Dapulusen made it his capital. It is just a little hill projecting into the sea, with a Light-house at the present day. It is in the Wellaboda Pattu of the Matara District, four miles from the Railway and on the Tangalle Road, which almost bisects it from West to East. It comprises the three villages of Dewundara, Kapugama and Wauwa, with a population as computed by the last census of 6,733 souls. The inhabitants fish in the sea except a few northwards who follow some agri culture

Eighteen pokunas or reservoirs and a like number of streets, tollokkuwas or lanes are said to have adorned the city, which must have extended to Gandara, "door of the city." The Devale is sacred to the Votaries of Vishnu who call it Thénamale, "Honey Hill." Though it is the exclusive property of the Buddhists, both creeds meet here to worship in peace and amity.

Ship-wrecks on the coast must have been of common occurrence as more than one legend seem to suggest. The following is one of them:—

A fine log of timber which was afterwards identified as Kihiri (Tennent calls it Sandal-wood) floated on the little bay by the side of the present Light-house, whence the name Kihiriwella, corrupted into Kiralawella. It receded into the sea with every attempt to board it.

"Let us ask some prophet, priest or prove "
"Some dream-interpreter (for dreams are often sent from jove.")

In accordance with auguries, the sanctified people of the Devale approached it in fitting procession, and conveyed it from another little bay, Magultotawala to the Devale. Next the sculptors are baffled. Their chisels refuse to carve the idol. In this predicament the old man whom you will at once recognise comes to the rescue:—

"Slow tottering from the hovel where he hid,
Crept forth a wretch in rag, haggard and foul,
An old, old man, whose shrivelled skin suntamed,
Clung like a beast's hide to his fleshless bones.
Bent was his back with load of many days,
His eyes pits red with rust of ancient tears.
His dim orbs blear with rheum, his toothless jaws,
Wagging with palsy, and the fright to see
To many and such joy. One skinny hand
Clutched a worn staff to prop his quivering limbs,
And one was pressed upon the ridge and ribs."

The workmen had retired for their rural, and the solitary lad forbids entrance. Says he "there are the tools. Durst thou, an outcast, sacrilege besides?' Replies the spurious old man, "Tools want not I. Lo! one of my legs is already in the grave. Prithee, but for once let my eyes feast on the blessed one." He entered uttering these few words, but only not to be seen again. The workmen returned to find their work done to perfection. The idol lay carved as only the divine could carve it. The Kapuwo soon placed the idol in the sanctum. By a coincidence, however, the figure looked right into the sea with the disastrous consequence that every vessel crossing in a line with it must be wrecked. It reminds us of another old friend, Sinbad, the sailor. To make the idol look down was the ingenuity of two of the Kapuwo, whose descendants are known to this day as Dévéndra and Dáva Suréndra.

The prosperity of the city was thus assured and the invaders succeeded in its overthrow only by first carrying off this precious idol, nobody knows where, perhaps, over the seas.

That the Devala was everything goes without saying. There is a solitary stone slab, probably the 'sannas' still remaining, but it is undecipherable. Stone pillars are scattered over the ground from the sea-beach and around the Devale. There are signs of a wall enclosing the Maluwa or Court-yard; but what is left of the Devale proper, is only a huge stone door frame. Pillars, evidently forming the carved way north, east and south, run as far as the Widiya. The Southern was perhaps, the principal entrance as one may judge from the base of a flight of steps. The present Devale and the Vihara are modern structures, the ancient buildings having been destroyed by the Portuguese, who also confiscated the endowments which are said to have been considerable. Not far from the Devale is an unpretentious artificial rock cave said to have been the abode of Galgane, whose cabalistic feats were unequalled. It is said that he had so much power over the unseen that all his servants were demons and

incarnate. Altogether Dewundara should prove a rich field for research. The belief of the people throughout the island in the power of the presiding deity has lasted for 13 centuries and it still lasts.

There is an annual Perahera and a fair a description of which should form another paper.

The "Kovulsandésa," an epistle conveyed by a cuckoo, invoking a blessing on the prince Sapumal, son of Prakrama Bahu VII, and praying that the war in Jaffna, in which the Prince was then interested, might terminate favourably was addressed to the god Devundara by Irugal Parivénadhapati, incumbent of the Mulirigala A.D. 1410.

"Paravisandésa," a similar message conveyed by a pigeon, supplicating Vishnu to protect the king Prakrama Bahu and his son, and to grant a suitable consort to the king's daughter Chandrovasi was written by Sri Ropula of Totagamuwa about the same period.

There lies at Sinhasanawella, the anchor of a vessel said to have been wrecked off Devundra in the year 1812. Is it possible to ascertain to whom she belonged, or what was the fate of her unfortunate crew? The people were then famine-stricken and the wreck of the vessel was a god-send. They must have looted the vessel and it is a well-known fact that relics in the shape of plates, &c. are still found in the possession of old families. I have myself come across a piece of plate which I shall be happy to shew any gentleman who would care to see it. The finding of it prompted me to write these lines.

(Signed) GEO. WEERAKOON,
Mudaliyar, W.P., Matara.

SECTION OF THE TROPICAL DISEASE.

AT BRITISH ASSOCIATION.

SIR WILLIAM R. KYNSEY, C.M.G., F.R.C.P I.,
PRESIDENT.

PRESIDENT'S ADDRESS.

It affords me great pleasure to preside over this Section, and the honour conferred upon me by the British Medical Association in appointing me your President is one I highly appreciate. I accepted the position, I may assure you, as a compliment to the Colonial Medical Service, in which I spent many years of my life. * *

In the words of Lord Salisbury on a memorable occasion, "We live in a small bright oasis of knowledge surrounded on all sides by a vast unexplored region of impenetrable mystery. From age to age the strenuous labour of successive generations wins a small strip from the desert and pushes forwards the boundaries of knowledge"; or, as that great philosopher, Professor Huxley, well puts the same idea, "The known is finite, the unknown infinite: intellectually we stand on an islet in the midst of an illimitable ocean of inexplicability; our business in every generation is to reclaim a little more land, to add something to the extent and solidity of our possessions."

Marvellously minute observation is perhaps the most notable feature of scientific research in the last quarter of the nineteenth and the opening years of the twentieth centuries, combined with a severe spirit of criticism, and that now, as has always been the case, science, like religion, meets out its rewards only to those who diligently seek it. In medicine one of the most surprising discoveries has been the relationship which has been proved to exist between insects and grave disease—the direct outcome of the modern spirit of research.

I have no intention of occupying your time with an account of the successive malarial discoveries made by observers of different nations which can now be found in the textbooks, and are known even to the man in the street, nor with the unworthy questions too often raised by discussions about priority. But it cannot be too often repeated that in the whole story of medical science there has been recorded nothing more wonderful than the prophylactic measures which have followed on the discovery of the malarial organism by the illustrious Frenchman, Laveran, and by the investigations into its life-history by Italian, German, and American observers, and by our own countrymen, Manson and Ross, according to the experimental method advocated by Bacon and Harvey. If these investigators have no other reward they will have the highest satisfaction men of science can enjoy—that of extending our knowledge of disease and of doing good to humanity. I consider the discovery of the malaria parasite—and that man is its temporary and the mosquito its definitive host and transmitter, that it completes its asexual life and prepares its sexual forms in human blood, while it completes the sexual cycle of life, that by which the life of the parasite external to man is assured in a particular species of mosquito, and that man becomes infected only through the bite of the *Anopheles*—one of the most epoch-making events of the age in which we live. It may be truly said that scientific research has gone hand in hand with practical and preventive medicine. The physician can give quinine with a full knowledge of how his remedy acts; and the sanitarian can try, and in many cases succeed in preventing the occurrence of malarial diseases by methods devised on scientific principles. The treatment and the modern prophy-laxis of malaria exemplifying the idea of Socrates and Plato that "right knowledge involves right action."

Another most gratifying result of the study of the causation of malaria, and directly traceable to it, is the increased interest taken in the investigation of all tropical diseases by the establishment of schools of instruction and the formation of scientific expeditions and travelling scholarships. In the schools of Tropical Medicine of London and Liverpool, and from the lectures on diseases of the tropics in many of our colleges, the medical man intending to practise abroad can acquire an acquaintance with the diseases he will be called upon to treat, special advantages long enjoyed by the army, Indian, and naval services in the great schools of Netley and Haslar. I have the most grateful recollection of the instruction I received at Netley, where diseases from all parts of the world could be seen and studied. No one who had the privilege of their acquaintance can forget the gifted and amiable Parkes, the father of hygiene, that accomplished gentleman, speaker and writer Maclean, whose lectures may still be read with profit, and Aitken, the first pathologist of his day, whose work is a store-house of facts relating to tropical medicine. It is pleasant for an old Netley man to feel that the instruction in that great school has not deteriorated, and that it continues to send forth highly trained-officers ever

ready to fight disease in any part of the world. If the rumour is true that the army school is to be soon moved to London, I am sure you will all join me in wishing it a brilliant future.

In the history of the past year there is no great discovery to be recorded; it may be looked back upon as one of steady progress in elucidating some of the many problems of tropical medicine, the greatest and most beneficient being in the scientific prevention of disease. In the case of yellow fever the mosquito—a *Culex*, not *Anopheles*—has been tried and found guilty of being the sole agent in the spread of that disease. In Havana yellow fever was endemic for a century and a-half; during the past year it has been freed from the scourge by killing the mosquitos in the neighbourhood of each focus of disease as discovered, and by carefully disinfecting every house that had lodged a yellow fever patient in order to destroy the mosquitos that had bitten a sick person. This great sanitary triumph must ever redound to the honour of American medicine.

No excuse is necessary in this Section for dwelling a little on the important subject of the prophylaxis of malaria. An epidemic of any kind is among the most costly in life and money that can befall a town or district. An epidemic of malaria differs from other outbreaks of disease in this important fact that its effects are not limited to the deaths it causes, but that it often leads to years of suffering, poverty, and depopulation.

I have high authority for stating that, taking one year with another, malaria destroys twice as many people in India has cholera, small-pox, and all other epidemic diseases put together. It is a matter of history that the same cause almost annihilated the soldiers of the Walcheren expedition, and the army under Wellington in Spain was so assailed by malaria that according to Ferguson the enemy and all Europe believed the British forces were exterminated. Malaria stopped the great Panama scheme of de Lesseps. I have known districts in Ceylon almost depopulated. A most disastrous outbreak occurred some years ago at Galle a town previously malaria free—attended with great loss of life in consequence of the construction of a railway the embankments of which were made by excavating pits at the sides that soon were filled with rain water. In those days the origin of the fever was, of course, attributed to disturbance of soil. We now know the pits provided breeding places for the *Anopheles*, and the Sinhalese and Tamil labourers from malaria districts supplied the organisms.

Although we were ignorant of the true conditions which caused the outbreak, we advised the filling up of the pits on the disturbance of soil theory with satisfactory results, proving that much can be done in the prevention of disease before full knowledge of causation is reached.

I will only occupy a few minutes of your time while I describe two experiments—one made by the Colonial Office on Dr Manson's advice, and the other by the Japanese Government, which clearly show it is both possible and practicable to prevent malarial infection.

In the experiment conducted by Drs. Sambon and Low in the Roman Campagna and in London in order to prove the truth or error of the mosquito malarial theory, and also how far protection against malaria might be consistent with the ordinary avocations of life, two experiments were necessary, one that healthy persons in London should be bitten by infected mosquitos from a malarious region, and the second that men should live in an undoubtedly malarious place during the fever season, being protected only from the bites of mosquitos. Those bitten in London contracted ague. Drs. Sambon and Low and two others lived in a mosquito-proof hut in a most intensely malarious place in Italy, where all the inhabitants suffered from malaria. The four inhabitants of the hut remained perfectly healthy all the time, and, I believe, are so still.

The experiments by the Japanese Government were carried out on the Island of Formosa, and they furnish a most conclusive demonstration of the relations between mosquitos and malaria. A battalion of soldiers who were completely protected from mosquitos for 161 days during the malaria season escaped the disease entirely; whereas there were 259 cases of malaria in another battalion in the same place and during the same length of time not protected from mosquitos.

I am sure you will agree with the conclusions of Drs Sambon and Low that their experiments prove that mosquitos only are capable of transmitting malarial fever; that protection from their bite implies absolute immunity; and that protection can be easily obtained. If further proof is considered necessary for large bodies of men, it is furnished by the Japanese experiment.

By a study of the life-history and surroundings of the *Anopheles*, and by varied and long-continued experiment, Ross has determined the best means of preventing malarial infection. He advised the extermination of the *Anopheles*, and although this is difficult it is not so difficult as at first sight it appears. These mosquitos breed in small pools of a certain kind easily recognized and easily dealt with, always close to human habitations, as the females must past frequently between the pools where they lay their eggs and the houses where they obtain their food. If the *Anopheles* are found in a house the breeding puddles are close by. The great practical points derived from Ross's work are two:

1. That the life of the *Anopheles* is in direct and intimate relation with the annual epidemics of malaria fever.

2. That it is only necessary to drain the *Anopheles* puddles and not the whole of a malarious district.

I believe the discovery of the malarial parasite, and the investigations into the life-history of the mosquito which conveys it to man have placed us in the position to suggest measures which if carried out would have the effect in an unhealthy district of largely reducing the amount of malarial fever and eventually of exterminating it.

1. Malarial fevers should be included and notified among infectious diseases, so that precautions could be taken to prevent their spread.

2. Persons, especially children, suffering from malaria, primary infections or recurrents, should be isolated and treated with quinine to prevent as far as possible the infection of mosquitos.

3. Persons infected with malaria should be prevented coming to a healthy place to infect mosquitos.

4. The puddles in which the *Anopheles* breed should be drained and filled up or treated with kerosene to destroy the larvae.

5. Doors and windows of houses, gaols and hospitals in malarious districts should be screened with wire gauze, and beds should be provided with netting to prevent mosquitos entering and biting the occupants.

I am painfully aware how far this address falls short of what might have been accomplished by a more skilful hand-writing upon the all-important subject of malarial prevention, but my remarks will not be thrown away if they induce those not acquainted with recent work to take an interest in and to appreciate the wonderful results in tropical medicine which have followed on the discovery of the malarial parasite.

Let knowledge grow from more to more
But more of reverence in us dwell;
That mind and soul according well,
May make one music as before;
But vaster.

(In Memoriam.)

British Medical Journal, Sept. 20.

THE NEW BIOLOGICAL STATION AT PORT ERIN.

VISIT OF THE ISLE OF MAN NATURAL HISTORY ANTIQUARIAN SOCIETY.—DR. HERDMAN ON THE STUDY OF MARINE BIOLOGY.—PRESENTATION OF A BURST THE LATE PROFESSOR FORBES.

On Sept. 27th, the members of the Isle of Man Natural History and Antiquarian Society paid a visit to the newly erected laboratory and museum at Port Erin, by invitation of the Liverpool Marine Biology Committee. The latter body was represented by Prof. Herdman, D Sc., F.R.S., etc., and Mrs Herdman, Mr Isaac Thompson, F.L.S., and Mr H C Chadwick, the curator. The visiting party included the Rev. C H Leece, President of the Isle of Man Society, and Mrs Leece; Mr P M C Kermode, Hon. Sec., Sir James Gell, Deemster and Mrs Moore, the Rev. Canon Kewley, Mr F Saunderson, Mr W R Teare and Miss Teare; Mr G Patterson, Mr P G Ralfe, Mr W C Cubbon and Miss Cubbon, Mr Henry Kelly, Mr Egbert Rydings and others. The visitors spent a short time in making a preliminary, examination of the new and commodious building, and in admiring the live specimens of Manx fish in the tanks of the Aquarium. The whole party then seated themselves, and the following proceedings took place.

Prof. Herdman said: Ladies and gentlemen, on behalf of the Liverpool Marine Biological Committee, I have the honour and pleasure to welcome you to their biological station. This visit of the Isle of Man Natural History and Antiquarian Society to the Port Erin Biological Station is now really assuming the character of what botanists call a hardy annual, and I am finding it increasingly difficult as occasions go on to find anything new to say to you which you might care to hear. But, on the present occasion, there seem to be two points that one might say a few words about—two points obvious to us, because they are present. In the first place there is the new building in which we are assembled, and, in the second place, there is your Society, which has come here. In regard to the building, the first point I must make clear is that I am only speaking on behalf of what we call the L M B C. Although the building is, in great part, a Manx institution, the Isle of Man Sea Fish Hatchery, on the present occasion I have nothing to say in regard to it from that point of view—all that will come later, I hope, at the opening of the institution as a fish hatchery by the Committee—the Government Committee I think one calls it—which has charge of the fish hatchery. On the present occasion we welcome you here on behalf of the other side of the building to a scientific institution—the Marine Biological station. The building is composed of three parts. There is the central part, in which we are now meeting, and two extensive wings. The west wing is the sea fish hatchery, on both floors, and the east wing is the scientific laboratory, on both floors. We shall afterwards go through the various rooms and see the various purposes to which the different parts are put. This room in which we are assembled, as is obvious, is the aquarium, and above is what is going to be a museum; but that will come later. These three different parts have three different purposes, and yet they all help one another. The sea-fish hatchery, as the name suggests, is for dealing with the eggs and the young fish in the larval state, which are of importance to men—the economical, the marketable fish—and we all hope the result of the opperations in the sea-fish hatchery will be

STOCKING OF YOUR BAYS

round the various parts of your Island with valuable flat fish—(hear, hear)—and the supplying to your rocky cliffs and sea weedy regions of additional lobster population. I look upon the flat fish and the lobster as two of the most important things in the sea with which one can deal economically in this particular building. It may be that other kinds of marine animals useful to man will be dealt with in the future, such as oysters, and possibly others; but my own impression is that we shall find that our work will best be devoted to flat fish and lobsters. I am speaking for myself now as a scientific man, and not for the sea-fish hatchery at the present moment. This is the scientific part of the building, that is, of course, for the work of the naturalists of the Liverpool Committee, several of whom are present today, and others of whom who would have been glad to have been present if they could have managed it. We have had several letters regretting the inability of members to come over on this occasion. Why should naturalists want to have marine laboratories? The genesis of modern laboratories is rather an interesting question in the history of science. Not so very long ago, in the first half of the last century, naturalists were what we generally call field naturalists. They had not, therefore, to do with laboratories or aquara, or any such accessories; they went into the open and made observations with their eyes, and that is very good practice; and I have very much admiration for the old fashioned field naturalist—I wish we had more of them at the present day (Applause.) A considerable change took place in the study of natural history about the sixties or the early seventies—in the day when Huxley was at the height of his fame and the thick of his important work. He introduced

THE LABORATORY METHOD;

he went more deeply than had been done before except by certain medical anatomists, into the structure of all animals, and saw how important it was that the biological student should not only work in the open, but in the laboratory

with instruments of precision—with the microscope and with the microtome, used for cutting thin slices of animals so that you can study the most internal parts with highly magnifying powers. That plan was then taken up with such energy that it led for a time, one may almost say, to neglect of field work, and reached its climax, perhaps, in the great school of natural history at Cambridge, under the late Professor Balfour and his pupils, in his school of research, in the eighties. And then it began to be felt that the pendulum had swung too far in that direction; that it was time to turn again to Nature, and that is what gave rise to the biological station. It was felt that we were beginning to examine animals so minutely that we were likely to forget what animals were like, and so the combination was effected of the field naturalists and the laboratory anatomists. That combination led to the establishment of biological stations. A biological station is only a laboratory placed close to the edge of the sea, so that you can go from the laboratory very easily to the sea shore or bring the sea into tanks in your laboratory, and, by that means, have the animals living in your laboratory and bring your instruments of precision to bear upon the living animal and its habits. This is merely the seaside workshop of the naturalists, and once that rather obvious point had been observed, biological stations became important, and sprung up in all directions. Thirty years ago or so there were none; now there are some forty or fifty, perhaps, scattered round the shores of the civilised world, extending as far as California in one direction and Japan in the other at that very notable biological station at Misaki, on the shores of the inland sea of Japan. There is also one in Australia, and one on the northern coast of Russia, within the Arctic Circle. The most notable of all, and one of the earliest, is the great biological station at Naples, and the aquarium, which many of you have, perhaps, seen—it is one of the sights to visitors to Naples. But the best one in this country is at Plymouth—it does not belong to Plymouth, but is there because Plymouth is the best place to have it. It belongs to a London Society, or rather to the naturalists of the United Kingdom, the chief officials of which are the London biologists. Well, as you know, the Liverpool biologists, some 15 or 16 years ago, came to the conclusion that they must have a marine laboratory in order to conduct their work properly. They established the first institution on Puffin Island, on the coast of Anglesey, and then we removed to this very much

BETTER CENTRE AT PORT ERIN,

in 1893, I think, when Governor Walpole opened for us our little pair of cottages on the other side of the bay, where we have worked for the last 10 years nearly. And now we are in these much more favourable, almost palatial, quarters, which will certainly give us greater facilities for work—you will see for yourselves what these facilities are. There are nice little work-rooms placed at the disposal of members of our Committee and students from the universities. Mr. Chadwick, our excellent resident curator—(applause)—has already had three or four university students working during the long vacation which has just finished, and we shall hope to have a great many more next year. Then, there is this central part of the building, about which I must say a word or two. This is the part that is going to be opened to the public, and our view is that it has an educational value. You all know how, in high educational circles, of late years, great stress has been laid upon what has come to be called Nature study. You know how the Board of Education—the Education Department—in London, has taken the matter up; how schedules and schemes of Nature study have been authorised, and examinations held on the subject. Classes have been opened in public schools, and, in fact, the subject is a growing and important one. Nature study cannot be advanced better than by such buildings and such arrangements as tanks and museums, added to walks in the fields, and the study of the actual animals on the sea shore and the moors. And, in addition to these, which cannot be undertaken at all times, and in all weathers, a great deal of Nature study can be advanced by means of aquaria and well-arranged museums. That is coming to be understood in all the large towns, and I hope that this part—this central part—of this institution here may be made use of in this Island for Nature study classes. While talking, as I did a minute ago, of the facilities which the scientific part of this institution—a modern laboratory in a modern biological station—can afford to the university student, I should just like to add

A WORD OF WARNING

—a word in the other direction—and that is, it is not altogether good to provide too many facilities; we must not let the worker or the student think that the facilities are everything; and that brings to one's mind two little stories I happen to have heard of two great men, one of whom was Huxleys, and the other a man of whom we are going to hear more about from Mr Kermode—your great Manx naturalist, Professor Edward Forbes. The stories are these: Huxley, on one occasion, when he was shown a very finely equipped modern laboratory, said to the young students who were working there, "You fellows, you little know the difficulties we had to contend with in my young days, when one had to make observations with one's microscope lashed to the mast"—of course, "that lashed to the mast"—was a mere figure of speech, Huxley did not mean that he had to lash his microscope to the mast, but it indicates forcibly the difficulties that the pioneers in the early days had to encounter. I believe Edward Forbes, on one occasion, said, when he found some of his students discussing the powers of their miscroscopes and criticising adversely some of the glasses what are called the objectives at the lower end of the miscroscope, that do the more important part of the work "Gentlemen, bear in mind that the glass—at the lower end of the miscroscope is not so important as the eye at the other end of the microscope." And it is not even the eye that he meant, but the brain that was behind the eye, because the eye is only a part of the optical apparatus. We also see the thing, probably, very much alike, but it is the brain behind the eye that makes the difference in the observation. Well, of course, Edward Forbes naturally brings one to your Society which has met here today, and I should like to conclude by saying a word or two specially directed at your Society, if I may take the privilege of an old friend——

Mr Kermode: And member. (Applause)

Professor Herdman: Yes, and as a member of speaking plain words to my fellow-members. I have had the pleasure of meeting you on various occasions, and I have almost always met the same members. It is exceedingly pleasant to meet old

friends, but it would also be pleasant to meet young friends—some additional members. I don't know why you don't have more

Young Recruits—

why you don't have more fresh blood coming into your Society. I want you to carefully consider this point, you who are the officials of this Society, and see if you cannot do more to enlist the active membership and the active work of young people in the Isle of Man. This is a criticism and a statement one might make against many natural history societies throughout the country, and not this particularly. I do not know whether it is so, but I have got the distinct impression that there are not so many young people devoting themselves to the study of natural history as amateurs nowadays as there were in former times—as there were, perhaps, 20 or 30 years ago. Natural history societies and societies of a like natnre—geological and antiquarian societies—I think flourished more in former years than they do now, and that ought not to be the case, for there is far more education now. Of course, there are far more diversions for young people—I don't know whether it is cycling, tennis, golf, and so on. (Laughter) Of course, these are very excellent things in their way, and one would not say a word against them—one indulges in them oneself; but I hope they are not having, and will not have, the effect of driving out of the lives of young people such exceedingly pleasant intellectual recreations, even if one regards them merely as recreations, as the study of natural history. Then I hope the member of our Society will continue their membership, and not only so, but that we shall have more members, and that the members there are will try and do a little actnal serious work as contributors to science. As you all know, probably, Professor Edward Forbes had as his intention, when he was a young man in the Isle of Man, the compilation of a complete Natural History of the Isle of Man. He alludes to it more than once in his letters and his writings; he did something towards it by issuing a small edition—Malacologia Monensis—which dealt with the molluses and the shell fish of the Island, but we wish to deal with all the other groups of animal and plant life, so as to complete the Natural History of the Island, but he did not do so. He died a comparatively young man, and it has never been done. No one else has done it, and it would be an admirable piece of work for the Society to take up. We, who come to visit this part of the Island, and to work in this institution, will help you. This institution could do a great deal, but we only lay ourselves out to deal with marine life; but there is a great deal of other work—land plants and animals to be dealt with. A great deal of valuable work has been done by members of your Society in the past, and I only wish that you should continue and that your present members should devote themselves as much as they can to taking up special little groups, however small, of plants, animals, rocks, and fossils, so as to complete in the end our knowledge of the natural history, in the widest sense, of this Island. We cannot all, of course, be Huxleys or Darwins, or Edward Forbes; we cannot all be great architects of science, but we can all do useful work in small ways; we can, each of us, bring a brick or a handful of mortar to help in completing the fair fabric of natural history. (Loud applause.)

The Rev. C H LEECE said: As President of the Isle of Man Natural History and Antiquarian Society, I would desire to express to Dr. Herdman and the other members of the Liverpool Marine Biology Committee, our deep appreciation of the reception we have received here today, and particularly for the very interesting address which we have just listened to from Professor Herdman. I am sure it is a great pleasure for us to be here, and to be allowed to inspect, under Professor Herdman's direction, the wonders of this new biological station. I represent a Society, which, in a small way, as amateurs, takes a deep interest in, and we are endeavouring to further, the work which scientific men like Professor Herdman are so ably carrying ont in the world. As President of the Society, I am sure I can speak for all its members when I say we are very proud indeed to think that the little Manx Nation has had such an institution as this established upon its shores. A few years ago I would not have dreamt that such a thing would take place in my day. When I came down here and saw these fish sailing round in the tanks, and was introduced to them in this very personal way—(laughter)—it really opens up to my mind enormous possibilities, from an educational point of view for the people of this, my beloved native island. I know that many people in the island have said: "What is the good of it?" We ask that about every new thing, and it is a very natural question to ask. Well, Professer Herdman, I think, has impressed on all our minds the enormous advantages which a work of this character has for the people of the district in which it is carried on. I think we shall all go away with a different and more enthusiastic idea about the work which this biological station may carry out, not only here but in other places. You have heard that this institution was meant to fulfil three different phases of usefulness. It has an educational use, even to be here and see these creatnres in the tanks, though they are not all full yet, when you think of it, not only for those who dwell in this place but for the visitors. What a great pleasure it is to go ronnd and say: "That is a dog-fish, commonly called a gobag," and so on; and to be introduced to the various animals, and your interest in them is excited in a way it would not otherwise be. It performs, I think, three phases of work in this way—from an educational point of view, a scientific point of view, and, I hope and trust, from an industrial point of view—if they are going to hatch lobsters, crabs and so on—they do not wander far away from our shores, and the fear that many people have that the fish we hatch will be caught by other people won't apply to lobsters and crabs. They will be deposited near our shores, and, when they grow big, our men will catch them and sell them at a good profit. It is not for one to go on any further, but I think it is right, at this stage, that I should give expression to our gratitude to Professor Herdman and his co-workers for the pleasure we have had in coming here today, and also appreciation of our Manx Government in having the enterprise to make a grant to build this beautiful station. I think it says something for our Government that it is sufficiently go-ahead to make a grant to build this beautiful place. Now I have to introduce to you our very energetic and valuable secretary, and I may say, with regard to Professor Herdman's remarks about our numbers, that I grant we might have more enthusiasm and more work might be done; I hope your remarks may tend to achieve that result, but, nevertheless, much quiet work is

being done. If it was only known what wonderful thoughts pass through our minds, and the wonderful work we do at home, I am sure the world would be surprised—(laughter)—and I am sure you would express appreciation and pleasure at these Manx workers, who are living in comparative obscurity and are working hard, perhaps, for a time when their work will be appreciated more at large. On behalf of Mr Kermode, a more untiring faithful secretary we could not find, and I am sure he will redouble his efforts on behalf of the Society. I have now to ask Mr Kermode to unveil the bust which he is so generously presenting to this institution.

Mr P M C Kermode, spoke in presenting the bust. He said the particular reason for making this presentation of the bust of their great naturalist was that Edward Forbes was their one great Manx naturalist—(applause)—great not only as a local man, but recognised throughout the world for his scientific knowledge and skill,

Mr I Thompson :—I believe it is because I happen to be treasurer of the L M B C, and custodian of its valuable assets, that I have been asked to receive this beautiful bust on their behalf.

Sir James Gell said they in the Isle of Man were very proud they had an institution like this. He trusted that the young people of the island now would take up this subject as a matter of study and education. He thought it was very important that they should do so. He was very glad that an institution of this kind was now established. He trusted that the people of his own country would avail themselves of the grand opportunities for the study of natural history and for doing good in their day and generation. (Applause.)

The vote of thanks to Professor Herdman was carried with enthusiasm.

Professor Herdman, in response thanked the Manx visitors present for the welcome they had accorded the Liverpool naturalists, not only on that occasion but on every occasion they had come amongst them. They all felt as if the Isle of Man were their adopted country, and he could assure them they had the interest of the Isle of Man quite as much at heart as if they were really Manxmen. (Applause.)—*Isle of Man Times and General Advertiser*, Oct 4.

TRINCOMALEE :

"INSCRIPTIONS FOUND ON MONUMENTS IN THE CEMETERY, TRINCOMALEE."

This is a very curious collection of inscriptions of all kinds, dating from 1804—each being printed on a single page—and we suppose the little volume before us belonging to a lady in Trincomalee, is the only one in existence. The very first is worthy of reproduction here :—

Sacred to the memory of Capt. George Napper of His Majesty's 51st Regt., Late Town Major of this Garrison, who departed this life Dec. 21st, 1804, Forty-four years; Twenty-two of which were devoted to the service of his King and country:

Should chance thy footsteps hither bend
Turn not in haste away.
A braver soldier, warmer friend
Death never made his prey.

It is striking how many young officers were struck down between 20 and 30 years of age. Here are two examples :—

Beneath are deposited the remains of Lieut. Samuel Moffett, eldest son of the Rev. James Moffett, Magistrate for the county of Longford in Ireland, who departed this life on the 18th of March, 1812. Aged 25 years.

Sacred to the memory of William Taylor, Esq., His Majesty's Naval Storekeeper, who departed this life on the 4th day of May, 1814. Aged 24 years. A gentleman of the strictest honour, and integrity, whose conduct as a Public Officer had gained the esteem and approbation of his superiors, and whose private virtues will ever endear his memory to his afflicted relatives and friends. As a token of respect and to commemorate departed worth this tomb is erected by his faithful and affectionate friend, J. W. Dale, of Madras.

The representatives of names still familiar in our midst, arrest attention :—

Sacred to to the memory of William John Lushington, Esq., of H.M. Civil Service, Collector of Trincomalee, who died 6th September, 1831. Aged 25.

To the memory of Mrs. Maria M. Tranchell, widow of the late J. Tranchell, Esq., of H.M. Civil Service, Ceylon, who died on the 14th of May, 1818. Aged 49 years. Her amiable qualities endeared her to her family and friends and she quitted the world with the just, regretted of all who knew her worth, that which language cannot attempt to describe, but memory will often retrace.

Sacred to the memory of Robert Atherton, Esq., acting Government Agent of the Eastern Province and late of Her Majesty's Royal Navy. Died 23rd of June, 1855. Aged 54 years. "The memory of the just is blessed."

To the memory of Lt.-Colonel C. A. Tranchell, late Ceylon Rifle Regiment, who died on the 31st March, 1866. Aged 79 years. "Blessed are the dead which die in the Lord."

To the memory of Mr. William Twynam, purser, late of H.M.S. "Liverpool," who died June 2nd, 1821, Aged 46 years. He was faithful and upright in his public capacity and his excellent private qualities have obtained this record of affection and regard.

Two very melancholy monuments and inscriptions are the following :—

Sacred to the memory of 56 non-Commissioned Officers, and Privates, two women and one child of 78th Highlanders who were carried off by epidemic cholera, between 12th October and 7th November, 1832, and whose remains lie in, or near this spot. This fatal and most malignant disease, first showed itself on 12th October, but on the 23rd had attained a degree of extreme virulence. On that day 14 men died, on the 24th, 11. The names of the sufferers are inscribed on the other side of the monument which is erected by their brother officers.

Sacred to the memory of Men of her Majesty's 37th Regiment of foot who departed this life at Trincomalee during the years 1847, 48, 49, 50, 54, 55, their names are inscribed on the other side of this monument, which is erected by their

officers and comrades, as a tribute of esteem and regard to departed worth and in token of the respect, and affection in which their memory is held. "Be thou faithful unto death and I will give thee, a crown of Life."

FLIGHT SHOOTING IN CEYLON.

Lifeless and dreary was the scene, yet fascinating beyond description. We were on one of the burning sandbanks which separate the great lagoons of Ceylon from the sea, the narrow boundary between the feeding and sleeping grounds of innumerable wildfowl. For many a weary mile, as far as the eye could reach, lay a shimmering line of sand; on one side the still lagoon, glassy and grey, steamed patiently under the sinking sun; on the other, the limitless Indian Ocean stretched on and on to where the blue dome of the sky seemed to mingle with it and melt away into space. Long green waves rolled slowly in, and, passing the coral reef, crumbled into white-topped breakers, which boomed and thundered unceasingly upon the dazzling beach.

We had discovered the route taken by the passing fowl to their favourite haunts, and lay hidden in the tussocks of coarse herbage waiting for the flight. The sun, setting in its glory of coloured light, seemed to set the world aflame, and turned to gold the distant inland mountain peaks which soared above the low-lying line of coconut palms that fringed the mainland shore. As if answering to its farewell blaze, a flock of whistling teal rose afar off, and with sibilant cries commenced their evening gyrations, preliminary to departing to their feeding grounds inland. Rising one after another from their reedy sanctuaries, the flocks wheeled round in wide circles, uttering the while their hissing calls. Nearer and nearer they came, till suddenly the sound became shrill, as one flock unsuspectingly approached our ambush. Bang! and a quick swerve, but too late; a rapid succession of reports, followed by the sound of bodies thumping on the soft sand, greeted our anxious ears.

With the exception of a few blue coots, which trailing their legs awkwardly behind them, sought refuge with a splash among the reeds of an adjacent islet, our shots caused little disturbance, and again the 'swish, swish' of a closely packed flock of teal was distinctly audible as they swung round overhead. Four barrels were emptied in their midst and some half-dozen left the ranks and fell with splash or thud, the rest being soon out of shot. Higher and farther circled the startled flocks, till at last they were mere specks in the deepening red of the western sky.

Already the west mist was beginning to gather round the red-beds which lay scattered over the grey water, their graceful lines reflected to perfection on its still surface. For some time the occasional croak of a frog, or 'korok' of a hidden coot, were the only sounds besides the eternal booming of the surf behind us. Suddenly the cry of a curlew sounded clearly in the evening air, and one's thought went back to the shingle banks and marshes of England, where, with a biting wind driving in from a grey sea, one had so often heard the familiar note. It sounded strangely out of place on that lagoon; but there was little time for wandering steamy thoughts, as an answering call came back, and soon a small flock passed just out of shot, making for the flat beach upon which the tide was falling. They were the forerunners of the numerous birds that followed. Soon we descried a string of elegant flamingos heading straight for us, their long legs streaming out behind them. A moment of doubt, and then they were over-head. Picking out our birds we fired, and two of the graceful creatures crumpled up and fell with a crash into the reeds hard by. The sky was seared with lines of fowl, each winging its way to some favourite ground, and ever and anon the guns spoke out, till the short-lived light of the afterglow faded and made way for the approaching night. Then suddenly darkness came, and with it the myriad fire-flies, which danced and circled aimlessly among the dank and sweating reeds—and another day was dead.

As in the gathering gloom our canoe glides over the silent water, we can see the torches of the native fishermen burning luridly on the distant shore. Fainter and fainter grows the sound of the pounding breakers, till only a murmuring roar reaches us through the still night air. A heavy white mist gathers and obscures all from us but the glittering firmament above. There is a casp-sound as our canoe grates on the mainland shore, and, stepping out, we gladly leave the great grey waters to whisper their secrets to the night. Our bag is heavy and our hearts are light.

—*Field*. Sept. 17. TOM-TIT.

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES"

[Under this heading, in future, we mean to give a small "Supplement" with our *Tropical Agriculturist*, from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

FEBRUARY, 1903.

A DUTCH NATURALIST ON CEYLON: SPEECH BY PROF. DR. M. TREUB.

The Society for the promotion of natural science, medicine and surgery held its annual general meeting on 29th October in the hall of the University at Amsterdam, when Prof. M. Treub of Buitenzorg at the invitation of the general council gave a chat on a journey made by him two years ago to the island of Ceylon. From this address we take the following, (the translation being made for the *Ceylon Observer* from the *Indische Mercurr* of 4th Nov. 1902:—

"In Ceylon it can often blow fiercely, and it is probably due to this circumstance that in the higher mountain districts the plant growth of the island makes no luxuriant impression. In our Java one meets with high trees on mountains 5,000 feet above sea level: Ceylon has on the mountains only underwood.* These mountains, which are found in the south-western and southern portion of the island dominate the whole nature of the island. Indeed, they as good as confine the rainfall to their domain. As far as the mountains reach, therefore, Ceylon is moist and fertile. To the north and east of the mountains, which pass very suddenly into low, hilly land, the soil is arid, infertile. One speaks, therefore, of 'wet' and 'dry' Ceylon. And the transition is so striking, that within a quarter-of-an-hour, travelling by railway through the mountains, one can pass from dripping rain and cold mist into scorching heat. Here and there the Hollander finds in Ceylon the traces of the sojourn of his forefathers. For nearly two centuries the Hollanders carried on trade in Ceylon, and for 150 years the island was to be considered as entirely ruled by the E. I. Company. In 1796, however, England was so good as to take possession of it temporarily for us; and since then it has also in this respect demonstrated the fact that 'one must know how to give and to take,' in particular to understand and cultivate the last mentioned. [What about Britain handing over Java, the richest island in the World to Holland?—ED. *L R.*]

"A peculiar factor in Ceylon society is the crow. Compared with the crows of Colombo the Netherlands' crow is a paragon of modesty. The Colombo crow compels you either to keep every window closed, or to keep all movable property under lock and key. If one does not observe this precaution, every portable article will soon disappear from the traveller's luggage. The cunning and boldness of the crows have led the inhabitants to entertain a certain superstition regarding them. Thus it is known, that once a crow carried off in succession the complete apparatus of a spectacle-maker. The collection was found again later; the different shining objects were bound together with straws, intended for the adornment of the nest, in which a new progeny of crows was to be born. The crows are too slim for the Ceylon dogs—which moreover fill a very similar role to those of Constantinople. If one is sitting with a dainty morsel in front of him, a crow appears before his nose, at first only to keep watch until a comrade comes. The latter approaches the dog from behind and at a convenient opportunity pecks him in a sensitive portion of the body under the tail. The dog turns round angrily, and crow number one whips off with the bone, which he consumes with his mate in the gutter of a roof, whilst the cheated dog may search in vain for it. The crows are protected by the Buddhist teaching, which forbids the killing of animals. In the time of the East India Company the killing of these birds was forbidden, because it was known that the crows helped in distributing the seeds of the cinnamon.

"The chief street of Colombo swarms with gem merchants who in their little shops carry on a trade with which even a Chinese has not been able to contend. These shopkeepers, of mixed Arab and Indian blood, are probably the sharpest dealers in the world. Their presence has only this advantage, that Ceylon is freed from the Chinese. There was once a Chinese merchant. But, as the man could not succeed, he hastened to become a Buddhist priest.

"Although the Buddhist teaching prescribes, that one must kill no animal, it does not therefore appear to prevent the animal's life from being sometimes a torture. One knows that the Sinhalese, when he brings his turtle to market, turns the living animal over, so that it lies on its shell and then in succession cuts off and sells the portions that appear most attractive to the buyers. The miniature oxen also, that serve as draft beasts for little carts must also pay tribute with great pain to the artistic sense of the Sinhalese: on the hide of this little beast the owner tattoos his name arabesques whole pictures.

"The town of Colombo displays in its type of houses its Netherlands' origin. The Dutch church both inside and outside has the

* This is surely going too far—at 5,000, and even 6,000 feet, the forests are very far from being all undergrowth.—ED. *L.R.*

appearance of our village churches. There are stone-hewn coats of arms, tombs, &c. There are also many inhabitants with Dutch names. They are called "Burghers," but are descendants of mixed blood, and thus colored. Gradually all coloured persons have in Ceylon come to be known under the name of "Burghers." And, although often these colored persons have studied at English high schools, they are treated by the English in Ceylon as veritable pariahs. No Englishman would "degrade" himself to have the slightest intercourse with them* The cultivation of rice does not appear to have brought to any high degree of development, and Ceylon is poor in bamboos, suitable for use as building material. The people also are far from cleanly. One may say that the inhabitants to put it mildly, smell badly.† The men are of fairly handsome build, though somewhat effeminate; they wear a comb in their hair. The women are small in stature and ugly. They look as if they had little pleasure in their lives, and this is perhaps the result of the polyandry practised in Ceylon; most of the women have seven or eight lawful husbands as their portion.‡

The little town of Kandy, regarding which the English make so much, in fact somewhat disappointed Prof. Treub. Kandy owes its fame for the Buddhist to the circumstance, that in a Buddhist monastery there, a tooth of Buddha himself is preserved. If one asks after this tooth, one obtains for money and good words only a sight of a complicated collection of caskets, in which Buddha's tooth is supposed to be enclosed. No one, however, has ever yet had this relic of Buddha's tooth under his eyes. Even the King of Siam, who is also the acknowledged head of the Buddhist religon, was denied by the monks the sight of the tooth, to the King's manifest annoyance.§

AFTER JUNGLE-FOWL IN CEYLON.

"Some large patches of nillu are ripe in my neighbourhood, and jungle-fowl consequently plentiful." The letter ended in an invitation and I leapt from the depths of my teak chair to answer it at once.

The "nillu" (*strombilanthes*), grows in the hill-forests of Ceylon, and flowers but once in seven years. When the berries, which succeed the blossoms, are ripe, they attract jungle-fowl and pigeons in such numbers that the sport to be had amongst them is excellent. My luck with jungle-fowl had hitherto been poor, and as it has never been my wont to knowingly miss a good thing, I duly presented myself at MacL's hospitable bungalow armed with a gun, a boy, and a bag. What Mac was pleased to describe as his neighbourhood, however, turned out to be a lonely spot miles away from anywhere, with neither food not shelter obtainable. I had therefore to send my boy, Gregories back for provisions and camp necessaries, and on the following day we sallied forth on foot, taking some estate coolies to carry our loads, build our huts, and act as beaters when the time came. Having arrived and selected our site, we left the rest to our men, and strolled off to view our surroundings. And then dusk was upon us.

Far up on the mountain side, where the sun beats fiercely by day, but coolness comes with the evening, we stood and watched the quivering plains gradually grown dim in the failing light. A mist had already gathered in the valley, and the stars suddenly flaming out, shed their pale light over endless billows of white fog which crept over the steaming low-country far beneath us. Our camp was pitched by the edge of a precipice, and, near by, a torrent rushed and jostled, bending back the luxurious tropical growth which sought to choke its path. Stopping on the verge, as if to gather strength, the water leapt over the last rock and fell with a dull roar into the pool two hundred feet below; and no other sound broke the stillness of the mountain jungle. But in camp all was merry enough. The coolies, having built our huts, were laughing and jabbering, glad of a change in their weary routine; and the crackle of dry wood, and hiss of green, as the fires leapt into flame, all lent a cheerful tone to the scene. Two fowls were soon spluttering over the bright flames, and the seltzer hissing soothingly in our glasses, the mere knowledge of its scarcity rendering it the more appreciated. And by nine we were asleep. I may be forgiven for this long preamble, but, to my mind, sport is made sport by the colour of its surroundings. If it were not so, we would enjoy fishing in a cistern, or shooting the pigeons in Charing Cross Yard.

It was scarcely dawn when I awoke to the crow of a jungle-cock. Closing my eyes for a moment, I revelled in anticipation. Then there was another crow, and yet another—but not from jungle-cock. Our poultry were awake, and no rest is left for man when the domestic cock begins to challenge his wild congener of the forest. There is something fascinating being awakened by the jungle-fowl, but the startling song of underfed "natives," delighting as they do in a ditty with an oft-repeated chorus, is another thing. I arose, and after barking my shin against our only case of seltzer, emptied a chatty of water over the wakeful birds, in hopes of damping their musical ardour. But sleep had gone and nature was astir. The utter loneliness which pervades the mountain forests is less impressive in the early dawn than at any other time. The gaudy jungle-cock crows his loudest, the grey monkeys squabble in guttural voices, while the forests resound with the melancholy cooing of pigeons. I went over to Mac's hammock to find him fast asleep under his mosquito curtain. His face was aggressively red, and reminded me of a steak in a meat-safe. A playful tap with the empty chatty where the contours of the hammock looked most pronounced, knocked all the sleep out of him, and in a few minutes we were splashing in the pool by the precipice edge. Then, as we sipped our tea, we watched the magic splendour of a sunrise in the Ceylon mountains, and while the valley was yet one deep cobalt shadow of eddying mist we set out for our shooting ground. The air was quite

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* This is too bad of Dr. Treub when he should have known of Judges of the Supreme Court and high Civil Servants being of the class he refers to, with whom their brethern in the Service are generally on most friendly terms; and also that many Burghers are pure or nearly pure Dutch descendants.—Ed. *L.R.*

† A gross libel.—Ed. *L.R.*

‡ Another big libel: polyandry never prevailed among the lowcountry Sinhalese, and only to a limited extent among the Kandyans and it is now dying out.—Ed. *L.R.*

§ Another great error: we have seen the tooth twice—once in 1875, when King Edward VII (then Prince of Wales) saw the tooth and every jewel in the temple.—Ed. *L.R.*

chilly, and we were glad to walk at a brisk pace; the betel-chewing gang following excitedly behind.

As we approached the nillu, pigeons became more and more numerous. Every step sent squirrels scampering up the straight stems, and rats scurrying into safe cover; for where the nillu berries are ripe, there will these animals teem. But our attention was directed to the clustering leaves above. There were pigeons of all kinds, and in any number, and after each report the air was full of the clapping of their wings. But such plenty could not last for long, and they soon sheered off, or circled out of shot, and arriving at an open glade we sent the coolies round to beat the patch in front of us. The first birds that came over were pigeons flushed from a distance, and they offered very easy shots, just skimming the underwood and making across the sunlit opening. They soon found us out, however, and flew in any direction but ours. The jungle-fowl, which had been running before the beaters, now began to make their appearance. There was a sudden metallic outcry, and a cock and two hens dashed out of the jungle in front of me. I had both barrels at the cock, but he went away serenely, followed by his dowdy little wives. I looked at Mac. for sympathy, but got none: he was busily engaged with two birds, which came down to a good right and left. A moment later and the cock flew out on my side, and I duly missed him. Mac was smiling audibly, and remembering my luck had always been bad with these birds, I snatched my flask from Gregoris and toasted success to myself, and the next instant had the satisfaction of crumpling up a cock, which fell with a thud in his glory of black and gold. Nothing succeeds like success, and as the beaters' din grew louder, and the birds flew out faster, I got more and more on the spot. Many a wily old cock ran to the edge of the jungle, and, catching sight of us, disappeared again and broke back. But many another dashed out as straight as an arrow, and few of these got away. The beat came to an end, and some eight to ten couple of jungle-fowl were picked up, besides several pigeons.

The next beat was less productive in numbers, but made up for that by the sporting shots it gave. We stood in a small ravine, and the driven birds flew high overhead from one jungle to the other. The majority were out of shot, and those within gave no time for hesitation. It was at the finish of this beat that Mac nearly bagged a coolie who was much in advance of the line. He received one pellet in the hand, and, giving himself up for dead, could only be persuaded to get up by the offer of some brandy. He then bound his head up, and seemed to forget the incident. It is curious how a native will always bind up his head if ill or hurt, irrespective of the locality of his ailment, and appears to derive comfort therefrom. The heat was becoming unbearable, and as perspiration running copiously into one's eyes does not improve one's shooting we returned to camp, well satisfied with the morning's sport. The afternoon beats found us in fair fettle, but we were in sore need of another gun. It was heart-rending to see birds in plenty, flying beautifully on either side, and nobody there to shoot them.

That evening we dispensed with the services of home-bred fowls, and fed heavily on their nillu-fattened confreres. A slight gun-headache that had bothered me wore off with my appetite, and then, stretched in our hammocks, we discussed the details of the day, till the cheroot-ends burnt our fingers, and we stared at one another through the bottoms of our empty glasses. Then once more in the solemn hush of the mountain forest, a steady roar rose from the pool below, and the world seemed left to the creatures of the night.

TOM-TIT.

—*Land and Water*, Nov. 29.

THE OCCUPANTS OF THE SEE OF CALCUTTA: THEIR NAMES IN CHRONOLOGICAL ORDER.

Steuart Place, Dec. 17.

SIR,—1—The first Bishop of Calcutta was Dr Thomas Fanshawe Middleton, and was consecrated on May 8th, 1814, by Archbishop Charles M Sutton and assisted by Bishop William Howley, (of London); George Tomline (of Lincoln); and John Fisher (of Salisbury). 2—Reginald Heber, consecrated on June 1st, 1823. 3—John Thomas James, consecrated on June 4th, 1827. 4—John Mathias Turner, consecrated on May 17th, 1829. 5—David Wilson, consecrated on April 29th, 1832. 6—George Edward Lynch Cotton, consecrated in 1858. 7—Robert Milman, consecrated on February 2nd, 1867. 8—Edward Ralph Johnson, consecrated in 1876 9—J E C Welldon, consecrated in 1898. 10—Reginald Stephen Copleston, translated in 1902, and consecrated in 1875.

The ruling Viceroy of India, Lord Curzon, takes his title from Kedleston in Derbyshire which was the birth-place of the first Bishop of Calcutta. He was the only son of Rev. Thomas Middleton and was born in January, 1769. When he was offered the See of Calcutta, he had to resign the office of Archdeacon of Huntington, and the Vicarage of St. Pancras, Middlesex. His reputation as a scholar, was very considerable; but it was not until the year 1808, that he more fully established that reputation by the publication of a "Treatise on the doctrine of the Greek Article applied to the Criticism and Illustration of the New Testament"; a work of great importance to the Biblical student, and which brought Dr. Middleton more prominently before the public.

The great object of the Bishop, soon after his arrival in India, was the erection of a College, where the means of some scriptural education might be afforded, and where the rising generations for the time to come might derive instruction, with more special reference to the Propagation of the Gospel. He saw that without the assistance of native teachers, and the translation of the Scriptures into the languages of the country, little real good would be effected, and, therefore, in reply to a letter from the Society for the Propagation of the Gospel, he strongly pressed the necessity of establishing a Mission College near Calcutta. Towards the accomplishment of an object so desirable in every point of view, the Bishop directed all the powers of his active and comprehensive mind, and after some years' of patient labour, and no small anxiety, he had the happiness of laying the foundation stone of the Calcutta Mission College on the 15th of December, 1820. Last Monday, then, the 15th instant, saw the 82nd anniversary of this important undertaking. The building was designed in a manner well worthy of the important object in view. It stands on the right bank of the Hooghly (nearly opposite Garden Reach) on a piece of

ground granted by Government, about three miles from Calcutta. The Botanical Gardens are about half-a-mile farther down the river.

This College supplied some agents for work in Ceylon. Those who laboured well, steadily and faithfully in their day and generation and whose "task is o'er" were :—

1—Rev S Dias, Colonial Chaplain, All Saints'. 2—Rev S Ondaatje, Colonial Chaplain, St Thomas. 3—Rev E LaBrooy, Colonial Chaplain, Jaffna. 4—Rev S Nicholas, Colonial Chaplain, St Paul's, Pettah. Mr H F Muttukistna, Barrister-at-Law, Crown Counsel, Jaffna. Mr W Morgan, Advocate and Crown Counsel, Kandy. Mr Henricus de Saram, District Judge, Kegalle. Mr P Muttukistna, Private Advocate, Batticaloa. Mr Henricus de Livera, Proctor, Colombo.

The two now living are the Rev A Dias, ex-Chaplain of All Saints', and the writer of these lines; we are both on the verge of our graves. Bishop Middleton died of "a stroke of the sun," on the 8th July, 1822. A monument in all respects worthy of his exalted character and station has been erected to his memory in St Paul's Cathedral, London.—Yours truly,

CUCULUS ECCLESIASTICUS.

CRICKET IN DIMBULA AND DIKOYA:

OVER THIRTY YEARS AGO.

THE FIRST CLUB AND MATCHES.

(*See Photograph reproduced with this Supplement.*)

Writing on 17th December from Monmouthshire, Mr. Humphrey Humphreys, one of Dimbula's pioneers, and, perhaps, the first amateur photographer who appeared in Ceylon, sends us the following interesting notes :—

"Some time ago I received a *Ceylon Observer* with the account of the Dimbula and Dikoya matches. I noticed that the first match that was played in Dikoya, at Darrawella, was not put in. J. Paterson was Captain and F. Byrde, who is still in Ceylon, was Secretary, and C. Fetherstonhaugh, Captain, and L. Kelly, Secretary for Dikoya.—I enclose you a small enlargement of one of the two pictures that I took of the two teams and the Pavilion. Our ground was made the same year 1870. Lechmere Thomas, Græme Elphinstone and I finding coolies, and a Tamil man, who afterwards looked after the ground, that I had taught to use a spade, dug some turf. We found in a ravine in Radella and I laid it in the centre of the ground for the wickets to be pitched on, and it was standing well still, when I played on it the last time in 1884. The second match was played in 1871, R D Elphinstone, Captain; and that also was now by Dimbula, the chief score being got by W Saunders.—I was very much interested in your letters from India."

The accompanying photograph is full of interest, and we have had a half-tone block made by Mr. Chas. H. Kerr to enable us to print a *Supplement* which, we feel sure, will be appreciated by many upcountry and Colombo residents, and by old Ceylon colonists in Europe and elsewhere. It gives a very clear likeness of some 22 planters, we can scarcely say cricketers; for, we expect some at least, had scarcely ever handled the willow, before they were called on to make up "an eleven" for Dimbula or Dikoya. The Pavilion (of coir matting ?!) comes out well and the front row is flanked, right and left, by Mr. Humphrey Humphreys and the Secretary, Mr. Frank Byrde (still with us), both "bearded as the pard." Next to Byrde is seen the manly form of Lechmere Thomas; next, cultured and scientific but asthmatic Heelis, jovial Vanderspar with his round face and fringe of beard, "spider" C H Skrine, with L H Kelly alongside of the "Captain," Fetherstonhaugh, both looking very "fit" in their youthful manly vigour. then came T C Anderson (not much with the willow" but manly enough), J C Roberts (still to the fore at home), "backbone" Skene and J G Palmer, afterwards killed through his horse slipping in crossing near Blackpool, Nuwara Eliya. Then in the back row, we find Giles Walker leaning on his bat, looking very spare, alert and juvenile; great Pillsworth (a six-footer); laughing Jock Paterson (the Dimbula "Captain,") "Daddie" Howard of Manikwatte, dour-looking John Stronach, handsome Marshall of Blair Athol, curly-headed "Bees" Knight; John Tilly, bearded and head and shoulders above his fellows: and finally J Penny, a clever all-round athlete as well as a good swimmer and billiard player. There is only one face out of the twenty-two we cannot identify (even with the aid of such veterans as Messrs. Frank Byrde and W Somerville) or rather the name cannot be recalled, although the face is familiar enough. Mr. Humphreys includes "E. Edis" among some 12 names he gives; but we do not recall this name among our early planters? The photograph was, as Mr. Humphreys states, taken at Darrawella. One misses "Logie," but he seldom got caught in a group or in a cricket match, although his twin-brother "Bob"—the Baronet before him—captained the Dimbula team in 1871 and led it to victory.—As regards "Logie"'s athletic powers, R C Grant, still with us, will recall one year when—though he had gone into "training"—Logie, coming forward at the last moment, beat him in the long foot race ?! Alas! how few remain of the men of thirty years ago,—the young planters who literally "rushed" the hills and valleys of Dimbula and Dikoya, with the brightest anticipations of fortunes from "coffee," and at any rate with the fullest enjoyment of life in "the merrie greenwood," in watching the new clearings, living first in impromptu, and later on in "pucka" bungalows. Of the 22 before us, we know that at least ten—Thomas, Heelis, Vanderspar, Kelly, Palmer, Anderson, Patterson, Stronach, Knight and Penny—have passed that bourne from which no traveller returns; while we fear some more have to be added to the number? We are thankful that in Ceylon, F Byrde is still with us—the only one who continues an active planter—while at home, though still interested in Ceylon, are Fetherstonhaugh, Walker, Tilly, Humphreys, Skene, beside Roberts and C H Skrine leaving Pillsworth, Howard, Marshall and the un-named one (? Edis) doubtful?

Cricket Match—Dimbula *vs.* Dikoya at Darrawella in 1870.

(From a Photograph by Mr. Humphrey Humphreys—Half-tone Block by Mr. Chas. H. Kerr.)

PRINTED AT THE "CEYLON OBSERVER" PRESS.

BRITISH MUSEUM
NATURAL HISTORY

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES"

[Under this heading, in future, we mean to give a small "Supplement" with our *Tropical Agriculturist* from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

MARCH, 1903.

ST. PAUL'S CHURCH, KANDY.

Steuart Place, Colombo, Jan. 19.

SIR,—I see that the Jubilee of the Consecration of this Church is to be celebrated on Sunday next, the festival of the conversion of St. Paul.

Towards the erection of this church the S.P.C.K. contributed liberally; and at a meeting of the Society, held at 67 Lincoln's Inn Fields, April, 1853, the following letter by Bishop Chapman giving a brief history of the church was read to the Board. The letter was written at Nuwara Eliya, February, 1853:—

The history of the erection and consecration is as follows:—"On my way to this hill station of the Society for the Propagation of the Gospel, for a short sojourn in its invigorating and bracing climate, at an elevation of 6,000 feet above the sea-level, I passed a week as the guest of His Excellency the Governor, at Kandy, for the purpose of consecrating its church. It was the first work aided by the generosity of the Committee since the capital of the Kandyan Kings became subject to British rule, and before the island of Ceylon was created into a separate See. It shared again, on my arrival, in the bounteous aid afforded me by the Committee in their hearty "godspeed" on my departure from England. It was one of the earliest works I visited, when in progress under the energetic and most effective superintendence of Lieut.-Colonel Philpotts, R.E., brother of the Bishop of Exeter. It is gratifying to me to acknowledge this publicly to the Committee my sense of obligation to one who has long since left our island. Without his valued aid and most persevering efforts, amid unlooked-for difficulties and obstructions, I doubt whether the church would have been so successfully completed. Before he left us for China he finished the external fabric and tower; and provided the interior fittings in all becoming order, sufficiently to enable me to license it for use in divine service, where it was so urgently needed. The exertions of its late most earnest and lamented pastor, the Rev. F. Von Dadelszen, originally a missionary of the Society for the Propagation of the Gospel, from King's College, London, while in England on sick leave, enabled him to furnish the windows, communion-table, and rails, timber for the roofing, and a rich East window. Little, therefore, remained to complete it for consecration; and his last act almost was to obtain from the Government with the kind assistance of Sir George Anderson, a loan of £150 for this purpose. But he was not permitted n the mysterious dealings of God's providence, to which we bow submissively, to witness the ulfilment of his heart's most earnest wish. He was seized in August last with brain fever and dysentery; and after a few weeks, sank under it; to the great sorrow not of his own people only, but I may say of the whole church in the island. The consecration, therefore, was an occasion full of saddened interest. All the clergy in the Central Province assisted in it. Surrounded as it is on almost every side by Buddhist temples, two of which adjoin its enclosure, I fixed the Conversion of St Paul, the chief Apostle of the Gentiles, for the solemnity to give both the dedication and name to the church. The building is large and massive, and, though not, perhaps, architecturally in very correct taste, has a good elevation, being in the form of a cross, and having a good tower. The interior, being without aisles or pillars, affords an ample area of, I believe, 120 feet by 80 feet, with a chancel and transepts. The soldiers of the 37th Regiment formed the choir on the occasion as on every Sunday with their band. I preached to a full congregation; and having many memorials before and around me of him who had been its first exemplary and devoted chaplain, and had laboured so earnestly to build up the spiritual as well as the material fabric of which he had the charge, I could not be unmoved. The very pulpit in which I stood was a tribute of affectionate regard to him from the non-commissioned officers and soldiers of the 15th Regiment who had felt the blessing of his faithful and fearless ministrations among them when stricken with that scourge of the East, the cholera, a few years ago. The desk from which the prayers were read was the gift of an intelligent native, a Sinhalese of high Kandyan family, who had been converted to Christianity and had attached himself to the English congregation, having an entire command of our language to speak and write, as well as understand it. Indeed, I might correctly have applied the tribute to his memory as far beyond one of 'dull cold marble': 'Si queris monumentum, circumspice.' I shall ever look upon the church itself as his monument (knowing that in many hearts he will so live as best the Christian pastor should live)—though dead, yet speaking to them by his warning voice now that he is gone from us, as by his example while among us. On the following Sunday, as the first after its consecration at an early service, the holy rite of

Confirmation was administered to about forty, and at 11 o'clock the Holy Communion: in the atternoon at 3 o'clock, confirmation was again administered in Sinhalese in the Mission Chapel to twelve candidates, most of whom had been baptised as adult converts by the Rev W Oakley. Their reverential deportment and earnest expression of intelligence was very pleasing. May an abundant in-gathering in God's own good time, be prepared for 'His blessed harvest'!—Yours faithfully, CHARLES A. KOCH.

(Some notes by an Old Resident.)

I first visited Kandy in 1849, about 54 years ago. St. Paul's Church had then been erected, and services were being held therein. It appears that a public meeting was held in 1841, presided over by Governor Stewart Mackenzie, and it was then resolved to take steps for the erection of a Church for the use of the members of the Church of England. A large and influential Committee was appointed by the subscribers in January, 1841, and a marble tablet let into the Western wall of the Edifice gives us all the needful information. The inscription is as follows:—"In grateful remembrance of the efforts which preceded the erection of this Church and to record the names of the gentlemen composing the Committee with the deep sense entertained by the subscribers of their unwearied activity and zeal, this monument was raised, A.D. 1843.

Lieut. H Bird	Capt. R. Jefferson
Mr. L G M Bird	Mr. J L Kier
Mr. L Butler	Mr. J Lambert, F.G.S.
Mr. H de Alwis	Capt. W T Layard
Mr. C Delegal	Mr. J Layard
Mr. P W de Waas	Mr. D B Lindsay
Rev. N Garstin, L.L.D.	Mr. J N Mooyaart
Mr. D C Jayatilleke	Capt. R Mylius
Mr. H Steuart	Rev. W Oakley
Mr. W A Staples	Mr. C Webster
Mr. J Swan	

Lieutenant H. Bird was the father of Lieutenant-Colonel H Byrde (now Secretary, K.M.C.) and L G M Byrde was, I believe, his uncle, the Pioneer of Coffee Planting in Ceylon. The others were: Planters, Merchants, Civil Servants and Military Officers. The Rev. N Garstin, L.L.D. was then the Colonial Chaplain of Kandy. J L Keir was the head of the well-known firm of Keir Dundas and Company. J N Mooyaart was the Government Agent of the Central Province and C Webster, I think, was his Assistant and Fiscal. Rev. W Oakley was n charge of the Church Mission here, P W de Waas was the Secretary and D C Jayetilleke, the Interpreter Mudaliyar of the District Court and a man of much influence at the time; David Baird Lindsay was one of the parties, as will be remembered, to the famous Rajawella case and W A Staples was a leading and popular Advocate at the time. This Committee appears to have been dissolved in December, 1842, when the special Church Ordinance came into operation. The stair-case and gallery were, I believe, the gift of Lady Torrington.

The Building Contractor was, I understand, Mr T Afflick who started the Bogambra Mills, afterwards taken over by Mr John Walker of Roseneath; and during the progress of the Building, Lt.-Colonel Philpotts, R E, had the supervision of it. The high Tower had been completed and was whithout a clock for some time. It, somehow, leaked out that there was a very good clock, lying unused in one of the vaults of the Colonial Secretary's Office. Some interest and influence were brought to bear—the clock was fished up and forwarded to Kandy and placed in position on the Tower. *This* is the famous Town-Clock now in charge of the Kandy Municipality.

In 1849 Rev F Von Dadelzen was the Incumbent, and his zeal earnestness and devotion to his work were greatly appreciated by his large congregation. He died in August 1852, a few months before the consecration of the Edifice, and a very beautiful Tablet made of plaster of Paris was erected to his memory and placed above the door leading to the Organ Chamber.

The tablet looks quite fresh and new as if it had been placed there only a short time ago. The next Incumbent was, I think, Dr Symons, and about this time it was quite a Garrison Church, as some European Regiments were stationed here from time to time, viz., the 37th and 15th Regiments; the town people who attended were apparently small in number. I remember the Bandsmen of the 37th Regiment, forming the Choir and the Band playing all the Church music. Dr Symons was succeeded by Archdeacon Wise, who was the founder of the present thriving Industrial School; and he was succeeded by Archdeacon Schrader who was known as the "Great Preacher." He was immensely popular and his eloquent sermons drew large congregations. On his promotion to Galle he was succeeded by Archdeacon Mooyaart, on whose retirement Rev S O Glenie became Incumbent. On his going on pension, Rev John Bamforth (an Oxonian) was appointed Colonial Chaplain, until his removal to Galle when Rev Walter G Matthew became the Incumbent. It was during his time the Chancel was enlarged and a surpliced Choir introduced. The old East Window representing the Prophets and the Apostles was removed and a new Window (the one now in use) substituted. This window was placed in position and the tracery manipulated by Rev Richard Collins of the Church Mission and the Principal of "Trinity College."

The Church was consecrated in 1853 by Bishop Chapman, the corner store having been laid by Bishop Spencer in March 16, 1843, and we are now celebrating the Jubilee of the Consecration. When Archdeacon Matthew went down to Colombo to take charge of Polwatte, the Revs Henley and Burrows acted for him with much acceptance, assisted by Revs Becket, Riddelsdell, Jacob Mendis, Jayasekera and Barnabas until the appointment of the present Incumbent Rev E A Copleston—the brother of the Rev Metropolitan of India, and during his temporary absence in England, on two occasions, his place was worthily filled by Revs L E Cox and F Lorenz Beven.

* * *

The Jubilee Celebration-Services were very successful, and it goes without saying that they drew large congregations including the Governor, Planters from neighbouring estates and town-residents from all classes and denominations of the Christian community.

OLD FRIENDS AND OLD DAYS.

(By a Planter.)

John O Fraser, must be, I think, J C G O Fraser who was on Inguragalle under William Rollo in 1869 and on Berrewella under Keith Rollo in 1870. After that he went to Manikawatte, from thence to Balangoda, where I lost sight of him.

Alexander Fraser I don't remember; but Tom and Robert, if I remember rightly, went on to the Straits.

[Our correspondent is quite right about J. C. G. O. Fraser; but Alexander Fraser who was the oldest brother, was a well-known, bright and active manager for Messrs Keir, Dundas and Coy., in the early "sixties" in the Knuckles district. When his brother Tom came to Ceylon Alex., who had saved money, bought a block of land in the Kegalle district, and put Tom after a time to open it for him. The great Kandy firm "K. D. and Coy." had a rule that none of their superintendents must own land on their own account and so A. Fraser got notice to sell or quit. He chose the latter and very soon got a much better post as manager for Mr. George Christian of his Pundaluoya estates. There Giles Walker learned under him as his first place in planting. But there again Fraser came to grief with his superiors, this time through thinking his dignity had been offended by remarks made by his Visiting Agent during his absence from the property. The fact was that Alex. Fraser like a great many more able men, had an overweening conceit of himself. Nevertheless for the third time he was lucky. Arthur Sinclair ("Old Colonist") was on the point of going on leave and Fraser got the post of acting for him as Visiting Agent for Lee, Hedges & Co., who were at that time one of the largest Estate Agency Houses in Colombo. He did his work so well that when Sinclair returned John Hedges, as head of the firm, said "We must do something for Fraser," and Sinclair at once proposed the work should be cut in two and Fraser allotted the southern portion—Morowak-korale, Rakwana and Haputale, with a corresponding salary and he doing the rest from Primrose Hill. Hedges fixed on a very handsome amount for Fraser, but because it was rather less than he had been drawing for the full work Fraser demurred and in so cheeky a way that "J R H" said "Your agreement closes as originally arranged" and poor Fraser had nothing to fall back on except his old worn-out property of Gongalla, in Rakwana, where we found him in low spirits in passing through in March 1872. He never again held up his head in Ceylon, and breaking down in health eventually went home. Tom went to the Straits, we believe; but did not make a success either. J C G O we knew least of,—ED. *L.R.*]

LORD HOUGHTON ON SIR COOMARASWAMY AND THE ENGLISH BAR.

Colombo, Jan. 28.

DEAR SIR,—Among some old papers I have come across the following letter from the late Lord Houghton, which will be of interest to the public in Ceylon and India as showing how the late Sir Coomaraswamy, among his many distinguished services, was instrumental in "opening the Bar of England to all the Eastern subjects of the Empress of India."

"Fryston Hall, Ferrybridge, Yorkshire, July 3rd, 1879.

"DEAR SIR,—I thank you much for your kind note respecting my excellent and able friend Coomaraswamy. I held him in great esteem and he has never received due credit for the energy with which he opened the Bar of England to all the Eastern subjects of the Empress of India. This great act deserved a public recognition, and even he would not have done it, but for the assistance of Lord Brougham, which he was fortunate enough to secure. I remember when he was very ill in this house, he desired me, if he died, to send his ashes to his mother and there is something very pathetic in the pious pilgrimage of that venerable lady [to Benares with his ashes in 1879] I will ask you to offer her my respectful condolence and to believe me, yours very truly,

HOUGHTON."

The illness is thus referred to in Sir T Wemyss Reid's "Life, Letters and Friendships of Richard Monckton Milnes, First Lord Houghton." Vol. II, page 37, et. seq. :—

"Mr. Coomaraswamy was an honoured guest at Fryston. Milnes's son [now Earl Crewe] and daughters still retain the pleasantest recollections of the accomplished Hindoo who was their father's guest in their early days. It happened that during his first visit to Yorkshire, Mr. Coomaraswamy suffered from a very severe illness, which at one time threatened his life, and through which he was assiduously nursed by the family at Fryston. A lively recollection is still retained of the anxiety which Milnes showed at the time when Mr Coomaraswamy was at the worst. He had given his guest a promise that if the illness from which he was suffering ended fatally he should not be buried in the English fashion, but should be cremated. Those who knew Lord Houghton will understand how, having given that promise, he was eager to prepare for its fulfilment, should the necessity unhappily arise, and a legend is still extant of the way in which he wandered about the broad domains and the umbrageous woods at Fryston, until he had at last fixed upon a spot which was, in his opinion, entirely suited to what would have been the first cremation on English soil in modern times. Fortunately for the object of these delicate attentions the good nursing at Fryston proved effectual, saving him from the fate to which he had been dedicated. No one, it need hardly be said, rejoiced more heartily than Milnes at the recovery of his interesting friend, but mingled with his rejoicing was a droll sense of disappointment at the thought of the distinction which had been lost to Fryston for ever."—I am, sir, yours truly, P. ARUNACHALAM.

TAE LATE SIR M COOMARASWAMY AND THE ENGLISH BAR.

Jan. 30.

DEAR SIR,—I am afraid it is not correct to say that the late Sir M. Coomaraswamy "rendered the important service of opening the English Bar to natives of India and Ceylon—indeed to all British subjects in the East." Sir Muttu was called, I believe, in 1861. I haven't the exact date with me. The late Sir Harry Dias was called to the English Bar on the 7th of May 1847 (Middle Temple). Lorenz was called on the 6th of June 1855 (Lincolns Inn) and the late Sir R F Morgan in December 1858. Henry Muttukisna, who married Miss Pole at Jaffna, was called later, I believe. He visited England when Coomara-

swamy was being lionised by English society, which provoked a well-known parody by Lorenz, commencing :—

O kiss me quick and go. Henry,
Kiss me quick and go.
Old London streets can't hold us both,
So kiss me quick and go.

Coomaraswamy was however the first *Hindoo* barrister. The fact was noted in the London papers, and the London *Times* drew attention to it in a leader.—Yours truly, J. R. WEINMAN.

SIR COOMARA SWAMY AND THE ABOLITION OF RELIGIOUS DISABILITY AT THE ENGLISH BAR.

Colombo, Feb. 4.

DEAR SIR,—The authority for my statement that "Sir George Jessel was, for many years after being called to the Bar, so situated that any one might have driven him from it, because, being a Jew, he was not qualified to be a member of the Bar," is the *Encyclopædia Britannica*, edition 1902, vol. 29, p. 745 (Article, "Jessel"). When this was the case with the Jews, already an influential part of the English community, no wonder the obstacle seemed insurmountable by other non-Christians.

We who live in these happier times can hardly realise the severity of the religious disabilities which prevailed in England till recently. The principle that none but persons professing the established religion was eligible for public employment was adopted by the Legislatures of both England and Scotland soon after the Reformation. Political necessity or religious bigotry continued to enforce the direst penalties against recusants, whether Roman Catholic or Non-Conformist Christians or non-Christians. Only in 1871 were the last traces of these disqualifications removed by Mr. Gladstone's University Tests Act, which abolished in the Universities of Oxford, Cambridge and Durham, subscriptions to the Articles of the Church of England and all declarations and oaths respecting religious belief (except in the case of degrees in divinity and of divinity and Hebrew professorships), and all compulsory attendance at public worship.

It was because Lord Houghton knew the great religious obstacle which Sir Coomara Swamy had to surmount in getting called to the Bar—an obstacle which involved him in labours and anxieties that undermined his health and even threatened his life—that Lord Houghton said that Sir Coomara Swamy "never received due credit for the energy with which he opened the Bar of England to all the Eastern subjects of the Empress of India" and that "this act deserved a public recognition, and even he would not have done it but for the assistance of Lord Brougham which he was fortunate enough to secure."

My object in publishing Lord Houghton's letter was to make known a leaf from the past, an interesting addition to local biographical history, and to awaken in the present apathetic generation somewhat of the indomitable courage and energy with which their predecessors attacked difficulties and overthrew abuses and won the esteem of the world.

May young Ceylon emulate the example of those great men, of Wall and Lorenz, Coomara Swamy, Dias and Alwis, and, rejecting "the barren optimistic sophistries of comfortable moles," strive unhasting, unresting, for the public weal! —Yours truly, P. ARUNACHALAM.

THE "OBSERVER"'S CHRISTMAS SOUVENIR AND "DAYS OF OLD":

INTERESTING REMINISCENCES FROM "W. M. L." AS AN OLD KANDY RESIDENT.

Yesterday's mail brought us the following interesting notes from the veteran Secretary to the "Ceylon Association in London" who was, for many years, a leader in planting, mercantile and political matters in our Central Capital. Mr. Leake, writing under date, London, 9th January, says :—

"Many thanks for your 'X'mas Souvenir.' It stirs memories of times long past and of almost forgotten controversies wherein many a hard knock was cheerfully given and received. Well do I remember the publication of Sir Hercules' despatch that you quote and the storm aroused not only by the matter, but also the manner, of the publication. As to the latter I had some share: Willam Rose had been up in Nuwara Eliya, where the Governor and the Queen's Advocate (Sir R. Morgan) then were, and to him was entrusted a copy of the famous despatch to be delivered to me in Kandy with instructions to deal with it as seemed fit to me. I lost no time in handing it to the 'Kandy Herald,' in whose sheets the text first saw the light.

"The episode of the rise and fall of the one Kandy journal was for me a curious experience—amidst much therein that was comic to a degree there was also an element of woeful tragedy. I had nothing to do with the starting of the paper, nor had I any personal interest in it except in so far as I was a resident in Kandy. But I knew the enterprising proprietors, Dr. Baylis and Charles Tottenham, very well; and on the eve of the appearance of the first number, I found myself called on to write the opening editorial on the ground that the Editor, Mr. Arthur Jones, brother of Keppel of the 'Times,' just arrived from home, knew nought of the burning local questions of the day. From that time I gave my friends any reasonable help; and I believe that the poor paper might have flourished, had it not been for the sad fate of the Editor, for whom colonial politics proved altogether too exhausting. He came to me one morning, in the most serious manner begging me to protect him from Dr. Baylis, who he said had insisted on bringing a band of music into his bedroom and would not go away. Poor fellow! he went quite out of his wits and very shortly died. The paper, falling then under the direct management of Dr. Baylis, who cared for nothing but spiritualism, came likewise to a speedy end.

"All interested being dead, I feel that I can do no harm in gratifying any curiosity you may feel as to these details of old and stirring times.

"February 17th, 1903, will be the 40th anniversar of my first election by the P. A. as Secretary! What changes since that day!—W. M. L."

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES."

[Under this heading, in future, we mean to give a small "Supplement" with our *Tropical Agriculturist* from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

APRIL, 1903.

OLD AGE IN CEYLON.

(*From Census Report.*)

As many as 145 persons, of whom 71 were males and 74 females, returned ages of 100 years or more. Exaggeration of their ages is one of the ways in which the vanity of old people finds expression, and no credence should be given to stories of abnormal longevity, unless supported by more trustworthy evidence than uncertain tradition or the memories of the old people themselves. Mr. William J Thomas, in his work on "The Longevity of Man," instances thirty cases of reported centenarianism investigated by him. In only four of them was he satisfied beyond doubt that the ages claimed had been attained; four he regarded as doubtful, the evidence in support of their claims being "not clear and continuous;" and the remaining twenty-two were either absolutely disproved or shown to be unsupported by any proof. The limit of life is of course not absolute at hundred years, and there probably have been, and are in Ceylon at this day, persons entitled to centenarian honours. But, as Mr. Thomas observes, "the tendency to set the clock of their age too fast" is so common to old people of all classes alike, that all statements of exceptional longevity should be received with extreme caution.

In every case, therefore, where the age of a person was stated to be a hundred years or more, I caused a special inquiry to be made as to whether any and what evidence existed of the accuracy of the age recorded, and whether the alleged centenarian remembered any of the incidents connected with the capture and deportation, which took place in 1815, of the last king of Kandy, Sri Wickrama Raja Sinha, or other similar notable event.

In most cases the only proof was that furnished by the recollections of the old people themselves. In some cases their horoscopes were found to confirm their statements; and in one case an extract from an ancient baptismal record was produced in evidence. As many as forty-one persons say that they well remember the capture and deportation of the last Kandyan king and other contemporaneous events. One man, a Kandyan Sinhalese, who is said to be 107 years of age, declares that he was employed in the royal household and witnessed the cruel execution, which occurred in 1814, of the children of the *ex*-Prime Minister Ehelapola, who had taken refuge with the English in Colombo. Another man (a Moor) who claims to have completed hundred years, says that he remembers the execution, and further that he "followed the men who were in pursuit of the last Kandyan king towards Urugala." A Moor woman (age 100) states that she remembers having gone (when about eight years of age) with her mother to see a person whose hands had been lopped off by the order of the king. Whether these are *bonâ fide* recollections of these people, or whether they believe that they saw with their own eyes what they only heard talked of in their infancy by others, it is impossible to say. A Tamil of Jaffna District, aged 102, professes to have been born in the year when Jaffna was taken by the British, (1795) and his horoscope confirms his age.

The highest age returned is 120 years. The age distribution of the alleged centenarians was as follows:—

Years.	Males.	Females	Years	Males.	Females.
100	43	52	108	2	1
101	1	2	109	1	1
102	3	3	110	5	1
103	—	1	112	2	—
104	3	1	113	—	1
105	4	6	114	2	—
106	3	2	115	—	2
107	2	—	120	—	1

THE LATE MR. C. H. CAMERON, THE CEYLON COMMISSIONER OF 1829-30.

Wilhelm's Ruhe, Turret Road, Feb. 8.

DEAR SIR,—I have had Sir M. E. Grant-Duff's "Diary" in the house, but, being a somewhat busy man, I had not done more than glance through it and had not noticed the reference to my father until I saw it mentioned in your issue of last night.

It may interest you to know that the correct text of the Epigram on Bacon is:—

Nature's deep secrets to explore thou loved'st over-much
But loved'st Honour not enough; Oh! from corruption's touch
How earnestly we Britons wish, with shame and sorrow stricken,
Thou had'st preserved The Chancellor, and not preserved the chicken. C. H. C.

Then again the lines written on suddenly coming upon the colossal statue of Buddha in the then almost unexplored jungles of

Anuradhapura were :—

Saxeus ipse sedet, placido spectabilis ore
Vix quoque subridens, et mollia crura reflectens,
Gautama. C. H. C.

It is so incorrect to refer to the great sage as a "god" as has been done in the translation published by you, that I have ventured myself to attempt an English rendering of the lines :—

See Gautama in stone ! his lithe limbs bent
In everlasting rest, whilst on his quiet lips,
The smile two thousand years have not effaced,
Proclaim him still, as then, ineffably content.
H. H. C.

—I am, yours truly,

HARDINGE HAY CAMERON.

[We are much obliged to Mr. H. H. Cameron for the trouble he has taken to bring these interesting mementoes of his illustrious father before us in a correct form. —Ed *L.R.*]

The Late Mr. C. H. Cameron.—We have come across another reference to the late Mr. C. H. Cameron, father of the Hon. H. H. Cameron, in Sir M. E. Grant-Duff's *Diary*. It is in connection with a picture of the Treasurer's aunt, Lady Somers, by Mr. G. F. Watts. On this Mr. C. H. Cameron wrote a Greek couplet which (in English letters) we may give as follows :—

Kalleos ouranion Theos, Eikona deiknue tautēn
Aideisthai men edei, Zōgraphe, mēde graphein.

In humble prose the lines may be translated thus

This image of heavenly beauty was sent to us by God Himself ; it is for you, O Painter, to worship it, but not to dare to reproduce it on canvas.

Mr. Watts, it may be added, used to live with and have his studios at the house of Mr. H. T. Prinsep, Mr. H. H. Cameron's uncle ; the last-named was the father of Val Prinsep, the artist, and Mrs. H. T. Prinsep was a sister of Lady Somers, the subject of the portrait.

HINDU BARRISTER AND ASIATIC F. R. C. S'S.

Jaffna, Feb. 5.

Dear Sir,—Sir M Coomaraswamy opened the bar of England not only to *all* the Eastern subjects of the Empress of India but also to all Asiatics, be they Buddhists, Shintovists, Confucianists or Mohammedans. Natives of such independent States as Afghanistan and Japan have availed themselves of the privilege Sir Coomaraswamy secured for all religionists. In Ceylon there are only three Hindu Barristers, namely, Messrs Arunachalam, Ramanathan and Tyagaraja. In the *conservative* Southern Presidency there is, I believe, not more than one Hindu Barrister. The paucity is due partly to the circumstance that the Madras pleader enjoys certain special advantages. The Vakil there may, like a Barrister, be instructed by a Solicitor. Unlike a Barrister, he may appear without a Solicitor. Like a Solicitor, he may instruct a Barrister, and there is no obstacle to his being elevated to the High Court Bench. In the medical profession, the highest distinction in surgery was first secured by the Tamils of Ceylon in 1890 when Drs Santiago and Sinnatamby were *admitted* to stand the examination for the fellowship of the Royal College of Surgeons of Edinburgh. Cardinal Manning helped Dr Santiago whilst Dr Sinnatamby was assisted by some friends of Sir G H Dalrymple Elphinstone, Bt. The two Tamils headed the list of successful candidates. This created some consternation at the time. They were the first pure Asiatics, who obtained that coveted diploma. Dr S Paul is the first Ceylonese that secured a London fellowship. It thus appears that the Scots of the East have been the pioneers that paved the way of distinction for other Asiatics (in the sense that they are not of European descent, nor those that profess Christianity or Judaism) in the fields of Law and edicine.—Yours faithfully,

M. TISAINAYAGAM.

THE DIMBULA-DIKOYA CRICKET TEAMS IN 1870:

PIONEERING IN DAYS OF OLD.

A recent mail has brought us several acknowledgments from old Colonists of their delight at receiving a reproduction of Mr Humphrey Humphreys' photograph of the double team of 33 years ago. One well-known Bogawantalawa proprietor, we must quote, rather fully as his remarks are of general interest, and indeed are typical of what all the pioneers of the two districts, still to the fore, feel on the subject. Writing from Devonshire under date 4th February, he says :—

"Your last *Observer* with the *Supplement* in the shape of the reproduced picture of the Dimbula and Dikoya teams in 1870 takes me back in one leap the 33 years : I remember as clearly as if it was last week, Humphrey Humphreys arranging the group ; then focussing us all through his camera, and when all was ready, he himself sliding into the position, leaving a friend to do the mechanical part of the performance, which in those days meant removing the "cap," counting "so many" and popping the "cap" on again ; no "trigger" kind of business as the instantaneous photography of the present day. The names as given in your letter-press are not quite correct. I can put some right, but not all ; and in this I will send you my idea of the names of the group. Was not he you put down as Penny, one called Gibson, who was S D to T C Anderson on Batalgalla?* Marshall is between Jock Paterson and Stronach ; then comes "Daddy Howard" on Stronachs' left hand. Skene I am not sure about, but as I shall probably see him next week I will ask if he remembers the match. In the Darrawella Pavilion or Club, there is, however, a copy of the same photo framed ; and, if I recollect rightly, has the names written underneath : so this would settle any doubt about the people who took part in that match. The old "coir" matting, and jungle poles made a grand "Pavilion" and no mistake, but it answered the purpose, and screened, when necessary, 22 light-hearted young fellows who were as happy under it, as any who seat themselves in the splendid building at Lord's to watch the Varsity or Eton and Harrow matches.

* James Gibson ?. Scarcely, as he is still in Colombo and has not claimed the prototype !—Ed. *L.R.*

"DAYS OF OLD"

On the 4th of next month—April, it will be exactly 40 years since I left Southampton in the P. & O. ss. "Ripon*": the last of the paddle steamers belonging to that Company. I was the only passenger for Ceylon and I can remember well my feelings, when, after "doing" Galle with my fellow passengers, accompanying them back to the steamer, and having to return ashore alone, having seen the last of my English friends; and so far as I knew there was not a soul in Ceylon that I had ever set eyes on. Of course, I had had letters of introduction, and that night dined with old Sonnenkalb,—I won't answer for the spelling!—slept at "Ephraums Hotel," and next morning had my first experience of the Galle-Colombo coach. To skip a bit, July of that year, 1863, found me on Summerville in Dikoya, where good old W R Duff sent me to see new clearing work done under John Smith, then of Oonoogaloya, Kotmale. On arrival we found the "Bungalow" 2 rooms 10 × 10 had not even been thatched, or covered in any way; the door frames so narrow, that we had to break back the legs of our couches, which were to answer the purpose of beds and chairs. It was whilst living on Summerville—60 acres opening—that a special cooly arrived one day with a letter offering me my first billet of £100 a year, and which, of course, I accepted. It does one good to go back to one's teens sometimes, but the gaps left by those who are "gone before," shade over the otherwise pleasant picture. Once start me on the memories of by-gone days, and I would weary a Saint, and drive an ordinary mortal mad,† so we had better stop. I must thank you, however, Mr Editor, for having given me the chance of this pleasant chat, as by the photo of the cricket teams you transported me to the happiest days of my life, which is on the eve of "three score years."

From Mr Humphrey Humphreys himself we have an appreciative letter under date 5th February, from which we take a few sentences :—

It was a first rate idea of your getting them printed and sent round with your paper, and I am very glad to know who all the men are save the one whom none of you can make out I should not wonder if some Ceylon man who was in Ceylon in 1870 will be able to fill that one gap in the two teams. I have another group I took when Sir James Elphinstone was over in Ceylon, that I took after a meeting we had at McLeod's, and more of those men have passed away than in the two cricket teams. This group was taken in December, 1870.‡ I heard from a Ceylon friend this week, and he very much appreciates the picture and your remarks upon it.

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* Ours was the *Pera*—also paddle—in October, 1861.—Ed. *L.R.*

† Not at all, we feel sure: nothing could be more interesting, or useful in teaching the "creepers" and S. D.'s of the present day to be thankful for their comforts as compared with the "roughing" of early pioneers.—Ed. *L.R.*

‡ This group we reproduced some years ago for our *Tropical Agriculturist*: we must send a copy soon to Mr. Humphreys to show him how it was done.—Ed. *L.R.*

ROYAL ASIATIC SOCIETY: CEYLON BRANCH.

ANNUAL MEETING: TWO PAPERS READ.

THE HON. THE LIEUT.-GOVERNOR ON OYSTER WASHING.

The annual general meeting of the Ceylon Branch of the Royal Asiatic Society was held in the Library of the Colombo Museum at 9 p.m. on the 9th Mar. 1903. The Hon. Everard im Thurn, C.B., C.M.G., President, presided and there were also present:—The Hon. Mr John Ferguson, Vice-President, Dr. and Mrs S C K Rutnam, Mr Adv. Perera, Messrs D B Jayatilaka, B.A., F C Roles, M K Bamber, Dr. A J Chalmers, Dr. W A de Silva Dr Savaranamuttu, Hon. Mr S C Obeysekera, Messrs P E Morgappah, G H Suhren, Mr Advocate Batuwantudawa, Messrs B Vanderstraaten, W E Byles, W F Gunawardana, Mudaliyar, F D Jayasinha, J Harward, Gerard A Joseph, (Honorary Secretaries) and others.

The minutes of the previous meeting were read and duly confirmed.

THE ANNUAL REPORT.

Mr G A Joseph then read the annual report of the Society, as follows:—

The Council of the Ceylon Branch of the Royal Asiatic Society have the honour to submit the following Report for the year, 1902.

Meetings and Papers.—The only general meeting held during the year was, the annual general meeting, held on Feb. 26, 1902, when the introduction to the paper entitled "A descriptive catalogue of the more useful trees and flowering plants of the Western and Sabaragamuwa Provinces of Ceylon" by Mr Fredrick Lewis, F L S, was read. Besides the above paper a paper entitled "Resolutions and sentences of the Council of the Town of Galle, 1640-4 edited by Mr R G Anthonisz (not read at a meeting) has been printed in the Society's Journal for 1902; and the following papers have been accepted for publication in the Journal for 1903, viz:—I. "Two Ola Grants of the 17th Century" by Mr T B Pohath Kehelpannala. II. "Temporal and Spiritual History of Ceylon compiled by Rev Fernao de Queiros, S J, of the Province of Goa," translated from the Portuguese by Mr F H de Vos.

Members.—During the past year 19 new members were elected:—The Hon. Mr Everard im Thurn, C B, C M G, (elected as a member of R A S, Great Britain and Ireland, under Rule 45) Messrs J R Tosh, V J Tambi Pillai, J S Collett, F J de Mel, Dr Tha Do Oung, Sir W W Mitchell, Messrs R A Rama Pillai, C Batuwantudawa, Dr A J Chalmers, Messrs G B Leechman, D Montagu, G E Weerakoon, Dr Arthur Willey, F R S, Messrs W F Gunawardana, W Jayawickrama, P C MacMahon; N Bonaparte-Wyse and T P Ponnambalam Pillai. Three members resigned, viz:—Mr H T Gardiner, Dr P M Muttucumaru and Mr H O Barnard.

Mr. W H G Duncan has become a non-resident life member. The Society now has on its roll 197 members including 24 life-members and 10 hon. members. The Council record with regret the death of the following members of the Society, viz:—Messrs J B Cull, M A, Oliver Collett, J P, F L S, T B Panabokke, J P, and Dr J S John Pulle. Mr Panabokke joined the Society in 1884. He contributed to the Society's proceedings for 1882, the following paper:—"Addenda to Professor Rhys David's Translation of the Jatakas 1—40, to supply certain omissions."

Mr Collett joined the Society in 1893. He contributed the following papers to the Society's Journal, viz:—1. (I) Contributions to Ceylon Malacology Vol XV No 48. 2. (II) Contributions to Ceylon Mala-

cology :—Description of a New Helicoid Land shell from the Southern Province Vol. XV: No 49. 3. (III) Contributions to Ceylon Malacology Vol. XVI No 51.

At a meeting held on 5 h February, 1902, the following resolution was passed and communicated to Mrs. Collett. Resolved :—" That the Council of the Ceylon Branch of the Royal Asiatic Society wish to record their regret at the death of Mr. Oliver Collett, a member of the Society, who has particularly identified himself with biological research and contributed some valuable papers to the Society."

LIBRARY.—The additions to the Library during the year including parts of periodicals numbered 317. The Library is indebted for donations to the following:—The Secretary of State for India; the Government of India; Archæological Survey of India; Professor A. Bastian, the Postmaster-General; Gerard A. Joseph; the Colonial Secretary; India Office Library; Mr. A W Fernando; Dr. Tha Do Oung; Cape of Good Hope Geological Commission; Oberlin College Library; Rev. P D Wajiranana; Messrs. H C P Bell; J F W Gore; Dr. A Caroll, and Mr. A K Coomaraswamy. For valuable exchanges received during the year the Society is indebted to the following: —The American Oriental Society; the Royal Society of Victoria; the Academy of Natural Sciences, Philadelphia; the Smithsonian Institute; Bombay Branch of the Royal Asiatic Society, U. S. Department of Agriculture, Wagner Institute of Sciences, Philadelphia; Geological Survey of U S of America; Field Columbian Museum; (the State Archieves;) the Bureau of Education; (the Societie Zoologique, Paris;) (Anthropologiche Gesellsehaft, Koenig-graolzer-strasse Berlin;) (Deutsche Morgenlandische Gessellschaft, Leipzig;) Royal Society of New South Wales; California Academy of Sciences; (Societe Imperiale des Naturalistes de Moscow;) China Branch of the R A S; Asiatic Society of Japan; Royal Asiatic Society of Great Britain and Ireland; the Indian Museum; Asiatic Society of Bengal; John Hopkins University; Geological Society of London; the Anthropological Institute of Great Britain and Ireland. The Geological and Natural History Survey of Canada; the Royal Colonial Institute; Straits Branch of the R A S the Royal Geographical Society of Australasia; and Korea Branch of the Royal Asiatic Society.

ACCOMMODATION.—The Council in 1898 directed the attention of Government to the congested state of the Library and referred to the subject touched upon in the Annual Reports from 1888. His Excellency the Governor in reply then stated that he "shares the regret of the Council that other more urgent claims on public moneys have prevented the provision of funds for the extension of the Museum." The Council hope that we are now within reasonable distance of the time when provision will be made for carrying out the long-contemplated extension.

JOURNALS.—One number of the Journal has been published during the year (Vol. XVII. No. 52-1901). It contains in addition to the proceedings of the Council and the Annual General Meeting, the following paper:—" Supplementary paper on the Monumental Remains of the Dutch East India Company in Ceylon," by F H de Vos.

ARCHÆOLOGICAL.

ARCHÆOLOGICAL SURVEY, 1902.—The Archæological Survey continued operations in 1902, at Anuradhapura, Sigiriya and Polonnaruwa. From January 1st Mr. J. Still was appointed to succeed Mr. C. E. Dashwood as Assistant to the Archaeological Commissioner, concurrent field work was thus again rendered practicable at two centres during much of the year.

ANURADHAPURA.—*Ruwanveli Area.*—South of the Ruwanveli Dagoba are still to be found a few scattered sites, marked by pillar stumps, which have not yet been excavated. These isolated ruins are dotted about the Residency grounds, the premises of Government clerks and the open spaces adjoining the Sacred Road.

MAHA PALI ALMS HALL.—One of these detached ruins, an extensive site, roughly pillared, was exploited in the past year, and has fortunately yielded one of the most interesting discoveries hitherto made at Anuradhapura. As excavation spread the plan of an exceedingly spacious quadrangle, with central court-yard, or shallow tank, was gradually disclosed. This four-square ruin measures 135 feet more or less each side. All round ran a range of rooms, or a corridor, once roofed in; and 30 feet in width. The hypethral court-yard, or tank some 75 feet square enclosed within the building, is stone-flagged and at a lower level than the quadrangular rooms. In the west corridor was unearthed a large "stone canoe," perfectly preserved 44 ft. 6 in. long, by 3 ft. 6 in. broad, making the fourth so far found at Anuradhapura. The ruins to the East of Abhayagiriya Dagoba, excavated in 1893, contain a ruin much the same in plan with a similar "kenda oruwa," or "kanji boat" (as these strange "stone canoes" are popularly termed) but greatly damaged, situated in a central group of monasteries. These special buildings were doubtless those "Alms Halls" "(Dansala) mentioned not unfrequently in the "Mahawanso." The spaciousness and general finish of the present ruin laid bare in the Resthouse premises, seem to justify its probable identification with the "Maha Pali," that chiefest of "Alms Halls" greatly favoured of royalty from the 6th to the 10th century. The excavation of this extensive ruin, deeply buried and tree-covered, occupied the Anuradhapura gang for the better part of 1902. *Mirisavetiya Area.*—During the last three months of the year, work was resumed in the Mirisavetiya Area and will be pushed to completion in 1903. The ruins around the Mirisavetiya Dagoba are probably, all told, not more than half a hundred in number, and would appear to offer no special difficulty in unearthing. The style is severely simple and the grouping easily distinguished. *Clearing.*—The annual allotment of the vote for clearing ruins and jungle at Anuradhapura was very profitably expended owing to the drought during the first nine months of last year. Nearly six hundred (600) acres were cleared and weeded and some rooting out done.

SIGIRIYA.—A gang is engaged at Sigiriya during the early part of every year in the tedious, but essential, work of weeding the citadel on the summit and the several terraces and excavated sites below the rock. Some re-clearing of undergrowth had to be done within the area of the ancient city. Steady progress was made in connection with the continued restoration of the "gallery." The work done in 1902 comprised the completion of the iron bridge spanning the gap between the lengths of the gallery along the west face of the rock, and of that hugging its north scarp; and the building of a substantial abutment in stone to prevent downward slip of the long and steep staircase which culminates at the *Maluwa* below the iron ladders to the summit.

By the end of next season it is hoped that the gallery will be restored from its broken entrance near the head of the North and South Staircase approaches from the city below, as far onwards as the *Maluwa*. The serious, and unavoidable, hindrances in getting bricks, lime, and sand to Sigiriya, and up into the "gallery" cannot but much delay this most desirable restoration.

With great difficulty, and no little risk, preliminary borings were made into the floor of the largest fresco "pockets," and jungle-stick scaffolding erected ready for next season.

The object, as stated last year, is to effectually afford permanent protection to the unique frescoes of Sigiriya against the ravages of birds and flying insects. Suitable wire-netting when fixed in position, whilst warding off these destructive pests, will not mar the view of the paintings. Belated agitation for similar protection to the better-known paintings of the Ajanta Caves in India has only recently begun.

Polonnaruwa.—Operations were resumed at Polonnaruwa for the third season in May last. Weeding the area already excavated in 1900 and 1901, mainly the ruins (Audience Hall, &c.,) situated within the promontory—occupied a fortnight or three weeks. Subsequently attention was given to continuing excavations around the Siva Devale near the 25th milepost on the road from Minneriya. This Devale was exposed last year. Forest trees and scrub jungle are so thick at Polonnaruwa that much felling and clearing was necessary, and proved slow work. By the end of September, however, the entire group of ruins had been excavated and opened out to view from the high road. This group consists of:—(*a*) *Siva Devale* (*b*) A *Vishnu Devale.* (*c*) A *Kovil* sacred to the goddess *Kali*. In plan and architectural details these shrines display little to differentiate the one from the other. All alike have a vestibule and sanctum: the Siva Devale alone possesses an intermediate room. They were brick-built, with stone pillars to support the roof where required. Stone figures of *Vishnu*, *Kali*, and the bull *Nandi* were found near their respective shrines. Beside these three fanes, this Hindu Temple claimed at least three other buildings:—(*d*) A plain, narrow, structure crowning the summit of the rock hummock, on the west slope of which occurs the long inscription of King Nissanka Malla. (*e*) A pillared building, oblong, within its own enclosed premises. *f*) A bold, terraced, building, on massive pillars, immediately adjoining the bund of the old Topavewa tank. This building was probably the principal residence of the ecclesiastics—first Buddhist monks, subsequently alien priests, after the conversion of the monastery into an extensive temple devoted to Hinduism. At the foot of the entrance stairs were exhumed two handsomely carved moonstones adorned with hansas and other ornamentation. As in 1901, a large number of moor villagers from the Marakkala Pattuwa of Tamankaduwa, were engaged for a week in continuing to free the ancient city of the jungle in which it lies buried. The area dealt with in the past year extends for a width of 200 to 300 yards from the Rankot Vehera as far northwards as the Kiri Vehera.

Council.—Two members of the Council of 1901 viz:—Mr A Haly and the Hon Mr H H Cameron, have been deemed to have retired in accordance with Rule 16; the vacancies in the Council were filled by the appointments of Mr J C Willis and Mr H White, Mr M K Bamber was elected in place of Mr J Ferguson who was appointed as Vice-President.

Finances.—The income for the year exclusive of the commencing balance, was R1,562·25; but there has been exceptional expenditure, especially in the latter half of the year, due chiefly to the issue of a number of the journal double the usual size. The re-binding of volumes in the Library, too has been exceptional and continuous throughout the year. In April the Treasurer placed R1,500 on fixed deposit for a year to secure 4 per cent interest; but the printing and binding expenditure being more than twice as large as in 1901, the current account was overdrawn at the end of the year by R359·42. The interest on the fixed deposit will accrue in April next and there will be a net gain to the Society of nearly R50; but the balance sheet below discloses that the commencing balance of R2,200·10 was reduced during the year to R1,140·58.

Mr M Kelway Bamber, M R A C, M R A S, Eng., F C S, moved the adoption of the report.

Mr C Batuwantudawa seconded and it was carried unanimously.

ELECTION OF OFFICE-BEARERS.

Mr Paul Peiris—moved that the following be elected office-bearers for the year, Dr Chalmers seconded and it was agreed, viz:—

President.—The Hon. Everard im Thurn, C B, C M G.

Vice-Presidents.—Mr F M Mackwood, J P, F E S, the Hon. Mr J Ferguson, F R C I.

Council.—Dr. W G VanDort, M D, Messrs. W P Ranasinha, S M Burrows, M A, C C S, C Drieberg, B A, F H A S, the Hon. Mr S C Obeyesekera, Messrs. H White, C C S, J C Willis, M A, F L S, M Kelway Bamber, F C S, C M Fernando, B A, L L B, P Freudenberg, Dr. A Willey, M A, D S C (London) F R S., Mudaliyar A M Gunasekera.

Hony Treasurer.—Mr F Crosbie Roles.

Hony. Secretaries.—Messrs H C P Bell, C C S, J Harward, M A, and Gerard A Joseph.

OLA GRANTS OF THE 17TH CENTURY.

Mr Harward in the absence of Mr T B Pohath-Kehelpannala, read his paper entitled "Two Ola Grants of the Seventeenth Century with text, translation and notes."

Mudaliyar Goonawardana—on been called upon to speak—said he had not much to say on the paper now read. He, unfortunately, had not had the opportunity of seeing a copy of the original until that day, and then only for a short time through the kindness of Mr Harward at his office. The first of these sannas bore the date as they would see of 1553. The translation date was "the seventh day on the waning moon of the month of Wesak." He believed there was a misprint there and that it should be, the 13th day; for he found in the original, a word which meant "thirteenth day." He looked into Sir Charles Cunningham's table of dates and according to that the "13th day" of the waning moon of the month of Wesak in the year of Saka 1553 fell not on a Sunday as given there, but on a Wednesday, so that they would see there was a discrepancy between the date of the month and the day of the week. The writing too, of which he saw a facsimile copy in the hands of Mr. Harward, did not appear to him to be the writing of the Sinhalese of the seventeenth century. He did not, therefore, think that this could be genuine. Perhaps, if he saw the original, he might have reason to change his opinion. But so far as he had seen the document he certainly did not think it was genuine. As to the second, he thought there was a good deal to say on the side of the genuineness of that document. In the first place the writing did look like the writing of the seventeenth century of the Christian era. In the second place the document seems to be not of a kind to be forged for any purpose because the deed seemed to grant certain exemptions to one Suruttan Kuttiya and he believed these privileges did not descend on his successors and, therefore, it was difficult to see why at any subsequent date any person should have forged that document. There was thus a good deal to say on the side of the genuineness of this document, but there was still the same difficulty as with the last, with regard to dates. He verified these dates according to Sir Alexander Cunningham's table of dates and he found that "the seventh day of the waxing moon of the month Esala, in the year of Saka 1567" fell not as stated in the document on a Thursday but on a Sunday. That he thought was very fatal to the genuineness on the document having been written on the day it bore on the face of it. It was a fact well-known that the Sinhalese had their calendar of dates very carefully prepared and were always guided by that Calendar in all the documents that passed under their hands. So far, therefore, as that went the presumption was against the admission of the genuineness of the first document. With regard

to the second document he did not know whether it was possible for them to come hastily to a decision. There was a sense of genuineness about it, and, therefore, he thought if the question of genuineness was to be decided it would be better to give all the members of the Society time to go into the matter before coming here to discuss it. (Hear, hear)

Mr J FERGUSON—said he could not follow the previous speaker into his learnedly technical and probably useful criticism. He was most attracted by the historical notes; by the reference to the murderous priest-king who caused both his rival to the hand of the queen, and the young princely heir, to be put to death. The time was a critical one for the Sinhalese monarchy, just when it was welcoming the Hollanders as protectors from the Portuguese—a case very much of "out of the frying-pan into the fire," as they soon proved. The incident as to the grant of land within the circuit of the bangle had its parallel in the case of the founder of the Hay (Erroll) family in Scottish history, and no doubt in other countries. He was interested in what was mentioned in regard to the origin of certain mosques, and would suggest that an interesting paper might be compiled out of the history of the leading Mahomedan mosques in the island.

Mr D B JAYATILAKA—said that, leaving aside the question as to whether the documents placed before them were genuine or not, they were very interesting and the author deserved their best thanks. The notes were full of interesting facts. They brought before them a very interesting fact with regard to the medical history of Ceylon. They saw that these grants had been made for past services rendered by two medical men. He believed the descendants of these men were still living in a district in Ceylon. These men were known by the name of Muhandirams of the Royal Medical Service and if he was not mistaken their descendants still passed by that name. It was difficult for anyone to pass an opinion on the genuineness of documents except those who had studied their chronology.

The CHAIRMAN—thought that it might be well that the remarks of Mudaliyar Goonawardana be indicated to the author who was not present.

This view was accepted by those present.

The CHAIRMAN—said it seemed they were agreed that the paper in itself was an interesting one and the notes especially appeared to be very interesting. With a safeguarding note on its genuineness by Mr Bell and with Mr Goonawardana's remarks which, no doubt, would be recorded they would accept the paper for what it was worth and give the thanks of the meeting to the author.

KING KIRTI SRI'S EMBASSY TO SIAM.

MR. PAUL E PEIRIS, M.A. Barrister-at-Law, C C S,—then read his paper entitled "An account of King Kirti Sri's Embassy to Siam in 1672 Saka (1750 A D.)" The paper was translated from the Sinhalese by Mr Pieris and is a very interesting account of the Embassy's experiences. It is full of incident, and wealthy description and gives a splendid account of the Sinhalese and Siamese customs of the period with which the paper deals.

MR. F C ROLES—on discussion being invited, said he should like to ask Mr Peiris whether the phrase on page 13 "a considerable portion...has been omitted to avoid the risk of appearing to relate the incredible" was a phrase commonly used at that time. Now-a-days they were not confined and there was no hesitation in giving them the incredible whether it was from Savage Landor or the *goiya* in the witness box. He should like to know if it was a mere formal phrase, or whether it indicated that they had lost, perhaps, the most interesting part of the description ?

MR. PAUL PEIRIS—said he could only say he translated what the writer said.

The PRESIDENT :—I do not think it is unusual for writers in books of travel to say that words fail to express what they saw.

MR. HARWARD—said they must remember it was characteristic of Oriental literature to give catalogues of splendid fittings. Such catalogues formed a part of the poetical and prose descriptions in oriental literature, and although, no doubt, the paper gave an interesting description of Siam as it was in the 18th century—there was no doubt a great deal of prosperity. and splendour there—he did not think they were bound to accept quite the full picture presented to them in that paper; because he thought it would come quite natural to a Sinhalese narrator at the time to give numerical symmetery to the various details he was describing.

MR. PAUL PEIRIS—said that the writer from whom he had translated was a very careful writer, and he saw no reason whatever for disbelieving him. When he talked about emeralds the size of oranges he might be mistaken, but possibly he referred to the green stone. As further proof of the enormous expenditure of the Siamese Kings on their religion, he had the good fortune to have given him a note which he did not think was yet published; and there was reference there to a certain temple, where there was an image of the Buddha larger than life-size of solid gold. He mentioned also that while in England he saw a bell that was captured at the sacking of a town in that quarter. It weighed 3 cwt., and 2 cwt. was solid silver.

Mr. D B JAYATILAKA—said he did not think there was any difficulty in believing these accounts for the simple reason there were accounts by the other envoys to Siam. He might mention the interesting fact that that Embassy was the fourth one. There had been three before it to Siam and it was interesting to note that the first Ambassador to Siam sent by the Sinhalese King to enquire into religion there was a Dutch Officer. He had seen a letter from him to the Kandyan King describing the Siamese Court which was similar in description to the paper now read. He did not believe that the Dutch people exaggerated and if they could believe the Dutchman's description, he did not think, they need cast any doubt on the paper now before them.

Dr. W A DE SILVA—said he had recently been to Siam and had seen most of the things referred to in the paper. He had seen the green stones a little larger than an orange. He had also seen the gold image of Buddha life-size. As regards the processions, and elephants' houses and trappings &c., it seemed to him most of these things still remained. If any of them were to go to Siam and watch some of the religious festivals, most of the descriptions given in that paper would be seem to be quite correct. So far as he had observed, they were.

VOTES OF THANKS.

The Hon. Mr S C OBEYESEKERA—said he had much pleasure in moving a hearty vote of thanks both to Mr Pohath-Kehelpannala and Mr Paul Peiris for their valuable papers. Mr Pohath-Kehelpannala might probably be open to the criticisms made by Mr Goonawardana, but nevertheless, they took his will for the deed meanwhile. He devoted a great deal of time to the matter and, as Mr Ferguson observed, he thought he deserved credit for the very full notes which abounded with interest. (Hear, hear.)

Advocate Mr E W PERERA—seconded the motion. In doing so he desired to offer a few remarks. As regards the first paper the remarks made by Mudaliyar Goonawardana did not prove that the documents were forgeries. In fact he based his attacks on the genuineness of the grants on two points. The first point was that the dates were incorrect and he based his argument on a calculation from the computation of Sir Alexander Cunningham. There were several computations among the Sinhalese and he thought in dealing with the matter they should have an entirely independent computation. But apart from that he should very much like to know in what respect the Sinhalese characters of the 17th century differed from those of the 19th or 20th centuries. Only the sannas of the 15th century and 16th century differed very slightly from the sannas of the present day. In regard to the second paper Mr Peiris would greatly oblige the Society with a copy of the original manuscript from which he had made that translation. He believed there was not a copy in the Museum Library. In that connection he said there was in Kandy the original of a letter which accompanied a grant sent by the King of Siam along with an Embassy and that would give them valuable information and supplement Mr Peiris' paper. In regard to what was said about the correctness of the paper he should say the information was correct. The question asked by Mr Roles would have been unnecessary if Sir Charles Mandeville had written the paper. Of course, he would not have drawn the line at the incredible. These Ambassadors, however, while describing the ceremonies seem to have drawn the line. Human nature was, of course, the same all the world over. He had very great pleasure in seconding the votes of thanks.

Mudaliyar GOONAWARDANA,—in supporting the motion, said he would like to say a word of explanation. In criticising the genuineness of the paper sent in by Mr Pohath Kehelpannala he did not mean, in the slightest degree, to cast discredit on his work. He knew he was a very industrious young man and he, certainly, admired the industry with which he had collected a large amount of information with regard to the history of Ceylon, and all he wanted to say was that, in his view, the document did not appear genuine because there was a discrepancy in the dates.

The PRESIDENT—thought that this was just repeating what Mr Goonawardana had already said. The hour was getting late.

MUDALIYAR GOONAWARDANA—proceeding said he would not go further into that point. With regard to the question raised by one gentleman as to what was the difference between the caligraphy of the 17th Century and the present day, he himself admitted there was a little difference between the caligraphy of the 16th century and the present day. If that was so why could there not be a little difference between the caligraphy of the 17th century and the present day.

The PRESIDENT—declared the vote of thanks carried.

Mr. J FERGUSON—said the pleasant duty had been allotted to him of proposing a cordial vote of thanks to their President for his services to the Society and at that late hour he would be very brief in doing so. He regretted that during this first year of their President, the Society should have been so barren of papers; but, Irish-like, their gratitude took the form of a lively anticipation of favours to come. The presidential influence, he trusted, would mean for them very soon, some useful papers from members of the Scientific Corps in the Public Service up and down country. The gentlemen for instance, who had been so successfully flashing their maiden swords as lecturers elsewhere, might now come to the aid of this good old Society in its Ceylon Branch, and he was glad to know that at least one of them had a paper on the stocks. Meantime they were fortunate as to their President and tendered him hearty thanks. (Applause).

INTERESTING REMARKS BY THE PRESIDENT.

The PRESIDENT—in thanking the members for the vote of thanks, said the fully appreciated the force of the Hon Mr Ferguson's remarks. He had been able to do very little for them, but coming fresh into a new world as it practically was to him there was naturally a good many things to do and not much time to spare. But he did cordially agree with Mr Ferguson on the subject of papers. They ought to get many of as kind they had not got lately at any rate—his experience did not go very far back—scientific papers. And he hoped one of the earliest papers they would have would be one on The Oyster. It ought to be written by one who could write it no more—he meant Mr Oliver Collett. That was a particularly appropriate subject. There was a meeting before his time at which the Governor—he referred to H.E. Sir West Ridgeway—took the chair and at which a great deal of useful information on the subject of Oysters was put forward by Mr Collett. Sir West Ridgeway and he himself had been during the week at the Pearl Fishery—the first, he thought, held in Ceylon for 11 years. It was, of course, new to them and they had been marvellously astounded at the manner in which that gigantic fishery was worked. There, where three weeks ago, there were hardly any inhabitants and for years no more than three or four huts with about 20 or 30 inhabitants, had suddenly collected 23,000 or 24,000 people, all working hard and bringing in these oysters which were divided between Government and the divers in a most elaborate system and the speed and accuracy of working the whole business was most astounding. By a very curious coincidence on his way to the Pearl Fishery he had received a scientific magazine and in that he came across a very interesting account of a fishery which was held—not where the present fishery was taking place, but opposite Chilaw. What that writer wrote then was just practically what he (the speaker) might have written now if he was to sit down and write what he saw last week. What he intended to say was, however this, that the system has no doubt grown up during centuries

and has no doubt grown very perfect. Still there were certain things which he thought required very much to be corrected and he hoped that by another year or by next fishing at any rate they should be able to do a great deal to reform the present system. For that purpose they had Mr Hornell working out the life history of the oyster and investigating as to the enemies of the oysters and the pearls also and Mr Hornell ought before long to supply them with some information for their Journal. They had also an experiment in which he had taken a very personal interest himself. He had it in his mind for many months and he was glad to say it was working out very well indeed. It was a system of washing out oysters in the same way as he used to see gold washed out in other parts of the world. The other day when he tried the eight oysters—as an experiment, merely—the first produced 10 pearls, not counting the seed pearls. They did it in a few minutes and they might have done 800 in the same time. He thought the experiment promised very well. He thought the old system of washing by merchants would probably survive for a long time and he would be sorry to see it disappear, but it was very good that Government should have a system for washing oysters when occasion arose. (Applause).

This terminated the business.

DAYS OF OLD.

REMINISCENCES OF EARLY PHOTOGRAPHY.

(*By a Ceylon Man.*)

In one of the recent issues of the *Overland Observer* I notice it mentioned that Mr. Humphrey Humphreys was the first amateur photographer in the island. If I am not very much mistaken, I think that honour must be conceded

MR. BARTON.

He took lessons from Mr. Parting between 57-59. Mr. Parting was the first photographer to start in the business in a little place in Baillie Street—next door, I think, to Findlay who was the first European tailor. Mr. Parting sold his business to Messrs. Slinn & Co. and retired, whilst Findlay, by the way, disposed of his business to Bolam and established a general store in Kandy and it was whilst supervising some structural alterations to the building that it collapsed, burying him in the ruins from which he was taken out dead. Some of Mr. Barton's photos of Dondra Head are engraved in your Directory for 1863. This gentleman is living in Bangalore. But there is yet another amateur in

MR. R.W. T. MORRIS,

better known in his younger days, as "Bob" Morris, to distinguish him, I suppose, from his late father who was at that time Government Agent Trincomalee.

In 1862-63 "Bob" Morris was Assistant Agent at Nuwarakalavia and it was at Anuradhapura that I saw his photographs taken under great difficulties. The water he had to distil himself. He rigged up a very crude but at the same time most effective apparatus for the purpose and surmounted all obstacles. Some of his photos of the ruins of Anuradhapura and Mihintale I have in my album, wonderfully well preserved, seeing that they are 40 years old.

LITERARY REGISTER SUPPLEMENT:

AND CEYLON

"NOTES AND QUERIES."

[Under this heading, in future, we mean to give a small "Supplement" with our *Tropical Agriculturist* from quarter to quarter, according as there is matter of sufficient value so to be preserved.]

JUNE, 1903.

THE "BRAHAN SEER" IN THE SEAFORTH FAMILY.

March 13.

DEAR SIR,—I have been much interested in all you have told us about Lady Ashburton and the Stewart-Mackenzie family. Can you add to the favour by saying when the "Brahan Seer" lived,—what he prophesied,—and how it was fulfilled? and oblige—Yours truly,

CURIOUS.

[Kenneth Mackenzie, better-known as Coinneach Odhar, the Brahan Seer, was born about the beginning of the 17th century. He was burnt to death under atrocious circumstances by order of a Countess of Seaforth, about the middle of the century, because he had divined and told her of the unfaithfulness of her husband, the Earl, who was absent in Paris. By killing the Seer, the Countess hoped to make the people believe his report publicly made, was a slander. We read :—

"When Coinneach found that no mercy was to be expected either from the vindictive lady or her subservient vassals, he resigned himself to his fate. He drew forth his white stone, so long the instrument of his supernatural intelligence, and once more applying it to his eye, said—'I see into the far future, and I read the doom of the race of my oppressor. The long-descended line of Seaforth will, ere many generations have passed, end in extinction and in sorrow. I see a chief, the last of his house, both deaf and dumb. He will be the father f four fair sons, all of whom he will follow to the tomb. He will live careworn and die mourning, knowing that the honours of his line are to be extinguished for ever, and that no future chief of the Mackenzies shall bear rule at Brahan or in Kintail. After lamenting over the last and most promising of his sons, he himself shall sink into the grave, and the remnant of his possessions shall be inherited by a white-coifed (or white-hooded) lassie from the East, and she is to kill her sister. And as a sign by which it may be known that these things are coming to pass, there shall be four great lairds in the days of the last deaf and dumb Seaforth—Gairloch, Chisholm, Grant and Ramsay—of whom one shall be buck-toothed, another hair-lipped, another half-witted, and the fourth a stammerer. Chiefs distinguished by these personal marks shall be the allies and neighbours of the last Seaforth; and when he looks around him and sees them, he may know that his sons are doomed to death, that his broad lands shall pass away to the stranger, and that his race shall come to an end.' We believe Sir Hector Mackenzie of Gairloch was the buck-toothed laird (an Tighearna Stòrach); the Chisholm, the hare-lipped; Grant, the half-witted; and Ramsay, the stammerer, all of whom were contemporaries of the last Lord Seaforth."

Then of the last Earl, born nearly 100 years after this prophecy, we are told :—

Francis Humberston Mackenzie was a very remarkable man. He was born in full possession of all his faculties, and only became deaf from the effects of a severe attack of scarlet fever, while a boy in school. He continued to speak a little, and it was only towards the close of his life, and particularly during the last two years, that he was unable to articulate—or perhaps, unwilling to make the attempt, on finding himself the last male of his line. He may be said to have, prior to this, fairly recovered the use of speech, for he was able to converse pretty distinctly; but he was so totally deaf, that all communications were made to him by signs or in writing. Yet he raised a regiment (the 78th), at the beginning of the great European war; he was created a British peer in 1797, as Baron Seaforth of Kintail; in 1800 he went out to Barbados as Governor, and afterwards to Demerara and Berbice; and in 1808 he was made a Lieutenant-General. These were singular incidents in the life of a deaf and dumb man. He married a very amiable and excellent woman, Mary Proby, the daughter of a dignitary of the Church and niece of the first Carysfort, by whom he had a fine family of four sons and six daughters. One after another his three promising sons (the fourth died young) were cut off by death. The last, who was the most distinguished of them all, for the finest qualities both of head and heart, was stricken by a sore and lingering disease, and had gone, with a part of the family for his health, to the South of England. Lord Seaforth remained in the north at Brahan Castle, A daily bulletin was sent to him from the sick chamber of his beloved son. A few posts later, brought to Seaforth the tidings of the death of the last of his four sons. At length, on the 11th January, 1815, Lord Seaforth died, the last of his race. His modern title became extinct. The chiefdom of the Mackenzies, divested of its rank and honour, passed away to a very remote collateral who succeeded to no portion of the property, and

the great Seaforth estates were inherited by a white-hooded lassie from the East. Lord Seaforth's eldest surviving daughter, the Honourable Mary Frederica Elizabeth Mackenzie, had married, in 1804, Admiral Sir Samuel Hood, Bart., K.B., who was Admiral of the West India station, while Seaforth himself was Governor in those islands. Sir Samuel afterwards had the chief command in the Indian seas, whither his lady accompanied him, and spent several years with him in different parts of the East Indies. He died while holding that high command, very nearly at the same time as Lord Seaforth, so that his youthful wife was a recent widow at the time, and returned home from India in her widow's weeds, to take possession of her paternal inheritance. She was thus literally a white-coifed or white-hooded lassie (that is a young woman in widow's weeds, and a Hood by name) from the East. After some years of widowhood, Lady Hood Mackenzie married a second time, Mr. Stewart, a grandson of the sixth Earl of Galloway, who assumed the name of Mackenzie, and established himself on his lady's extensive estates in the North. Thus, the possessions of Seaforth may be truly said to have passed from the male line of the ancient house of Mackenzie. And still more strikingly was this fulfiled, as regarded a large portion of these estates, when Mr. and Mrs. Stewart Mackenzie sold the great Island of Lewes to Sir James Matheson. After many years of happiness and prosperity, a frightful accident threw the family into mourning, Mrs. Stewart Mackenzie was one day driving her younger sister, the Hon. Caroline Mackenzie, in a pony carriage, among the woods in the vicinity of Brahan Castle. Suddenly, the ponies took fright, and started off at a furious pace. Mrs. Stewart Mackenzie was quite unable to check them, and both she and her sister were thrown out of the carriage much bruised and hurt. She happily soon recovered from the accident, but the injury which her sister sustained proved fatal, and, after lingering for some time in a hopeless state, she died, to the inexpressible grief of all the members of her family. As Mrs. Stewart Mackenzie was driving the carriage at the time of the accident, she may be said to have been the innocent cause of her sister's death, and thus to have fulfilled the last portion of Coinneach's prophecy which has yet been accomplished. Mr. Stewart Mackenzie, the accomplished husband of the heiress of Seaforth, after being for many years a distinguished member of the House of Commons and a Privy Councillor, held several high appointments in the Colonial Dominions of the British Crown. He was successively Governor of Ceylon and Lord High Commissioner of the Ionian Islands, and died, universally beloved and lamented, in the year 1843. Lockhart in his life of Scott, in reference to the Seaforth prediction, says:—" Mr. Morrit can testify thus far—that he heard the prophecy quoted in the Highlands at a time when Lord Seaforth had two sons alive, and in good health, and that it certainly was not made after the event'; and he goes on to tell us that Scott and Sir Humphrey Davy were most certainly convinced of its truth, as also many others who had watched the latter days of Seaforth in the light of those wonderful predictions. " Our friend, Lady Hood," wrote Sir Walter Scott to Mr. Morritt, " will now be 'Cabarfeidh' herself. She has the spirit of a chieftainess in every drop of her blood." The writer concludes thus :—" Scott's apprehensions proved only to be well founded. One section after another of the estates had to be sold. The remaining portion of Kintail, the sunny braes of Ross, the Church lands of Chanonry, the barony of Pluscarden and the Islands of Lewes—a principality itself—were disposed of one after the other, till now nothing remains of the vast estates of this illustrious house except Brahan Castle, and a mere remnant of their ancient patrimony (and that in the hands of trustees), which the non-resident, nominal owner has just been prevented from alienating. *Sic transit.*"

Leaving these extraordinary prophecies with the reader, to believe, disbelieve, or explain away on any principle or theory which may satisfy his reason, his credulity, or scepticism, we conclude with the following :—

LAMENT FOR "THE LAST OF THE SEAFORTHS."

BY SIR WALTER SCOTT.

In vain the bright course of thy talents to wrong
Fate deaden'd thine ear and imprison'd thy tongue,
For brighter o'er all her obstructions arose
The glow of the genius they could not oppose ;
And who, in the land of the Saxon, or Gael,
Might match with Mackenzie, High Chief of Kintail?

Thy sons rose around thee in light and in love,
All a father could hope, all a friend could approve ;
What 'vails it the tale of thy sorrows to tell ?
In the spring time of youth and of promise they fell!
Of the line of MacKenneth remains not a male,
To bear the proud name of the Chief of Kintail.

And thou, gentle Dame, who must bear, to thy grief,
For thy clan and thy country the cares of a Chief,
Whom brief rolling moons in six changes have left
Of thy husband and father and brethren bereft;
To thine ear of affection, how sad is the hail
That salutes thee—the heir of the line of Kintail!

The story as relating to a past Governor of Ceylon and his family, is of special local interest, and so we may be pardoned for quoting so much.—ED. *L.R.*]

THE LORENZ LECTURE AND OLD TIMES.

March 10.

DEAR SIR,—The Lecturer last Thursday regretted your absence, as he read out what you had said of his hero on his death; and well he might! I don't think there were many who were able to follow the local hits contained in the extract he read from the Christmas Debates of 1864. All, all, are gone! In that delightful parody of Enoch Arden—Not Enough Hardened—fathered on Tenny-father (the showy, but not too brilliant, Auditor-General of the day being Penny-father)—how many understood the reference to the "half-seen rock" alluring "the steamer 'Pearl,' until she madly strikes against it"? But you, Mr. Editor, knew the Government steamer of that name, which always grazed its bottom or its side against some rock, until she became known as the Pearl of great price, for what she cost in repairs. And was not old Varian her Captain ?

Then, the reference to the Heliotropes in the garden at the back of the Council Chamber, "a recent gift of William Ferguson," the genial, popular Botanist of the day; and to "Gibson, the honourable friend of times gone by—stout, hearty, with huge rolls of double chin"! I see the portly old man before me, but not particularly hearty in after years, as he would withdraw his gouty foot from the stool under the table, and rise wearily to answer some question of Coomaraswamy's, and to sit on him! Then, Richard Morgan, "a shorter, but a more developed corporation," with his length of ribbon rosy-red, wherewith they bound the Colony"! Morgan had advised "the General sitting in the chair"—O'Brien, whose son Terence was tried by Court Martial for his part in the Sikh Cooly affair afterwards, and defended by Lorenz—that, as the Unofficials had been appointed by the Crown, the Council was fully constituted without them until their resignations had been accepted by Her Majesty! And the Colonel, who welcomed the ex-Unofficials for the Christmas sitting, with his song *The rebels are coming: hooray, hooray!* was Sim; while, I suppose, the Collector of Customs, who was fast asleep when roused by Lorenz's cries of No, No, was poor old Stephens, the somnolent. It is a pity the lecture was not illustrated by lantern slides.—Yours truly,

SENEX.

[It was our fortune to be alone at the helm of the *Observer* at the time of the death of two of Ceylon's greatest sons:—Sir Richard Morgan and Mr. C. A. Lorenz, and we tried hard, at very short notice, to do justice to both, so far as a newspaper "in memoriam" notice could do so. Our long article on Sir Richard was afterwards taken over in full for his "Life" by Mr. Digby; and in the case of "Lorenz," a sense of deep sympathy entered into our writing; for, it was truly sad that so brilliant a man and earnest a worker should be cut off at so early an age. We can recall one long and most pleasant interview with the then Burgher M.L.C. Left in 1863 to conduct our bi-weekly paper—the three papers, "Observer," "Times" and "Examiner" made a daily issue between them in those good old days—we had also to bring out the Directory for that year, and it was certainly about the neatest and most attractive book with its illustrations, up to that date published in Ceylon. So said Mr. Lorenz very heartily when he called for a copy one Saturday afternoon in Baillie Street and gave us half-an-hour of his lively entertaining conversation. Seven years after in St. James's Hall, London, we had the opportunity of watching Charles Dickens giving what proved to be his final public reading; and again and again were we reminded by the large, bright observant eyes of the brilliant Ceylonese. Lorenz was indeed the Charles Dickens as well as the Washington Irving of Ceylon; but alas! as "Senex" shews, how few there are to catch up the points of witticism so entirely applicable and patent to all in our island world during the "Sixties".—ED. *L.R.*]

DAYS OF OLD.

Anuradhapura, Feb. 28.

DEAR SIR,—The letters "*Cuculus Ecclesiasticus*" is favouring the public which are most interesting, and the information supplied is such as few besides the only state-paid Clergyman in our Colonial list can supply. I see in his letter enumerating the Ceylonese *alumni* of the old Bishop's College, Calcutta, he has omitted one name, that of Mr J L Flanderka, Assistant Government Agent and District Judge, Nuwarakalawiya (February 1854-1860, and again from March 1863-August 1866). He is the only Burgher A.G.A. in our annals, which of itself marks him out for distinction. In this connection the following extract from a letter of "good Dr. Loos," as your London correspondent styled him recently,—will be read with interest. "Another fact with regard to Anuradhapura is that Flanderka was Assistant Agent there. He was in the Academy with me and a class-fellow. He became a student in Bishop's College in Calcutta, and was there while I was in the Medical College. On his return to Ceylon, he was fortunate enough to obtain an appointment in the Civil Service and became a *protégé* of the Rajah of Jaffna (Mr Dyke). I never met him after his return to Ceylon, and my last meeting with him was on board the vessel in Calcutta in which I was about to return to Ceylon. He made me a present of the Book of Common Prayer which I used for some years." Mr Flanderka probably was a Divinity Student when at Calcutta. Dyke's good opinion of him was fully endorsed by the Governor (Sir Henry Ward). This is what Mr Ievers quotes from His Excellency's memorandum of his second tour through Tamankaduwa and Nuwarakalawiya in 1856 [? 1858 or 1859.]

"At Habburenne (Haburana) we were met by the Assistant Agent of Nuwarakalawiya. Mr Flanderka, an active and intelligent public officer in charge of a very extensive district, which, from its isolated position and the strictly agricultural pursuits of the inhabitants, has had little share hitherto in the improvements that are taking place around it. Mr Flanderka is now endeavouring to introduce the Irrigation Ordinance, which is peculiarly adapted to the wants of the population; and though there was some misapprehension in the framing of the rules first sent in, I have no doubt that the next attempt will be more successful." [But *re* this Ordinance in p. 141 of Ievers we read "Sir Henry Ward's Irrigation Ordinance was a dead letter so far as the Northern Province (which included Nuwarakalawiya up to 1873) was concerned. It was not suited to the circumstances of the tank country."]

In Ievers p 43 we read "In 1859 judgment was given in District Court No. 156 by Mr Flanderka, Assistant Government Agent and District Judge. This was a case between the two branches of the Suriyakumara family, commonly known as "Bulankulam" and "Nuwarawewa," from the two tanks near which the Walauwas are built. By this judgment the estate was divided between these two branches of the family, and the rights as to the Bo-tree, shrine and election of Anunayaka, with other rights as chief of Nuwarakalawiya, were decreed to belong to the plaintiff, Suriyakumara Wannasinha Banda of Bulankulam, son of the Mudiyanse, who died in 1836." Messrs. Advocates Vanderwall and Dunuwilla from Kandy appeared for the respective parties on very handsome retainers. The defendants it seems, were a little too previous for they conveyed their advocate Mr Dunuwilla into the town, with great pomp in a procession of elephants &c. The judgment went however for the plaintiff, and it was Mr Vanderwall's good fortune to be carried back to Kandy with equal demonstrations after the case had been *won*!

W. H. S.

PANWILA PAST AND PRESENT.

(*From a correspondent.*

I first knew the Panwila District in the latter half of the 'sixtees. Almost all the way from Wattegama—I may say, all the way from Kandy —the hills were then

COVERED WITH THE UBIQUITOUS COFFEE;

and although the sight of the green bushes, spreading far and wide, up hill and down dale, was a little monotonous, yet it was from time to time relieved by the snow-white, fragrant blossoms that spangled the vast expanse, and the bright-red berries that, clustering along the heavy-laden branches, gladdened the planter's heart. *Mais nous avons changé tout cela.* "The old order *has* changed, giving place to the new." And if the new order is getting a permanent footing now, and the dark days of failure have to some extent, been retrieved—all this is due to the pluck and grit of the brave hearts that had to weather the storm, and, as bright hopes began to dawn, buckled themselves up for fresh ventures, and avenged themselves on their enemy by, in humorous punning mood, laughing him to scorn as "*Him a-liar-vast at-tricks.*" Yes! TEA is King now; and though his Majesty is subject to such fluctuations that his subjects who are loud in his praises today, may be down in the mouth tomorrow, their loyalty to him is nevertheless unimpaired, and they would one and all stand up for their liege lord and raise the cry "O King ! live for ever"!

PANWILA TODAY

is pretty much the same as it was in the days gone by; for it has nothing of any local public interest that can claim the attention or the sympathy of strangers who live beyond its village-bounds. Not even its propinquity to Wattegama, through which the Kandy-Matale Railway runs, has lent it any importance nor added anything to its time-honored claim to the possession of a Police Court, a Rest House, a Police Station and a Tavern. These are the institutions that would perhaps justify its pretensions to the dignity of a town. The old Rest House was a very unpretentious structure with a high verandah and two flights of steps leading up to it, kept by one Philippoo Aratchi, who retained as Rest House-keeper the titular honorific which was his as a servant in the employ of a former Judge of the Supreme Court. The present halting place for tea-sellers is a commodious bungalow, built—in 1873, it is said—by the good old veteran, Joseph Holloway, the laird of Wattegama. It was built at the instance of Government, and is under the control of the District Road Committee.

THE OLD POLICE COURT

was a long hall,—built with wattle and mud, and thatched with mana. It can still be seen, beyond an open space, on the other side of the road, opposite the present Rest-house; and in this primitive-looking concern, sat for the Administration of Justice in the olden days, no less a person than Mr Justice Withers—who only recently vacated his seat on the bench of the Supreme Court. He was then a rising young Civilian in the service of the Crown, and wisely gave up that service and proceeded to England to qualify himself as a Barrister-at-law; and his career since he returned in that capacity to Ceylon, has ustified the wisdom of the course he adopted. Another young Civilian of that day, who severed his connection with the Ceylon Civil Service, was Walter Wragg,—a cultured Oxford "*University Scholar*," who rose to be a Puisne Judge in the South African Colony,—and later on became a Chief Justice, I think, and obtained the honor of Knigthood. He, too, was at one time Police Magistrate of Panwila. Then

TWO OF THE CLEVEREST JUDICIAL SERVANTS

of the Crown, who gained distinction as professional lawyers, began their official life here. Let us hope that the clever young Oxonian, who put his foot on the first rung of the Colonial Service ladder and stepped down again to leave our shores for the wider sphere of Journalistic Literature in England, and has been entertaining his countrymen there with his clever sketches of Cadet-life in Ceylon, may live to make a name for himself in the "fresh fields and pastures new," he has chosen for himself in the old country. Among the men who held the Panwila Magistracy in former days, and were in residence there, one recalls the names of Temple, Knowles, Willisford, Ashmore, Pennycuick, R. O. S. Morgan and Hamilton.

THE PRESENT POLICE COURT

was built in 1858,—and here at the present time, a Weekly Sessions of two days in every week, is held by Mr. Wm. Dunuwille, the popular Police Magistrate of Matale—except on the 1st Friday and Saturday of every month, when the Court sits at Urugala. The Police Station now stands within a few hundred yards of the Police Court, and is in charge of a Police Sergeant. In the olden days, it was kept in a building which is now part of Raxawa estate, in which Mr Parrinton, the Superintendent of Raxawa, lived, before the present bungalow,—nestling in a forest of grevilleas, on the crest of a hill, was erected, Mr Edwin Beven commenced his professional career in Panwila, and then moved on to the Kandyan Metropolis, where he holds a leading position as a Proctor. Arnold Joseph, Fernando, Bartholomeusz and Elders were also proctors practising in Panwila; but these have long ago joined the majority.

OF THE PLANTERS

of a former day living in the Judicial district of Panwila one recalls such names as Forbes Laurie (a very pronounced Darwinian), W B Jackson, Tom Smith, Rollo, Karslake, Hastings Clarke, &c. At the head of them all stood, and stands still, the veteran and highly-respected planter of Kellebokke District, Mr Thomas, late of Oonoonagalla, with whom all Ceylon sympathises over the loss sustained by him, in the death of his heroic son, one of the brightest, cheeriest and happiest young men I ever knew, who laid down his life for the honor of his country in the late bloody war against the perfidious Boer.

THE APPROACH TO PANWILA

from the foot of Galphele Estate, (the property now of Mr T Y Wright, but which at first I think belonged to Mr Holloway and then to a Chetty, and then to Mr Fred Van Langenberg, and then to Mr Donald) lies through an avenue of stately grevilleas, and from this avenue, branches off another which is continued, right on to the summit of the hill, and to the bungalow which lies concealed in a forest of trees. This feature in the scenery rises to its highest point of pictures.

queness in the roadway leading to Raxawa factory and beyond it. I have seen nothing so pretty anywhere as the groves of grevilleas that spread in all directions on either side of the high road here as far as the eye can reach. I went up among the tea to the highest attainable point on the northern slopes of Raxawa, and the sight of the groves of grevilleas spreading down to the ravines below, reminded me of the forest of tall poplars which made the Villa Borghee at the foot of Monte Pincio in Rome so charmingly beautiful. What a wonderful difference

THIS QUICK-GROWING AUSTRALIAN TREE

(G Robusta) has made in the aspect of the country which has become its naturalised home. Almost every tea estate in the Kandyan province has been beautified by these trees, which stand in stately file like an army of sentinels watching over the dwarf green bushes beneath, protecting them alike from fierce winds and scorching heat. Speaking of the exceptionally hot weather we have had, a planter from the Kellebokke District said to me a week ago: "We are pretty well burned up." If this be so in the higher altitudes where he lives, what must it be in the low-lying districts. The drought however though severe, has not been very protracted. But the welcome rains have set in, and the condition of things around us will soon alter for the better.

KANDY'S HAIL-STORM AND AN HISTORIC TREE.

(*Communicated.*)

On Good Friday afternoon Kandy was visited by a hail-storm. The wind blew from nearly all points of the compass with much violence; and we had a perfect hail-storm of some duration, accompanied with vivid lightning and loud thunder peals. Trees fell in several parts of the town and amongst other things, the furious blowing brought down a very huge *Nuga* tree, or the largest portion of it, which was a sort of land-mark and was to be seen as a prominent object in the Royal Engineers' yard, right opposite to the old Post Office—only separated from it by the high road from Katukelle to the town. This tree, which was probably over an hundred years old, is said to mark the spot where the foreign Ambassadors to the Kandyan Court halted until they had permission from the Emperor of Ceylon—the brother of the Sun and Moon—to proceed to the Old Palace for an audience with the King. The Ambassadors, amongst whom were those old Hollanders and Britishers Mynheers, Takel and Francois Albertus Prins and Messrs. Phybus and Hugh Boyd, came to Kandy by a very circuitous route from the low-country. After many days of hard travelling, they reached Gan-oruwé, and from thence they advanced through Katoo-kelle until they halted under the shadow of this great Nuga tree. At this spot there was a Mura-pola—a guard-house—and a gate-way which was barricaded with thorny shrubs and trunks of trees to render it impassable: hence the name Katoo-kelle!

HOBSON-JOBSON.

(*Communicated.*)

It is seventeen years since that treasury of curious lore regarding things connected with the East, "*Hobson-Jobson*," or "A Glossary of Anglo-Indian Colloquial Words and Phrases," by Col. Henry Yule and Dr. A. C. Burnell, was published; and it had become so scarce that when a copy appeared for sale in the market it fetched a price double the original. Students as well as the public at large, therefore, owe a debt of gratitude to Mr. John Murray for issuing a new and revised edition* under the competent editorship of Mr. William Crooke, B.A., of the Indian Civil Service, author of several works on Indian folk-lore, &c.

The work as now issued contains a glossary of 986 pages, against 870 in the first edition; while it has been rendered far more useful by the addition of an index covering 35 pages (four columns to the page). The supplement of the original edition (which occupied 119 pages) has, to the great relief of the consultant, been embodied in the work; and almost every word or phrase receives further explanation and additional illustration. In this additional matter Mr. Crooke has received valuable help from various scholars, especially from Mr. R. S. Whiteway for Portuguese writers and Mr. W. W. Skeat for Malay words. All additions to this re-issue are distinguished by being printed within square brackets. In his Preface Mr. Crooke says: "No attempt has been made to extend the vocabulary, the new articles being either such as were accidentally omitted in the first edition, or a few relating to words which seemed to correspond with the general scope of the work." In concluding my notice of the first edition (see *Ceylon Literary Register*), vol. I, pp 230 232, 238-240) I expressed the hope that Col. Yule might "live to issue a new edition, in which the errors that have slipped into this one will be corrected, and which will contain the history of such words: (Ceylon and other) as are not recorded here." The first part of this hope was (alas!) not fulfilled; the second part has here received partial fulfilment; while as regards the last part I have to confess disappointment. I quite sympathise with the reluctance that anyone would feel at tampering with the work of such a magnificent scholar as Sir Henry Yule; but, as in this new edition so much additional matter has been included, I certainly think the vocabulary might have been extended, and I believe the lamented author would have approved of this. Of course this would have increased the bulk of the book; but something might have been saved by omitting a quotation here and there (some of the

* *Hobson-Jobson*: A Glossary of Colloquial Anglo-Indian Words and Phrases, and of Kindred Terms. Etymological, Historical, Geographical and Discursive. By Col. Henry Yule, R.E., C.E., and A. C. Burnell, Ph. D., C.I.E. New edition edited by William Crooke, B.A., London: John Murray, Albemarle Street, 1903. [Price 28s. net.]

words being rather *over* illustrated). Among words in current use in Ceylon, but not recorded here, I may mention (beside many others), *moottoo* (horsekeeper) *barbacue* (coffee drying ground), *creeper* (planting-tyro), *totum* (estate), *sick* (in the estate sense), *podian* (boy), *perrily* (dangerous or frisky), *sheemy* (country), *cheddy* (jungle undergrowth) *nilloo*, *patna*, *maduwa*, *pinkamaDiss.iwe*, *dissava*, is here duly recorded, but not *ratemahatmaya*; *modelliar*, *modliar*, and *vidana*, but neither *aratchy* nor *mohandiram*; *mamooty*, *mamoty*, *momatty*, but not *catty* (in the sense of a bill-hook), nor *alavanga*; *conicopoly*, but not *cannick* (account); *coprah*, but not *checko* (coconut-oil-mill); *batta*, but not *samblam* (pay); *boy*, but not *appoo* (butler); *catamaram*, but not *padda-boat*; *hopper*, but not *rotee*; *dagoba* and *vihara*, *wihare*, but not *pansala*.

Another fault in this new edition, as in the old, is the smallness of the margin, especially on the inner side. Of course this also is a question of expense; but another inch of margin would have been a great boon for those who, like myself, are accustomed to annotate freely.

In reviewing the first edition of *Hobson Jobson* I pointed out various errors in connection with words relating to Ceylon. Some of these mistakes have been rectified in this new edition; but others still remain, I am sorry to say, to mislead the innocent and unwary reader.

Under "Anaconda" the editor gives the gist of my communication to *Notes and Queries*, and characterises my derivation of the word as "a more plausible explanation." That it is the correct one, I am absolutely certain; though how the name of the graceful whip-snake (*henakandayā*) came to be erroneously transferred to the monstrous python (*pimburā*) I have failed to discover, though I strongly suspect a mixing of the labels on the specimens at Leyden. (In this connection I may draw attention to the fact mentioned by Mr. Lawrie in his *Gazetteer of the Central Provinces*, p. 2191, that one the Kandyan queens was named Henakaňda Bisō Bandāra, so called, doubtless, from her graceful and slender figure.) The Malagasy *anakanify* (not *anakandify*, as printed) is a mere coincidence.

At the end of the article on "Bamboo" Col. Yule remarked:—"E. Haeckel, in his *Visit to Ceylon* (1882), speaks of bamboo-stems at Peradenia, 'each from a foot to two feet thick.' We can obtain no corroboration of anything approaching two feet." In quoting these words in my notice of the first edition I added:—"This is a question that can be easily settled: perhaps Dr. Trimen will furnish the maximum diameter." The question remained unanswered, however, for more than a year. Meanwhile Mr. Albert Gray, in a note to the first volume of his translation of Pyrard for the Hakluyt Society, had once more drawn attention to Haeckel's statement. Having to review this volume in the *Ceylon Literary Register*, I wrote to Dr. Trimen on the point in question, and he replied:—". . . . I thought it not unlikely that the mistake was the translator's. But I see that Haeckel really does say '1—2 Fuss dicke.' Of course this is vastly beyond the mark. I have never seen one of our Giant Bamboos over 9½ inches in diameter. But Haeckel's reminiscences of Ceylon are often inaccurate. He never would take a note of any sort but trusted entirely to memory with the usual result" (*C. Lit. Reg.*, ii. p. 272). In the new edition a reference to Mr. Gray's note is added; but it is unfortunate that the editor did not know of Dr. Trimen's correction.

Under "Bo tree" the Sinhalese name is still given erroneously as *bo-gās* instead of *bō-gaha*. The fact should have been noted, that several Portuguese and Dutch writers call it the "devil-tree."

Under "Cabook" Col. Yule's surmise that the word came from Portuguese *cavouco* (quarry) is shown to be correct. (Daalmans calls it *kapkok*, and not *kaphok*, as here printed).

The mis-spellings and erroneous surmises given under "Calamander Wood" remain uncorrected, and have, I am sorry to say, been copied into the *New English Dictionary*. As I pointed out in my notice of the first edition, the origin of the name is perfectly simple. *Calamander* is a corruption of the Sinhalese *kalumediriya*, which word easily resolves itself into its component parts—*kalu* (black) *medi* (middle), *ri-iri* (lines, striæ), *ya* (nominal termination). The description of the wood by Thunberg, in the first quotation given by Yule, completely bears out this derivation; though the learned German naturalist states that "in the Cingalese language *Calaminder* is said to signify a black flaming tree." Evidently the philological wiseacre who foisted this erroneous information on Thunberg thought that *minder* was from Sinhalese *mini-dediri*, which means "open, expanded, blown as a flower" (Clough), or else connected it with Sinh. *min*, one of the meanings of which is "light, effulgence." I cannot claim originality in setting forth the above simple derivation, for it was given years ago in the *Library of Useful Knowledge* (see Mendis's *Timber Trees of Ceylon*, by W. Ferguson, p. 7). By the way, calamander is surely not a "rose-wood," as Col. Yule calls it?

I come now to "Candy"—for so the name of the mountain capital of Ceylon is entered, not a hint being given that this spelling has long been superseded by "Kandy." What Col. Yule wrote of this place remains unaltered, as follows:—"A town in the hill country of Ceylon, which became the deposit of the sacred tooth of Buddah at the beginning of the 14th century, and was adopted as the native capital about 1592. Chitty says the name is unknown to the natives, who call the place *Maha nuvera*, 'great city.' The name seems to have arisen out of some misapprehension by the Portuguese, which may be illustrated by the quotation from Valentijn." As I showed, when reviewing the first edition, Valentijn simply borrows from Knox, whose words are quoted by Yule immediately above those of the Dutch writer. It is unfortunate that the learned compiler should have taken his information from Casie Chitty (who is nearly everywhere

referred to as *Chitty*, as though he were an Englishman!), for it is very erroneous. (And yet Ceylon writers, who ought to know better, go on repeating the same old blunders). According to the *Mahāvamsa*, the first Sinhalese king to make Kandy his capital was Vīra Vikrama, who began to reign in 1542; and it is noteworthy that the earliest mention of the Kandyan kingdom by the Portuguese occurs in connection with this king. The passage is quoted by Yule, but he dates it "c. 1530," which is much too early: 1545-46 is the probable date when the events described by Couto occurred, viz., the mission of the first Franciscan fathers to Kandy, and their attempt to convert the king, who is called "Javira Bandar" (Jayavīra Bandāra). But, strangely enough, Yule has overlooked the earliest Portuguese reference to the *town* of Kandy. This also occurs in Couto's narrative (Dec. VI, lib. IV, cap. viii), where we read of Antonio Moniz Barreto's marching from Batticaloa to "the city of Candea." The date of this was apparently May 1547. The first mention of Kandy (Senkadagala nuvara) in the *Rājāvaliya* is also in connection with this king, whom the writer calls Jayavīra. (Gunasekara in many places lays traps for the unwary reader by translating *kanda uda* or *udarata* by "Kandy.") The journal that records the first visit of the Dutch to Ceylon in 1602 spells the name "Candy," "Candi" and "Kandi" and it is from the Dutch that we inherited our spelling of the name.

Under "Ceylon," after the statement that "It has been suggested by Mr. Van der Tuuk, that the name *Sailan* or *Silan* was really of Javanese origin, as *sela* (from Skt. *silā*, 'a rock, a stone') in Javanese (and in Malay), means 'a precious stone,' hence *Pulo Selan* would be 'Isle of Gems,'" is inserted in brackets "This," writes Mr. Skeat, "is possible, but it remains to be proved that the gem was not named after the island (*i.e.* 'Ceylon stone'). The full phrase in standard Malay is *batu Sēlan*, where *batu* means 'stone.' Klinkert merely marks *Sailan* (Ceylon) as Persian." Mr. Skeat's comment is, I think, very pertinent, and disposes of this pseudo-Javanese origin of *Ceylon*. Three new quotations are given, from English writers of the seventeenth century, in which the forms *Celand*, *Silon* and *Zeilon* occur.

At the end of the article on "Chittagong" I still find the extraordinary statement, "*Chaturgrāma* is still the name of a town in Ceylon, lat. 6°, long. 81°." As I pointed out in my review of the first edition, the "town" referred to is Kataragama, the name of which has no connection with *katara* (four), but is said to be from the god of war Kārtikēya; though Clough derives it from *katara*, desert.

Of "Choya, Chaya, Chey," Col. Yule wrote that "It is exported from S. India, and was so also at one time from Ceylon." As far as I know, the export of choy-root from Ceylon has never ceased.

Under "Coffee" are given some new quotations, in which the fragrant beverage figures as *coho*, *coffao*, *eohu*, *caveah* and *cave*.

The derivation of "Colombo" is still left in doubt; and the printers have now turned Yule's "*Kalani*-ganga" into "*Kalani*-gangi"! It is strange how little we know of the early history of the place that is now one of the leading ports of the world.

In reviewing the first edition of this book I expressed a decided opinion that "Comboy" and "Cabaya" were identical, the former being a corruption of the latter; and in writing to me Col. Yule said he thought I was right. But I now feel doubtful of my correctness, and am inclined to think that Yule's explanation of "Cambay cloth" is the right one.

I am glad to see that under "Galle, Point de," Mr. Crooke inserts a note by the late Prof. Childers to *Notes and Queries* showing that the name can have no connection with *gala* (rock).

Under "Jafna, Jafnapatam," the editor adds an extract from the *Madras Glossary* giving the origin of the name.

Under "Putlam" Yule's indefinite "Mr. Ferguson" (really Mr. William Ferguson, as I showed in my former review) has now become "Mr. Fergusson."

Under "Tea" the editor inserts some further interesting facts regarding the pronunciation of the word in English, and the two forms *cha* and *té*; and under the names of the various kinds of tea there are a number of additions.

I have thus cursorily touched upon a few of the words dealt with in this fascinating work, which will always remain invaluable to the student, and will never fail to yield the casual reader entertainment as well as information. Every public library, especially in the East, ought to possess a copy. D. F.

LAYARD AND MITFORD.

INTERESTING REMINISCENCES.

Our Kurunegala correspondent writes:—"The extracts from the home papers and the correspondence published by you with reference to these eminent travellers have been read by me with absorbing interest. A brief holiday to the hills has prevented me sending you earlier some notes *apropos* the subject, and which, I hope, some day will see the light as part of a biographical introduction to a volume of legal reports prepared by me with the assistance of a brother member of the Bar.

Edward Ledwich Mitford was Government Agent of the North-Western Province in 1866. He retired, after three and twenty years' service, at the age of 56, in December of that year on a pension of £505 9s 4d per annum, E N Atherton succeeding him. Mitford was a distinguished traveller. Layard in his *Popular Account of the Discoveries at Nineveh* (1851) pp 1-2 thus refers to Mitford:—"During the autumn of 1839 and the winter of 1840, I had been wandering through Asia Minor and Syria, scarcely leaving untrod, one spot hallowed by tradition, or unvisited one ruin consecrated by history. I was accompanied by one, no less curious and enthusiastic than myself—my travelling com-

panion during a long journey from England to Hamadan was Edward Ledwich Mitford Esq., now of His Majesty's Civil Service in the island of Ceylon. We were both equally careless of comfort and unmindful of danger. We rode alone; our arms were our only protection; a valise behind our saddles was our ward robe, and we tended our horses, except when relieved from the duty by the hospitable inhabitants of a Turcoman village, or an Arab tent. Thus, unembarrassed by needless luxuries, and uninfluenced by the opinions and prejudices of others, we mixed amongst the people, acquired, without effort, their manners, and enjoyed, without alloy, their emotions, which scenes so novel and spots so rich in varied association cannot fail to produce. I look back, with feelings of grateful delight, to those happy days, when, free and unheeded, we left at dawn the humble cottage or cheerful tent, and lingering as we listed, unconscious of distance and of the hour, found ourselves, as the sun went down, under some hoary ruin, tenanted by the wandering Arab, or in some crumbling village, still bearing a well-known name. No experienced dragoman measured our distances, and appointed our stations. We were honoured with no conversations by Pashas, nor did we seek any civilities from Governors. We neither drew tears, nor curses from villagers, by seizing their horses or searching their houses for provision; their welcome was sincere; their scanty fare was placed before us; we ate, and came and went in peace."

Mitford was the first Englishman who came out to Ceylon overland, and the experiences of his travels are embodied in an enchanting work entitled: "A land march from England to Ceylon, forty years ago, through Dalmatia, Montenegro, Turkey, Asia Minor, Syria, Palestine, Assyria, Persia, Afghanistan, Scinde, and India, of 7,000 miles on horse-back. Illustrated with original sketches by Edward Ledwich Mitford, F. R. G. S. 2 vols. London. Allen and Company 1881." The following extract explanatory of the author's migration to Ceylon will be read with interest :—

"In 1839, after five years' residence and travelling in Morocco, I found myself in the unenviable position of being without occupation, when my attention was directed to the probability of employment in the Colony of Ceylon, either in the Government service, or in the newly-opened enterprise of coffee-planting, and thither I resolved to proceed. To reach Ceylon, I must either take the long sea-voyage round the Cape or the shorter and inconvenient one by the Mediterranean and Red Seas, with the caravan across the Isthmus of Suez. But moved by a love of travel, after consulting the map, I resolved to undertake the journey entirely by land. * * * At this time, a friend introduced to me a relation of his, who, he thought, would accompany me. I was somewhat taken aback of his youthful appearance, he being nearly a decade younger than myself. However, he accompanied me as far as Hamadan in Persia, when to my great regret he parted company, he returning home by Bushire and Bagdad, and I continuing the other half of the journey alone."

There were the remains of a half finished house, below the Powder Magazine, on the right of the road leading to the Kachcheri and Maligawa at Kurunegala, which (as well as the ground on which it stood) belonged to Mitford. It is amusing to know how he became the owner. Mitford, when Assistant to the Government Agent at Kurunegala, for want of a house, built the structure in question, at his own cost and on his own responsibility, fancying that there would be no difficulty in obtaining the necessary official sanction for such an urgent want, on completion of the work. Accordingly, the building progressed : the walls were raised, the wood-work of the roof completed, and only the tiles had to be put on, to make the house habitable. But, alas!

"THE BEST LAID PLANS OF MICE AND MEN GANG AFT AGLEY."

The Government, through its officers, condemned the building, and refused to sanction the expenses incurred in its construction. All this fell rather heavily on Mitford, who was forced, under the circumstances, to purchase the ground and tenement as it then stood. Foolishly no steps were taken to complete the building, and there it was everyday adding to its dilapidation—a monument of official determination and private obstinacy or worse! Mitford continued to pay the assessment taxes on this property through his local agents for many years after his retirement from the service and departure from the island. In the "eighties," Government, after previous refusals, deigned to accept an offer for the purchase of the land and bought it up. The tottering building, latterly only the stones were to be seen—was razed to the ground, and the bricks purchased by the contractor who utilised them for the building of the Town Hall at Kurunegala.

A cross-street in the town of Kurunegala, is called "Mitford Street" owing to the residence of that official having been there during his employment in the service."

Supplement to this day's issue.

Exports of Ceylon Produce from Colombo and Galle during the past Ten Years.

Compiled as from 1st January to 31st December in each Year.

	Coffee, Cwt. Plantation	Coffee, Cwt. Native	Coffee, Cwt. Total	Cinchona Branch & Trunk lb.	Black Tea lb.	Cocoa Cwt.	Cardamoms lb.	Cinnamon Bales lb.	Cinnamon Chips lb.	Wild Cinnamon Bales lb.	Wild Cinnamon Chips lb.	Coconut Oil Cwt.	Copra Cwt.	Desiccated Coconut lb.	Coconut Poonac Cwt.	Coconuts No.	Plumbago Cwt.	Coir Rope Cwt.	Coir Yarn Cwt.	Coir Fibre Cwt.	Ebony Cwt.	Deer Horns Cwt.	Sapanwood Cwt.	Palmyra Fibre Cwt.	Kitul Fibre Cwt.	Citronella Oil lb.	Cinnamon Oil oz.
Total Exports from 1st January to 31st December, 1902 ...	11422	14	11436	407701	146194397*	60455	615972	2555313	1763679	8700	38146	512498	374796	16227565	247697	12558212	495501	15631	77157	116000	12475	...	9354	24038	2061	1294750	103773
Do do do do 1901 ...	9631	91	9722	601039	145188244*	49159	559704	2756270	1516083	8551	5066	453531	429865	14056493	204356	14850781	453267	13030	76758	122929	10359	..	7180	12353	2541	1430168	73193
Do do do do 1900 ...	10773	4	10777	510162	148431639	33476	557455	2678111	1863408	45339	105914	443959	302467	13604913	185992	14995909	383350	12572	67415	115090	6149	..	14399	91585	3478	1409058	72904
Do do do do 1899 ...	18512	..	18542	618921	129894156	42745	499959	2515031	1829127	195008	628418	400979	325401	12571084	174788	11723392	616385	12090	75525	91588	11658	..	5560	16832	2030	1478756	118778
Do do do do 1898 ...	13173	140	13313	975784	119769071	36982	531473	2531050	1414165	†	†	435033	506277	13040534	216620	12027714	473075	12333	75819	95770	3375	..	5255	41522	3704	1365917	183312
Do do do do 1897 ...	19102	371	19383	653346	116051567	34503	632830	2674537	1067051	..	..	409600	106601	12054452	192470	13610508	357257	11732	91450	74470	3380	...	5742	16793	1984	1182867	181636
Do do do do 1896 ...	21882	865	22747	1349560	108141412	31300	453595	2225865	808502	..	...	343797	50049	10003598	133358	13888581	340491	10143	68336	46516	6664	...	9460	18757	2071	1132141	132057
Do do do do 1895 ...	60029	3891	63920	921085	97939871	27420	374635	2169527	920138	..	..	384140	20765	8551073	174175	10800712	334921	13082	90112	77220	7240	..	6327	26565	3590	1162255	78587
Do do do do 1894 ...	31553	652	32205	2497616	84591714	31110	306317	1869905	657726	..	...	487571	30842	5722202	165166	8292699	339521	14415	61746	67738	8393	457	5191	29757	3277	938171	58150
Do do do do 1893 ...	52539	2651	55190	3571325	84106064	30658	428210	1995257	667115	..	...	389712	41923	6414968	188538	11072028	337605	7819	81831	56104	6381	349	6078	35004	2417	665530	140334

* Besides 2,796,844 lb. of Green Tea in 1902, and 1,110,774 lb. do in 1901. † No records previous to 1899.

Distribution of Ceylon Coffee, Tea, Cocoa, and Cinchona for Years 1901 and 1902.

Countries	Black Tea 1902 lb.	Black Tea 1901 lbs.	Green Tea 1902 lbs.	Green Tea 1901 lbs.	Coffee—cwts. Plantation	Coffee—cwts. Native	Coffee—cwts. Total	Cinchona Branch Trunk lbs 1902 lbs.	Cinchona Branch Trunk lbs 1901 lbs.	Cocoa cwts.
To U. K. ..	102979459	105497339	641443	237231	7844	–	7884	325774	551611	14200
,, Austria ..	65392	50058	...	..	1	..	1	..	..	...
,, Belgium ..	93076	17781	...	..	143	..	143	..	5	742
,, France ..	233220	517866	—	..	4	...	4	...	...	1115
,, Germany ..	611818	588104	...	..	23	..	23	31083	6766	4119
,, Holland ...	5061	10041	...	..	...	..	..	..	..	..
,, Italy .	20307	13921	...	..	...	..	..	1768	..	32
,, Russia ..	11599953	9409731	127115	44162	8	..	8	623	..	100
,, Spain ..	3293	250	..	..	...	..	..	..	...	31
,, Sweden ..	90107	65191	—	.	—	..	..	..	..	545
,, Turkey ..	40663	40978	...	.	...	...	..	..	..	—
India ...	870140	1122089	29210	16124	99	...	99	..	..	7
,, Australia ..	18718794	20638208	..	2976	2056	14	2070	..	..	801
,, America ...	5048157	3704335	1968456	797796	849	...	849	3313	25350	7
,, Africa ..	664278	305730	1200	..	16	..	16	2080	..	—
,, China ..	4663008	2682234	28120	12455	63	..	63	42560	4325	100
,, Singapore ...	218163	147560	...	...	1	...	1	...	..	5641
,, Mauritius .	72659	85376	..	...	230	..	290	..	..	..
,, Malta ..	333636	312683	..	...	...	..	..	...	...	...
Total export from 1st Jan to 31st Dec, 1902	146194397	145188244	2796844	1110774	11422	14	11436	407201	601089	60455

Countries	Cardamoms lbs.	Cinnamon Bales lbs.	Cinnamon Chips lbs.	Wild Cinnamon Bales lbs.	Wild Cinnamon Chips lbs.	Coconut Oil 1902 cwts.	Coconut Oil 1901 cwts.	Copra cwts.	Desiccated Coconut lb.	Poonac cwts.
To U. K. ..	330322	418531	190035	...	24590	301647	226514	12908	9973170	21
,, Austria ..	.	6835	52050	...	..	24774	10082	15364	156300	...
,, Belgium ..	60	129081	215053	...	...	6853	5672	22944	410730	110021
,, France ..	148	63430	77678	..	5628	238	845	110141	23200	...
,, Germany ..	75516	895629	591305	8700	..	15253	12354	170819	2067490	136523
,, Holland ...	..	52100	208600	..	..	..	2716	476	325520	..
,, Italy .	1035	241358	225284	..	..	6055	10882	...	...	10
,, Russia ..	448	150	...	..	..	151	134	33136	..	..
,, Spain ..	..	22492	182060	..	..	..	..	..	40950	..
,, Sweden ..	2014	..	..	..	...	1129	199	...	97130	..
,, Turkey ..	..	112	...	..	...	...	...	..	...	...
India ...	101386	..	2296	...	4928	64370	141129	5	1950	..
,, Australia ..	...	4674	34248	.	..	9	107	..	795050	221
,, America ...	7039	413340	28675	..	...	92996	27205	...	2249143	...
,, Africa ..	2728	..	.	..	.	218	76	..	65580	1
,, China ..	7548	16200	112	...	..	848	1319	..	3052	..
,, Singapore ...	2390	..	..	..	..	1029	3197	...	..	...
,, Mauritius .	..	..	..	..	..	...	..	...	..	..
,, Malta ..	..	...	..	..	..	...	..	..	...	..
Total export from 1st Jan to 31st Dec, 1902	615922	2555313	1763679	8700	38146	512498	453581	374796	16227565	247697

Countries	Coconuts No.	Plumbago 1902 cwts.	Plumbago 1901 cwts.	Coir Rope cwts.	Coir Yarn cwts.	Coir Fibre cwts.	Ebony cwts.	Sapanwood cwt.	Palmyra Fibre cwts.	Kitul Fibre cwts.	Citronella Oil lbs.	Cinnamon Oil ozs.
To U. K. ..	9316378	147020	197443	...	57506	63258	2613	4722	13740	2061	556096	70147
,, Austria ..	15310	...	..	...	195	...	...	1200	.	...	..	...
,, Belgium ..	313620	18392	24770	..	311	22594	1131	..	4201	...	..	...
,, France ..	90020	1613	606	...	2035	832	231	..	...	..	2376	27002
,, Germany ..	1169720	66051	50680	...	5556	21150	4594	3337	4930	10	146518	1200
,, Holland ...	24415	1165	202	...	645	2350	3612	..	834	..	..	..
,, Italy .	11285	83	100	..	1077	—	..	..	...	...	...	...
,, Russia ..	...	1678	3718	..	...	7	..	...	...	..	..	...
,, Spain ..	...	..	...	...	...	..	..	..	—	..	..	...
,, Sweden ..	15120	433	204	...	...	10	...	..	20	...	...	..
,, Turkey ..	..	..	...	...	...	—	..	...	..	..	..	...
India ...	149500	1998	546	52	5796	300	42	95	..	..	5400	5424
,, Australia ..	1944	388	940	20	455	5652	..	...	52	..	26408	...
,, America ...	102021	255291	174083	..	2052	6513	306	..	191	..	633970	..
,, Africa ..	1375621	..	...	164	25	2551	20	..	...	...	...	..
,, China ..	—	1399	...	43	257	..	14	...	..	..	17116	..
,, Singapore ...	.	...	..	15354	212	429	..	...	...	..	1867	..
,, Mauritius .	..	..	..	..	...	..	...	..	..	..	..	..
,, Malta ..	..	...	...	...	..	..	..	..	..	..	..	..
Total export from 1st Jan to 31st Dec, 1902	12558212	495501	453267	15631	77157	116000	12475	9354	24038	2061	1294750	103773

Monthly Shipments of Ceylon Black Tea to All Ports—1901 and 1902.

	United Kingdom 1901. lb.	United Kingdom 1902. lb.	Russia 1901. lb.	Russia 1902. lb.	Continent of Europe 1901. lb.	Continent of Europe 1902. lb.	Australia 1901. lb.	Australia 1902. lb.	America 1901. lb.	America 1902. lb.	All Other Ports 1901. lb.	All Other Ports 1902. lb.	Total 1901. lb.	Total 1902. lb.
January ..	12617540	9056013	727093	612958	101240	151984	740374	714247	138235	125795	275598	885215	14603250	11050212
February ..	[illegible]	7456219	...	919709	185811	121158	1778987	1020948	272221	116332	458774	385705	10974059	10018071
March ..	7932090	8198179	1288010	896518	82055	91081	2012070	1718916	510734	566263	350874	311191	12175833	11777143
April .	8474940	8521388	1297873	988695	111082	93198	2245142	2081904	10030	807390	226776	290137	12365843	12782715
May ..	10570586	9638555	937138	238239	63310	80669	1644160	2000522	288383	242651	306644	436410	13810271	12637046
June ..	11425044	12563050	835711	1984976	93699	166479	1730886	1828695	276827	403005	404687	714471	14766854	17660676
July ..	8488109	10724781	700557	1779011	169567	108785	2593248	1747960	442100	464858	669163	846036	13083039	15671431
August ..	6080406	7396614	949747	1065599	82595	208594	1612929	1574498	266787	461229	227578	678095	9170042	11884929
September	6093129	6652202	485429	795315	74896	70262	1779523	1857897	214779	563981	388218	688730	9035959	10628487
October ..	8989024	6559765	762616	360844	181891	79943	1840192	1567796	115545	483085	273928	655827	12163196	9707260
November	6229472	6386229	1018096	937757	190988	213619	1539370	1033030	504614	282794	183124	547508	9666564	9400036
December	12235867	9072552	830226	285785	189520	60628	990563	1577381	313594	558864	366244	626319	14876954	12181529
Total ..	105,497,339	102809489	9,609,734	11699953	1,539,986	1206140	20,638,208	18718794	3,704,335	5048157	4,549,627	6569644	145,188,244	146194397

Monthly Shipments of Ceylon Green Tea to all Ports in 1901—1902.

	United Kingdom 1901. lb.	United Kingdom 1902. lb.	Russia 1901. lb.	Russia 1902. lb.	Australia 1901. lb.	Australia 1902. lb.	America 1901. lb.	America 1902. lb.	All Other Ports 1901. lb.	All Other Ports 1902. lb.	Total 1901. lb.	Total 1902. lb.
January ...	...	64021	...	..	...	...	...	118332	..	—	...	177353
February ...	...	24839	..	4420	...	...	...	26480	...	515	..	56254
March ...	75583	14800	...	24210	...	..	227889	62318	12173	100	815660	101423
April ...	18016	13676	...	8000	...	...	79403	63610	7865	9165	99784	84451
May ...	33889	70103	...	..	1714	..	65980	82676	1454	8280	103037	106059
June ..	12814	87340	..	74225	...	..	23046	84184	...	4500	85860	250249
July ...	4478	40574	...	..	...	...	46896	194016	...	...	51374	234590
August ...	...	70000	..	..	...	...	12260	105982	...	1600	12260	178482
September ...	5945	50771	...	..	...	...	15304	333704	...	6800	21249	391275
October ...	12021	68679	..	..	...	...	28560	281168	..	..	41481	349847
November ...	16540	48076	5615	..	...	..	36296	156653	...	20080	58541	224809
December ...	15255	40123	38547	..	1262	..	11786	365843	7612	2240	27011	408506
Total ...	237,231	644443	44,162	127115	2,076	...	797,796	1968456	28,609	48280	1,110,774	2796844

THE PEARL FISHERIES OF CEYLON.

No. 1.

Mr. W. A. HERDMAN, D.Sc., F.R.S., to His Excellency the LIEUTENANT-GOVERNOR of Ceylon.

July 1, 1902.

SIR,—I ARRIVED in Ceylon with Mr. James Hornell on 20th January, 1902, and left on 7th April. Mr. Hornell remains in the Island for a year longer in order to carry out the experiments I have arranged and complete our work. We shall then, in consultation, draw up our final and detailed report; but I think it well to submit to you a brief account of our observations and opinions even at this early stage.

The investigations which I was able to make during the seventy-eight days spent in Ceylon deal with the following somewhat independent matters :—

(1) The inspection of the pearl oyster banks.
(2) The investigation of the conditions under which the pearl oyster lives in the Gulf of Manuar.
(3) The investigation of the marine zoology of other parts of the sea around Ceylon, especially in the interests of trawling and other fishing industries.
(4) The selection of the best locality for a marine laboratory.

These are all dealt with briefly in the paragraphs that follow. Fuller reports upon all will be given when our material has been worked up.

I wish to record here my entire satisfaction with the work done by Mr. Hornell. He assisted me throughout in a most able and indefatigable manner, and I felt assured on leaving Ceylon that he was entirely competent to carry on this work and any other marine biological work of a similar nature on his own responsibility in the future. It would have been quite impossible for me to have got through the work I did in the limited time had it not been for Mr. Hornell's skilled assistance.

It is a pleasure also to record my indebtedness to Captain J. Donnan, C.M.G., the retiring Master Attendant at Colombo, and to Mr. Legge, his successor, who, during the time that I spent with them on the pearl oyster banks, spared no trouble in trying to let me see as thoroughly and satisfactorily as possible the various banks and beds, the different kinds and ages of oysters, and the conditions under which these and their enemies exist.

My arrival in Ceylon was so timed as to leave a few weeks free before the period in February at which Captain Donnan had previously intimated that he would be able to commence his annual inspection of the banks. This interval I had thought desirable, if not essential, in order that I might make myself acquainted with the biological conditions in the Gulf of Mannar, and with any special features in which that region differs from the other seas around Ceylon. For the purpose of this preliminary biological survey the ss. "Lady Havelock" was placed at my disposal, in the first instance, for a period not to exceed three weeks. We joined the ship* for this cruise on the evening of Thursday, 30th January, and arrived back in Colombo on the evening of Wednesday, 19th February, having used the steamer for twenty days.

The few days' interval between our arrival in Colombo and the date when the steamer was available for the first cruise was spent by Mr. Hornell in unpacking our apparatus and stores, and by myself in seeing every one I could hear of on the Island who had worked or written on the pearl oyster, or was supposed to have information or opinions on the subject. I was fortunate in being able to meet and discuss the subject with the following, amongst others :—Dr. A. J. Chalmers of Colombo, Mr. J. C. Willis of Peradeniya, the late Mr. Oliver Collett of Roselle, Dr. Fritz and Dr. Paul Sarasin (who had worked at the zoology of Trincomalee harbour, where the pearl oysters were said to have been established by Dr. Kelaart nearly fifty years ago), and Professor Alexander Agassiz, who had recently been investigating the sea to the south and west of the Gulf of Mannar. Later on I met Sir William Twynam, who has had a long-extended experience of the fisheries, and for weeks on the banks I had the advantage of constant association with Captain Donnan, whose knowledge of the topography and condition of the oyster beds is unrivalled.

In the first cruise of the "Lady Havelock" (31st January to 19th February) my objects were :—

(1) To investigate the general biology of the seas around Ceylon, and especially of those places were pearl oysters were said to exist.
(2) To examine more carefully any localities that seemed to be likely spots for pearl oyster banks.
(3) To investigate the fauna, the bottom deposits, and the characters of the water in the Gulf of Mannar for comparison with the conditions at Trincomalee, Galle, and other parts of the coast.
(4) To make experimental hauls of the fish and the "shrimp" trawl round the coast so as to obtain information as to the prospects of fish-trawling as an industry in Ceylon waters.
(5) To look into any other departments of marine biology which might be prosecuted as useful industries.

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* I ought to state that on the whole the "Lady Havelock" proved a very suitable vessel for the purpose, and I desire to record also my sincere thanks to Captain Campbell and the officers and others on board for the pains they took to carry out my wishes.

On leaving Colombo on 31st January we went northwards first towards the Gulf of Mannar, and started dredging and trawling off Negombo, where a new bed of young pearl oysters was discovered, and then off Chilaw, where there are several well-known banks. A description of each day's work is unnecessary in this preliminary report, but I may note here that during this and the following cruise of the "Lady Havelock" a large number of hauls of the dredge and trawl, amounting to over 250 in all, were made, and nearly all of these were successful. The localities, conditions, and results of every haul were carefully entered each day in our journal, and these notes when fully worked up, compared, and analyzed will afford an important body of information in regard to the marine-zoology of the Ceylon seas. I propose to give all this information in full detail in my final report.

During this first cruise we were able to make ourselves acquainted with the conditions under which the pearl oysters live on the chief banks, such as the East and West Cheval Paars, the Periya Paar, Muttuvaratu Paar, &c., and we also took some series of dredgings across the intervening spaces between the banks, and especially close around the banks, in order to ascertain clearly what conditions determine an oyster "Paar."

We also made a careful examination of the ground in several places outside the oyster banks, to the westward, on the chance of finding beds of adult oysters, from which possibly the spat deposited on the known banks might be derived. No such beds outside the known "Paars" were found either on this or the following cruise.

The water in the Gulf of Mannar generally was found to be of medium density, the specific gravity averaging bout 1·023 for a temperature of 80° F. The bottom deposit is mainly a coarse sand, with occasional hard ridges and patches usually formed of coral and nullipores. The sand, however, differs much in its nature, composition, and origin in the different places; and the harder bottoms can be divided into at least two classes, the one of which is evidently suitable for oyster growth, while the other is not. The characters of all these deposits will be fully detailed in our final report.

The water outside the pearl oyster banks deepens rapidly. About a mile to the west of the Periya Paar (mostly 8 to 10 fathoms) a depth of 20 fathoms may be found. Five miles to the west there is a sounding of 134 fathoms; and out in the centre of the southern part of the Gulf of Mannar, to the west of the pearl oyster banks off Chilaw, depths of between one and two thousand fathoms are reached. The bottom deposits in these great depths are Globigerina ooze and "green mud," which are entirely different in nature and origin from the terrigenous sand round about the pearl oyster banks. The very steep slope from 10 or 20 fathoms down to about 100 fathoms or more, all along this coast, seems in most places to have a hard bottom covered with Alcyonaria, sponges, deep-sea corals, and other large encrusting and dentritic organisms. Neither on this slope nor in the deep water beyond the cliff did we find any ground suitable for oysters to live upon.

Although we found young oysters in many localities, and the microscopic spat or youngest attached stage of the oyster in several, we came upon no marked accumulation of old breeding oysters which could be regarded as the parent stock from which the successive younger broods were derived. And as in all we spent about six weeks in examining the locality, and took over 160 hauls of the dredge and trawl in the Gulf of Mannar, in addition to many divings, and examined with care all likely spots that occurred to us without result, we are inclined to think that there is no such assemblage of old oysters outside the banks as has by some been supposed to exist. During this cruise the largest oysters we found upon the banks were about 9 cm. in greatest length, and were probably three years or a little over three years old; but 7 to 8 cm. (about three inches) was a commoner size. There were very large numbers of these found in several localities and the animals seemed to be in a thoroughly healthy condition. Samples of all the oysters obtained by us were examined for parasites and for any diseases or abnormal conditions, and although a considerable number of minute parasites, both Protozoon and Vermean, were found, still that is by no means unusual amongst molluscs, and we do not consider that we saw anything which gave evidence of any epidemic disease or widespread and injurious prevalence of parasites.

In some localities, such as the Cheval bank off Aripu, we were struck by the great abundance and the healthy condition of the larger oysters, which ought to be full-grown and ready for fishing in another year or two.

In addition to these larger oysters, we also found at many localities numbers of much smaller oysters, evidently in their first year, measuring from 1·5 to 3 cm. in length, and of different ages, between three and nine months. The majority of these were probably about four or five months old, and are therefore oysters which were set free and then deposited as spat some time last autumn, up to about October, 1901. The total number of these young oysters on the ground is enormous. We estimated that there were probably over a hundred thousand million (100,000,000,000) of them (of rather small size) on the Periya Paar alone. It was obvious to us, however, that these young oysters cannot be expected to attain maturity in their present position. They are too closely crowded. There is not enough food for them on and above the ground. Unless they are transplanted to a more favourable locality further inshore, the probability is that they will die off before becoming much larger. Fortunately there ought to be no great difficulty in the transplanting, even on a large scale. They seem at present in a healthy condition, although probably rather undersized for their age because of scarcity of food; they adhere together in clumps easily dredged up without tearing the byssus or adhering threads, and there is apparently suitable unoccupied ground where they could be planted out on and about the Cheval Paar a few miles inshore.

These observations made on the first cruise in February were confirmed and extended by our work on the second cruise in March, and when taking part with Captain Donnan in his inspection of the banks.

On leaving the Gulf of Mannar we passed through the Paumben Strait and trawled in Palk Bay. We found that wide shallow area to have an even soft bottom very suitable for fish trawling, and it is apparently inhabited by an abundant and valuable flat fish fauna.

The next locality that we desired to investigate was Trincomalee, to which our attention had been directed both by the work of Dr. Kelaart in 1856-59, and by certain letters in the Ceylon

uewspapers, especially one from Mr. J. B. Colomb at Trincomalee, stating that he had found true pearl oysters between tide-marks in the inner bay, and that some of these oysters had contained pearls.

It is known that Dr. Kelaart nearly fifty years ago either found or introduced (probably both) pearl oysters at Trincomalee, and that he had them under observation at some half dozen localities, of which several were inside the inner bay or harbour and two or three outside. At Trincomalee we saw Mr. Colomb and made inquiries from all those we could hear of as having any knowledge or records of the occurrence of pearl oysters. Then we spent four days in dredging and otherwise examining the various bays and creeks in the harbour from the ship's boats and native canoes. We found plenty of pearl oysters at low tide mark or in shallow water near York Island, but although we took six successful hauls of the dredge outside the harbour, off the Sami Rock, in exactly the locality and at the depths mentioned by Mr. Colomb (who was with us in the boat) and by the native fishermen, we were unable to obtain any oysters, and did not even find any dead valves or fragments. In fact the bottom in that locality did not seem to us at all suitable for oysters.

It is evident, however, that the pearl oyster does occur at Trincomalee, and can live and grow in shallow water in the inner harbour. It is also plain from our observations that there is nothing in the physical characters of the sea water at Trincomalee sufficiently different from that of the Gulf of Mannar to lead one to believe that the oysters would not grow large and produce pearls here just as they do on the west coast. And, finally, from the specimens we were shown there is no doubt that the oysters of Trincomalee harbour do, at least occasionally, produce good pearls. It is perhaps well to state that in all the above remarks we refer to the true pearl oyster (*Avicula fucata*, Gould = *Margaritifera vulgaris*, Schumacher), such as is found on the "Paars" in the Gulf of Mannar, and not to the "window" oyster (*Placuna placenta*), which was formerly fished in Tamblegam lake to the south of Trincomalee. We spent a day investigating that land-locked bay from the ship's boat, and are inclined to think that the industry might be revived, and that pearl oysters might also be introduced into Tamblegam with advantage.

In regard to the general suitability of Trincomalee harbour for pearl oyster cultivation on a large scale, and as the site of a Marine Biological Laboratory, our opinion is on the whole unfavourable. Trincomalee possesses certain obvious advantages for continuous biological work, such as shelter from both monsoons, and a great range in depth within a limited area, all parts of which are easily accessible. But a very large proportion of the bottom of the various creeks is occupied by soft mud, and we are inclined to think from the evidence before us that at certain seasons a good deal of fresh water enters the harbour from the land and washes so much fine clay into the sea as to render most parts of the area unsuitable for the necessary work. However, it must be remembered that we have as yet only investigated the locality at one time of year, and that we shall have fuller information as to these and other points at other seasons before drawing up the final report.

After leaving Trincomalee we went to the south end of the Island to examine Beligam Bay and Galle from both points of view—pearl oyster cultivation and fish-trawling.

Beligam was found to be quite unsuitable for laying down pearl oysters. It is entirely open and exposed to the south-west monsoon, and the bottom is sand, with, so far as our observations went, no hard ground suitable for the attachment of oysters.

Galle, on the other hand, seemed to us, after careful investigation lasting over five days, to be without doubt the most suitable point on the coast of Ceylon for the establishment of a Marine Laboratory and the prosecution of observations and experiments on living oysters. Galle has a fringing coral reef round its western shore inside which is in places a shallow lagoon with a hard bottom, formed partly of living animals and partly of dead coral fragments, making a deposit very like that on some of the "Paars" at Mannar. At the opposite or south-eastern part of the bay, inside Watering Point, there is also some hard ground formed in part of coral, and at this spot we actually found the pearl oyster living.

Later on the practicability and the possible advantages of working a Marine Laboratory at Mount Lavinia, at Colombo (Galle Face), Mutwal, Mannar, Arippu, and other places on the north-western coast were carefully considered, but our opinion is that Galle has natural advantages which render it the best site on the coast of Ceylon.

We also took some hauls of the trawl round the southern end of the Island, and found good fish-trawling ground between Callehogalle bank and Watering Point, where at a depth of 20 to 30 fathoms we obtained in one haul of the net over 1,500 fish, many of them small, but mostly edible.

This first cruise concluded with a few days' work up the south-western coast from Galle to Colombo, which showed us, off Panadure, some hard ground made up largely of nullipores, which might possibly be worth planting with young pearl oysters from the Gulf of Mannar.

On returning to Colombo for the purpose of joining Captain Donnan in his inspection of the pearl oyster banks, I saw for the first time the native barque "Raugasameeporawes" and the steam launch "Serendib," and on examining them critically it was obvious, both to myself and to the ship's officers who were with me, that neither vessel would be able, without considerable changes, which could not be effected in time, to carry on the work which I still had to do. On pointing this out to Captain Donnan he agreed with me, and when we waited upon the Lieutenant-Governor and represented the matter to him, he promptly authorized us to arrange for the engagement of the "Lady Havelock" for a further period of three or four weeks, as might be necessary, from 24th February. Thus it resulted that the "Lady Havelock" accompanied the two native barques "Rangasameeporawee" and "Sultan Secandra" and the ss. Serendib" to the Gulf of Mannar, where, in addition to carrying on my special work, she was on occasions of service in towing Captain Donnan's barque and so saving some valuable time. The second cruise of the "Lady Havelock" lasted from 24th February to 20th March, inclusive, three weeks and four days. During the greater part of that time our steamer kept near to Captain Donnan's barque, and we accompanied him in his inspection of the banks. Not only had we thus the full advantage of the various vessels and their crews by means of which to obtain information, but Mr. Hornell and I were also able to talk over

the work daily with Captain Donnan and Mr. Legge. Later on we were joined by Sir William Twynam from Jaffna. That gave a unique opportunity of hearing from these two veteran inspectors and investigators about the former condition of the various banks and of the past history of the pearl fisheries.

During this cruise the early morning and forenoon were usually occupied in following the operations of the divers, and in examining and recording the material brought up from different parts of the various "Paars." About midday, when the divers ceased work, we started off in the "Lady Havelock" to dredge the neighbouring grounds between the oyster banks, or on parts of the Paar in regard to which we wanted further information. In this way, beginning in the north of the district of Arippu, we examined the large and important East and West Cheval banks and the Periya Paar and several smaller banks lying some to the north and some to the south.

We also, when in that neighbourhood, landed at various parts of the coast in the endeavour to find a suitable spot for a small Marine Laboratory, from which oyster culture and experiments could be conducted. We tried Mannar, Arippu, Chilavaturai, Kodramallai, and later on the shores of Portugal and Dutch Bays, but without success. We could find no spot on the shores of the Gulf of Mannar that seemed suitable for the purpose, and none certainly with the natural advantages of Galle.

On several occasions we, in the "Lady Havelock," left Capt. Donnan and the barques for a couple of days in order to run lines of dredgings across some of the deeper or more remote parts of the region, especially to the north and west.

We then moved south to the Paars off Kodramallai Point, and left Captain Donnan on 19th March, as it was desirable that Mr. Hornell and I should now proceed to Galle to make the necessary arrangements as to establishing a laboratory there. On the way south we examined again the beds off Chilaw and off Negombo, and arrived at Colombo on the evening of Thursday, 20th March.

The general result of this second cruise, and of the inspection of the banks with Captain Donnan, was to confirm our former work and show that there is really an abundance of oysters on the banks, although probably the greater number are upon ground where they cannot grow to maturity. We were able to demonstrate these points and others, such as the microscopic food and eggs of the oysters, to our companions Sir W. Twynam, Captain Donnan, and Mr. Legge, and to discuss them fully and exchange views. All these served to reinforce and establish our former opinion that the chief remedial measure which ought to be adopted in the interests of the fisheries is the regular transplantation of young oysters from grounds such as the Periya Paar, where they are deposited as spat, but where, if left, they seem to be doomed for the most part to perish, to suitable hard bottoms about the Chevals and the Paars further south.

A number of experiments* that we made in our wooden tanks on board both the barque and the "Lady Havelock," and also in the sea water baths of the steamer, showed us that there ought to be no great difficulty in carrying out the transplantation without any serious mortality of oysters.

There are some points which are evidently of considerable practical importance to determine in connection with the matter, such as the best size of oyster to transplant, and the right season of the year (October or March) for the operation. Also whether only young oysters that are attached to movable objects can be used, or whether byssus that has been cut or torn can be replaced without weakening the animal. Upon these and several allied questions Mr. Hornell will continue to experiment, and will report progress to me from time to time.

It was now necessary to make definite arrangements about Mr. Hornell's laboratory, and Galle having been decided on as the most suitable spot, and preliminaries having been arranged with the Lieutenant-Governor by correspondence, it seemed desirable that I should see for myself the various quarters that had been proposed, and advise Mr. Hornell as to any necessary alterations and fittings. We took with us some samples of living oysters, both large (three years old) and small (6 months), which were conveyed safely in large "chatties" of sea water by steamer and train from Mannar to Galle, a journey occupying with our necessary stoppages four complete days. We were, however, able to deposit most of these oysters in a living condition in the sea at Galle on the evening of 22nd March. They soon recovered activity, and were found next day climbing about the chatties and netting in which they were confined.

The next three days were spent at Galle in examining offices and bungalows in the Fort, in the native bazaar, and near Bayley's Villa on Glossenberg. In the end certain conclusions were arrived at, which have already been reported to the Lieutenant-Governor, and have I believe been acted upon, the result being that Mr. Hornell is now established in Galle, carrying on the work which I left in his hands. I shall hear from him at frequent intervals, and shall send him fresh instructions from time to time as may be necessary. The results of Mr. Hornell's work will be given in our next report.

After having settled matters at Galle so far as was then possible, Mr. Hornell and I returned to Colombo and then took coach to Chilaw, and from there by boat we reached the more southerly pearl banks off Karaitivu, where we rejoined Captain Donnan on the barque. Mr. Hornell remained till the end of the inspection, and I was there from 28th March till 4th April, when I had to return to Colombo in the "Serendib" in order to leave for England on the 7th.

During that final week on the pearl banks I took part in Captain Donnan's inspection of the banks off Dutch Bay, and also carried on experimental laboratory work with Mr. Hornell. I also took the opportunity of talking over the practical details of the transplantation of young oysters with Mr. Legge, and I am convinced that he and Mr. Hornell, or Mr. Hornell acting for Mr. Legge in the matter, would have no difficulty in laying out some millions of young oysters from the Periyar Paar upon the Cheval Paars, or other suitable ground, at the next visit to the banks.

There are many detailed points bearing upon the life and health of the pearl oyster and upon the ravages made by its enemies, which I have not mentioned in this preliminary report, but which

* The particulars of these and other experiments will be given in our final report.

will be dealt with in full in the final report. I have also thought it well to defer, until our specimens are fully worked up, my remarks upon the marine biology in general and upon the trawl fisheries and other marine industries upon which biology has a bearing.

The leading points in the conclusions I have come to in regard to the pearl oysters of the Gulf of Mannar may be summarized as follows :—

(1) The oysters we met with seemed on the whole to be very healthy.
(2) There is no evidenco of any epidemic or of much disease of any kind.
(3) A considerable number of parasites, both external and internal, both Protozoon and Vermean, were met with, but that is not unusual in molluscs, and we do not regard it as affecting seriously the oyster population.
(4) Many of the larger oysters were reproducing actively.
(5) We found large quantities of minute "spat" in several places.
(6) We also found enormous quantities of young oysters a few months old on many of the Paars. On the Periya Paar the number of these probably amounts to over a hundred thousand million.
(7) A very large number of these young oysters never arrive at maturity. There are several causes for this :—
(8) They have many natural enemies, some of which we have determined.
(9) Some are smothered in sand.
(10) Some grounds are much more suitable than others for feeding the young oysters, and so conducing to life and growth.
(11) Probably the majority are killed by overcrowding.
(12) They should therefore be thinned out and transplanted.
(13) This can be easily and speedily done, on a large scale, by dredging from a steamer, at the proper time of year, when the young oysters are at the best age for transplanting.
(14) Finally, there is no reason for any despondency in regard to the future of the pearl oyster fisheries, if they are treated scientifically. The adult oysters are plentiful on some of the Paars and seem for the most part healthy and vigorous; while young oysters in their first year, and masses of minute spat just deposited, are very abundant in many places.

To the biologist two dangers are, however, evident, and, paradoxical as it may seem, these are *overcrowding and overfishing.* But the superabundance and the risk of depletion are at the opposite ends of the life-cycle, and therefore both are possible at once on the same ground,—and either is sufficient to cause locally and temporarily a failure of the pearl oyster fishery. What is required to obviate these two dangers ahead and ensure more constancy in the fisheries is careful supervision of the banks by some one who has had sufficient biological training to understand the life-problems of the animal, and who will therefore know when to carry out simple measures of farming, such as thinning and transplanting, and when to advise as to the regulation of the fisheries.

I have, &c.,
W. A. HERDMAN.

No. 2.

Sir W. C. TWYNAM, K.C.M.G., to Hon. Mr. R. W. IEVERS, C.M.G.

Alfred Villa,
Jaffna, June 30, 1902.

DEAR MR. IEVERS,—YOUR letter regarding the pearl oysters on the Cheval bank. Captain Donnan has, I presume, told you all that can be said at present regarding them in his report of the last inspection. The oldest oysters on the bank were about 3½ years old. They ranged from 2, 3, to 3½ in March last. I was with Captain Donnan when he picked up the samples for Professor Herdman in October last. I joined him in March last only after the inspection of the Cheval and Moderagam had been made, and therefore the only opinion I can form of them is from what Captain Donnan told me and from the samples he had on board. Of course there was nothing like an inspection of the banks in October, Captain Donnan having only gone to them to pick up samples from sections of the banks for Professor Herdman. We were on the banks only three working days, and anchored on five different spots some distance from each other, viz. :—

Four on Cheval bank : southern part of East Cheval ; centre West Cheval ; north of West Cheval ; north of East Cheval.

One on Moderagam bank, viz., centre of North Moderagam.

From all the patches we anchored on the diver brought up oysters from eighteen months to three years old lying, according to his report, thick on the banks. He brought up 20, 40, 80 at a dive, and in two dives on the North-West Cheval he brought up 100.

Except at our anchorage on the north of East Cheval, the diver reported the ground and the old oysters thickly covered with young oysters from minute spat to four months old. They were lying, according to his report, in myriads on the bank. Numbers of them were brought up adhering thickly to the old oysters. On one oyster there were as many as 65.

The old oysters (those from eighteen months to three years) looked healthy, and we judged that if they or the greater part remained on the bank and came to maturity they would afford good fisheries for perhaps three seasons (certainly for two) from the Cheval alone. There was one matter, however, that we believed had to be considered, and that was "What effect would so large a number of young oysters lying so thick on the old oysters have on the old oysters, if they (the young oysters) remained on the bank? Would they have the effect of smothering the old ones out?"

We had never seen young oysters so thick on the bank before.

Captain Donnan informed me that the older oysters were looking well in March, and a large number of young oysters were still on the bank.

At the close of the inspection it was estimated that there were oysters sufficient on the Cheval, Moderagam, and the Muttuvaratu banks to afford good fisheries for at least five years in succession.

Captain Donnan had some of the oysters picked up from the Cheval opened on board the ship; the pearls found were small and few in number, showing that the oysters were immature. The pearls were given to Professor Herdman to experiment on. Of course the opening of a few oysters in this way does not afford anything like sufficient information on which to judge of the condition of the oysters on a large bank.

The fact is, you are now very much in the position in which Mr. Vane found himself in 1862, and in which Captain Donnan and I were in 1880 and 1881, and Captain Donnan in regard to the Muttuvaratu bank in 1889. In 1862, at the inspection of March, Mr. Vane found the Cheval and Moderagamabanks thickly covered with oysters nearly of the same age. He estimated that there were oysters sufficient to afford fisheries for five years beginning with 1863. It was suggested to him to fish in 1862. He considered the oysters too young, and decided not to fish. In 1863 they were dying off. What were to have been fished in 1864 were destroyed, and all the oysters on the Moderagam were cleared off, so that there was after all only one fishery, that of 1863, instead of four or five in succession.

In November, 1879, the Cheval bank was thickly stocked with oysters of the same age. The oysters were immature. They required another year. The valuation of the sample was low, only Rs. 9 per 1,000. The sample of February, 1880, was only valued at Rs. 12 the 1,000. Captain Donnan wrote to me asking my opinion in regard to a fishery in 1880. I replied that the oysters were too young. He agreed, but pointed out that with the number on the bank it would be impossible to fish all in 1881, and the balance would not probably hold out till 1882, and advised a fishery in 1880. I agreed, and a fishery was held in 1880, and it was a good thing for Government that it was.

In 1889 Captain Donnan recommended a fishery of the Muttuvaratu bank, though the oysters were young, as they were dying out. This bank, however, as I have before remarked, completely upset all our calculations, and it yielded three lucrative fisheries in 1889, 1890, and 1891.

Captain Donnan and I talked over the matter of a fishery in 1903 (next year). We believed the oysters to be too young, and that they should under ordinary circumstances be allowed to remain another year till 1904), when they would be 4 and 4½, 5 and 5½ years old, close on their prime. We thought, however, in reference to the enormous number of oysters upon the bank of nearly the same age, and the impossibility of fishing them up in time, if they or the bulk of them remained on the bank if fishing were postponed until 1904, that it would be advisable to have a fishery in 1903, provided that the valuation of a fair sample lifted in October or November justified the advertising of a fishery.

An inspection of the banks should be made at any cost in October or November and the state of the banks ascertained. A large and fair sample of the oysters should be lifted, washed, and valued. If the condition of the banks is found to be such as to still hold out prospects of three or more large fisheries in succession, and the sample be valued at Rs. 10 or even as low as Rs. 7·50 the thousand, I would be inclined to recommend a fishery in 1903 in order to gather in as much as possible. Oysters which would yield a sample valued at Rs. 7·50 a thousand in November would very probably yield a sample likely to be valued at Rs. 10 or 12 the thousand in the following March.

Whether a fishery should take place or not in March, 1903, must depend on the result of an inspection in October or November next, and on the valuation of the sample lifted then.

Yours very truly,
W. C. TWYNAM.

P.S.—The Inspector should be instructed to carefully examine the oysters brought up in October and November, and ascertain from the reports of the divers and coxswains if the oysters are showing any signs of dying out. He should also carefully note the proportion of dead shells to living oysters.

W. C. TWYNAM.

No. 3.

THE MASTER ATTENDANT to the Hon. the COLONIAL SECRETARY.

No. 38.

Master Attendant's Office,
Colombo, April 10, 1902.

SIR,—I HAVE the honour to report my return to Colombo on the 9th instant from the pearl banks, where I have been employed since the 26th February, during which time I have inspected the following pearl banks:—

2. *Off Arippu and Mannar.*—Cheval Paar, Moderagam Paars North and South, Kallatidel Paar, Kondatchi Paar, Jaggerboom Paar, Arippu Paar, Periya Paar, Periya Paar Karrai, Outer Vankali Paar, Inner Vankali Paar, Anaivilundan Paar, and Nadakkuda Paar.

3. *Off Karaitivu and Kalpitiya.*—Dutch Moderagam, Karaitivu Paar, Alantura Paar, Steuart's Paar, Hamilton's Paar, Muttuvaratu Paar, Modi.icoolie Paar, Talavilly Paars, and Navakadua Paar.

4. *Off Chilaw.*—Jokenpiddi Paar, Karukupany Paar, and Chilaw Paar.

5. *Off Marawila.*—Ooloowitti Paar.

6. *Off Negombo.*—Negombo Paar and a new rocky bank discovered last year.

7. Pearl oysters were found only on the following banks :—Cheval Paar, Moderagam Paar, Periya Paar Karrai, Periya Paar, Outer Vankali Paar, Kondatchi Paar, Dutch Moderagam Paar, Karaitivu Paar, Alantura Paar, Muttuvaratu Paar, Jokenpiddi Paar, Chilaw Paar, Ooloowitti Paar, Negombo Paar, and on the new rocky bank discovered last year.

8 On the east side of Cheval Paar three separate beds of oysters of about three years old were found, and also two beds of young oysters from three to six months old. The most northern bed of old oysters was found to be very small in area, and therefore of no importance ; but the bed on the centre part of the bank and the bed on the south part of it were found to be in the aggregate about 11,804,676 square yards in area, containing oysters averaging from 19 to 27 oysters to a dive, and I estimated the number of oysters on the two beds to be about 74,413,000. One of the beds of young oysters was connected with the southern bed of old oysters on its west side, and extended about ¾ of a mile to the westward of it and covering space between the east and west sides of the Cheval, but the young oysters extended more or less all over the area of old oysters. The other bed of young oysters on east side of Cheval lies to the westward of the centre bed of old oysters, and extends some distance into the space between east and west sides of the Cheval. A few old oysters were also found amongst the young oysters.

9. On the west side of Cheval Paar five separate beds cf old oysters of about three years old were found, but one of them is very small in area and therefore of no importance. The other four beds extended from the southern limit of West Cheval to the northern limit with comparatively small intervening spaces of no oysters. The area of the four beds of old oysters amounts in the aggregate to about 10,500,050 square yards, on which the oysters average from 27 to 40 at a dive, and I estimate the total number of oysters on them all to be about 123,357,000. On all of these four beds the old oysters were covered with young ones three to six months old.

10. The North Moderagam was fouud to be nearly all covered with young oysters of about three to six months old, and the South Moderagam had one small bed of oysters of a similar age with some old oysters of three years amongst them on the north-east quadrant and two very small beds of young oysters only on the south quadrant.

11. On the Periya Paar Karrai two beds of oysters of about three years old were found. The area of both beds was found to be about 1,232,250 square yards, over which the oysters average from 30 to 43 to a dive, and I have estimated the total number of oysters on both beds at about 21,477,000. A large proportion of these oysters are, I believe, likely to come to maturity.

12. On the southern portion of the Periya Paar, which was fished in 1879, there were three small patches of oysters from 2 to 2½ years old, but the whole of the portion of the bank as well as a large extent of groun.l adjoining it was found to be covered with youn oysters two to three months old. Indeed, three is reason to believe that the whole extent of the Periya Paar is now covered with young oysters, as during a run made down the centre of it in the launch "Serendib" for a distance of 6 miles, frequently stopping and sending down divers, young oysters in great abundance were found at every dive.

13. On the Outer Vankalai Paar two small beds of oysters of about 2½ years old were found, one at the centre of the bank and one at the eastern margin, which latter is, however, of very small extent. The centre bed is of about 345,000 square yards in area, on which the oysters average 24 to a dive, and I estimated the number of oysters on it at 3,450,000. There is, however, a probability of none of these oysters being found on this bank next year, as they have largely diminished since last year.

14. On the Kondatchi Paar a small bed of oysters of about three years old was found. The area of the land was found to be about 444,375 square yards, on which the oysters averaged 31 to a dive, and I estimated the number of oysters on the bed at about 5,739,000, a large proportion of which, I believe, will remain on the bank and arrive at maturity.

15. On the Dutch Moderagam Paar a small bed of oysters from 2 to 2½ years old was found. The area of the bed is about 387,500 square yards, over which the oysters were estimated to yield 22 to a dive covering a space of 2½ square yards, and I estimate the number of oysters on the bed at about 3,552,000 ; but I am doubtful of any of these oysters being found next year.

16. On the Karaitivu Paar a considerable bed of oysters from eighteen months to two years old was found. The area of the bed was found to be about 1,570,850 square yards, over which area the oysters were estimated by the divers to average 43 to a dive, and I estimated the number of oysters on it at about 25,330,000, and I am confident of a large proportion of these oysters arriving at maturity.

17. On the Alantura Paar a small bed of oysters from eighteen months to two years old was found. The area of the bed is about 1,006,000 square yards, over which space the divers estimated that 30 oysters could be obtained to a dive on the average, and I estimate the total number of oysters on the bed to be about 11,925,000, of which a large proportion are likely to remain and arrive at maturity.

18. On the Muttuvaratu Paar a very large bank of oysters was found varying from about to 2½ years old. The area of the bank in square yards is about 10,206,725. On the north portion of the bank, which is the largest, the oysters were estimated by the divers to be in sufficient numbers to yield 64 to a dive on the average, and on the south portion 52 oysters to a dive. I estimate the number of oysters now on this bank to be about 277 million. Since last year a large number of young oysters have come upon the bank, thus accounting for the estimated number on it being 99 million more than last year. This bank is at present in a very promising condition.

19. On the Chilaw Paar a bed of young oysters from six to nine months old was found. The area of the bed is about 1,120,000 square yards.

20. On the Ooloowitti Paar a small bed of young oysters from six to nine months old, and on the Negombo Paar also a small bed of young oysters from six to nine months old was found. On the new rocky bed which I discovered last year a few scattered patches of young oysters about six months old were found.

21. In regard to the prospects of future pearl fisheries the present condition of the Cheval and Muttuvaratu Paars is very favourable, and these two banks are likely to yield two fisheries each during the next four years. On the east side of the Cheval the oysters are more advanced than those on the west side, and although they will not be fully ripe for fishing in March next year, yet in view of the west side of the Cheval being likely to yield a large fishery in March, 1904, and the Muttuvaratu Paar a fishery in March, 1905 and 1906, the fishing of the East Cheval next year seems to be unavoidable. I would, however, recommend a sample of 20,000 oysters be lifted from it in the early part of next November, say, 10,000 from the south part of East Cheval and 10,000 from the north part, and the valuation of the pearls of that sample would determine whether it would be possible to fish the bank next year or not.

22. During this inspection I had the pleasure of the company of my successor Mr. Legge, who has made himself thoroughly acquainted with my method of inspecting the pearl banks and of the landmarks to which compass bearings are taken in finding the various banks.

23. I annex for facility of reference a tabulated statement of the pearl banks on which beds of oysters have been found, and of the area of the beds of oysters and the estimated number of oysters upon them.

I am, &c.,

J. DONNAN,
Inspector of Pearl Banks.

Tabular Statement showing the Names of the Banks on which Pearl Oysters were found during the Inspection of March, 1902, the Area of the Beds of Oysters, and the Number of Oysters estimated to be on them.

Name of Bank.	Area of Bed of Oysters in Square Yards.	Estimated Number of Oysters on the Bank.	Age of Oysters.	Remarks as to future Prospects.
Cheval Paar (east side) ...	11,804,676 ...	74,413,000 ...	3 years ...	Very good
Cheval Paar (west side) ...	10,500,050 ...	123,357,592 ...	3 years ...	Very good
Moderagam Paar (north and south)	— ...	— ...	— ...	Young oysters
Periya Paar Karrai ...	1,232,250 ...	21,477,000 ...	3 years ...	Very good
Periya Paar	Very large ...	— ...	— ...	Young oysters
Outer Vankali Paar ...	345,000 ...	3,450,000 ...	— ...	Not reliable
Karaitivu Paar	1,570,850 ...	25,330,000 ...	— ...	Very good
Kondatchi Paar	444,375 ...	5,739,000 ...	— ...	Very good
Alantura Paar	1,060,000 ...	11,925,000 ...	— ...	Very good
Muttuvaratu Paar ...	10,206,725 ...	277,000,000 ...	— ...	Very good
Jokenpiddi Paar	Small bed ...	— ...	— ...	Young oysters
Chilaw Paar	Small bed ...	— ...	— ...	Young oysters
Ooloowitti Paar	Small bed ...	— ...	— ...	Young oysters
Negombo Paar	Small bed ...	— ...	— ...	Young oysters
New Paar off Negombo ...	A few scattered patches ...	— ...	— ...	Young oysters
Total ...	37,163,926	542,696,592		

1902-1903.

The Planters' Association of Ceylon,

KANDY.

FORTY-NINTH ANNUAL REPORT,

FOR THE YEAR ENDING 17TH FEBRUARY, 1903.

Your Committee now herein submits the Forty-Ninth Annual Report of the Planters' Association of Ceylon for the year ending 17th February, 1903, and in doing so would congratulate Members on progress maintained with vigorous prosecution of the varied business that has been presented for consideration and disposal during the period under review. The Register of Estates and Voters stands to-day at 957 being the highest number reached since the establishment of the Association on 17th February, 1854.

CORONATION CELEBRATION: ADDRESS TO HIS MAJESTY.

One of the happiest events of the year, following almost immediately after the Declaration of peace in South Africa, was the Coronation of King Edward the VII. But for the King's most distressing illness this would have taken place on the 26th June and preparations were made on a most magnificent scale in the Metropolis to celebrate the occasion. Intelligence of the King's condition was not made public until almost the last moment, when it became certain that the ceremony of Coronation must be postponed. London was already full to over flowing of interested spectators to whom as to all of his Majesty's subjects in every part of his Dominions the news of his dangerous condition came as an appalling shock. The relief and joy experienced when the news was spread that the King was progressing favourably and that the Coronation would take place at an early date was great in proportion. Ceylon was highly honored by the selection of its Governor Sir J. West Ridgeway to represent the Eastern Colonies on this great historical occasion while the Colony was justly proud of the choice and of the manner in which the high duties of the position were fulfilled. The Unofficial Members of the Legislative Council were also invited to visit England as representatives of the Island and some of them availed themselves of this privilege. They were received by Their Royal Highnesses the Prince and Princess of Wales on behalf of the King, who was then too ill to receive them and on this occasion your representative in Council Mr. J. N. Campbell had the honor of presenting your loyal Address for the acceptance of His Majesty the King. The Colony was further represented by a detachment of 3 Officers and 100 men selected from the different branches of the Volunteer Force including 25 from the Ceylon Mounted Infantry and a like number from the Ceylon Planters' Rifle Corps the whole being under the Command of Major A. J. Farquharson Commanding the Ceylon Planters' Rifle Corps. The postponement of the Coronation till August and the abandonment for a time of the great procession through London, robbed the occasion of some of its effect as a popular spectacle, but to those who took part in or witnessed what took place, the recollection of the enthusiasm of the people will ever remain as a testimony to their subdued joy and heartfelt relief when they realized that the King's health had been so far restored as to enable the desire of all his subjects' hearts to be gratified. In Kandy the great event was celebrated on the 21st August, 1902, when the "Victoria Commemoration Buildings" and "George Wall Tower" were effectively decorated and at night illuminated by a Electrical display.

PLANTING PRODUCTS.

TEA.

The past season has been on the whole unfavourable for yield. A drought in the early part and an excessive rainfall during the last three months of the year, account for the crop falling considerably short of the estimate, but total shipments of tea were notwithstanding the largest recorded. Foreign markets however continue to expand, so that shipments to the United Kingdom were 2,000,000 lbs. less than the previous year, and 10,000,000 lbs. less than 1900, when Ceylon and India over supplied the Home Trade to the extent of 20,000,000 lbs. The average price of Ceylon tea sold in London during 1902 was 6¾d. per lb., further decline of ⅛th of a penny, as compared with previous year, and 1d. per lb. less than 1899, the last season of normal stocks. The quality has been on the whole good, and the poor prices obtained can only be attributed to the large stocks carried forward from 1901. The position is now gradually improving, total stocks at the end of 1902 being 8,000,000 lbs. less than at the beginning of the year.

The most encouraging feature at the present moment is the rapidly increasing manufacture and demand for Ceylon green tea. Commencing slowly in 1898, the manufacture rose to 500,000 lbs. in 1900, 1,500,000 lbs. in 1901, and 4,000,000 lbs., last season. This rate of increase appears likely to continue during the coming year, and will very materially assist in the further reduction of the stocks of black tea.

The new year therefore opens with brighter prospects, but the future depends largely on the present style of careful plucking being maintained, and shipments to London continuing on a moderate scale. The last two years have been unfavourable flushing seasons in both India and Ceylon, there is also a considerable acreage not yet in full bearing, so that the maximum output from either country has not yet been reached. Your Committee do not therefore consider that the pushing of Ceylon teas in new markets can at present be relaxed.

As usual your Committee with due acknowledgment extracts from the remarks of London Brokers for perusal, reference and comparison the following:—Messrs. Wilson, Smithett & Co., observe that the BOARD OF TRADE RETURNS for the year just closed fully justify the more optimistic views lately entertained as to the future of the tea market. The total IMPORTS for the year were rather below those of 1901, viz., 294,557,000 lbs., against 295,264,000 lbs., whilst DUTY PAYMENTS aggregated 254,440,000 lbs., against 255,873,000 lbs., in 1901, when the clearances, unlike those of last year, were in excess of the actual HOME CONSUMPTION; the total Exports reached 45,490,000 lbs. against 43,389,000 lbs. in the previous year. The real strength of the statistical position is, however, made most apparent when compared with that existing at the close of 1898, prior to the last important advance in the value of common tea, when after a long period of low prices, distributors suddenly found themselves face to face with depleted STOCKS, and little likelihood of a too liberal supply in the near future. In 1898 *the total* IMPORTS AND DELIVERIES *(Home Consumption and Exports)* practically balanced, the former amounting to 271,594,000 lbs. and the latter to 271,749,000 lbs. and the total STOCK at the close of the year was 99,476 000 lbs. To-day the total STOCK of Tea in the U. K. is 107,780,000 lbs. against 115,685,000 lbs. at the close of 1901), but the monthly DELIVERIES have risen from 22,646,000 lbs. in 1898 to 25,000,000 lbs. last year, and the total IMPORTS last year were actually 5,400,000 lbs. less than the DELIVERIES, viz., 294,556,000 lbs., against almost 300,000,000 lbs. Messrs. George White & Co., give as catalogued for Public Sale in the past three years :—

From 1st January to 31st Dec. 1902 ... 1,144,900 packages, average 6¼d. per lb.
" " 1901 ... 1,188,600 " " 7d. "
" " 1900 ... 1,263,200 " " 7¼d. "

Adding that the stronger statistical position of all Tea which is being gradually developed and exemplified in the smaller quantities of both Ceylon and Indian growths placed on the market from week to week had a beneficial effect on prices generally.

QUOTATIONS.

1901.

			s. d.		s. d.	
Pekoe	com. to medium	from	0 6	@	0 7	per lb.
Pekoe and Orange Pekoe	fine to finest	,,	0 7½	,,	1 0	,,
Broken Pekoe	com. to medium	,,	0 6	,,	0 8½	,,
Bro. Pekoe and Bro. Or. Pekoe	fine to finest	,,	0 8¾	,,	1 6	,,
Souchong and Pekoe Souchong	com. to medium	,,	0 5	,,	0 6	,,
Pekoe Souchong	fine to finest	,,	0 6½	,,	0 8	,,
Broken Pekoe Souchong, and Pekoe Fannings		,,	0 5	,,	0 7	,,
Broken Tea and Dust		,,	0 5	,,	0 6	,,

1902.

			s. d.		s. d.	
Pekoe	com. to medium	from	0 6½	@	0 7	per lb.
Pekoe and Orange Pekoe	fine to finest	,,	0 7½	,,	1 0	,,
Broken Pekoe	com. to medium	,,	0 7	,,	0 7½	,,
Bro. Pekoe and Bro. Or. Pekoe	fine to finest	,,	0 7½	,,	1 6	,,
Souchong and Pekoe Souchong	com. to medium	,,	0 5½	,,	0 6½	,,
Pekoe Souchong	fine to finest	,,	0 6½	,,	0 9	,,
Broken Pekoe Souchong and Pekoe Fannings		,,	0 5½	,,	0 7	,,
Broken Tea and Dust		,,	0 5	,,	0 6	,,

Messrs. Thomas, Cumberlege & Moss, London, write:—"The present year opens with a more encouraging outlook for producers than for some years past. Low prices since 1899 have steadily created demand, whilst demand in its turn is now slowly approaching the level of supply, and it is to be hoped is there tending towards gradually placing tea on an altogether higher basis of value. Requirements are extending in other countries, and if expectations of increased consumption with a new duty-free article in the U. S. A. are realized, the prospects as evidenced by the much heavier shipments this Season to New York, are distinctly good. A reduction of 5d. per lb. on an article of daily use should certainly afford material inducement to a wider demand. The stocks of China tea in that country are however at the moment abnormally large. Tea Shares have recently been attracting some attention. Holders are however now showing increased confidence, and it is somewhat difficult to buy at market quotations. The Preference shares of many concerns mark a considerable advance in value. There is some natural expectation of a lower Tea Duty and this can hardly fail to affect our market during the next three months. As producers probably paid the largest share of the last increase, they would doubtless find a corresponding relief in any reduction; consumption and especially waste must naturally be enlarged by a lower cost to the public. In this connection it may be borne in mind that under the prevailing conditions of the last three years, an increased duty could not immediately affect the home-consumption; a Season's production and consumption must within certain narrow limits correspond, price being the varying and adjusting element. During the Future, should the anticipation of better prices during the Spring be realized, the inducement to pluck coarse and thereby turn out a large crop will doubtless present itself to the grower. Before manufacture can however be in any weight, the position will have further developed, and it will be well for producers to then carefully estimate the world's probable consumption and also bear in mind the disastrous consequences of the 1900 out-turn. Various causes, direct and indirect, have contributed towards restricting this Season's production; had not however weather conditions tended to unexpectedly check manufacture during the later months, it is to be feared that out-turn would have proved in excess of requirements, and the last few million pounds would have resulted in supply always continuing rather ahead of demand. It must be borne in mind that a high price for common tea may again attract large shipments of China Congou during the summer months; exports from China to U. K. have steadily fallen during the past year under the pressure of the competition from cheap Indian and Ceylon tea, and the declining stock of this class contributes at the present moment a strong factor in our market. It would however be unsafe to assume that this process must under all circumstances continue; a high price for Indian and Ceylon leaf in conjunction with the equipment of a ninepenny rupee in China could hardly fail to induce heavier Congou import, the more so that many large distributing concerns are mainly dependent for their business on low-priced tea. Ceylon must also be reckoned with in other markets, although the opinion is gaining ground that the past year's supply to this country is about the maximum we may expect here. Green Tea has been coming forward this Season in small quantities, and results have we believe proved fairly satisfactory; our market is at the moment somewhat favourable for these classes, the bulk of the China green crop having been absorbed by America. The Labour question in India would appear to be causing some inconvenience to producers; many gardens are experiencing some difficulty in obtaining an adequate supply, but it is not clear how far this is due to official restriction or to purely economic causes; the practical consequence of defective cultivation must be a smaller yield. It may be well to touch on the prospective figures of the next three months, as deliveries will in no wise bear comparison with recent years, neither will a comparison of stocks afford any guide to the actual condition of things: as there can be no increase in the duty, clearances will not only be normal, but with the near approach of the Budget statement will be kept down to daily requirements. By the end of March we shall probably find that our bonded stock nearly approaches the total supply of tea throughout the Kingdom. The dispute with regard to Gun Wharf is now so far settled that penalties are no longer imposed by the Clearing House upon dealings with this warehouse. London Warehouse Returns give the total import during the past year at 282,000,000 lbs. compared with 291,000,000 lbs. Total deliveries were 290,000,000 lbs. (including 31,500,000 lbs. British grown for export) against 291,000,000 lbs. (including 31,500,000 lbs. British grown) in the previous year. Our total bonded stock is 8,000,000 lbs. less than twelve months ago. The consumption of Indian and Ceylon tea in other Countries shows an increase of some 11,000,000 lbs. during the past twelve months."

Messrs. Forbes & Walker, Colombo, state that the total Exports for 1902 were 149,017,048 lbs. against 146,726,066 lbs. in 1901 distributed as under

Tea Distribution from 1st January to 31st December, 1902.

	United Kingdom.	Russia.	Other countries in Europe.	America.
	lbs.	lbs.	lbs.	lbs.
Black 1902	103,017,958	12,428,741	1,591,053	4,364,558
Green 1902	638,330	127,115	,,	1,968,892
Blk. Grn. 1901	106,911,856	9,498,891	1,480,124	3,664,106

	Africa and Mauritius.	Australia.	India.	China and Singapore.	Total.
	lbs.	lbs.	lbs.	lbs.	lbs.
Black 1902	710,966	18,907,720	864,626	4,492,804	146,273,126
Green 1902	2,545	75	35,045	6,340	2,773,922*
Blk. Grn. 1901	412,225	20,696,995	1,108,043	2,953,967	146,726,066

The following show an increase over 1901: Africa, America, Austria, Belgium, China, Germany, Italy, Malta, Mauritius, Russia, Singapore, Spain, Sweden and Turkey; while Australia, France, Holland, India and the United Kingdom show a decrease.

* According to the Thirty Committee returns 1,164,017 lbs. of Green Tea have been manufactured in addition to these shipments.

TEA BLIGHTS.

Till lately the Tea Bushes have been very free of either brown or grey blight. The wet weather of the last three months of 1902, has induced a re-appearance of these blights in some Districts but not of an alarming nature. Helopeltis and shot hole borer have not been so much observed in 1902 as 1901. It is to be regretted that the Tortrix has been very much in evidence in one or more Districts. Advantage is freely taken by Planters of the advice so willingly placed at their disposal by the Scientists at Peradeniya.

CACAO.

The crop shipped for the year was cwt. 61,476 against cwt. 47,471 in 1901, and is the largest crop yet shipped from Ceylon. It would have been considerably larger but for the very unfavourable weather of the last three months of the year. Continuous rain caused a recrudescence of Canker especially amongst the pods, and the autumn crop suffered severely in consequence. Canker of the pod is the most serious agricultural difficulty that Cacao Planters have to face, and the experiments now being carried out by Government at Gangaruwa are of the greatest interest to them. It is to be hoped that a cheap and effective remedy will be found, and if this is done the Crops of Ceylon Cacao will very largely increase. Dealing with Canker of the trees is now pretty generally understood by Planters and the precautions taken, together with the steady substitution of Forastero varieties for the red, have rendered this pest far less dangerous than it was. Prices have improved during the past year and it is satisfactory to note that Ceylon Forastero Cacao is now going steadily into consumption in England, whilst the few lots of really pure red which are now put on the Market command exceptional prices. The stocks in London are smaller than they have been for several years. Your Association at a General Meeting on the 4th November, 1902, unanimously adopted a resolution brought forward by the Chairman of the Matale Planters' Association asking for special legislation for the protection of Cacao crops, by an extension of the Praedial Products Ordinance to cover ripe Cacao on the same lines as the protection given to Cinchona by the Ordinance No. 22 of 1886, and similar to the protection given to Cacao in Grenada and Vanilla in Mauritius. The objection to a purely Receivers Ordinance is that both in India and Grenada such Ordinances have been proved failures. It is stated that in India this is due to the difficulty of reaching the owners of small gardens, and this is precisely the difficulty which arises in Ceylon. His Excellency Sir West Ridgeway wishes to appoint a Commission of inquiry. Assuming that this is necessary it is difficult to understand the very considerable delay which has taken place in getting the business in hand.

According to Messrs. C. M. and C. Woodhouse's annual report, the nine chief consuming countries, as far as the latest figures procurable show, consumed 229,459,200 lbs. of cocoa, against 209,771,000 lbs. last year, and 168,625,800 lbs. in 1898, showing an increase of 36 per cent in the five years. The five largest consumers run thus:—

	Months	1902. lbs.	1901. lbs.	1898. lbs.
U. K. ...	12	45,613,800	42,353,700	32,087,100
U. S. A. ...	12	*49,106,400	41,729,000	21,095,700
Germany ...	11	42,424,100	37,915,800	32,351,100
Holland ...	11	30,381,600	30,512,600	29,086,900
France ...	11	38,014,700	35,309,000	35,145,900

* Estimated

	1902.	1901.	1900.	1899.
Consumption in the U. K. in 12 months,	20,380	18,910	16,890	15,190
Stock ,, 31st Dec.	4,900	5,920	7,770	5,960

COMPARATIVE PRICES—	1903	1902	1901	1900
Trinidad: middling red to good marks—	58/ 68/	66/ 75/	67/ 74/	75/ 82/
Grenada: common to good—	52/ 58/	56/ 65/	66/ 69/	67/ 73/
Guayaquil:—	63/ 76/	62/ 77/	71/ 76/	69/ 75/
Bahia: fair—	58/	60/	68/	70/
African: good—	59/	61/	69/	70/
Ceylon: dull to good red	63/ 85/	56/ 85/	80/ 101/	75/ 95/

CARDAMOMS.

The cultivation of this product continues to attract the attention of European and Native Cultivators and has lately been added to the Experimental products in the Government Experiment Station at Peradeniya. It is believed that the total area in Ceylon devoted to Cardamom Cultivation is probably 10,000 acres, the larger areas being in Matale and Medamahanuwera, according to Ferguson's Directory which gives 45 of the 52 divisions of Districts as now growing Cardamoms, while many of the Native Gardens have their small patch under this product. The crop shipped during 1902 was 615,922 lbs. and but for the prolonged wet weather during the last quarter, it would in all probability have been much larger. The difficulty of curing on the estates in wet weather delayed despatch, and led to large quantities being cured in Colombo. The shipment during the earlier months of 1903 will be heavier and in consequence add considerably to its crop despatch account. Prices have been generally lower than last year, but Cardamom Growers who are fully aware of the danger of the supply exceeding the demand, will it is expected take steps for making their produce better known throughout the world. The Estimate of Crop for 1903 is 650,000 lbs.

COCONUTS.

The year 1902 has been another good year for owners of Coconut property. The Chamber of Commerce returns of Exports of Produce for 1902 show that the Export of Coconut Oil cwts. 512,498; of Desiccated Coconuts 16,227,565 lbs.; of Poonac cwts. 247,696; and Coir Rope cwts. 15,631 have been the largest within the last ten years. Copra cwts. 374,796 has declined by cwts. 65,000; Coconuts by 2,300,000 and Fibre by about cwts. 7,000. Germany has been Ceylon's best customer for Copra, and Poonac; and France the next best for Copra. The United Kingdom took most of the Coconut Oil, Desiccated Coconuts, and Coconuts in shell; America being second in Coconut Oil, and Desiccated Coconuts; India is only third in Coconut Oil. With the small exception of cwts. 277, all the Coir rope was taken by Singapore. The price of Copra for six months varied from Rs. 61 to Rs. 63 per Candy, and for four months from Rs. 56 to Rs. 58. In November and December there was a decided fall to Rs. 51, a difference of Rs. 10 to Rs. 11 per Candy from that ruling in January. Coconut Oil mostly rose and fell in sympathy being Rs. 4 per cwt. less in December than it was in January. Desiccated Cocoanuts was fairly steady from 20 cts. to 22 cts. per lb. Poonac which was Rs. 75 per ton from January to March kept firm @ Rs. 80 for the rest of the year. Upon the whole therefore prices have been satisfactory. The fact that Contracts for the year @ Rs. 56 per Candy of Copra, have been made—and rumour says at even higher rates—would tend to indicate that the present decline in prices is not likely to continue. It is satisfactory to note the increasing consumption of Coconuts in the manufacture of Coconut Butter, though probably most of the nuts used are from the Philippines and West Indies; and it is much more satisfactory to hear that the "Premier Tea Company of Ceylon"—largely interested in Coconut property—is sending out an expert, with the necessary plant to erect Buildings, etc., to Manufacture Coconut Butter on the spot. Your Committee has not heard of any large plantations having been opened in 1902, but is informed that low-country Natives are now planting up Coconuts in their Cheenas, which before, after taking off grain Crops, they allowed to revert to jungle. This will no doubt in time throw more nuts on the Market. So far as rain fall is concerned the year, throughout the Island, has been favourable, and good Crops may be expected in 1903. Your Committee congratulates owners of Coconuts on the present satisfactory condition of their staple. Experiments are being tried on a large scale of growing the sensitive plant and burying it as a manure, and so far with marked satisfactory results. The further progress of this experiment will be watched with great interest.

RUBBER.

This product continues to receive increasing attention, particularly in the low-country, where it is being planted in all Estate swamps and ravines. It has not yet been determined what is the highest elevation at which it can be grown to pay, but trees are known to be making strong growth in places at an elevation of over 2,500 ft. Exports of cured rubber are steadily increasing, for the year ending 31st December, 1902, amounts to 189 cwts. The prices realised have been very satisfactory. Para biscuit having been sold as high as 4/4d. per lb. and cured scrap 2/8½d. The demand for seed still continues large, orders have been booked both for export and local planting during the coming season.

TOTAL EXPORTS FROM CEYLON DURING THE YEAR 1901.

Your Committee as usual invites attention to Appendix A. hereto annexed for official statements of Exports from Ceylon during 1902, for which your thanks are due to the Hon'ble Mr. H. L. Crawford. The return is useful for reference and comparison with similar data made up to the same period by the Ceylon Chamber of Commerce, which follows as Appendix B.

LABOUR SUPPLY.

Your Committee appends abstracts of the Official Returns of arrivals and departures of coolies during the years 1900, 1901, 1902.

Months.		1900. Ar'vals	1900. D'tures	No. since the commencement of the year. Ar'vals	No. since the commencement of the year. D'tures
January	...	9,211	8,187	9,211	8,187
February	...	12,100	10,678	21,311	18,865
March	...	16,095	13,214	37,406	32,079

Months.		1900. Ar'vals	1900. D'tures	No. since the commencement of the year. Ar'vals	No. since the commencement of the year. D'tures
April	...	26,909	11,473	64,315	43,552
May	...	35,040	11,580	99,355	55,132
June	...	23,435	8,647	122,790	63,799
July	...	22,946	8,020	145,736	71,799
August	...	15,658	9,993	161,394	81,792
September	...	14,363	7,975	75,757	89,767
October	...	11,723	8,773	187,480	98,540
November	...	10,427	7,075	197,907	105,615
December	...	10,087	7,321	207,994	112,936

Months.		1901. Ar'vals	1901. D'tures	No. since the commencement of the year. Ar'vals	No. since the commencement of the year. D'tures
January	...	4,825	12,276	4,825	12,276
February	...	8,013	9,615	12,838	21,891
March	...	8,587	9,127	21,425	31,018
April	...	10,723	9,430	32,148	40,448
May	...	13,120	11,907	45,268	52,355
June	...	12,902	8,250	58,170	60,605
July	...	14,626	9,192	72,796	69,797
August	...	10,933	8,266	83,729	78,063
September	...	11,989	7,906	95,718	85,969
October	...	9,992	6,763	105,710	92,732
November	...	7,908	18,424	113,618	111,156
December	..	6,985	7,187	120,603	118,343

Months.		1902. Ar'vals	1902. D'tures	No. since the commencement of the year. Ar'vals	No. since the commencement of the year. D'tures
January	...	3,007	6,892	3,007	6,892
February	...	4,938	7,585	7,945	14,477
March	...	5,794	8,818	13,739	23,295
April	...	8,289	4,456	22,028	27,751
May	...	10,962	3,966	32,990	31,717
June	...	10,523	7,717	43,513	39,434
July	...	11,113	6,492	54,626	45,926
August	...	5,966	3,926	60,592	49,852
September	...	11,597	6,658	72,189	56,505
October	...	2,392	2,049	74,581	58,554
November	...	7,939	2,434	82,520	60,988
December	...	5,243	2,929	87,763	63,917

The large increase in 1900 was due no doubt to the railway extensions commenced in that year. A great deal of this labour should shortly be set free, on the completion of the Kelani Valley and Uda Pusselawa railways, this, and the new facilities for procuring coolies from the coast, should suffice to meet the present demand for coolies. A sub-committee sat during the year and considered the general question of labour and new legislation. Their report, which was printed for circulation and will be included in the "Year Book" decided against asking for fresh legislation in any form. A more stringent ordinance would be unlikely to meet the approval of the Indian Government, and if sanctioned would probably tend to keep labour away from Ceylon, where the competition of other countries recruiting in Southern India is already felt. Your Committee extracts the following paragraphs from the above mentioned report :—

"The labour question, in one form or another, comes up annually, and during the busy months a clamour is raised, but Superintendents must be prepared to work under difficulties and at somewhat high pressure during these months, as a sufficiency of labour at this time, would mean more than could be economically employed during the rest of the year."

"If the planting community were to stand honestly together and refuse to take on or employ any cooly without a tundu or reference to his last employer, and refuse altogether to take over coolies on native tundus, except in cases where the kangany can give satisfactory references to his last European employer, the bolter or notice cooly would find it hard to obtain employment, and instances of bolting and notice giving would be few."

The Tin ticket system appears to be working well and in time no doubt will be in more general use. If the system could be extended to Southern Indian railway stations, the risk of sending money to the coast would be still further minimized. The tin ticket system, whilst lessening the amount of advances now required to be sent to the coast for recruiting purposes, does not dispense with the necessity of the kangany system. Your Committee desires to thank Government for acceding to its request that the tin tickets should only be used by coolies coming from the coast.

The revised regulations will be found in appendix D.

There have been two meetings of the Committee of the Labour Federation of Ceylon during the year.

SUPERINTENDENT OF IMMIGRATION.

By the death of Mr. C. H. Wilkinson late Superintendent of Immigration your Association was deprived of the services of an experienced and competent Officer and your Committee accorded a vote of condolence to Mrs. Wilkinson. As regards the new Superintendent your Committee has invited Government to acquaint the Planters' Association when a similar appointment may be under consideration, with a view to submitting the recommendation of your Association in the matter for His Excellency the Governor's approval.

RUSSIAN TEA TRADE—BRITISH EXHIBITION ST. PETERSBURG.

In connection with the important Russian Tea Trade your Committee learned with regret during the year that the British Exhibition at St. Petersburg would not take place. It is worthy of record that Russia which in the year 1890, according to the Ceylon Customs Return took only 80 lbs. of Ceylon tea in that year imported direct from Colombo during the year ending 31st December, 1902, no less than 12,550,856 lbs.

CUSTOMS DUTIES ON TEA AND OTHER PRODUCTS ENTERING FRANCE FROM COUNTRIES WHICH DO NOT ENJOY MOST FAVOURED NATION TREATMENT.

The question of Increased Customs Duties on Tea and Other Products entering France from Countries which do not enjoy Most Favoured Nation Treatment has continued to occupy the attention of your Committee. It will be in your recollection that the French Law of the 24th February, 1900, on the subject was suspended for a year and since then it has been intimated that the French Government has issued a decree extending the application of the Minimum Tariff to Ceylon until 23rd February, 1903. According to the Secretary of States despatch of 19th August, 1902, the position is as follows:—In return for the Grant by the French Government "denrees coloniales de consomation" produced in Ceylon, of the benefits of the minimum general tariff the Government of Ceylon will continue to give to the Products of France Most Favoured Nation Treatment, provided that the right is fully reserved to make exceptional arrangements in favour of the British Empire. By a recent Cablegram it is indicated, that negotiations concerning Ceylon are approaching a satisfactory conclusion.

TEA TRADE IN JAPAN.

Through the good Offices of the Ceylon Chamber of Commerce interesting Reports by the British Consul at Yokohama upon the Japanese Tea Industry and by the British Consul at Amoy on the Formosa Tea Industry were obtained and circulated for the information of Members and your thanks are herein recorded to the writers and to the Chamber for valuable information and co-operation in the matter.

FREIGHT TO AUSTRALIA.

The subject of Freight to Australia and the Southern Colonies has been brought under the notice of your Committee and it would appear that the rate of Freight to the Australian Colonies is in excess of what it should reasonably be. It was pointed out that the exports of tea according to the Chamber of Commerce from Colombo to Australia amounted in 1901, 20,638,208 lbs. and that if the rate of freight could be reduced to ½d. per pound the large export is capable of being still further greatly increased, thus increasing the outlet of Ceylon tea very materially. There is no doubt the question of freight charge to Australia is one of material interest to the Planters' Community and should not be lost sight of. The attention of your Committee was also drawn to complaints regarding the indifferent manner in which certain shipments of Ceylon tea were packed and to the fragile nature of the packages used more particularly those of country manufacture. The correspondence was made public and it is hoped that the improvement desiderated has taken place. As regards the existing regulation relating to shipment of tea to Australia your Committee asked the local Agents of the Principal Liners to alter the Clause on Bills of Lading limiting their liability to any damage incurred in transit to packages weighing under 100 lbs. nett to from 100 lbs. nett to 130 lbs. gross on tea for Australia. Your Committee regrets to report that the reply was unfavourable and accordingly it was decided that the matter should be brought to notice of the Ceylon Association in London. The result of the representation has been that the Agent of the P. & O. Steamship Company at Colombo is again to be moved in the matter.

OFFICIAL ESTIMATE OF TEA CROP FOR 1903.

Your Committee estimates the Tea Crop for Export during the year 1903 at 154,000,000 lbs. The Returns received are believed to be more full and accurate than in any previous occasion, though some improvement in the form of return may be introduced next year. As regards the distribution of the crop the following is submitted:—

Russia ...	14,000,000 lbs.	Africa ...	1,000,000 lbs.
Europe ...	2,000,000 lbs.	America ...	14,000,000 lbs.
India ...	1,000,000 lbs.	United Kingdom	96,000,000 lbs.
Australia	21,000,000 lbs.	Far East ...	5,000,000 lbs.

INCIDENCE OF TAXATION.

During the year the Commission appointed by His Excellency the Governor to enquire into the Incidence of taxation commenced its work, it will however be towards the end of 1903 before any definite recommendation is forthcoming.

RAILWAY EXTENSION.

The Kelani Valley Railway Extension it will be remembered, was first prominently brought before your Association at the Annual General Meeting on the 17th February, 1895, when a Member of the Kelani Valley District Association in an able speech proposed the following Resolution:—"That it be urged on Government the necessity for carrying out without delay Railway Extension to Kelani Valley." Your Committee is glad today to be able to specially congratulate the Kelani Valley District Planters' Association and the Colony generally on the most important event locally of the year namely the opening of the Kelani Valley Railway as far as Avisawella and it is hoped that the remainder of the line as far as Yatiyantota will be opened by the end of September. The Northern Railway Extension continues to progress, 85 miles being now open for traffic; while the whole line it is expected will be completed before the end of 1904. The delay in connection with the Uda Pussellawa Light Railway Extension has from one cause or another been very great and even now it is doubtful whether the line will be open as far as Ragalla during 1903. It is believed that difficulties with regard to acquiring the site for the Nuwara Eliya Station was a cause of delay, but as matters have been adjusted it is hoped that the line may be ready for traffic as far as Nuwara Eliya in May. Less than half a mile of this section is actually laid on the Cart Road, but beyond Nuwara Eliya the greater part of the line is to be on the outer edge of the road and the cutting for this section is now going on. Stopping places are being arranged for at convenient spots along the line. The planting community in the neighbourhood of Ratnapura and in far away Rakwana are to be congratulated on the survey of the proposed Ratnapura Railway Extension being sanctioned. Surveyors are now at work. It is also to be hoped that a survey for a narrow gauge feeder line from Bandarawella to Badulla and Passara will be sanctioned before another year has passed.

CEYLON GOVERNMENT RAILWAY.

During the year an amending Ordinance relating to the Ceylon Railways entitled "The Ceylon Railways' Ordinance 1902" was passed having been watched in the interests of your Association by the then Planting member in Council Hon. Mr. J. N. Campbell. In connection with other matters a discussion having arisen on the proposed loop-line to Kandy to avoid the rock slips on the Kadugannawa Railway Incline, your Committee appointed a Sub-Committee in conference with the Committee of the Ceylon Chamber of Commerce to go fully into the question of an alternative route to Kandy and Railway management generally, to form a deputation to Government if advisable and to take what other steps might be considered necessary. In reply to the representations made to Government it was intimated that His Excellency the Governor had desired the Chief Resident Engineer, Northern and Udapussellawa Railways, that when he can spare an officer a survey be made and report submitted as to the safety of the Railway line on the Kadugannawa Incline and possible danger of the interruption of Traffic; further that the Director of Public Works had been requested to report as to the condition of the road, Kadugannawa to Rambukkana and Kurunegala to Kandy. As regards Railway management generally various questions were discussed. Delays, Lack of passing stations upcountry, Construction of carriages, Rolling-stock, Lighting, Leaking carriages, &c., the result however being that with the information before the sub-Committee and the latest facts relating to rolling-stock there was not sufficient data to go before Government and it was decided meantime to continue to place any matter that may arise before the General Manager in informal conference. A somewhat serious land-slip occurred on the Matale line near Wattegama, which caused a great deal of inconvenience, the Railway department apparently not being sufficiently found in appliances, and skilled labour to deal with such occurrences expeditiously. A subsidence of the railway line near Haputale also took place causing inconvenience: while the night-mail was discontinued for some weeks owing to the prolonged abnormally wet weather.

PUBLIC WORKS.

The exceptionally heavy and constant rain during the last quarter of the year rendered repairs difficult and in at least one case a main road became almost impassable. It is of vital importance to an outlying District like the Morawak Korle, dependent entirely on one trunk road, that that road should be maintained in the highest degree of efficiency. The vexed question of tolls and of the taking over by the Government of Grant-in-Aid roads as main roads is still in abeyance until the report of the Committee on the Incidence of Taxation is available. Feeder roads for the Kelani as well as for the Udapussellawa railway are being considered by Government and it is proposed to construct these out of surplus and savings. The Estimates for 1903 are Rs. 2,052,223·00 for recurrent and Rs. 1,687,167·00 for extraordinary Public Works expenditure exclusive of expenditure by the Irrigation Department.

CONSTRUCTION, UP-KEEP AND REPAIR OF ESTATE ROADS.

(PROVINCIAL AND DISTRICT ROAD COMMITTEE.)

In reference to the construction, upkeep and repair of estate roads an Ordinance was passed during last year after being watched on behalf of your Association by the then Planting Member in Council, Hon. Mr. J. N. Campbell, entitled "the Estates Roads Ordinance 1902." For the purposes of this Ordinance, the words "Estate Road" includes any road not being a thoroughfare under Ordinance No. 10 of 1861 or a branch road under Ordinance No. 14 of 1896 or a Gangsabawa Road.

REDUCTION OF BRITISH TEA DUTY.

It will be remembered that in January, 1901, both by despatch and telegram, His Excellency supported the prayer of the Planters' Association in forwarding the following Resolution to the Secretary of State:—"That this Association would urge on His Majesty's Government a reduction, at as early a date as is compatible with the financial needs of the Empire, of the Import Duty on Tea in Great Britain, which is now equal to nearly 100 per cent. *ad valorem*, whereby consumption is checked and the stability of the tea planting enterprise in this Colony is seriously threatened." At the General Meeting held in November, 1902, the following further Resolution was unanimously passed:—"That in view of the small margin which exists between the average cost of production and selling price of tea involving in many cases an actual loss, the Planters' Association would again urge on His Majesty's Government a reduction at an early date of the Import Duty on Tea. (2) That a copy of the above resolution be forwarded to the Secretary of State for the Colonies." It was submitted in forwarding the above Resolution that the financial position of the Empire—owing to peace in South Africa—has materially improved and that it should now be found possible to at least remove the extra 2d per lb. Imperial War Tax on Tea—put on in March 1900, in the next Budget. The late Chancellor of the Exchequer (Sir Michael Hicks-Beach) in his Budget Speech on April 15th, 1901, said:—"I turn to Tea. Tea has already been taxed up to 75 per cent of its value. It is produced mainly in India and Ceylon and it is a product in which our fellow subjects at home and abroad are deeply interested, and the trade largely I think owing to overproduction is not in a very satisfactory condition. I do not think we ought to increase the duty on tea," and when speaking on the Finance Bill, "if it should ever be my happy lot to be able to reduce Taxation I should be disposed to reduce the Duty on Tea rather than on Beer and Spirits." As regards the great interests represented it was pointed out when a deputation waited on the Chancellor of the Exchequer last year that there are 887,000 acres of land under tea cultivation in Ceylon, producing 145,000,000 lbs. of tea, and representing an invested capital of £15,000,000 sterling. That Tea is very highly taxed in proportion to its value is officially admitted as a matter which any Chancellor of the Exchequer would be bound to consider, and the Planters' Association therefore confidently relies on early favourable consideration and a reduction of the Tea Duty at an early date by His Majesty's Government. The above representation having been transmitted by His Excellency the Governor to the Secretary of State for the Colonies a despatch has since been received intimating that the communication has been laid before the Chancellor of the Exchequer.

SPECIAL LEGISLATION RE CACAO STEALING.

The important question of Special Legislation for Cacao Stealing has occupied the consideration of your Committee and also your Association in General Meeting when the following Resolution was passed and forwarded to Government:—"That the Planters' Association is of opinion that the law, as it now stands, is not sufficient for the protection of Cacao proprietors. The Planters' Association, would therefore, respectfully suggest some amendment of the Prodial Products Ordinance, which while continuing to make the possession of Green Cacao without a satisfactory account of such possession an offence, might also provide against the dishonest possession of ripe and cured Cacao. The Planters' Association should also be grateful for any protection against receivers which the Government may be disposed to grant." In reply Government has stated that His Excellency the Governor proposes to appoint a Commission to report on the question. In response to your Committee's representation deprecating the delay that the appointment of a Commission would cause believing that the question of Cacao Stealing was so urgent as to require immediate redress His Excellency the Governor expressed his regret that he was unable to agree with the Planters' Association that Legislation should be undertaken without further enquiry, adding that if the Legislative Council were to pass an Ordinance such as that desired by the Association without full evidence as to its necessity it would probably be disallowed by the Secretary of State for the Colonies.

SPECIAL LEGISLATION RE PLANT SANITATION.

The question of what measures in the nature of Legislation if any should be recommended to Government with a view to preventive steps being taken for the safety of the Tea Industry in reference to the spread of "shot-hole borer" and other insect pests and of the Cacao grower in respect of Cacao disease has received consideration and in the ensuing year the matter will have further attention.

SPECIAL LEGISLATION FOR THE PROTECTION OF RUBBER.

During the year the question of the theft of Para Rubber was brought under the notice of your Committee as in the opinion of the Kalutara Association special protection will shortly be required to prevent theft of the products. The matter is one that will not be lost sight of, meantime it is recommended that evidence should be collected showing in what way Rubber is liable to depredations by thieves.

ORDINANCE No. 18 OF 1902 ENTITLED AN ORDINANCE TO PROVIDE FOR THE INCREASE OF THE EXPORT DUTY ON TEA.

The above mentioned Ordinance came into operation as from and after the 1st day of June, 1902. It provides for the levy upon all Ceylon tea exported a duty not exceeding 10 cents per 100 lbs. in addition to the levy imposed under the provisions of Ordinance No. 4 of 1894. The proceeds of the levy so enacted shall be applied towards the increase of the consumption of Ceylon tea in Foreign lands, in such manner as may from time to time be desired and determined by the joint Committee appointed for the purpose by the Planters' Association of Ceylon on the 17th day of February, 1902, and by the Ceylon Chamber of Commerce the 7th day of March, 1902, or the successors in office of such Committee, provided that the manner of applications of proceeds of the said levy be subjected for the approval of the Governor in Executive Council.

FERTILISERS ORDINANCE No. 12 OF 1901 FOR REGULATING THE SALE OF MANURES.

In connection with the above mentioned Ordinance your Committee reports that His Excellency the Governor was pleased to appoint Mr. M. Kelway Bamber to be Agricultural Analyst for the Island under Section 5 of the Ordinance and to sanction the scale of fee suggested for the approval of Government by your Association.

MINES AND MACHINERY ORDINANCE, 1896, RULES MADE BY THE GOVERNOR.

Early in the year Government forwarded the Rules under the Mines and Machinery Protecting Ordinance made by the Governor with the advice of the Executive Council in terms of Section 4 of Ordinance No. 2 of 1896, and invited any suggestions from your Association regarding same. In reply your Committee stated that the Planters' Association had no new suggestions to offer. The Rules as passed were published in the Government Gazette, July 4th, 1902.

FIRE INSURANCE. CIRCULAR SAWS IN TEA FACTORIES.

A notification regarding Circular Saws in Tea Factories having been considered by your Committee the Ceylon Fire Insurance Association was asked if any reason could be given for the additional charge, it being pointed out that in view of the recent agitation to reduce the rate of premiums the present step appeared to be uncalled for. The reply received was unsatisfactory. It was stated that the regulation in question emanated from the Fire Office Committee (Foreign) London, who in view of the danger believed to exist in the use of Circular Saws, notwithstanding the representation and recommendation for the use of these saws on certain conditions without extra rate by the Ceylon Committee the London Committee were unable to agree to its withdrawal. The next step taken was to refer the correspondence to the Ceylon Association in London inviting support as so far as was known no fire has occurred in Ceylon owing to the use of Circular Saws in a tea factory. A copy of the notification on the subject as issued in Ceylon was not forwarded at the time and it is a matter of surprise and regret to learn that though the Ceylon Association in London applied to the Fire Office Committee (Foreign) for a copy thereof the Secretary absolutely refused to give any information, thus entailing unnecessary delay and a further reference to Ceylon for the desired data. Your Committee has since learned with regret that your representation on the subject has been refused by the Fire Office Committee (Foreign).

CEYLON IMPORT DUTY ON INDIAN TEAS.

Early in the year Government forwarded a letter from the Government of India with the accompanying copy of a letter from the Secretary Indian Tea Association, Calcutta, relative to the Duty levied on tea imported into Ceylon and invited an expression of the views of your Association thereon. The proposal which the Indian Committee ventured to advance was first that an attempt should be made to induce the Ceylon Government to exempt Indian Tea from the payment of Duty and second that if necessary Ceylon Tea should be exempt from the payment of Duty in India, but that the existing duty should be maintained in the case of non-British Teas. Your Committee in reply stated that the question had received very full consideration by your Association so far back as 1894 when the following Resolution was passed in August, 1895:—"That in reply, it be stated that in the opinion of the Committee it would be highly detrimental to the interests of Ceylon Tea that the prayer of the petition from the United Planters' Association of Southern India be granted. That Ceylon has for many years worked hard to introduce her teas into foreign countries and to raise their credit for purity, and now that some success has been achieved, it seems unwise to admit other countries on equal terms to the jeopardy of Ceylon's interests. That, regarding the question of *blending*, the Committee desires again to draw the attention of Government to *the resolution on the subject* transmitted to Government with the Secretary's letter of the 28th January, 1894, *which resolution* and connected *statement* the Committee again fully endorses."

Your Committee added that since 1894 growers of Ceylon Tea had expended about 2,000,000 rupees in making known their produce in the markets of the World and that your Association feels that it is more important than ever that no possible mistake or confusion should arise from Teas other than Ceylon being shipped from Colombo with an implication of Ceylon growth. Your Association is further of opinion that no hardship exists in the matter of Indian Teas being sold in Colombo, as at present except possibly in the case of small invoices and that it would appear therefore as if the object of the request to remove the duty was to facilitate the blending of Indian Teas with Ceylon rather than that of merely obtaining a market for Indian Teas as such. Your Association fears that with such blending establishments in existence there must be unless stringent precautions are taken, a risk of certain teas other than those grown in the island being shipped as Ceylon Teas. From recent proceedings published it appears that the Ceylon Government was averse to the Indian Committee's proposal and that the Government of India was also in Agreement with Ceylon hence the Indian Committee in view of the definite and final nature of the reply decided it would be useless to proceed further.

THE TEA INDUSTRY AND OVERPRODUCTION.

During the year considerable criticism and discussion have been in evidence as regards the most effective means of combating overproduction of your staple Tea, and of maintaining prices on remunerative terms. A general reduction of the Import Duties on Tea in all principal Countries is greatly to be desired not alone as a certain means of relief in the interest of Tea Growers generally, but as unquestionably of far reaching benefit to the masses of population which are at present prevented from enjoying a remarkably refreshing and wholesome beverage by the highly enhanced price necessary owing to the rate of Import Duty levied when added to the value per lb. of Tea at the point of Landing. The matter is one which is worthy of consideration by the responsible Statesmen of all Countries for the good of the subject peoples throughout the World.

CEYLON ASSOCIATION IN LONDON.

In connection with the important question of the British Import Duty on Tea, Warehouse Charges in London, Fire Insurance Premiums, Freight to Australia and other matters the Ceylon Association in London has lent its services while in respect of several other matters there has been consultation and reference with a view to safeguarding the producers interests.

PLANTERS' WARD AT THE GENERAL HOSPITAL, COLOMBO, & AT THE BAKER WARD, NUWARA ELIYA.

Your Committee learns that the number of Planters treated in the Planters' Ward Colombo, during 1902, was 59 and at the Baker Ward, Nuwara Eliya 1. It may also be mentioned that at the Kandy Hospital 15 were treated, at Gampola Hospital 1, at Badulla Hospital 8, at Maskeliya, Dimbulla and Kegalle District Hospital 1 each respectively. The thanks of your Association is herein tendered to the Principal Civil Medical Officer and Inspector General of Hospitals and his Assistants for professional Services and other courtesies and attentions extended. In Appendix F. an Official Return is given showing details as to Patients treated.

VISITORS TO HOSPITALS AND DISPENSARIES IN THE PLANTING DISTRICTS.

During the year various appointments as Visitors to Hospitals and Dispensaries in the Planting Districts as from time to time submitted for the approval of Government have been made. Your Committee believes that these arrangements work satisfactorily.

CEYLON NURSING ASSOCIATION.

A Sub-Committee of your Committee was recently appointed with a view to drawing the attention of Agents of Estates to the value of the Ceylon Nursing Association also inviting support and co-operation by permitting Superintendents of Estates employed by them to subscribe on Estate account annually. An appeal was at same time made to Superintendents to obtain permission of their firms to subscribe to the Nursing Association. The letters of appeal were sent to nearly 900 Superintendents and also to the Agents of Estates with interesting information and data. Some of the leading Agency Houses have prominently and cordially supported the appeal and your Committee has no doubt that the institution will receive still greater recognition of its value and usefulness to the Planting Community especially by regular and increased contributions hereafter.

DISTRICT ASSOCIATIONS.

Your Committee records herein an expression of grateful thanks on your behalf to the Office Bearers of the various affiliated District Associations for cordial co-operation and support during the past year in matters relating to the work and maintenance of the Planters' Association of Ceylon.

REPRESENTATIVE IN THE LEGISLATIVE COUNCIL.

Under the new Official Regulations the Hon. Mr. J. N. Campbell's term of Office having expired by effluxion of time Hon. Mr. E. Rosling was nominated by your Association for the approval of His Excellency the Governor as Planting Representative in the Legislative Council and was thereafter *duly* appointed. In General Meeting a hearty vote of thanks was tendered to Hon. Mr. Campbell for his many able services on your behalf and your Committee in again recording such herein would add an expression of congratulation and thanks to Hon. Mr. Rosling also who as successor of previous distinguished Members has already earned your confidence and appreciation.

CEYLON PLANTERS' RIFLE CORPS.

In continuation of previous Reports it is interesting and useful for reference to place the following Return—supplied by the courtesy of the Adjutant, Ceylon Volunteer Force—of the total present strength of the Planters' Rifle Corps in the various Districts.

Ambegamuwa	26
Darrawella	30
Maskeliya	31
Lower Maskeliya	15
Kandy	25
Matale	29
Madulkelle	19
Rangalla	15
Hewaheta	22
Mattakelle	35
Agra Patna	79
Kotagala	32
Punduloya	16
Nuwera Eliya	28
Badulla	23
Haputale	26
Passara	12
Udapussellawa	17
Maturatta	11
Kalutara	27
Galle	18
Kelani Valley	55
Kurunegalle	16
Colombo	121
Pussellawa	22
Nawalapitiya	20
Dolosbage...	20
Batticaloa	12
Total	797

At the request of Lieutenant-Colonel Farquharson, Commanding the Corps permission has been granted by your Committee to have the six Shields for Rifle Competition placed within the Victoria Commemoration Buildings, Kandy.

CEYLON CONTINGENT.

At a recent Meeting of your Committee a Sub-Committee was nominated to take steps in the matter of the proposed Monument to be erected in the Victoria Garden adjoining the Victoria Commemoration Buildings, Kandy. Subscription lists are now in circulation but it is too early to report how much has been collected or promised. No doubt in the New Year the Sub-Committee will be re-appointed and with the promised co-operation of the Ceylon Chamber of Commerce the matter will have renewed attention and monetary support.

GEORGE WALL REFERENCE LIBRARY AND TOWER.

The nucleus of valuable authoritative information for domicile in the George Wall Reference Library having been formed an effort has been made through the good Offices of Government to secure from the proper channels the Official Blue Books issued annually by the various Colonial Governments. Government has been good enough to state that the request has been transmitted to the Governor General of Australia and your Committee hopes shortly to have a favourable response. Your Committee has also asked the Ceylon Chamber of Commerce to kindly co-operate in obtaining Consular Reports and other similar data regarding trade and Ceylon Products through the various Consuls, London Chamber of Commerce etc. Your Committee mentions this as indicating that it is likely gradually to have available a sufficient collection of such interesting books of reference connected with the Colonial Governments and their Agricultural Statistics. The opportunity is availed of to again record herein an expression of thanks to His Excellency the Governor as well as to Societies, Departments and others for Blue Books, Sessional Papers, Reports and Year Books, courteously forwarded from time to time during the year.

PLANTERS' BENEVOLENT FUND,

ESTABLISHED TO COMMEMORATE THE JUBILEE OF HER MAJESTY QUEEN VICTORIA 1837-1887.

Your Committee is glad to report that subscriptions for the year, 1902, collected by the Hon. Treasurer of the Fund amounted to Rs. 2,885 against Rs. 2,640 in 1901 while donations aggregated Rs. 180 in 1902 as compared with Rs. 412·87 in 1901. The sum of Rs. 1,277·84 was credited as interest in 1902 and Refunds of Rs. 425 were also received. Assistance granted to various Planters and their families during 1902 showed a total of Rs. 2,729·82.

In recording the above your Committee again solicits a subscription or Donation from Members of the Planting Community who may rest assured that such will be usefully employed and help those where temporary assistance may be both pressing and indispensable. For the information of absent Proprietors, Agents of Companies and others, your Committee quotes the following Regulation and hopes that its perusal may lead to a considerable addition to the Roll of Patrons:—

"A Donor of Rs. 100·00 to the Benevolent Fund, or an annual subscriber of Rs. 20·00 for 5 years, will be welcomed as a patron, and have a copy of the proceedings of the standing Committee and statement of the Accounts of the Fund rendered to him, and such donor and his family shall be entitled to assistance from the Fund if in need of such. Should such sum of Rs. 100·00 be subscribed by the Proprietor of an estate on behalf of the estate then the Superintendent shall be entitled to assistance from this Fund if in need of such during the life and ownership of the donor."

OBITUARY.

Your Committee records with sincere regret the decease of the following Members of the Planting Community during the past year:—

J. Shelton Agar, G. B. Armitage, G. M. B. Boxhill, L. R. Biddell, R. Bartrum, Oliver Collett, J. J. Fyler, Thos. Fairhurst, J. L. Gordon, A. N. Greenhorn, T. J. Grigg, F. G. Hoste, W. H. Herbert, W. B. Kingsbury, W. Kent, W. D. Matland, J. J. O'Dowd, J. L. Phillips, Herbert William Parry, Norman Rettin, Tudor Stanton, Percy Scott, J. Shipton, R. H. Tennant, James M. Wright, David Webster, C. H. F. Wilkinson, J. D. Andrews, Reginald Glanville.

FINANCES.

The Statement of Accounts made up to the close of the financial year 31st January, 1903, and laid on the table to-day in terms of Rules VIII, XII and XIX of your Association show a credit balance of Rs. 3,234·48. Included in this amount however is the sum of Rs. 1,585, collected as a special fund towards the cost of the proposed Bust or Statue of our late Sovereign Majesty Queen Victoria to be placed in the Victoria Commemoration Buildings, Kandy, the balance of the *Portrait* fund Rs. 131·50, also Rs. 135 on account of the Ceylon Contingent Monument already referred to herein.

The year will be memorable by three Historic events—the conclusion of Peace at the close of the War in South Africa; the sudden, serious illness, and remarkable restoration to health of His Majesty King Edward the Seventh; —the Royal Coronation Celebration in Westminster Abbey, when Their Majesties the King Emperor, and Queen Alexandra were crowned. It goes without saying that Ceylon and Your Association evinced keen interest in these matters sharing with other Dependencies through the Planters' Contingent of Mounted Infantry in the defence of the British Dominions beyond the seas, and being honoured through His Excellency the Governor at the public pageants and festive functions of 1902. In resigning Office your Committee recommends a continuance of the efforts being made to obtain a reduction of the British Duty on Tea in Great Britain, expansion of the Green Tea Industry, avoidance of coarse plucking, control of the London Market, and the further exploitation of Ceylon Tea throughout the World with a view to increased demand for and consumption of your staple in all countries.

Unitas Salus Nostra.

APPENDIX A.

General Export from the Island of Ceylon in the Year 1902.

Articles.	Quantities.	Value in Currency.	Tea Fund.	Medical Aid
	lbs.	Rs.	Rs. c.	Rs. c.
Tea. United Kingdom	103,182,344	37,293,789	262,838·88	92,496·31
British Colonies.				
Aden ...	6,620	2,383	18·45	5·91
British Guiana ..	250	90	·60	·22
British India ...	839,341	302,162	2,196·76	751·49
British East Africa ...	11,740	4,227	30·05	10·47
British West Indies ...	39,250	14,130	91·85	35·04
Burmah ...	7,784	2,802	14·90	6·99
Canada ...	4,987901	1,795,644	13,165·00	4,453·60
Cape Colony ...	251,185	90,426	633·85	224·30
Gibraltar ...	3,500	1,260	9·50	3·14
Hongkong ...	304,652	109,675	788·78	272·19
Malta ...	351,565	126,563	889·70	313·88
Maldive Islands ...	802	289	1·00	·72
Mauritius ...	76,389	27,500	193·95	68·11
Natal ...	130,535	46,993	361·50	116·59
New Foundland ...	147,315	53,032	373·90	131·50
New South Wales ...	6,276,506	2,259,542	16,402·59	5,595·31
New Zealand ...	3,114,649	1,121,274	8,124·50	2,781·07
Other Br. Poss. in Af'ca	41,518	14,947	102·90	37·06
" " " Asia	4,557	1,640	10·90	4·10
Queensland ...	875,025	315,009	2,129·69	781·40
South Australia ...	1,423,006	512,282	3,499·90	1,270·57
Straits Settlements ...	212,353	76,447	557·17	189·87
Tasmania ...	90,219	32,479	230·80	80·55
Victoria ...	6,362,478	2,290,492	16,375·31	5,681·03
West Australia ...	693,467	249,648	1,818·15	619·41
Zanzibar ...	28,456	10,245	70·55	25·43
Algiers ...	100	36	·30	·09
	129,875,017	46,755,006	330,931·13	115,956·34
Foreign Countries.	lbs.	Rs.	Rs. c.	Rs. c.
Arabia ..	3,530	1,271	9·00	·15
Austria ...	67,434	24,276	186·75	60·25
Belgium ...	116,300	41,868	139·85	104·03
China ...	4,247,356	1,529,048	11,594·65	3,792·55
Cochin China ...	130	47	·20	·12
Denmark ...	36,563	13,162	98·95	32·65
Egypt ...	134,003	48,241	350·25	124·59
France ...	198,416	71,430	509·27	177·39
Germany ...	607,063	218,543	1,609·56	542·14
Greece ...	2,582	929	6·50	2·30
Holland ...	1,180	425	3·00	1·04
India Exc. British ...	250	90	·65	·22
Italy ...	21,583	7,770	54·05	19·36
Japan ...	8,624	3,105	22·80	7·71
Java ..	40	14	—	·04
Madagascar ...	24,833	8,940	62·85	22·11
Mozambique ...	16,682	6,006	48·65	14·92
Norway ...	7,867	2,832	17·85	7·02
Other Foreign Country in Australasia ...	6,210	2,235	15·70	5·54
Other For. Cou. in Asia	177,624	63,945	532·05	158·69
Persia ...	25,064	9,023	69·40	22·38

Articles.		Quantities.	Value in Currency.	Tea Fund.	Medical Aid.
		lbs.	Rs.	Rs. c.	Rs. c.
	Philippines ..	17,284	6,222	40·50	15·44
	Russia in Asia ...	1,795,827	646,498	4,137·45	1,603·41
	Russia in Europe ...	9,608,148	3,458,933	25,640·90	8,579·01
	South America ...	9,800	3,528	23·90	8·76
	Spain ...	1,070	385	2·00	·96
	Sweden ...	56,011	20,164	141·45	50·00
	Switzerland ...	330	119	·80	·31
	Turkey in Asia ...	11,652	4,195	30·65	10·33
	Turkey in Europe ...	21,428	7,714	57·60	19·18
	United States of America	3,729,806	1,342,730	9,930·80	3,330·58
		150,829,707	54,298,694	386,269·16	134,672·43

		Quantities.		Value in Currency.
Coffee Arabian Native.	British Colonies.	cwts.	lbs.	Rs. c.
	British India		9	03
	Mauritius	1	142	15
	Victoria	14	593	1·39
	West Australia	30	1,270	3·06
		45	1,914	4·63
		cwts.	lbs.	Rs. c.
Coffee Arabian Plantation.	United Kingdom	8,064	497,952	806·40
	British Colonies.			
	British India	62	3,828	20·61
	Burmah	4	247	43
	Canada	115	7,101	11·46
	Cape Colony	5	309	·47
	Hongkong	30	1,853	3·02
	Mauritius	309	19,080	30·92
	Natal	4	247	·40
	New South Wales	33	2,038	3·29
	New Zealand	212	13,091	21·21
	Queensland	2	124	·18
	South Australia	77	4,754	7·66
	Straits Settlements	3	186	·34
	Tasmania	50	3,087	5·00
	Victoria	352	21,736	35·29
	West Australia	65	4,014	6·50
	Foreign Countries.			
	Belgium	134	8,274	13·48
	China	16	988	1·60
	France	4	247	·40
	Germany	31	1,915	3·05
	Italy	—	27	·05
	Japan	—	37	06
	Mozambique	4	247	·40
	Russia in Europe	10	617	1·05
	Switzerland	—	5	·02
	U. S. of America	729	45,016	72·94
		10,315	637,020	1,046·32
Coffee Liberian.	British Colonies.	cwts.	lbs.	Rs. c.
	British India	39	819	3·97
	Natal	2	42	·18
		41	861	4·15
		cwts.	lbs.	Rs. c.
Cinchona.	United Kingdom	234,972	21,147	104·99
	Foreign Countries.			
	Germany	28,307	2,548	12·68
	Italy	1,768	159	·79
	Japan	38,080	3,427	17·00
	Russia in Europe	623	56	·27
	U. S. of America	3,313	298	1·48
		307,063	27,655	137·21
		cwts.	lbs.	Rs. c.
Cacao.	United Kingdom	44,816	1,850,004	4,482·52
	British Colonies.			
	British India	7	280	73
	Newfoundland	14	578	1·40
	New South Wales	61	2,518	6·06
	New Zealand	429	17,709	42·95
	Straits Settlements	8,493	350,591	849·46
	Victoria	220	9,082	22·00
	South Australia	10	413	1·00
	West Australia	12	495	1·23
	Foreign Countries.			
	Austria	—	11	·03
	Belgium	703	29,020	70·28
	China	—	24	No Duty
	Denmark	300	12,384	30·00
	France	11,19	46,192	111·88
	Germany	4,486	185,182	448·65
	Italy	33	1,362	3·30
	Norway	50	2,064	5·00
	Russia in Europe	2[illegible]0	8,250	20·02
	Spain	196	8,091	19·63
	Sweden	80	3,303	8·00
	U. S. of America	247	10,196	24·71
		61,476	2,537,764	6,148·85
			cwts.	Rs.
Cardamoms.	United Kingdom ...		3,728	527,580
	British Colonies.			
	British India ...		1,068	143,742
	Cape Colony ...		—	70
	Maldives ...		3	255
	Natal ...		1	107
	Straits Settlements ...		15	1,970
	Zanzibar ...		4	637
	Foreign Countries.			
	Belgium ...		—	60
	China ...		9	1,500
	Denmark ...		17	2,000
	Egypt ...		37	4,133
	France ...		4	650
	Germany ...		961	113,883
	Italy ...		9	1,155
	Japan ...		75	12,300
	Russia in Europe ...		—	144
	Turkey in Asia ...		4	590
	U. S. A. of America ...		75	10,289
			6,010	821,067
			cwts.	Rs.
Arecanuts.	United Kingdom ...		394	4,258
	British Colonies.			
	British India ...		83,812	920,282
	Burmah ...		73	785
	Maldives ...		3,021	30,839
	Mauritius ...		413	4,720
	Other British Poss. in Asia ...		40	500
	Queensland ...		1	15
	Foreign Countries.			
	India Exc. British ...		2,937	39,610
			90,691	1,001,009
			lbs.	Rs.
Tobacco, Manufactured Cigars.	United Kingdom ...		50	241
	British Colonies.			
	British India ...		319	775
	Natal ...		18	24
	New South Wales ...		—	5
	Straits Settlements ...		193	245
	Foreign Countries.			
	China ...		120	420
	Siam ...		28	50
			728	1,760
			lbs.	Rs.
Tobacco Manufactured Other.	United Kingdom ...		40	15
	British Colonies.			
	British India ...		15,202	5,077
	Hongkong ...		1,000	750
	Natal ...		2,520	900
	Foreign Countries.			
	China ...		112	150
	Germany ...		40	10
	Holland ...		40	100
	Java ...		36	72
			18,990	7,074
Tobacco Unmanufactured.	British Colonies.		Rs.	Rs.
	British India ...		4,925,996	1,029,806
			4,925,996	1,029,806
			Rs.	Rs.
Raw Materials Textile Cotton.	United Kingdom ...		44,629	12,595
	British Colonies.			
	British India ...		69,278	5,851
	Cape Colony ...		2,240	710
	Maldives ...		2,940	300
	New South Wales ...		1,092	292
	New Zealand ...		5	2
	Victoria ...		1,609	430
	West Australia ...		1,809	700
	Foreign Countries.			
	Belgium ...		1,651	334
	China ...		10	1
	Holland ...		9,475	1,360
	India Exc. British ...		2,464	220
	Italy ...		73	12

Articles.		Quantities.	Value in Currency.
		lbs.	Rs.
	Japan ...	30	6
	U. S. of America ...	67,282	18,571
		204,589	41,384
		yds.	Rs.
Cotton Lace and Net	United Kingdom ...	2,697	1,500
	British Colonies.		
	Natal ...	850	800
	South Australia ...	900	320
	Foreign Countries.		
	Java ...	1,300	250
		5,747	2,870
Piece Goods :— Bleached.	British Colonies	yds.	Rs.
	British India ...	87,629	17,501
	Maldives ...	18,480	3,525
	Foreign Countries.		
	Germany ...	2,000	600
	Italy ...	10	5
	Mozambique ...	3,200	455
		111,319	21,986
Dyed.	British Colonies.	yds.	Rs.
	British India ...	36,770	6,853
	Maldives ...	1,260	450
	Straits Settlements ...	750	500
	Foreign Countries.		
	China ...	40	50
	India Exc. British ...	150	75
		38,970	7,928
		yds.	Rs.
Cotton, Gray.	United Kingdom ...	4,400	888
	British Colonies.		
	British India ...	234,530	37,834
	Maldive Islands ...	83,378	11,997
	Other Br. Poss. in Asia ...	600	150
	Straits Settlements ...	3,600	2,000
		326,508	52,869
Muslin.	British Colonies.	yds.	Rs.
	British India ...	150	22
		150	22
Printed.	British Colonies.	yds.	Rs.
	British India ...	700	325
	Maldives ...	900	225
		1,600	550
Other.	British Colonies	yds.	Rs.
	British India ...	160	420
	Burmah (Samples) ...	—	15
	South Australia ...	300	200
	Foreign Countries.		
	Germany ...	80	125
	Java (Samples) ...	...	50
	Japan ...	100	90
		640	900
Cotton Thread	British Colonies.	Pkgs.	Rs.
	British India ...	6	60
		6	60
	British Colonies.	lbs.	Rs.
Cotton Tan and Twist Dyed	British India ...	5,440	3,450
		5,440	3,450
	British Colonies.	lbs.	Rs.
Gray	British India ...	69,262	25,050
	Maldives ...	1,200	600
	Straits Settlements ...	38,280	16,200
	Foreign Countries.	lbs.	Rs.
	China ...	102,800	40,500
		211,542	82,350
		cwt.	Rs.
Coconuts, Desiccated.	United Kingdom ...	87,710	1,731,655
	British Colonies.		
	Aden ...	3	90
	British India ...	17	251
	Canada ...	39	700
	Cape Colony ...	313	6,929
	Natal ...	29	750
	New South Wales ...	1,547	35,595
	New Zealand ...	1,691	33,098
	Queensland ...	519	11,088
	South Australia ...	584	13,050
	Tasmania ...	40	1,109
	Victoria ..	2,831	58,536
		95,323	1,892,851
	British Colonies.		
	West Australia ...	437	10,196
	Foreign Countries.		
	Austria ..	1,343	27,004
	Belgium ...	3,628	72,739
	Denmark ...	444	8,691
	France ...	675	11,667
	Germany ...	18,296	362,271
	Holland ...	3,451	66,762
	Norway ...	120	2,295
	South America ...	40	892
	Spain ...	450	7,642
	U. S. of America ...	115,253	407,539
		239,460	1,870,549
		No.	Rs.
Coconuts, Fresh	United Kingdom ...	9,134,332	510,741
	British Colonies.		
	British India ...	158,270	5,725
	Burmah ...	225	50
	Canada ...	1,000	40
	West Australia ...	1,440	75
	Zanzibar ...	2,000	600
	Foreign Countries.		
	Austria ...	14,510	775
	Belgium ...	358,475	20,490
	China ...	300	7
	Denmark ...	10,080	500
	Egypt ...	1,572,524	88,336
	France ...	51,675	2,720
		11,304,831	630,059
	Germany ...	1,260,895	73,056
	Holland ...	94,475	4,621
	Italy ...	11,295	746
	U. S. of America ...	73,110	3,436
		12,744,606	711,918

		Plants. Cwts.	Chips. Cwts.	Total. Cwts.	Rs.
Cinnamon Plantation	United Kingdom	3,745	2,065	5,810	370,910
	British Colonies.				
	British India ...	7	7	14	894
	Canada ...	13	52	65	4,149
	Cape Colony ...	—	—	—	55
	New South Wales ...	19	119	138	8,810
	New Zealand ...	3	54	57	3,639
	Queensland ...	3	22	25	1,596
	South Australia ...	2	23	25	1,596
	Victoria ...	13	130	143	9,129
	Foreign Countries.				
	Austria ...	[illegible]	565	616	39,326
	Belgium ...	9[illegible]	2,089	2,993	191,073
	China ...	[illegible]	—	—	48
	France ...	5[illegible]	662	1,192	76,097
	Germany ...	7,7[illegible]	5,016	12,807	817,599
	Holland ...	[illegible]7	1,595	2,032	129,723
	Italy ...	1,1[illegible]8	1,895	3,043	194,265
	Other Foreign Countries in Africa ...	—	—	—	16
	Other Foreign Countries in America ...	268	—	268	17,109
	Russia in Europe ...	2	2	4	255
	Spain ...	3,67[illegible]	1,322	4,997	319,009
	Switzerland ...	1	—	1	64
	Turkey in Asia ...	1	—	1	64
	U. S. of America ...	4,208	216	4,424	282,428
		22,821	15,834	38,655	2,467,854

		cwts.	Rs.
Cinnamon, Wild	United Kingdom ..	125	419
	British Colonies.		
	British India ...	59	198
	Foreign Countries.		
	Belgium ...	21	70
	France ...	60	168
	Germany ...	71	239
		326	1094

Articles.		Quantities.	Value in Currency.
		Cwts.	Rs.
Pepper	United Kingdom	342	15,942
	British Colonies.		
	British India ...	224	3,901
	Maldives ...	23	751
	Natal ...	1	35
	Foreign Countries.		
	Germany ...	8	510
		598	21,139

Note—In the Return, in some cases, the value is given although the quantity of article exported is omitted, because this is less than the unit of measurement.

H. M. Customs, Colombo, 28th January, 1903. — H. L. CRAWFORD, Principal Collector.

[Appendices **B.** to **E.** are omitted, the information having been already published in the daily papers.]

APPENDIX **F.**

Return of Planter Patients treated in Hospital during 1902.

	No. remained on 31st Dec. 1901.	No. admitted during 1902.	Total.	No. discharged.	Died.	No. remaining on 31st Dec. 1902.
Nuwara Eliya Baker's Ward ...		1	1	1	...	...
Civil Hospital, Kandy	1	11	12	12	...	...
District Hospital, Maskeliya ...		1	1	1	...	...
Do Dimbulla ...		1	1	1	...	...
Do Gampola ...		1	1	1	...	...
Civil Hospital, Badulla	1	1	2	1	...	...
Planters' Ward, Colombo	8	56	59	57	...	2
Civil Hospital, Kegala	...	1	1	1	...	...
Total	5	73	78	76	nil	2

Report of the Thirty Committee.

Report of the "Thirty Committee" appointed to administer the proceeds of the Export Duty on Tea, levied under Ordinance No. 4 of 1894 for increasing the consumption of Ceylon Tea in foreign lands for the year 1902.

Members of the "Thirty Committee," 1902.

The following is a list of the "Thirty Committee" at 31st December, 1902.

Messrs. James Westland, C. E. Welldon, A. C. Kingsford, Frank S. Vowler, Hon'ble Mr. J. N. Campbell, Messrs. E. Webb, Alex. Wardrop, Edgar Turner, R. A. Galton, H. O. Hoseason, Gordon Pyper, W. D. Bosanquet, T. C. Huxley, Wm. Forsythe, A. Philip, W. J. Smith, Joseph Fraser, W. R. Tatham, R. Morison, Captain H. Gordon, Messrs. W. D. Gibbon, Hon'ble Mr. Edward Rosling, Messrs. Fred. Hadden, H. V. Masefield, W. Shakspeare, H. J. Scott, J. F. Headrick, G. H. Alston, A. J. Denison, Hon'ble Mr. Stanley Bois.

For part of the year Hon'ble Mr. W. Henry Figg, Messrs. J. B. Coles, Wm. Saunders, J. P. E. Ryan, E. D. Harrison, Oliver Collett, George Hathorn, G. F. Traill, R. S. Templer, Duncan Skrine, served as members.

Finances.

The total collections paid into the Ceylon Tea (New Markets) Fund on account of the Export Duty on tea from 1st January to 31st December, 1902, amounted to Rs. 374,450·65. The Balance in the Bank, brought forward from 1901 was Rs. 22,984·74. The final Balance available at 31st December, 1902, was Rs. 15,830·02.

The usual interim summary of accounts for the half yearly periods ending 30th June, 1902, and 31st December, 1902, with various connected statements of Charges and Discharges are appended, also statements showing total Receipts and Expenditure as from 1894 to 31st December, 1902.

Minutes of Proceedings.

The Minutes of Proceedings of the Meetings of the "Thirty Committee" have been regularly forwarded to Government for information and guidance after confirmation.

Governor in Executive Council.

During the year the approval of the Governor in Executive Council was obtained to the following appropriations of the proceeds of the levy as from time to time desired and determined by the "Thirty Committee."

1. *Ceylon Tea on the Continent of Europe,* Amount appropriated and sanctioned by the Governor in Executive Council per letter dated 11th February, 1902, for advertising Ceylon Tea on the Continent of Europe during 1902, £2,500 Sterling at Exchange 1/4 per Rupee ... Rs. 37,500·00
   do, do, letter 18th March, 1902, £1,000 @ 1/4 „ 15,000·00 — R52,500·00

2. *Representative in America.* Amount appropriated and sanctioned by the Governor in Executive Council per letter dated 11th February, 1902, for advertising Ceylon Tea in America during 1902, £4,000 @ 1/4 ... Rs. 60,000·00
   do do per letter dated 4th June, 1902 £1,000 @ Exchange 1/4 ... „ 15,000·00 — 75,000·00

3. *Ceylon Green Teas 1901-1902 Grant.* Amount appropriated and sanctioned by the Governor in Executive Council per letter dated 11th February, 1902, for the purpose of payments under above Grant ... ... Rs. 20,000·00
   do per letter dated 11th March, 1902 „ 20,000·00
   do „ „ 7th April, 1902 „ 20,000·00
   do „ „ 17th June, 1902 „ 45,004·01
   do „ „ 8th September, 1902 „ 100,000·00 — 205,004·01

4. *St. Petersburg Exhibition, 1902.* Amount appropriated and sanctioned by the Governor in Executive Council per letter dated 7th April, 1902, £2,000 Sterling @ 1/4 ... 30,000·00

5. *Ceylon Tea in Afghanistan,* Amount appropriated and sanctioned by the Governor in Executive Council per letter dated 4th June, 1902, for advertising Ceylon Tea in Afghanistan, &c. ... ... Rs. 6,000·00
   To further amount do do letter dated 29th June, 1902 ... „ 2,000·00 — 8,000·00

6. *Ceylon Tea to Boer Prisoners of War.* Amount appropriated and sanctioned by the Lieutenant-Governor in Executive Council per letter dated 29th July, 1902, for expenditure in presenting the Boer Prisoners of War who are returning to South Africa with Gifts of Ceylon Tea ... Rs. 5,000·00
   To further amount do do letter dated 2nd December, 1902 ... „ 4,500·00 — 9,500·00

7. *Ceylon Tea in Honolulu, West Indies, South Africa, or North Africa.* Amount appropriated and sanctioned by the Governor in Executive Council for advertising Ceylon Tea in Honolulu, West Indies, South Africa or North Africa per letter dated 9th September, 1902 ... ... 7,500·00

8. *Appropriations from the Ceylon Tea Fund for 1903.* Amount appropriated and sanctioned by the Governor in Executive Council for the following: per letter dated 29th November, 1902.

Green Teas (7,000,000 lbs. @ 4 cents.)	Rs. 280,000·00
America	... 105,000·00
Continent of Europe	.. 75,000·00
Administration Contingencies ...	... 10,000·00
	Rs. 470,000·00

The Grand total of Rs. 2,142,492·59 has been levied since 1895 as under.

30th June, 1895	... Rs.	142,874·64
31st Dec., „	... „	94,811·13
30th June, 1896	... „	112,273·00
31st Dec., „	... „	104,091·79
30th June, 1897	... „	118,868·52
31st Dec., „	... „	112,672·21
30th June, 1898	... „	121,965·82
31st Dec., „	... „	119,109·04
30th June, 1899	... „	120,082·13
31st Dec., „	... „	135,611·37
30th June, 1900	... „	151,989·33
31st Dec., „	... „	142,150·67
30th June, 1901	... „	157,091·27
31st Dec., „	... „	135,451·02
30th June 1902	... „	146,604·14
31st Dec., „	... „	227,846·51
	Rs.	2,142,492·59

REPRESENTATIVE IN AMERICA.

The Remittance made to Mr. Wm. Mackenzie from 1st Jan., 1902, to 31st December, 1902, were as undernoted.

1902.			£		Rs. c.
March 19th	To Remitted to Mr. Mackenzie		1,000	=	15,011·70
May 8th	do.	do.	1,000	=	15,029·35
July 15th	do.	do.	1,000	=	15,029·35
August 30th	do.	do.	1,000	=	15,029·35
October 4th	do	do.	1,000	=	15,000·00
			£5,000	=	Rs. 75,099·75

CEYLON TEA ON THE CONTINENT OF EUROPE.

The Remittances made to Mr. J. H. Renton for pushing and making known Ceylon Tea on the Continent of Europe from 1st January, to 31st December, 1902, have been as follows:—

1902.			£		Rs. c.
February 1st	To Remitted to Mr. J. H. Renton		1,000	=	14,941·63
May 23rd	do,	do.	1,000	=	15,058·82
August 21st	do.	do.	1,000	=	15,029·35
Sept. 20th	do.	do.	1,500	=	22,500·00
			4,500	=	67,529·80

In addition to the above a sum of Rs. 119·80 was debited to Credit Opened on account Continent of Europe for sundry payments made locally, thus bringing up the total expenditure for the year 1902 to Rs. 67,649·60 as per Summary at printed page 38.

[37 pages follow of statistical recapitulations of material already published periodical in the press, chiefly regarding the green tea bonus, and the "Opening of Credits" in connection with the general fund.]

SUMMARY OF RECEIPTS AND EXPENDITURE CEYLON TEA (NEW MARKETS) FUND AS PER AUDITED ABSTRACTS FROM 1894 TO AS ON 1ST JANUARY, 1903.

Receipts.	Rs.	c.
Ceylon Tea (New Markets) Fund	2,142,492	59
Ceylon Tea Fund	11,428	93
Interest	14,695	92
Ceylon Tea in Russia (Refund)	583	11
Coolgardie Exhibition 1899	3,629	46
Coolgardie Suspense a/c (Refund)	790	56
Telegrams (Refund)	186	30
Wm. Mackenzie Representative in America ...	32	19
Chicago Exhibition Fund (Voluntary) ...	4,676	66
Rs.	2,178,515	72

Expenditure.	Rs.	c.
AMERICA.		
Wm. Mackenzie Representative in America	1,149,523	23
Canada	7,500	00
Miscellaneous	8518	31
Presentation to Admiral Dewey ...	1,451	60
Russia	118,608	83
Germany	42,376	63
Coolgardie Exhibition	9,781	01
Coolgardie Suspense a/c...	790	56
Austria and Hungary	8,412	47
Continent of Europe	274,265	71
Commissioner on the Continent of Europe ...	30,029	41
Belgium and Holland	4,089	65
Norway	3,150	84
Sweden	4,656	85
Switzerland	3,590	94
Transvaal	116	59
Boer Prisoners of War	9,408	50
Honolulu, West Indies, North & South Africa ...	7,500	00
St. Louis Exhibition 1904	101	40
Afghanistan...	7,182	31
Agricultural Chemist	15,000	00
Ceylon Green Teas	347,549	18
"Times of Ceylon" Art Supplement ...	825	00
Bamber's Dietetic Pamphlet	500	00
Bamber's Report on Ceylon Tea Soils ...	800	00
Chicago Exhibition Fund (Voluntary) ...	3,342	78
Golden Tips...	750	00
Ferguson's Pure Ceylon Tea Pamphlet ...	500	00
Paris International Exhibition 1900 ...	30,000	00
Representative at Paris International Exhibition 1900	7,500	00
Administration Contingencies (Salaries and Sundries)	64,646	39
National Bank of India Limited (Balance on 31st December)	15,830	02
Petty Cash Do do do ...	217	51
Rs.	2,178,515	72

(Initialled) J. D. F.

CEYLON COMMISSIONER FOR EUROPE.

REPORT FOR 1902.

General.

I am glad that it was found possible to considerably augment the original sum placed at my disposal for this year's work on the Continent. Owing to savings effected in the grant for 1901, in salary and in the St. Petersburg Exhibition, an extra £2,000 was made available; and though the total sum did not permit me to do all I should have liked to do, nor to extend the operations of the campaign, yet it has sufficed to keep most of those interested in the work, who received support last year, and to induce them to work even harder.

The lines on which I have worked remain the same as last year, viz., Advertisement and Demonstration. The best method of advertising is through the retailer, by getting him to advertise the tea, and by helping him to do so. If he obtains help to bring a new article before the public, he is bound to interest himself in it, and to push it. But it is also most important that the tea should be presented to the public

properly prepared. The great objection to Ceylon tea is that it is bitter in the cup. We can only overcome this prejudice against the tea by teaching the public how to make it, and hence the necessity of demonstration by every possible means in our power.

I have this year confined the grants to Germany, Austria, France, Russia, and Scandinavia.

Travelling.

I have made two journeys in France. In the spring, I visited all the towns where demonstrations have been held during the previous winter; and in the autumn, I went to the towns in the east, south, and centre of France, where demonstrations had either been given this year or have been arranged for. In Germany, I have visited the Provinces of Brandenburg, Pommerania, Posen, and Silesia, all the centre and south of Germany, besides making a second special trip to Stuttgart. I made two special journeys to Russia, to settle the engagements undertaken for the Exhibition, and to arrange for the proposed tea room in St. Petersburg. On my return from St. Petersburg I visited Warsaw, the Austrian Province of Galicia, and Vienna.

Germany.

In Germany trade has been bad this year. The stagnation in the manufacturing and machinery trades still continues. This, combined with the increased prices of provisions, especially of meat, consequent on the excessive restrictions imposed upon imports from America, has affected the spending power of the lower and lower middle classes. In the tea trade, the demand has been mainly for the cheaper qualities. Owing to the reduction in the Chinese export duties, China teas of fair quality have been cheaper, and dealers have met the demand for lower priced teas by supplying larger quantities of China and Java sorts. There can be no question that, owing to their cheapness, combined with improvement in quality, Java teas are steadily growing in favour with the German importers. The same importers complain that Ceylon teas continue to show deterioration in quality, and that they would willingly pay up to 2/6 per lb. for fine flavoury teas if they were available, which they aver is never now the case with Ceylon, and that they are therefore obliged to buy Indian. These fine teas are of course only wanted for blending purposes.

The extensive propaganda made in the interests of Ceylon tea has caused some of these importers to do all they can to discredit it and bring it into disfavour. At the same time, the sale as pure Ceylon tea of blends composed of Ceylon or Indian, and China or Java, is, I consider, also prejudicial to the interests of Ceylon tea. I do not object to blends, provided that the countries of origin are described on the packets; but I have bought as pure Ceylon tea in Berlin stuff which was afterwards described and valued by Messrs. William James and H. Thompson of London as mostly inferior China, value 2*d.* I am glad to say that all the leading German dealers do describe the composition of their blends on their packets. Notwithstanding this increased opposition and bad trade, our teas continue to make fair progress with the public. Up to end of November the direct export to Germany, including that *via* Holland and Belgium, is 674,810 lbs. against 561,890 lbs., at corresponding date at last year. In 1899 the total direct export was 391,594 lbs. The consumption of tea in Germany is increasing; but so far the increase in Ceylon tea is not equal to that from China and Java. The German Customs returns to end of November are as under. The falling off in the quantity imported this year so far from India and Great Britain is instructive:—

Countries of Origin.		1901.	1902.
Great Britain	..	422,300 kilos	377,500 kilos
Holland	..	64,700 ,,	53,400 ,,
British India	..	267,400 ,,	264,500 ,,
Ceylon	..	196,300 ,,	220,100 ,,
China	..	1,750,600 ,,	1,871,500 ,,
Java	..	339,900 ,,	385,700 ,,
Elsewhere	..	79,200 ,,	37,000 ,,
Total	..	3,120,400 ,,	3,209,600 ,,

The increases are therefore 120,900 kilos from China, 45,800 kilos from Java, 23,800 kilos from Ceylon. The decreases: 44,800 kilos from Great Britain, 11,300 kilos from Holland, and 3,000 kilos from India.

The growing movement in Germany in favour of Temperance, the formation of Temperance Societies, supported by the Medical Faculty, and the Professors in the Universities and High Schools, combined with the fact that the new tariff, whereby the duty will be reduced to 1½*d.* per lb., instead of 6*d.*, comes into force next year, leads me to hope that the consumption of tea will increase considerably in Germany. I think now is the time to push our teas in Germany, and above all pure self-drinking Ceylons, so that the public may learn to know and appreciate their flavour; and every effort should be made to keep up the quality.

As I was informed in 1900 that the Dusseldorf Exhibition would be confined entirely to exhibits from the Rhine Provinces and Westphalia, and as I expected to be in St. Petersburg at the Exhibition to be held there in the spring and summer of this year, I made no effort to obtain space for a demonstration at the Dusseldorf Exhibition. I much regret now that nothing was done. On visiting the Exhibition in May I found that "outside shows" were permitted; and that, had I applied in time, space for a kiosque would have been willingly granted. I made the next best arrangement I could. I found the Restaurants were being run by the same proprietor who had the Restaurant in the German Pavilion at the Paris Exhibition. I accordingly arranged with him to placard Ceylon tea all over, and to keep and sell only pure Ceylon tea in his buildings. I could come to no arrangement with the cafés. Very little tea was, I fear, sold in the Restaurants, but we obtained an excellent advertisement, the Dusseldorf Exhibition having been a great success, and most extensively visited.

The advertising and general propaganda has this year been carried on by eleven firms, two of them being new allies. While I am somewhat disappointed that a more effective propaganda has not been made in Hamburg, Saxony, Westphalia, and the Rhine Provinces, I am much pleased with the vigorous campaign which has been maintained in Wurttemburg and Bavaria, the great progress made in Berlin, and the good commencement in Pommerania and Silesia.

Our last year's friends in Bremen have succeeded in establishing new agencies in Berlin and Stettin. The Berlin Agency has within the year established 196 depôts in Berlin and the Province of Brandenburg for sale of pure Ceylon tea. In Stettin and the Province of Pommerania, Prussia and Posen 96 new depôts have been opened. In Silesia the number has been increased from 13 to 46; Schleswig-Holstein from 43 to 159. All these firms work principally through distribution of circulars and show-cards, and through advertisements on behalf of the grocers in the local papers; but in Berlin, big street posters have also been largely used.

The importers in Stuttgart and Munich have worked specially hard this year. Their main propaganda has been by advertisements, and special little articles in the daily and weekly papers appearing in these towns, and in those in Nürnberg, Renensburg, Bregenz, Dresden, and Kufetein. In addition the Stuttgart firm has distributed 1,000 calendars, 2,200 metal sign-boards, 2,000 window canisters, 10,000 Bamber's pamphlets, 30,000 leaflets "How to Make Tea", 3,000 sample tins, and a free supply of tea to the street kiosques in winter.

From Frankfort, the agent of plantations owned by germans in Ceylon has continued the extensive circulation of their special circular, which was issued as a supplement to 14 weekly and daily papers—some 800,000 of these circulars have been distributed. I still think that the way in which China tea is run down by this circular is too severe. In a country where so little tea is drunk it is a question whether it is a wise policy to make the general public disgusted with any kind of tea. Our aim should be, not to discourage the use of tea of any description, but that of coffee.

The two firms of dealers in Frankfort and Berlin have continued to give Ceylon tea special prominence in their circulars and price lists. The Frankfort firm has opened a branch in Berlin this year, and has given Ceylon an advertisement every alternate week on its donkey cart, which parades Berlin, ostensibly to deliver teas, but mainly for advertising purposes.

Demonstration.

I am glad to be able to report that a commencement has been made in this important part of the work.

A very nice demonstration was made at the Food and Cookery Exhibition held in Stuttgart this summer. One of the results of this demonstration has been, that it has been found possible to open a small tea room in Stuttgart this autumn, where Ceylon tea only is served in cup. This establishment commenced work only in November; but already another tea dealer has arranged for a Wine Restaurant to supply tea in cup, both China and Ceylon being obtainable to suit the tastes of the customers. The firm of coffee dealers in Westphalia who last year placed pure Ceylon tea in all their shops throughout Germany have promised to make an attempt to popularise the tea by serving it in cup in some of the principal places, and sixty samovars and teapots have been supplied to them for this purpose; but as the experiment has hardly yet been started, I am not able to report on it.

The most gratifying result of this year's campaign has been the placing of the tea in several of the best cafés and in the refreshment rooms of two of the largest drapery establishments in Berlin. It has taken a great deal of time and work to induce the cafés to take it up. The great complaint against Ceylon tea is, that it is too strong, and gets too bitter when it has stood any time. Busy cooks in cafés will not take the trouble to make it properly. Teapots, cups, saucers, milk jugs, and sugar bowls take up too much space on the small tables of these cafés. The Berliner café frequenter prefers tea in a glass. So the difficulty of making good tea, and the objection to the numerous dishes, have been met by making teaspoons with perforated holders at one end to contain 2 grammes of dry tea. When tea is ordered, a teaspoonful with dry tea is placed in the glass and boiling water poured on it. The tea is thus served hot and fresh with sugar and lime or milk to each customer, at 30 pfenning per glass. There is no chance of the cook making a second and third brew from the same leaves; and the customers can make the tea any strength they like by withdrawing the spoon when it suits them. The glasses which were presented to the cafés will no doubt disappear in a very short time and commoner ones be supplied; but so long as the spoons are used our object will be attained, and I hope the public will thus be educated to know the difference between pure, mild, self-drinking Ceylon tea and second crop Foochow. A considerable quantity of tea is served in these cafés in the winter, between the hours of 4 and 7 o'clock and 10 and 12 o'clock p. m., the Kaiser Café alone disposing of 500 to 600 glasses per day.

I saw this year several vacant rooms in Berlin, any of which would have been very suitable for a tea room. But the opinion of those best qualified to judge was, that the enormous rents asked render such an undertaking prohibitive without the guarantee of a big subsidy for at least two years.

Appendix A contains details of the advertising done and of expenditure to date. As I closed my books on 30th November, I have not received final accounts for all the work done this year, and have still £500, promised for Germany. Expenditure, so far, has been £1,995 15*s.* 11*d.*, of which I have contributed £803 5*s.* 4*d.*

Austria.

In Austria the work has this year been carried on by the three firms who have their head-quarters in Vienna. A very active and extensive propaganda has been made, specially by the firm directly connected with Colombo. The advertising done by them benefits the others; and I fear that they themselves have obtained little results for all the time and money they have spent in bringing Ceylon tea before the notice of the Austrian public. There is no doubt that a demand has been created for Ceylon tea; but this demand is supplied, not by the advertisers of the article, but by the regular tea dealers, who all now stock pure Ceylon tea, and some of whom have started their own brands. The opening of a retail establishment in one of the main thoroughfares of the City of Vienna solely for the sale of pure Ceylon tea is a most excellent advertisement for our staple; but whether it will within a reasonable period give return to the enterprising proprietor is very doubtful. Our other friends of last year had a very excellent six weeks' demonstration at the Woman's Cookery and Food Exhibition, which was held in the spring. I was very pleased with the style of the kiosque, and the way in which the tea was prepared and served. This house has increased the number of its depôts for the sale of pure Ceylon tea by 214. It has now 814 throughout the Austrian Empire. The methods adopted by the three firms have been the following:—advertisements in the newspapers, circulars, street posters, photographs in the shop windows, special articles in the press, and distribution of Bamber's pamphlets.

The Austrian Customs returns to end of November are as under:—

From		1901.	1902.
Germany	..	17,400 kilos	16,600 kilos
Italy	..	200 ,,	200 ,,
Roumania	..	—	200 ,,
Switzerland	..	100 ,,	200 ,,
France	..	600 ,,	500 ,,
Great Britain	..	21,700 ,,	24,400 ,,
Russia	..	30,800 ,,	31,100 ,,
Turkey	..	600 ,,	800 ,,
Belgium	..	100 ,,	400 ,,
Holland	..	3,500 ,,	2,500 ,,
Free Port Trieste	..	200 ,,	800 ,,
Japan	..	100 ,,	—
U. S. of America	..	400 ,,	—
Brazil	..	1,000 ,,	1,600 ,,
China	..	770,900 ,,	789,800 ,,
India, Ceylon	..	49,600 ,,	36,700 ,,
Java	..	200 ,,	1,600 ,,
Total	..	897,400 ,,	907,400 ,,

I am sorry to see the falling off by 12,900 kilos in the imports from India and Ceylon, and the increase in China teas of 18,900 kilos. The direct exports from Colombo to Austria at end of November were very slightly in excess of the quantity exported at the corresponding date last year.

From Appendix B it will be seen that the expenditure in Austria was £1,329 3*s.* 7*d.*, to which I have contributed £544 15*s.* 6*d.*

France.

In France, this year, as in Germany, there have been great complaints of the badness of trade, and the tea trade seems to have been no exception to the rule. Two small tea importers in Marseilles, both of them supporters of Ceylon tea, have closed their doors and transferred their business to others. I confess that I am much disappointed at the great falling off in the direct exports to France this year. There can be no doubt that returns given on importations in 1900 and 1901 induced importers to lay in extra stocks, especially as they were under the apprehension that an enhanced duty might be imposed in either last or this year. This may be one reason, and the increased import of Annam teas, paying only half the ordinary rate of duty, combined with the bad trade generally, may be another reason for the decrease in the direct Ceylon exports. A decrease in the exports for one year does not, however, necessarily mean a decrease in the consumption. All those who are engaged in the campaign assure me that their sales have increased this year; and I think Ceylon tea is growing in favour. Unfortunately the name of Ceylon is often used, especially in Paris, as a description for all kinds of tea. I myself purchased many samples, some of them evidently packed in France, and submitted them to London brokers, who reported that they doubted if Ceylon tea was contained in any of them.

The general opinion is, that the consumption of all tea in France, more especially in Paris, is on the increase. The increase in the number of tea rooms, and in the numbers frequenting these tea rooms, would seem to support this opinion; yet the French returns for 1901, published only in 1902, do not apparently support this view. From the figures given below it will be seen that British India, which includes Ceylon, is the only country that shows an increase in imports over 1899 and 1900. Even the imports from Annam show a falling of, as compared with the previous year. For comparison's sake I give the exports from Colombo, Calcutta and Great Britain of Ceylon and India teas for the same period.

Imports into France, per French Returns.

		1899.	1900.	1901.
Great Britain	..	168,[illegible]46 kilos	197,952 kilos	133,314 kilos
Belgium	..	1,[illegible]05 ,,	2,152 ,,	1,262 ,,
British India & Ceylon		124,698 ,,	144,002 ,,	152,943 ,,
China	..	532,[illegible]64 ,,	591,001 ,,	456,092 ,,
Other Countries	..	24,[illegible]22 ,,	27,288 ,,	12,352 ,,
Japan	..	— ,,	— ,,	3,592 ,,
Annam	..	46,[illegible]15 ,,	130,275 ,,	102,008 ,,
Other French Colonies		[illegible]16 ,,	656 ,,	255 ,,
		884,[illegible]26 ,,	1,093,326 ,,	861,818 ,,

Exports from United Kingdom.

		1899.	1900.	1901.
Ceylon	..	83,867 lbs.	133,111 lbs.	104,298 lbs.
India	..	50,533 ,,	88,890 ,,	75,381 ,,

Direct Exports from Colombo and Calcutta.

		1899.	1900.	1901.
Ceylon	..	98,952 lbs.	326,800 lbs.	317,866 lbs.
India	..	17,759 ,,	23,983 ,,	23,983 ,,

In my Report for last year I expressed a doubt as to whether the whole of the export from Annam to France was the actual production of Annam. From the Report of the meeting of the Joint Chamber of Commerce and Agriculture of Annam, held on 9th January, 1902, it would appear as if some of the producers in Annam shared my doubts. At any rate it is acknowledged that Annam imports 180,000 kilos of China tea, and that three-fourths of this quantity is of most inferior quality. Although the proposal to raise the duty on China tea imported into Annam from 50 francs to 208 francs per 100 kilos was negatived, yet the Conseil Superieur has now imposed a duty of 104 francs, and it is to be hoped that this regulation will ensure that only the actual product of Annam is exported as such.

The question of an arrangement between France and Great Britain, whereby Ceylon and Indian teas shall not have to pay the higher rates of duty, is, I am assured, not yet settled; but good progress is being made, and a settlement is shortly anticipated.

In carrying on the work in France the same lines have been followed as last year. Grants have been given to five firms; and as regards advertising and general propaganda, each of these firms has worked in its own way. The methods adopted have been various; but the most general were advertisements in the Paris and Provincial papers, more especially in the weekly and monthly provincials; special circulars to pensions and families; advertisement in guide books and directories; street placards and posters; distribution of canisters, fancy tins, show-cards, and enlarged photographs to the retailers; and distribution of free samples of tea wherever it was judged advisable.

The demonstration campaign in the Provinces has been carried on with more vigour than ever by the same house which commenced the work last year. The demonstrator has visited 56 towns in the course of the year, given demonstrations on 84 days at 28 places in 16 of these towns, served 23,014 cups of tea, sold 9,772 packets of tea, and secured 71 new clients; 1,245 posters have been put up in the towns, and printed matters to the extent of 3,232,000 copies in the shape of circulars, leaflets, price lists, and cards have been distributed.

As stated above, I have visited nearly all the towns where demonstrations have been held; and all the proprietors of shops were very much pleased with the result of the demonstration. They acknowledged that it was the best advertisement possible for the tea. The clients will now require constant looking up, and looking after. When I visited the north of France in May I was disappionted to find so few of the show-cards and signs that had been so freely distributed in evidence inside the shops or in the windows. Attention was called to the matter, and more durable articles have now been distributed. Three of the special Ceylon tea rooms in Paris continue to be well patronised, and do a good business. I am sorry that the Ceylon planter, the proprietor of the 4th, who opened his tea room in 1900, at the Rue des Pyramides, decided to leave Paris in October. I understand that the room will be carried on by a French gentleman, who advertises that his family own plantations in Ceylon. I have not, however, seen the establishment since the change of proprietorship. Arrangements have been made whereby the Cafe Riche is to supply Ceylon tea, and the Cafe Vogade in Nice is also to supply pure Ceylon instead of China. A new Ceylon tea room has also been opened this winter in the Casino at Nice; but as I have not yet seen it, I am unable to make any report.

Two special demonstrations were given in Paris at the Exhibitions held in the Cours La Reine and at the Grand Palais in the summer. The first show only lasted six weeks; but the latter, the Furniture Exhibition, was open till the middle of November, and was well attended. Ceylon secured ample space for a tea room, and obtained an excellent advertisement. Owing, however, to difficulties arising between the administration and the refreshment contractor, who had sublet the space for the tea room to our Paris friends, they had in October to abandon the control; and I cannot say that the service in the last two months was all that could be desired.

Expenditure in France will be found in Appendix C. The total spent on propaganda and demonstration is £3,808 8*s.* 4*d.*, to which I have contributed £1,265 11*s.* 1*d.*

Scandinavia.

In Scandinavia, operations have been carried on by the same firms as last year, viz., three in Stockholm, one in Christiania, and one in Copenhagen. The principal Stockholm firm has increased the number of its provincial depôts, and has this year spent a large sum on travelling and on free distribution of samples. The second firm has done a good deal of advertising in newspapers, while all the three seem to favour the distribution of canisters and fancy tins to the grocers. The Swedish and Norwegian houses report an increase in the imports in 1902 over 1901 of 35,863 lbs. The Danish house has imported less: it received a large supply in the end of last year, which sufficed for all its wants for the first half of this year. It has continued the propaganda by circulars and newspaper advertisements.

I see that to end of November the exports to Sweden from Colombo are entered as 73,725 lbs., against 56,302 lbs. at same period of last year. The term Sweden evidently includes Norway and Denmark. I make the figures as follows;—

To Swedish	Ports	49,255 lbs.
,, Norwegian	,,	6,562 ,,
,, Danish	,,	17,908 ,,
		73,725 lbs.

As those who receive help for the Ceylon Propaganda draw half, or more than half, their supplies of tea from London, and a small quantity from Germany, the increase in direct exports is, I consider, satisfactory. The general consumption of tea in Sweden and Norway does not seem to be increasing. The figures for 1902 are not yet published; but for 1901 the imports for Sweden were less than those in 1900 by 76,000 lbs., and in Norway by 17,967 lbs. From Great Britain the falling off in import of all teas is 15,213 lbs. The London brokers' figures, however, show that the increase in exports of Ceylon tea from Great Britain to Sweden and Norway in 1901 over 1900 was 32,782 lbs., and to Denmark 26,074 lbs.

The direct expenditure on propaganda incurred by these firms has amounted to £1,463 3*s.* 1*d.*; and if the special expenses on establishing new depôts is included, to £2,015. My contribution to this expenditure amounts to £251 13*s.* 3*d.* The details will be found in Appendix D.

Russia.

In Russia, arrangements were made with the lady who was the prime mover in organising the Exhibition at St. Petersburg that a well appointed tea room should be opened in St. Petersburg; the furniture and crockery made for the Exhibition Tea Room to be handed over with a grant of £200, the deposit paid for the space in the Exhibition to be refunded. The death of this lady's husband, and also the death of the proprietor of the rooms selected for the proposed tea room, have unfortunately retarded the opening of the establishment. The necessity of obtaining another site has compelled a postponement of the opening of the rooms till next year.

Italy.

In Italy, only one firm, the one in Naples, has continued an extensive advertising programme. A special delivery van has been ordered for Naples, 30,000 circulars have been issued, and advertisements inserted regularly in four of the daily papers, while special advertisements have been made at Capri and Sorrento. As the accounts for the year were not completed when I closed my accounts, no expenditure is shown as having been incurred on Italy this year. All payments will be included in next year's accounts.

Spain.

In Spain, one of the German firms in Stuttgart has induced some of their friends to take up the tea in Barcelona, has distributed a large number of placards, show-cards, and circulars, and has made some small shipments direct from Colombo.

Switzerland.

In Switzerland, no grant has been paid in this country this year, and I have therefore received no detailed reports; but if the advertising programme has not been as extensive as last year's, most of the firms who received support last year have this year continued the sale with unabted vigour.

Bückeburg, J. H. RENTON.

31st Decemacr, 1902.

CEYLON NEW MARKETS.

Continent of Europe Account.

Income, 1902.			£	s.	d.
March.	To Balance brought forward from 1901	..	1,073	12	6
	,, Remittances from Ceylon	..	3,500	0	0
	,, Sundries, Gain on Exchange, etc.	..	36	2	2
			4,609	14	8

Expenditure, 1902.		£	s.	d.	£	s.	d.
Decr. 31. By Expenditure in France	..				1,265	11	1
,, ,, Sweden & Norway	..				218	2	0
,, ,, Denmark	..				33	11	3
,, ,, Austria	..				544	15	6
,, ,, Germany	..				803	5	4
,, ,, Russia	..				437	19	2
,, ,, Salary	..				500	0	0
,, Cash in hand:—							
In National Bank of India	..	298	11	3			
,, Credit Lyonnais	..	0	3	3			
,, Dresdner Bank	..	7	15	10			
,, Schultze & Waldo	..	500	0	0			
					806	10	4
					460 9	14	8

Buckeburg *31st Decemb*er, 1902.

E. & O. E. J. H. RENTON.

NOTE.—Mr. Renton closed his previous year's accounts in January; and the amount shewn in hand, £1,073 12*s.* 6*d.*, included £1,000 remitted in January, 1902, which appears in his 1901 accounts, but falls into our 1902 accounts. This expiains remittances from Ceylon appearing above as £3,500, and in our accounts as £4,500. I asked Mr. Renton to this year close his accounts in December, so as to fall in line with the "Thirty Committee accounts," which run from January to December.

A. C. KINGSFORD.

FRANCE.

Details of Expenditure and Summary of Propaganda.

Name of Firm.	Subsidy Paid. frs.	= £	s.	d.	Expenditure by Recipient of Subsidy. frs.	= £	s.	d.
Anglo-Continental Commercial Co.	1,000	40	0	0	5,000	200	0	0
Do do ..	7,500	300	0	0	28,844	1,153	15	2
W. de Peyster ..	6,250	249	19	11	15,295	611	16	0
Do ..	6,000	40	0	0	5,200	208	0	0
Do ..	6,250	250	0	0	15,685	627	8	0
M. Formont, for Lipton Ltd. ..	1,200	48	0	0	2,600	104	0	0
Liverpool, China & India Tea Co. ..	750	30	0	0	2,152·60	86	2	1
Jules Saunier et Cie.	7,000	280	0	0	20,434·10	817	7	1
Edgar Lynan Succrs. ..		12	1	10				
Quillé et Fils ..		7	15	5				
General Expenses		3	13	11				
		£1,261	11	1		£3,808	8	4

Details of Propaganda.

Rent for space for service of tea in the Exhibition at the Grand Palais.

Advertisements in 10 weekly and monthly periodicals, posters along the railway lines, illustrated blocks for advertising, street posters, placards, and show-cards.

Advertisements in 9 weekly papers, posters in Paris and country, sample boxes, signs and photographs for grocers, dummy packages and blocks for grocers' windows, and show-cards.

Tea room at the Bon Marché, further expenses in installation and purchase of lease.

Expenses of demonstration in the provinces, crockery, tea, cakes, sugar, milk. Printing and invitations. Salary of traveller and travelling expenses.

Leaflets, newspaper advertisements, show-cards, advertisements in tram-cars.

Circulars and price lists to hotels, families, and pensions.

Special tins and canisters and special show-cards. Advertisements for clients in the provincial papers. Free samples of tea to certain regiments.

Remarks.

These are returns on teas imported in 1901, which did not come forward till the beginning of 1902.

Printing 10,000 copies of translation of Dr. Dorkovitz's pamphlet for free distribution.

AUSTRIA.

Details and Summary of Propaganda.

Name of firm.	Amount of Subsidy. £	s.	d.	Total Expenditure by Recipients of Subsidy. £	s.	d.
G. A. Marinitsch ..	150	0	0	383	12	2
Do ..	275	0	0	557	19	0
Josef Toifl ..	67	13	0	196	9	11
Joseph Berlyak ..	25.		0	64	0	0
Popoffs Bros., per G. Marinitsch ..	25	0	0	125	0	0
General ..	2	2	6	2	2	6
	544	15	6	1,329	3	7

Details of Propaganda.

Contributions towards rent, fittings and furniture of a shop in the Kohlmarkt.

50,000 circulars, 2,000 posters in main streets and railway stations, 10,000 Bamber pamphlets.

Adertisements in 34 newspapers all over the Empire, advertisements in the covers of newspapers in 20 cafés, advertisements in calendars, special Christmas articles in 12 newspapers, advertisements on Grand Hotel blotting-pads.

Established a tea room at the Woman's Exhibition held in the spring in Vienna, posters in the streets, circulars as supplements in the newspapers, newspaper advertisements, photographs as show-cards to principal depôts.

Regular monthly advertisements in 10 Vienna and provincial papers, andoccasional special artists.

Remarks.

This firm, through its extensive advertising programme and general propaganda, keeps Ceylon tea before the Austrian and Vienna world.

Number of depôts in Austria for sale of Ceylon tea is now 814.

Imports in	1901	..	10,410 lbs.
Do in	1902	..	11,225 ,,

This was a contribution towards legal expenses to get prohibition removed on teas packed in *lead* packets.

Cost of 1,000 Dr. Dorkovitz's pamphlets.

RUSSIA.

Expenditure connected with preparations for the Exhibition.

	£	s.	d.
Balance cost of chairs and tables ..	122	18	5
Cost of spoons ..	4	4	0
Cost of crockery ..	90	2	6
Cost of tea samples ..	7	2	7
Cost of Dr. Dorkowitz's analysis report and printing ..	106	13	6
Printing 10,000 illustrated copies Tea Cultivation in Ceylon ..	60	10	4
Duty and carriage on 2,000 copies ..	7	9	0
Travelling expenses to St. Petersburg and back, two special trips in April and August ..	40	10	0
Telegram to Kandy ..	1	3	10
	440	14	2
Less Refund of cash deposited for space, with interest ..	207	15	0
	237	19	2
Grant for tea room ..	200	0	0
	437	19	2

SCANDINAVIA.

Details of Expenditure and Summary of Propaganda.

Name of Firm.	Subsidy Paid. £ s. d.	Expenditure by Recipient of Subsidy £ s. d.
Akt. Bol. A. G. Maren & Co. Stockholm ..	100 0 0	Kronen 8,065·60=443 10 0
Ceylon Plantage Te Depôten, Stockholm	50 0 0	,, 10,899·00=589 10 0
Otto Rooth (Mr. Dickson) Stockholm	18 2 0	54 6 0
A. G. Maren & Co. Christiania	50 0 0	,, 5,500·00=271 10 0
R. B. Ludwigsen & Co. (through F. A. Föllen) Bremen, Copenhagen	33 11 3	104 7 1
	251 13 3	1,463 3 1

Summary of Expenditure on Propaganda.

Fancy canisters and tins to grocers, sign-boards, transparencies, expenses in country depôts.

Plus 8,200 kronen to travellers and agents.

Advertisements in 25 newspapers. Fancy tins and canister labels for wrappers. Tea trays.

Half in newspaper advertisements.

Half in canisters for windows.

Fancy tins and canisters, advertisments in newspapers, bags, placards, posters, and shop signs plus 3,000 kronen ou special travellers.

Advertisements in newspapers and issue of 45,000 circulars.

Remarks.

Import 1902 54,000 lbs.
Do 1901 35,000 ,,
Increase in imports in 1902 over 1901 8,000 lbs.
Imports in 1902 9,500 lbs.
Do 1901 7,250 ,,
Do 1902 24,252 ,,
Do 1901 17,639 ,,
Do 1902 2,825 ,,
Do 1901 9,817 ,,

This firm imported a large quantity in December, 1901.

GERMANY.

Details of Expenditure and Summary of Propaganda.

Name of Firm.	Subsidy Paid. £ s. d.	Expenditure by Recipients of Subsidy. £ s. d.
General ..	6 19 7	
Do ..	102 1 11	152 8 0
Do ..	25 0 0	
Kaisers Kaffee Gesellschaft Viersen, through Follen, Berlin ..	42 11 3	
Johannes Gerald through F.A. Follen, Berlin	90 4 3	201 6 10
Muller & Bolle, Follen, Bremen through	39 3 0	92 13 0
Molinari & Sohne, Breslau, through F. A. Follen Bremen	16 6 0	34 4 0
H. & Ph. Feddersen, Flensburg through F.A. Follen Bremen ..	8 9 4	21 19 10
Hein. Wilh. Schmidt, Frankfort	100 0 0	378 17 0
Th. Geyer, Stuttgart ..	122 10 0	325 1 10
Do ..	100 0 0	285 0 0
	653 5 4	1,491 10 6

Summary of Propaganda.

Cost of Dr. Dorkowitz's pamphlets.
Cost of Mr. Bamber's do 2,500 in all.
Cost of glasses, teaspoons, for distribution to cafés.
Rent of space in the Düsseldorf Exhibition.
Rest aurants, for advertising purposes.
The sum spent by Kaiser's people has not yet come in.
The expenditure of £42 11s. 3d. represent cost of 31 samovars and 30 teapots for demonstration purposes.

Has placed Ceylon tea in 196 depôts in Berlin and the Province of Brandenburg, advertisements in newspapers, street posters, covers of periodicals in cafés, distributed 34,000 circulars.

Have placed Ceylon tea in 96 depôts in Stettin and Provinces of Pommerania, Prussia, Posen, distributed 14,500 circulars, advertisements in local newspapers, show-cards to grocers.

Have increased the number of depôts in Silesia and Breslau from 13 to 46, issued 6,000 circulars, advertised in local papers.

Have increased their depôts for sale of Ceylon tea from 13 to 159. Advertisements in local papers. Circulars and distribution of show-cards.

Circulars, newspaper advertisements, labels for the Vedlah Brand, portion of advertising cart perambulating in Berlin, Cologne, Bonn, and Düsseldorf.

Advertisements in daily papers in Stuttgart, Nürnberg, Munich, Ragensburg, Bresden, Kitzstein, and in 6 weekly papers. Expenditure on tea room at Exhibition. 120 large photos, 1,000 calenders, 2,2000 metal show-cards, 2,000 window canisters, 10,000 Bamber's pamphlets, 30,000 leaflets, 5,000 sample boxes.

For a tea room in Stuttgart. I have promised a total subsidy of £350, to be spread over three years. The furniture, fittings, installation cost £285. The yearly expenditure will be £210. Total outlay will be £910.

Remarks.

Import in 1902 6,500 lbs.
Do 1901 nil
Do 1902 4,190 ,,
Do 1901 1,075 ,,
Do 1902 4,600 ,,
Do 1901 4,200 ,,
Do 1902 24,600 ,,
Do 1901 18,600 ,,
Increase in sales this year 4,800 lbs.

GERMANY.

Details of Expenditure and Summary of Propaganda.

Name of Firm.	Subsidy Paid. £ s. d.	Expenditure by Recipients of Subsidy. £ s. d.
Brought forward	653 5 4	1491 10 6
Eck Bros., Frankfort..	50 0 0	
B. Walther, Munich ..	50 0 0	
Konigsberger Thee Compagnie	50 0 0	154 1 0
	803 4 4	1,995 15 11

Summary of Propaganda.

Distribution of about 800,000 circulars as a supplement in 14 weekly periodicals and various Sunday papers and magazines.

Advertisements in principal Munich and Provincial papers leaderettes in the papers and magazines entitled "Voices for the Public" post-cards.

200,000 price lists. 115,000 leaflets. advertisements in Berlin newspapers.

Remarks.

Imports in 1902 4,800 lbs.
Do 1901 4,200

CONTINENT OF EUROPE.

Ceylon New Markets Accounts.

Ledger Balances.

Debtors.

	F.	£	s.	d.
Tea in France ..	52	1,265	11	1
,, Sweden and Norway	82	218	2	0
,, Austria ..	84	544	15	6
Dresdner Bank ..	95	7	15	10
National Bank of India	106	298	11	3
Tea in Denmark	112	33	11	3
,, Russia ..	116	437	19	2
,, Germany	120	803	5	4
Credit Lyonnais	124		3	3
Salary	20	500	0	0
Schulz & Waldo	22	500	0	0
		£4,609	14	8

Creditors.

	F.	£	s.	d.
Thirty Committee	15	3,500	0	0
Sundries	108	36	2	2
		£3,536	2	2

Bückeburg
31st December, 1902. J. H. RENTON.

CEYLON NEW MARKETS.

Continent of Europe Account.

Income, 1902.

1902.		£	s.	d.
March.	To Balance brought forward from 1901	1,073	12	6
	,, Remittances from Ceylon ..	3,500	0	0
	,, Sundries, Gain on Exchange, etc.	36	2	2
		£4,609	14	8

Expenditure, 1902.

1902.		£	s.	d.
Decr. 31.	By Expenditure in France ..	1,265	11	1
	,, ,, ,, Sweden & Norway	218	2	0
	,, ,, ,, Denmark ..	33	11	3
	,, ,, ,, Austria ..	544	15	6
	,, ,, ,, Germany ..	803	5	4
	,, ,, ,, Russia ..	437	19	2
	,, ,, ,, Salary ..	500	0	0
	,, Cash in Hand :—			
	In National Bank of India .. 298 11 3			
	,, Credit Lyonnais 0 3 3			
	,, Dresdner Bank 7 15 10			
	,, Schultze & Waldo .. 500 0 0	806	10	4
		£4,609	14	8

I hereby certify that I have examined the above accounts as presented to me by Mr. J. H. Renton, and have found them correct.

Ed. F. BUSCH.

Hamburg,
January 6th, 1903.

J. H. RENTON.

Bückeburg,
31st December, 1902.

IMPORTS OF TEA INTO THE RUSSIAN EMPIRE IN 1901-1900-1899.

CUSTOM HOUSES.		Total in Puds. 1901.	1900.	1899.
By European Frontier (Including trade with Finland.)	Bohea tea of all kinds.	1,433,370	1,191,242	981,124
,, ,, ,,	Brick	6	0	2
By Caucasian Frontier.	Bohea (black)	5,222	4,521	2,891
	Green, highest sorts		50,678	59,010
	,, medium ,,	54,891	3,946	4,461
	,, lowest ,,		4,489	26,461
	Brick ...	450	1,330	—
Including :				
by Batoum Customhouse	Black tea ...	1,073	666	80
	Brick tea ...	450	1,330	—
Tiflis ,, ,,	Black tea ...	3,837	3,720	2,603
by Baku Customhouse	Black tea ...	68	37	26
	Green, highest sorts		50,678	59,010
	,, medium ,,	54,891	3,946	4,461
	,, lowest ,,		4,489	26,461
by other Customhouses	Black ...	244	98	182
By Central Asian Frontier.	Black ...	2,483	939	1,797
	Green, highest sorts		75,629	73,151
	,, medium ,,	132,509	154	—
	,, lowest ,,		15,774	14,485
(Then follow figures of imports each of these four sorts by the different customhouses of Central Asia, which, if necessary I can send you. Henry Cooke.)				
By Russo-Chinese Frontier.	Bohea (black & others)	2,599	1,961	712
	Green, highest sorts		3,879	831
	,, medium ,,	15,582	16,289	2,373
	,, lowest ,,		—	3,328
	Brick ...	4,298	5,197	5,265
Including : (then follow details for each Russo-Chinese Customhouse.)				
By Siberian Customhouses.	Bohea (black & others)	267,476	171,780	592,217
	Brick	1,586,859	1,620,658	1,087,310
	Tablet	28,061	24,074	38,328
Including :—				
By Tiumen Customhouse	Bohea (black & others)	38,09[illegible]	9,775	—
By Cheliabinsk ,,	Bohea (black & others)	1,900	705	—
	Brick	14,168	5	—
		Total in Ponds. 1901.	1900.	1899.
By Irkutch ,, (via Kiakta)	Bohea (black & others)	172,332	431,134	587,325
	Brick	727,776	933,763	1,087,310
	Tablet	16,981	23458	38,328
By Kiakta Customhouse	Bohea (black & others)	20,084	105	—
	Brick	21,258	—	—
	Tablet	2,923	—	—
By Sretensk ,,	Bohea (black & others)	12,585	—	—
	Brick	243,870	—	—
	Tablet	6,766	—	—
By Nikolaieff on Amour.	Bohea (black & others)	5,955	10,585	4,773
	Brick*	529,487	134,954	...
	Tablet	986	615	...
By Vladivostok	Bohea (black & others)	9,525	15,876	119
	Brick*	—	251,936	...
	Tablet	405	1	...
By Ussinski Frontier	Bohea	...	3	158
	Brick	...	600	3,840
Total by all Frontiers	Bohea (black & others)	1,711,160	1,669,852	1,581,899
	Brick	1,541,613	1,627,783	1,096,415
	Tablet	28,061	24,074	38,328
	Green, highest sorts		130,186	132,992
	Medium sorts	202,982	20,389	6,834
	Lowest sorts		20,263	44,274
		3,483,806	3,492,547	2,900,742

— = no import. * duty free.
... = no data.
O (Standing alone) = less than 20 funts.

HENRY COOKE,
December 1st, 1902.

1 poud = (roughly) 36 English lbs. or (exactly 36·112 lbs.
1 poud = 40 funts.
1 funt = 14½ oz. or ·902 lbs.

These figures are most disappointing. The consumption of all Tea in France is *Not* increasing apparently. But until the 1902 figures are complete it is not fair to assert that the consumption of heylon is falling off. British India which is practically. all Ceylon is the only country which shows an increase

IMPORTS OF TEA INTO FRANCE AS FURNISHED BY THE FRENCH CUSTOMS. QUANTITIES CLEARED FROM BOND.

Countries of Origin.	In 1900.		In 1901.		Decrese.		Increase.	
Great Britain	197,952	Kilos.	133,314	Kilos.	64,638	Kilos.		
Belgium	2,152	do	1,262	do	890	do		
British India includes Ceylon	144,002	do	152,943	do			8,941	Kilos.
China	591,001	do	456,092	do	134,909	do		
Japan	Nil included in other countries.		3,592	do			3,592	do
Other Foreign Countries	27,288	do	12,352	do	14,936	do		
Annam	130,275	do	102,008	do	28,267	do		
Other French Colonies	656	do	255	do	401	do		
	1,093,326	Kilos.	861,818	Kilos.	244,041	Kilos.	12,533	Kilos.
					Nett decrease 231,508	Kilos.		
					509,317	do		

6th Dec. 1902.
J. H. RENTON.

IMPORTS OF TEA INTO RUSSIA IN 1900.

Countries of Export.	Black Bohea. Quantity Pouds.	Black Bohea. Value in Roubles.	Brick. Quantity Pouds.	Brick. Value in Roubles.	Green. Quantity Pouds.	Green. Value in Roubles.	Tablet. Quantity Pouds.	Tablet. Value in Roubles.
Austria ...	2,730	53,425	...	...	...	...	...	...
Belgium ...	6	120	...	...	...	...	...	...
Denmark ...	2,982	58,469	...	...	...	...	...	...
France ...	274	5,366	...	...	...	...	...	...
Great Britain ...	269,741	5,337,308	...	...	...	...	...	...
Germany ...	10,070	199.277	...	...	...	...	...	...
Holland ...	36	679	...	...	...	...	...	...
Italy ...	30	600	...	...	...	...	...	...
Norway ...	89	1,812	...	...	...	...	...	...
Turkey ...	3,796	74,961	...	...	...	...	...	...
United States ...	11	221	...	...	...	...	...	...
Egypt ...	10	178	...	...	...	...	...	...
Japan ...	815	10,358	...	...	...	...	...	...
China ...	1,237,677	24,417,572	1,627,783	10830496	111,951	2,088,118	24,074	318,566
East India ...	2,218	49,250	...	...	58,887	1,015,299	...	...
Other Countries*	139,362	2,760,851	...	...	...	...	...	...
Total ...	1,669,852	32,970,556	1,627,783	10830496	170,838	3,103,317	24,074	318,566

* A note in the official tables explains all this is from Ceylon.

Representative in America."

Mr. Wm. MACKENZIE'S ACCOUNTS 1902.)

Account with New York Bank.

		£	Dols.
	Remittances forward		240,900 61
1901 Dec.	do do	1,000 00	4,865 00
1902 Jany.	do do	800 00	3,890 00
April	do do	1,000 00	4,870 00

		Dols.	
1901 Nov.	24 Cheques drawn forward2	38,194 44	
	Montreal Sampling 500, Boston do 500	1,000 00	
	Journal of Commerce..	18 50	
Dec.	3 Watt & Scott ..	79 50	
	10 October Papers ..	847 03	
	MacLean Publishing Co. ..	81 50	
	11 Cholwell & Co. ..	300 00	
	24 Lipton, Chicago ..	1,000 00	
	Do New York ..	1,000 00	
	Milliken Tomlinson & Co. ..	500 00	
	November Papers ..	1,054 92	
	MacLean Publishing Co. ..	75 00	
1902 Jany.	10 December Papers ..	1,103 90	
Feb.	14 Sutherland Detroit ..	500 00	
	25 Spiller, Buffalo ..	500 00	
	Estabrooks ..	500 00	
	Martindale ..	900 00	
March	8 January Papers ..	1,026 47	
	11 Journal of Commerce..	35 65	
	Cholwell & Co. ..	300 00	
April	4 February Papers ..	1,103 16	
	18 March do ..	999 41	
	Russell & Co. ..	325 00	
	MacLean Publishing Co. ..	150 00	
May	2 McGuane, Boston ..	500 00	
	Mann, Montreal ..	500 00	
	6 Milliken Tomlinson & Co. ..	500 00	
	14 Lipton, Chicago ..	200 00	
	24 April Papers ..	812 55	
June	16 May do ..	902 51	
	Balance due Bank ..		483 93
1902.		Dols. 255,009 54	255,009 54

E. & O. E.

(Signed) Wm. MACKENZIE.

London Bank Account Payments.

		£ s. d.	£ s. d.
	Forward		67,009 19 6
1901 Dec.	31 Remittances to New York ..	1,000 0 0	
	Bank Interest..	1 14 1	
Jan.	27 To New York..	800 0 0	
,,	27 Self ..	250 0 0	
April	1 To New York..	1,000 0 0	
May	9 Postages, Books, Wires, &c. ..	5 0 0	3,056 14 1
			70,066 13 7
1902	Receipts forward	68,280 16 10	
Jan.		1,000 0 0	
Mch.		1,000 0 0	
May		1,000 0 0	
	Bank Interest	3 17 0	
	Balance in Bank		1,218 0 3
		£71,284 13 10	71,284 13 10

Half year's salary & expen ses £250.

Account with New York Bank.

			Dols.
	Remitances forward		254,525 61
1902 July		£1,000	4,870 00
Sept.		1,000	4,845 00
Oct.		1,000	4,867 50
Dec.		850	4,126 75

		Dols.	
	Cheques drawn forward	255,009 54	
June	20 F. J. Castle ..	48 40	
July	15 Canadian Grocer Paper	156 50	
	P. C. Larkin ..	30 00	
	19 Bate & Sons ..	523 69	
	22 June Papers ..	949 14	
Aug.	19 July Papers ..	1,189 79	
	P. C. Larkin ..	101 24	
	Seeman Brothers ..	1,500 00	
	Tissera	200 00	
Sept.	23 August Papers ..	1,315 79	
Oct.	15 September Papers ..	1,332 47	
	28 Canadian Grocer ..	163 00	
	29 Blue Ribbon Tea Co. ..	1,000 00	
Nov.	6 Sprague Warner ..	88 80	
	17 Salada Tea Co. ..	1,000 00	
	Chas. Sutherland ..	250 00	
	Gilbert Pittsburg ..	250 00	
	Joseph Tetley ..	1,000 00	
	October Papers ..	1,306 47	
Dec.	6 Bate & Sons ..	500 00	
	Milliken Tomlinson ..	250 00	
	Lipton, New York ..	500 00	
	Do Chicago ..	500 00	
	November Papers ..	1,281 91	
	Bank Charge ..	25	
	In Bank	2,787 87	
		Dols. 273,234 86	273,234 86

(Signed) Wm. MACKENZIE.

		£ s. d.	£ s. d.
1902	London Bank Account Payments Forward		70,066 13 7
July 11	Remittance to New York ..	1,000 0 0	
Sept. 19	Do ..	1,000 0 0	
	Salary and Expenses.	350 0 0	
Nov. 7	Remittance to New York ..	1,000 0 0	
Dec.	Do ..	850 0 0	4,200 0 0
			74,266 13 7
	Receipts forward ..	71,284 13 10	
July	Remittance from Colombo ..	1,000 0 0	
Sept.	Do ..	1,000 0 0	
Oct.	Do ..	1,000 0 0	
	Balance in Bank ..		18 0 3
		£74,284 13 10	74,284 13 10

E. & O. E.

(Signed) Wm. MACKENZIE.

NAMES OF MEMBERS OF THE THIRTY COMMITTEE.

Attendance Roll.

No.	Name	11-1-02	15-3-02	10-5-02	12-7-02	3-9-02	15-11-02
1	James Westland, Esq....	1	1	1	1	1	1
2	J. A. Burmester, Esq.	1	—	—	—	—	—
	C. E. Welldon, Esq.	—	1	1	1	0	1
3	A. C. Kingsford, Esq....	1	1	1	1	1	1
4	J. B. Coles, Esq. ...	1	1	—	—	—	—
	Frank S. Vowler, Esq.	—	—	1	1	1	1
5	Hon. J. N. Campbell ...	1	0	0	0	1	1
6	E. Webb, Esq. ...	0	1	1	1	1	1
7	Alex. Wardrop, Esq. ...	1	1	1	1	1	1
8	Wm. Saunders, Esq.	1	1	0	—	—	—
	Edgar Turner, Esq....	—	—	—	1	1	1
9	R. A. Galton, Esq. ...	0	1	0	1	1	0
10	H. O. Hoseason, Esq. ...	0	0	1	0	1	0
11	Gordon Pyper, Esq. ...	1	1	1	1	1	0
12	W. D. Bosanquet, Esq...	1	1	1	1	1	0
13	T. C. Huxley, Esq. ...	1	1	1	1	1	1
14	Wm. Forsythe, Esq. ...	0	1	1	1	1	1
15	A. Philip, Esq. ...	1	1	1	1	1	1
16	J. P. E. Ryan, Esq....	1	1	0	0	—	—
	W. J. Smith, Esq. ...	—	—	—	—	1	1
17	Joseph Fraser, Esq. ...	1	1	1	1	1	1
18	W. R. Tatham, Esq. ...	1	1	1	1	1	0
19	E. D. Harrison, Esq...	1	0	0	—	—	—
	R. Morrison, Esq. ...	—	—	—	1	0	1
20	R. S. Duff Tytler, Esq.	1	—	—	—	—	—
	Capt. H. Gordon ...	—	1	1	1	1	1
21	W. D. Gibbon, Esq. ...	1	1	1	1	1	1
22	Edward Rosling, Esq....	1	1	1	1	1	1
23	Oliver Collett, Esq. ...	1	0	1	0	—	—
	Fred. Hadden, Esq. ...	—	—	—	—	1	1
24	H. V. Masefield, Esq....	0	1	1	1	1	1
25	George Hathorn, Esq.	1	0	0	—	—	—
	W. Shakspeare, Esq....	—	—	—	1	1	1
26	G. F. Traill, Esq. ...	0	0	—	—	—	—
	H. J. Scott, Esq. ...	—	—	1	0	1	1
27	R. S. Templer, Esq. ...	0	0	0	—	—	—
	J. F. Headrick, Esq....	—	—	—	1	1	1
28	Hon. W. H. Figg, Esq.	1	0	1	—	—	—
	C. H. Alston, Esq. ...	—	—	—	1	1	1
29	Duncan Skrine, Esq.	0	0	—	—	—	—
	A. J. Denison, Esq. ...	—	—	1	0	1	0
30	Stanley Bois, Esq. ...	1	0	1	1	1	1
		22	20	23	24	28	24

Note.—The second name below a No. means that during the year the member first indicated was succeeded by the latter.

THE WORLD'S TEA PRODUCTION AND CONSUMPTION.

July, 1902.

Dear Sirs,

In view of the present condition of the Indian and Ceylon Tea-producing Industries, we think it not out of place to once more draw special attention to the **absolute necessity** for making more strenuous efforts to promote the use of British-grown Tea, both Black and Green, in every available market in the world, many of which have not yet been tried with our produce.

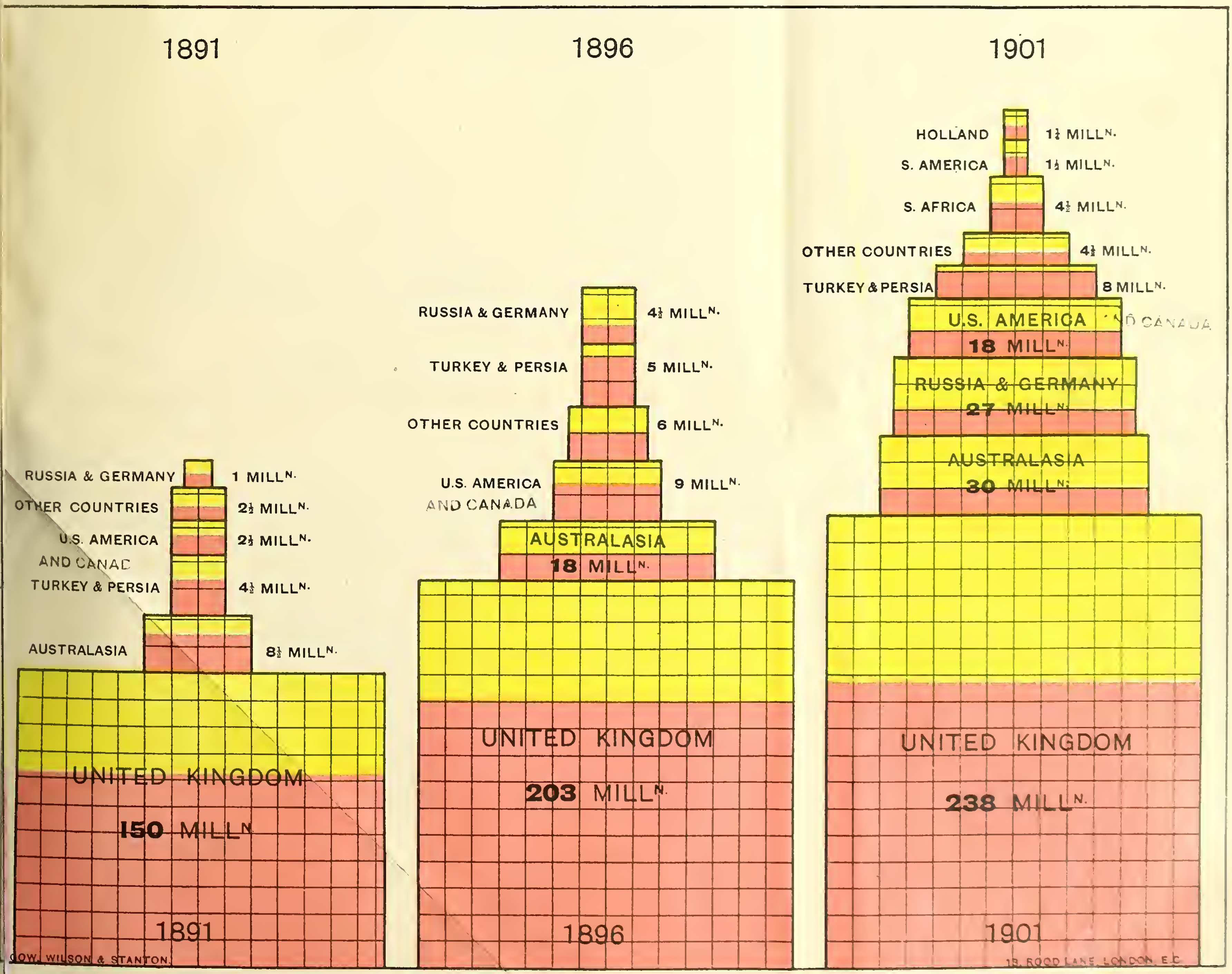
We are, Dear Sirs,

Yours faithfully,

GOW, WILSON & STANTON.

13, Rood Lane, London, E.C.

THE WORLD'S CONSUMPTION OF INDIAN & CEYLON TEA.



EACH SQUARE REPRESENTS ONE MILLION POUNDS OF TEA, INDIAN BEING SHOWN IN RED AND CEYLON IN YELLOW.

The large areas of land brought under Tea cultivation in India and Ceylon during recent years, which are now coming heavily into bearing, have caused a reduction in the value of Tea sufficiently serious to threaten the existence of the Industry.

INDIA.

	Area of Tea in acres.	Total Exports in lbs.
1894	400,527	128,600,000
1895	415,717	135,894,648
1896	433,280	145,000,026
1897	470,119	152,811,422
1898	501,680	156,668,402
1899	515,658	172,696,137
1900	522,487	185,641,303
1901	,	180,841,237

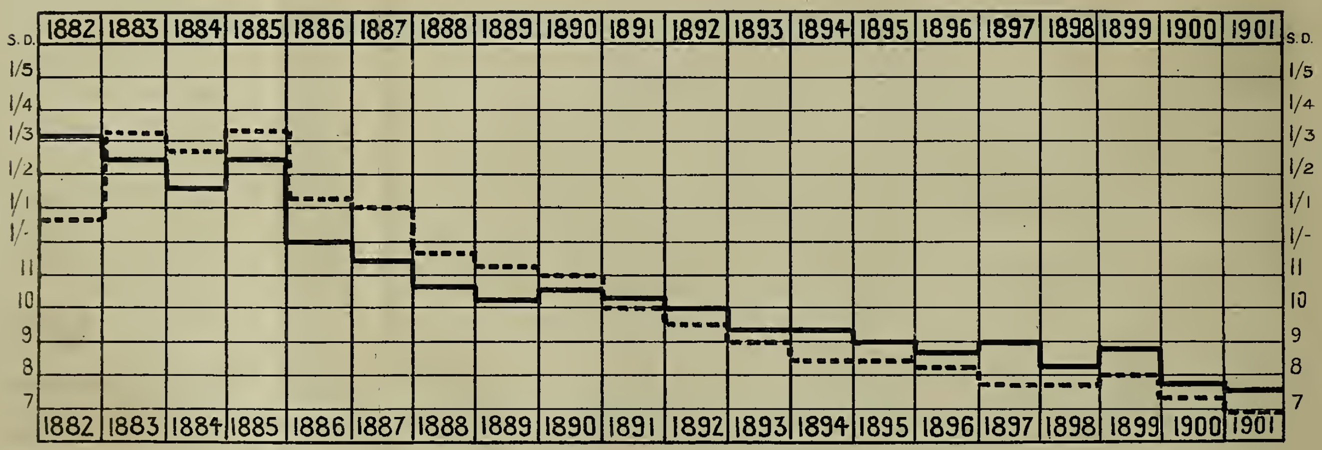
CEYLON.

	Area of Tea in acres.	Total Exports in lbs.
1894	289,000	84,591,714
1895	305,000	97,939,871
1896	330,000	108,141,412
1897	350,000	116,054,567
1898	364,000	119,769,071
1899	378,000	129,894,156
1900	384,000	148,431,639
1901	387,000	146,310,638

In spite of constantly expanding outlets, consumption has proved unequal to compete with supply even at continually reducing prices. Many Estates do not pay at the present time, and unless a change for the better occurs, some properties must eventually go into liquidation.

Another feature may prove dangerous to the Industry, viz.: the possibility of China exporting larger quantities of common Tea now that the export tax has been reduced to an *ad valorem* duty and therefore falls but lightly on low-priced Tea, added to which the present low price of Silver is all in favour of increased export from China.

AVERAGE PRICE OF INDIAN & CEYLON TEA IN LONDON.



——— *The black line shows the average price of Indian Tea.*
.... *The dotted „ „ „ „ Ceylon Tea.*

Until consumption overtakes production the Industry cannot be in a healthy state.

To attain this end only two courses are open :—

The extension of markets—or the curtailment of supply.

Extension of markets seems the most feasible remedy, and has so far been attended with distinctly beneficial results, but a far more rapid development is necessary for the well-being of the Industry.

Now that Ceylon has increased its export tax on Tea by 50%, and thus raised its annual funds for developing new outlets from £20,000 to £30,000, there is good ground for hoping that greater efforts will be made, more especially by encouraging the manufacture of Green Tea.

Should India's petition to the Viceroy for an export tax on Tea be accorded, this should give her an annual sum of about £16,000 instead of the £6,000 so far annually raised by the voluntary levy; she would then have more funds for promoting the native consumption of Black Tea as well as for encouraging the manufacture of Green Tea.

The world's annual consumption of Green and Uncoloured Tea amounts to nearly 90 million pounds. Out of that total Ceylon last year contributed about 1 million pounds and India only 70,000 pounds. Surely it cannot be impossible for British Tea Planters to adapt the style of their produce to the wants of the large body of consumers of such Teas, and thus supply some portion at least of a new and almost untried market.

This Green Tea market appears to be the most promising field for exploiting at the present time. The manufacture of such Tea has the additional advantage of reducing the supply of Black, as for every pound of Green Tea made a pound of Black would be displaced. Hence the advantage obtained would be two-fold.

The curtailment of output is not such an easy matter and requires the co-operation of a large body of Planters both in India and Ceylon, whose interests are perhaps not on all points quite identical.

The diagram on the first page shows how rapidly the World's consumption of British-grown Tea has increased. The development in foreign markets during the last 11 years has been remarkable, and has had the effect of saving the Industry, so far, from a crisis such as may yet be probably averted if strenuous efforts are made in the way of more vigorously opening up existing outlets and finding new means of exploiting hitherto untried markets.

The World's production and consumption of Tea in the years 1895 and 1900, as nearly as can be ascertained, are shown below:—

1895.

EXPORTS.

Indian	135,894,648	
Ceylon	97,939,871	
		233,834,519
China	248,800,000	
Japan	49,544,000	
Java	10,597,000	
		308,941,000
	Total lbs....	542,775,519

CONSUMPTION.

	INDIAN & CEYLON.	CHINA, &c.
United Kingdom ...	190,367,123	31,432,877
U.S.A. & Canada ...	7,816,467	109,231,533
Russia & Germany	4,609,626	93,471,374
Australasia	15,492,926	15,080,415
Turkey & Persia ...	5,263,419	2,736,581
Holland	573,660	5,839,340
South Africa ...	691,985	2,308,015
France	196,276	1,407,724
Other Countries ...	2,094,767	6,995,233
lbs.	227,106,249	268,503,092
	Total lbs. ...	495,609,341
	Surplus lbs.	47,166,178

1900.

EXPORTS.

Indian	185,641,303	
Ceylon	148,431,639	
		334,072,942
China	184,532,000	
Japan	61,028,000	
Java	16,788,000	
		262,348,000
	Total lbs....	596,420,942

CONSUMPTION.

	INDIAN & CEYLON.	CHINA, &c.
United Kingdom ...	230,495,035	19,296,965
Russia & Germany	21,683,785	110,783,215
U.S.A. & Canada	15,851,582	92,419,418
Australasia ...	27,185,538	7,355,462
Turkey & Persia ...	8,970,655	2,029,345
South America ...	1,452,744	4,047,256
Holland	797,968	6,867,032
South Africa ...	2,585,214	1,414,786
France	572,784	1,822,216
Austria & Hungary	27,538	2,319,462
Other Countries ...	3,524,855	5,250,757
lbs.	313,147,698	253,605,914
	Total lbs....	566,753,612
	Surplus lbs.	29,667,330

In the former year production and consumption of Indian Tea pretty nearly balanced although China Tea was over-produced, with the result that exports from that country have rapidly declined ever since, and the average price has fallen to an extremely low point.

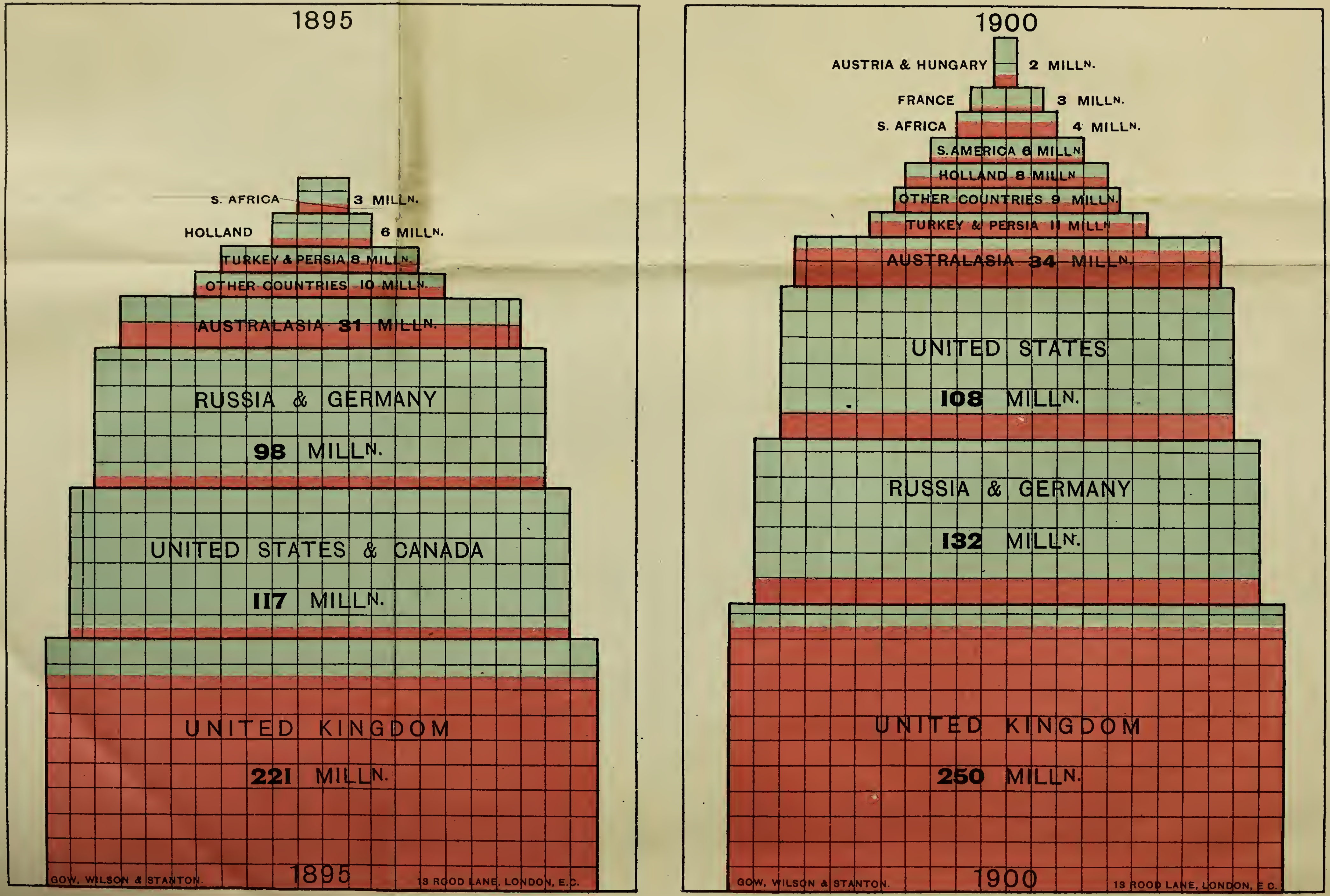
In 1900 production of British grown Tea was far in excess of requirements, the result being also a heavy fall in value. The moral to be drawn from the over-production of China may well be used as a lesson by Indian and Ceylon Tea Growers before disaster overtakes the Industry.

The Tea-drinking capacities of the world appear by no means exhausted, and there is therefore no reason why, with little Tea land being planted out either in India or Ceylon, consumption should not, with judicious energy on the part of Planters, soon overtake production.

GOW, WILSON & STANTON.

13, Rood Lane, London, E.C.

THE WORLD'S CONSUMPTION OF TEA.



Each square represents One Million Pounds of Tea, China, etc., being shown in Blue and British Grown Tea in Red.

No. 21. COLOMBO, JUNE 2, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[44,376 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Bunan and Avoca	8	59 hf ch	bro or pek	3540	47 bid
2		11	72 do	or pek	3600	36 bid
3		14	29 ch	pek	2755	33 bid
4		17	31 hf ch	pek fans	2015	27 bid
5		20	17 ch	dust	1445	27
6	Torrington	23	24 ch	or pek	2160	27 bid
7		26	22 do	bro pek	2200	28 bid
8		29	24 hf cb	bro or pek	1320	24 bid
9		32	26 ch	pek	2080	26 bid
10		35	14 do	pek sou	1050	22 bid
11	Hornsey	38	31 hf ch	bro pek	1860	withdn.
12		41	19 cb	pek	1615	
13	Chouhleigh	44	11 do	bro or pek	1056	41 bid
14		47	25 do	bro pek	2400	25 bid
15		50	21 do	pek	1785	23 bid
22	Agrakanda	71	17 ch	bro or pek	1700	53 bid
23		74	34 do	or pek	3196	33 bid
25		80	35 do	pek	3267	32 bid

Messrs. Forbes & Walker.

[831,592 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Nakiadenia	1912	46 hf ch	pek	2760	28
2	Wewawatte	1915	21 do	or pek	1281	19 bid
6	Redgmount	1927	38 ch	pek	3724	33
7	Clarendon	1930	31 hf ch	bro pek	2015	43 bid
8		1933	26 do	or pek	1482	36
9		1936	20 ch	pek	2000	33
12	Galkande	1945	34 hf ch	or pek	1500	36
13		1948	30 cb	pek	2550	31
14		1951	13 do	pek sou	1105	23
20	Great Valley, Ceylon, in est. mark	1969	19 cb	bro or pek	1083	48
21		1972	12 do	or pek	1080	34
22		1975	25 do	pek	2380	30
23		1978	13 do	pek sou	1040	28
24		1981	11 do	bro pek	1045	35
25	O B E C, in estate mark Zillomally	1984	89 ch	pek	3432	32
26		1987	12 do	or pek	1032	39
27		1990	17 do	bro or pek	1700	35
28		1993	18 do	pek sou	1512	30
31	Coldstream Group	2002	101 hf cb	bro pek	5555	33
32		2005	42 ch	pek	3570	30
36	O B E C, in estate mark Sindumally	2017	20 ch	bro or pek	2100	32
37		2020	33 do	bro pek	3135	29
38		2023	45 do	pek	3825	27
39		2026	25 do	pek sou	1750	25
40	Dessford, Inv. No. 10	2029	40 cb	bro pek	2450	39 bid
41		2032	29 do	or pek	2900	35 bid
42		2035	20 do	pek	1800	33
43		2038	12 do	pek sou	1200	31
44		2041	20 do	dust	1700	26
50	St. Paul's Inv. No. 14	2059	21 hf ch	bro or pek	1302	31 bid
51		2062	15 do	or pek	2703	33 bid
52		2065	75 do	pek	3600	29
54	St. Paul's Inv. No. 15	2071	38 hf ch	or pek	2014	33
55		2074	28 do	pek	1344	31
57	Galleheria	2080	22 ch	bro or pek	2200	57
58		2083	23 do	or pek	1840	38
59		2086	39 do	pek	3315	35
60		2089	13 hf ch	pek sou	1170	32
62	Rickarton, Inv. No. 22	2095	23 do	bro or pek	1288	33 bid
63		2098	19 ch	or pek	1710	33 bid
64		2101	28 do	pek	2500	31 bid
66		2107	20 hf ch	bro pek	1400	27
68	Bellongalla	2113	12 cb	bro pek	1200	25
77	Amblapitiya	2140	28 hf cb	bro pek	1540	18 bid
78		2143	31 do	pek	1500	out
81	Yataderia	2152	44 cb	bro or pek	4664	28
82		2155	26 do	bro pek	2600	25
83		2158	31 do	or pek	2790	29
84		2161	62 do	pek	5208	24
85		2164	15 do	pek sou	1200	22
86	Maragalla	2167	13 ch	bro pek	1865	33 bid
87		2170	12 do	or pek	1020	30 bid
91	Poonagalla	2182	16 cb	or pek	1520	35
92		2185	40 do	bro pek	4000	59
93		2188	30 do	pek	3000	37
94	S V, in estate mark	2191	16 hf ch	pek fans	1120	28
97	Mawiliganga-watte	2200	54 ch	bro pek	5184	27 bid
98		2203	33 do	pek sou	2475	20 bid
99		2206	13 do	dust	1300	25
100	Poonagalla	2209	18 ch	or pek	1710	39
101		2212	45 do	bro pek	5175	56
102		2215	36 do	pek	3600	34 bid
106	El Tob	2227	44 hf ch	bro or pek	2552	46
107		2230	32 ch	or pek	3200	32 bid
108		2233	28 do	pek	2688	31
109		2236	12 bf ch	dust	1008	26
110	Ireby	2239	60 do	bro pek	3600	37 bid
111		2242	27 ch	pek	2295	30 bid
112		2245	12 do	pek sou	1020	29
115	Bandara Eliya	2254	77 bf ch	or pek	4235	35 bid
116		2257	60 do	bro or pek	3 00	38 bid
117		2260	89 do	pek	4272	32 bid
118	Ardlaw and Wishford	2263	12 ch	bro or pek	1260	63
119		2266	24 do	bro pek	2448	33
120		2269	15 do	or pek	1320	34
121		2272	21 do	pek	1722	32
124	Attampettia	2281	31 ch	or pek	2914	34 bid
125		2284	14 do	pek sou	1260	29
126	Yelverton	2287	20 cb	bro pek	2000	29
127		2290	30 do	pek	3000	29
128	Tempo	2293	13 ch	bro pek	1300	41
129		2296	16 do	or pek	1440	30 bid
130		2299	32 do	pek	2720	26 bid
134	K P W	2311	49 ch	bro or pek	3675	30
135		2314	31 do	bro pek	2015	36
136		2317	24 do	or pek	1440	32
137		2320	68 do	pek	4080	26
138		2323	20 do	pek sou	1200	23
141	Digdola	2332	14 ch	bro pek	1120	29 bid
142		2335	31 do	pek	2015	26
143		2338	31 do	pek sou	2170	23
144		2341	12 do	bro pe fans	1080	26
145		2344	16 hf ch	dust	1280	26
146	Penrhos	2347	22 do	bro pek	1320	30
147		2350	21 do	or pek	1029	35
148		2353	32 ch	pek	2624	27
149		2356	16 do	pek sou	1230	28
152	Feddegama	2365	21 ch	bro or pek	2100	28 bid
153	Riverside, Inv. No. 1	2368	61 hf cb	pek sou	2623	25
154		2371	15 do	bro pek fans	1050	27
156	Dolahena	2377	27 hf ch	hyson	1350	22 bi
160	Passara Group	2389	13 ch	bro or pek	1300	34 bid
161		2392	24 do	pek	2160	32
163	Castlereagh	2398	42 hf ch	bro or pek	2100	42
164		2401	16 ch	pek pek	1600	28 bid
165		2404	13 do	or pek	1040	32
166		2407	13 do	pek	1040	30
167	Marlborough	2410	24 hf ch	bro or pek	1248	63
168		2413	23 ch	bro pek	2300	39
169		2416	22 do	or pek	2156	34
170		2419	47 do	pek	4136	32
171		2422	16 do	pek sou	1360	30
172	Amblakande	2425	17 ch	bro pek	1700	30
173		2428	24 do	pek	1920	27 bid
179	Kincora	2446	23 ch	pek	1955	33
183	Pine Hill	2458	36 hf ch	bro or pek	2160	32 bid
184		2461	26 do	or pek	2340	34
185		2464	24 do	pek	2160	29
186	Sutton	2467	35 hf ch	bro or pek	1925	50 bid
187		2470	28 ch	or pek	2800	41 bid
188		2473	18 do	pek	1620	36 bid
191	Dessford	2482	20 hf ch	bro or pek	1240	62
192		2485	36 ch	bro pek	3268	39 bid
193		2488	27 do	or pek	2700	36
194		2491	17 do	pek	1530	33
195		2494	10 do	pek sou	1000	30
196	Maldeniya	2497	18 ch	bro or pek	1890	27 bid
197		2500	30 do	or pek	2850	28 bid
198		2503	24 do	pek	2160	26 bid
199		2506	12 do	pek sou	1020	24 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
201	Monterey	2512	12 ch	pek sou	1080	22
203	Good Hope	2518	28 ch	bro pek	2520	27
204		2521	18 do	bro or pek	1800	28
205		2524	20 do	pek	1800	26
208	Monkswood	2533	58 hf ch	bro pek	2280	54 bid
209		25'6	52 do	or pek	2600	56
210		2539	42 ch	pek	3990	41 bid
211		2542	18 do	pek sou	1530	39
214	Deaculla	2551	65 hf ch	bro pek	3575	40
215		2554	50 ch	pek	3500	32
216		2557	13 hf ch	dust	1040	27
218	N N	2563	13 ch	pek sou	1105	28
220	Devonford	2569	21 hf ch	bro or pek	1260	70
221		2572	13 ch	pek	1209	54
222		2575	12 do	pek sou	1140	41
224	Tymawr	2581	20 hf ch	or pek	1060	36
225		2584	20 do	bro or pek	1200	45
226		2587	33 do	pek	1584	34
227		2590	20 do	pek sou	1000	28 bid
230	C K D	2599	12 ch	dust	1200	27
232	Algooltenne	2605	24 hf ch	bro or pek	1344	33
233		2608	13 ch	pek	1040	30
234		2611	13 do	pek sou	1040	27
236	Sutton	2614	22 do	pek	1977	39
238	Aberdeen	2623	48 ch	bro pek	4464	30
239		2626	49 do	pek	4067	26
240	Killarney	2629	22 hf ch	bro or pek	1276	53
241		2632	32 do	bro pek	1856	36
242		2635	16 ch	or pek	1360	39
243		2638	21 do	pek	1848	35
244	Seenagolla	2641	18 hf ch	bro or pek	1080	46 bid
245		2644	19 do	or pek	1007	48
246		2647	22 do	pek	1144	38
247	Kirklees	2650	30 ch	bro or pek	3300	39
248		2653	37 do	or pek	3515	36
249		2656	33 do	pek	2805	32
250	High Forest	2659	44 hf ch	or pek No 1	2552	44
251		2662	30 do	or pek	1620	37
252		2665	36 do	pek	1728	36
253	H G M	2668	44 ch	pek	3517	withdn.
256	Weyungawatte	2677	26 ch	bro pek	2600	25
257		2680	28 do	pek	2380	24
258		2683	26 do	pek sou	2080	22
261	Laurawatte (Venesta)	2692	14 hf ch	fans	1540	26
262	Glencorse	2695	23 ch	or pek	1955	32
263		2698	20 do	pek	1500	28
264	Moray	2701	34 hf ch	or pek	1564	34 bid
265		2704	43 do	bro or pek	2494	46 bid
266		2707	70 ch	pek	5950	31
268	O B E C, in estate mark Nillomally	2713	20 ch	bro or pek	2000	40
269		2716	21 do	pek	1848	32
270		2719	19 do	pek sou	1558	31
271	Osborne	2722	22 ch	bro or pek	2410	37
272		2725	22 do	or pek	1980	32
277	O B E C, in estate mark Forest Creek	2740	27 ch	bro or pek	2619	56 bid
278		2743	39 do	bro pek	4017	36
279		2746	29 do	or pek	2697	32 bid
280		2749	57 do	pek	5419	29 bid
281		2752	22 do	pek dust	1760	27
282	Adisham	2755	24 ch	bro pek	2400	29 bid
283		2758	12 do	pek	1080	30 bid
284	Harrow	2761	34 hf ch	bro pek	2040	33 bid
285		2764	22 do	bro or pek	1320	42 bid
286		2767	25 ch	pek	2500	32 bid
287		2770	11 do	pek sou	1023	29 bid
289	Knavesmire	2776	42 ch	or pek	3780	31
290		2779	115 do	bro pek	11,500	25 bid
291		2782	50 do	pek	4250	24 bid
292	Dunbar	2785	24 hf ch	bro or pek	13.0	51
293		2788	15 ch	or pek	1290	34
294		2791	31 do	pek	2418	34
295		2794	18 hf ch	bro pek fans	1062	30
301	Talgaswela	2812	14 ch	bro or pek	1400	38
302		2815	26 do	pek	2080	27
303		2818	19 do	or pek	1520	29 bid
304		2821	17 do	pek sou	1275	24
310	Poengalla	2839	31 ch	bro or pek	3100	33 bid
311		2842	47 do	bro pek	4700	29 bid
312		2845	26 do	pek	2340	25 bid
313		2848	13 do	pek fans	1210	27 bid
319	Hoolo Group	2866	43 ch	bro pek	4300	28 bid
323	Ugieside	2878	14 ch	bro mixed	1260	22
324	Preston	2881	16 ch	bro or pek	1680	49
325		2884	27 do	or pek	1242	48
326		2887	24 do	pek	1920	39
327		2890	22 do	pek sou	1650	35
329	Stranraer	2896	23 do	bro or pek	2300	33
330		2899	16 do	or pek	1440	26 bid
331		2902	22 do	pek	1760	32 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
332		2905	26 ch	pek No. 2	2470	30
334	Geragama	2911	13 ch	br or pek	1365	27
335		2914	32 do	bro pek	2880	27
336		2917	40 do	pek	3200	27
337		2920	41 do	pek sou	3075	28
339	Ouvahkellie	2926	14 ch	pek sou	1260	31
340		2929	15 hf ch	dust	1200	27
341	St. Heliers	2932	30 hf ch	bro or pek	1650	56
342		2935	15 ch	pek	1425	30
343	Bopitiya	2938	66 ch	bro pek	6600	26 bid
344		2938	66 do	bro pek	6600	27 bid
345		2941	38 do	pek	3420	27 bid
346		2944	30 do	pek sou	2700	26
352	Rajawatte	2962	14 ch	or pek	1330	31 bid
353		2965	21 do	pek sou	1890	29 bid
354	Robgill	2968	24 hf ch	br or pek	1200	61
355		2971	22 ch	bro pek	1980	40
356		2974	19 do	pek	1520	37
357		2977	19 hf ch	dust	1425	27
358	Bramley	2980	49 hf ch	bro pek	2940	35 bid
359		2983	33 do	or pek	1584	38
360		2986	28 do	or pek	1400	32 bid
361		2989	46 do	pek	2434	33
362	Glengariffe	2992	38 hf ch	bro pek	2280	35 bid
363		2995	13 do	or pek	1144	33
364		2998	19 do	pek	1748	30
365		3001	13 do	pek sou	1040	27
366		3004	17 do	pek fans	1190	28
367	Broughton	3007	14 ch	or pek	1344	37
369		3013	17 do	pek	1564	31 bid
371		3019	25 hf ch	bro or pek	1475	56
373	Sylvakandy	3025	10 ch	br or pk No 1	1000	45
374		3028	38 do	br or pk No 2	3800	34
375		3031	45 do	bro or pek	4500	34
376		3034	16 do	bro pek	1600	30
377		3037	18 do	or pek	1800	35
378		3040	28 do	pek	2800	32
380	Koskellie	3046	37 ch	bro pek	3885	45
381		3049	48 do	pek	4608	33
382		3052	37 do	pek sou	2960	29
383	Tunisgalla	3055	26 hf ch	bro or pek	1430	49 bid
384		3058	62 do	or pek	3100	33
385		3061	35 do	bro pek	2100	33
386		3064	36 ch	pek	3510	32
387		3067	18 do	pek sou	1530	28
389	Baduiluoya	3073	10 ch	bro pek	1000	32
391		3079	15 do	pek	1350	27
393	Belton	3085	21 hf ch	or pek	1050	34 bid
394		3088	9 do	pek	1450	29 bid
396	Ninfield	3094	16 ch	bro pek	1600	27
397		3097	24 do	pek	2160	25
400	Freds Ruhe	3106	14 ch	bro pek	1540	28
401		3109	13 do	or pek	1300	28
402		3112	13 do	pek	1235	25
403		3115	11 do	pek sou	1045	22
404	Udabage	3118	30 hf ch	yng hyson	1809	30 bid
405		3121	38 do	hyon No 1 A	2190	36 bid
406		3124	39 do	hyon No 1 B	2145	33 bid
409	Trafalgar	3133	29 ch	bro or pek	3016	31
410		3136	19 do	or pek	1796	32
411		3139	49 do	pek	4606	28
412		3142	49 do	pek	4606	27
413		3145	27 do	bro pek sou	2214	22 bid
414		3148	23 do	dust	3220	27
416	Errolwood	3154	20 ch	pek	1897	31 bid
417	Waitalawa	3157	109 hf ch	bro pek	5450	46
418		3160	148 do	pek	7400	28 bid
420	Good Hope	3166	55 ch	bro pek	4672	22 bid
421		3169	33 do	bro or pek	3037	24 bid
427	Clunes	3187	32 ch	bro pek	3200	26
428		3190	21 do	pek	1995	23 bid
429	H G M	3193	24 hf ch	flo or pek	1320	40 bid
430		3196	21 do	bro or pek	1155	34
431		3199	12 ch	bro pek	1080	30
432		3202	23 do	pek	1840	27 bid
433		3205	15 do	pek sou	1200	25
434		3208	12 hf ch	dust	1080	26
436	North Cove	3214	24 hf ch	bro or pek	1440	64
437		3217	48 do	bro pek	2880	37 bid
438		3220	22 ch	pek	1980	35
441	Puspone	3229	26 ch	bro or pek	3860	29 bid
442		3232	34 do	bro pek	3536	28 bid
444	Woodend	3238	56 ch	bro pek	5936	28 bid
445		3241	84 do	pek	3264	25 bid
448	Tonacombe	3250	48 ch	or pek	4320	30 bid
449		3253	53 do	bro pek	5300	36
450		3256	60 do	pek	5100	28½bid
451		3259	17 do	pek sou	1360	26
452		3262	19 hf ch	dust	1615	27
453	Palmerston	3265	18 hf ch	bro or pek	1026	52 bid
454		3268	19 do	bro pek	1045	39 bid
455		3271	13 do	pek	1040	42
457	Clunes	3277	24 ch	bro pek	2400	26
459		3283	21 do	pek	1995	23 bid
463	Gampaha	3295	38 ch	bro or pek	4180	35

Lot.		Box.	Pkgs.		Name.	lb.	c.
464		3298	43	ch	or pek	4128	34
465		3301	47	do	pek	3995	32
466		3304	26	do	pek sou	2340	30
468	Erracht	3310	74	ch	bro pek	7400	26
470	Polatagama	3316	63	do	bro pek	6300	32
471		3319	70	do	pek	5950	24 bid
472		3322	14	do	pek sou	1330	22 bid
473		3325	16	do	fans	1600	26
475	Pallagodda	3331	27	ch	bro or pek	2700	28
476		3334	50	do	bro pek	5000	29 bid
477		3337	43	do	or pek	3870	28 bid
478		3340	35	do	pek	3150	25 bid
479		3343	38	do	pek sou	3040	23 bid
480		3346	23	do	dust	2070	27

Messrs. Keell and Waldock.

[39,210 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Kottagodde	196	11	hf ch	bro or pek	1155	18 bid
2		199	18	ch	br pek	1710	24 bid
7	Brecon	214	17	hf ch	bro or pek	1020	34 bid
8		217	19	do	or pek	1045	28 bid
9		220	20	do	pek	1000	26 bid
10	Panilkande	223	29	ch	bro or pek	2900	35 bid
11		226	19	do	pek	1710	28 bid
12		229	14	do	pek sou	1260	26 bid
14	C N	235	21	hf ch	dust	1760	24
18	Hyde	247	15	ch	or pek	1530	33 bid
19		250	24	hf ch	bro or pek	1440	39 bid
20		253	20	do	pek	1920	31 bid
22	Hangranoya	265	14	ch	bro or pek	1330	41 bid
24		268	42	do	br pek	3780	32
25		271	28	do	pek	2380	27 bid
26		274	17	do	pek sou	1360	25
27	Taprobana	277	55	hf ch	br pek	3022	31 bid
98		280	47	do	pek	2350	28 bid

Messrs. Somerville & Co.

[335,094 lb.]

Lot.		Box.	Pkgs		Name.	lb.	c.
2	Pindeni Oya	383	34	ch	bro or pek	3400	22 bid
3		391	19	do	or pek	1805	29
8	Laxapanagalla	406	25	ch	bro or pek	2500	28 bid
9		409	15	do	or pek	1500	27 bid
13	Kallebokka	421	13	ch	bro or pek	1365	45 bid
14		424	30	do	bro pek	3150	30 bid
15		427	18	do	pek	1620	33 bid
21	Mahatenne	445	12	ch	bro or pek	1200	40
22		448	18	do	br pek	1800	24 bid
23		451	18	do	pek	1710	24 bid
27	Henagama	463	45	hf ch	bro or pek	2700	22 bid
28		466	26	ch	or pek	2600	22 bid
29		469	24	do	pek	2400	19 bid
30		472	13	do	pek sou	1170	17 bid
32	Depedene No 2	478	115	hf ch	bro pek	6325	22 bid
33		481	162	do	pek	8910	26
34		484	109	do	pek sou	5995	24
37	Depedene No 3	493	43	hf ch	br pek	2400	28
38		496	34	do	pek	1700	26
39	Kinchin	499	15	ch	or pek	1350	30 bid
40		502	29	hf ch	br pek	1740	32 bid
41		505	19	ch	pek	1710	26 bid
45	Labaduwa	517	18	ch	pek sou	1800	21
49	Maligatenne	529	10	ch	bro pek	1000	25
53	California	541	10	ch	pek	1000	19
63	New Anagamana	571	10	ch	bro or pek	1000	32
64		574	13	do	bro pek	1300	25 bid
65		577	27	do	pek	2430	26 bid
66		580	17	do	pek sou	1530	23 bid
70	Marigold	592	23	hf ch	bro pek fans	1449	31
71		595	13	do	pk dust	1014	27
72	Meeriatenne	598	21	hf ch	bro pek	1155	41 bid
73		601	42	do	pek	2100	35 bid
74		604	28	do	pek sou	1260	23 bid
79	Allacollewewa	616	17	hf ch	bro pek fans	1071	31
80	Welgampola	622	20	hf ch	br pek	1100	28 bid
81		625	21	do	pek	1155	26
82		628	21	do	pek sou	1155	24
86	Raglan	640	13	ch	bro pek	1 00	20 bid
87		643	22	do	pek	2010	17 bid
89	Selvawatte	649	32	hf ch	bro or pek	1760	23 bid
90		652	13	ch	pek	1170	25 bid
93	Richlands	661	59	hf ch	bro or pek	2950	34 bid
94		664	46	ch	pek	3825	28 bid
95		667	19	do	pek sou	1615	26 bid
99	Denmark	679	11	ch	br pek	1100	withd'n
101		685	14	do	pek sou	1260	withd'n
104	Ravana	694	33	ch	bro or pek	1815	25
105		697	29	do	br pek	1450	24 bid
106		700	58	do	pek	2900	26
107		703	22	do	pek sou	1100	25

Lot.		Box.	Pkgs.		Name.	lb.	c.
113	Mahawilla	721	25	hf ch	pek	1375	26 bid
119	D M O G in est mark	739	33	hf ch	br pek	1815	32
120		742	33	do	or pek	1650	30 bid
121		745	25	ch	pek	2000	27 bid
122		748	23	do	pek sou	1725	24 bid
123	Mora Ella	751	21	hf ch	bro or pek	1155	38
124		754	27	ch	pek	2430	26 bid
125		757	12	do	pek sou	1020	23 bid
126		760	20	hf ch	bro pek	1200	29
127		763	26	do	or pek	1300	32 bid
128		766	16	do	br or pk fans	1120	27
129	New Valley	769	28	ch	bro or pek	2800	43
130		772	17	do	or pek	1700	32 bid
131		775	20	do	pek	2000	32 bid
132		778	23	do	pek sou	2070	30
135	Kinross	787	20	ch	bro or pek	2200	30 bid
136		790	15	do	or pek	1425	32
137		793	34	do	pek	3060	29 bid
142	Glenalmond	808	12	ch	pek	1080	27
148	Gwernet	826	14	ch	br pek	1470	33
149		829	24	do	pek	2040	31
152	Lachine	838	72	hf ch	br pek	3960	20 bid
153		841	17	ch	pek	1700	18 bid
161	Havilland	865	35	ch	bro or pek	3500	31 bid
162		868	23	do	or pek	2070	31 bid
163		871	21	do	bro pek	2100	26 bid
164		874	53	do	pek	4700	26 bid
165		877	14	do	pek sou	1120	25 bid
168	Nyanza	886	14	ch	or pek	1260	34
169		889	10	do	br pek	1050	33 bid
173	Harangalla	901	24	ch	br pek	2286	27 bid
174		904	46	do	pek	3610	27 bid
175		907	13	do	pek sou	1040	24
176		910	14	do	bro pek fans	1400	27
177	Mowbray	913	20	ch	br pek	2000	22 bid
178		916	24	do	pek	1920	24 bid
180	Murraythwaite	922	23	ch	bro pek	2300	26 bid
181		925	11	do	pek	990	26 bid
182	Laukka	928	14	ch	br pek	1400	25 bid
183	Rambcde	931	86	hf ch	br pek	4730	withd'n
184		934	74	do	pek	3330	withd'n
185		937	26	do	pek sou	1300	withd'n
188	New Angamana	946	11	ch	bro or pek	1100	34 bid
190	Warakamure	952	27	ch	or pek	2565	25 bid
191		955	29	do	bro pek	2900	23 bid
192		958	40	do	pek	3440	24 bid
194	Southwark	964	62	ch	bro pek	5890	25 bid
197	Mousa Eliya	973	22	ch	bro or pek	2200	30 bid
198	Walla Walley	976	36	hf ch	bro or pek	2016	35 bid
199		979	19	ch	or pek	1805	35 bid
200		982	17	do	pek	1615	32 bid
201		985	41	hf ch	bro or pek	2255	35 bid
202		988	19	ch	or pek	1900	35
203		991	35	do	pek	3010	33
204	Tientsin	994	71	ch	bro or pek	7100	33 bid
205		997	74	do	pek	6290	30 bid
207	Yahalatenne	1003	14	hf ch	dust	11 0	26
208	Ferndale	1006	11	ch	bro or pek	1100	47
209		1009	42	do	pek	3780	26 bid
213	Bollagalle	1021	47	ch	bro pek	4700	23 bid
214		1024	53	do	pek	4240	25 bid
216	Owilikande	1030	28	ch	br pek	2800	26 bid
217	Handrokande	1033	12	ch	bro pek	1320	24 bid
218	Wiharagama	1036	54	hf ch	bro or pek	2862	out
219		1039	41	do	bro pek	1968	16 bid
220	Cooroondoowatte	1042	12	ch	pek	1 00	26 bid
221		1045	13	do	pek sou	1309	24
237	Annandale	1093	21	hf ch	bro or pek	1218	66 bid
238		1096	19	do	or pek	1045	43 bid
239		1099	18	do	pek	1026	35 bid
240		1102	24	do	pek sou	1200	35
242	Neuchatel	1108	55	ch	bro pek	5500	23 bid
243	Laapanagalla	1111	26	ch	bro or pek	2600	29 bid
244		1114	13	do	or pek	1300	25 bid
248	Ferriby	1126	21	hf ch	bro or pek	1155	33 bid
249	Panmure	1129	33	hf ch	bro or pek	1815	34 bid
250		1132	44	do	or pek	2200	31 bid
251		1135	33	ch	pek	2970	31

Messrs. E. John & Co.

[276,288 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	St. Clair	96	20	hf ch	bro or pek	1100	53 bid
2		99	18	ch	or pek	1800	36 bid
3		102	18	do	bro pek	2052	34
4		105	40	do	pek	3440	34
7	Troup	114	25	do	pek sou	2250	33
8	Elston	117	38	do	pek	[illegible]	28
9		120	45	do	pek sou	3825	26
10	Obiya	123	21	do	pek	1680	29
11		126	16	do	pek sou	1250	23 bid
14	St. Clair	135	16	hf ch	pek sou	1376	28 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
21	Katawella	156	12 ch	bro pek	1200	28
22		159	13 do	pek	1170	24
25	Wadhurst	168	22 hf ch	bro pek	1320	35
29	Cresta	180	43 do	bro pek	2150	27 bid
30		183	18 ch	pek	1548	27
31	Kandahar	186	19 hf ch	bro or pek	1034	58
32		189	24 do	or pek	1320	46
33		192	22 do	pek	1210	32
34	Winwood	195	28 do	bro or pek	1500	43 bid
35		198	24 ch	or pek	2280	32
36		201	38 do	pek	3420	30
37		204	13 hf ch	dust	1170	26
38	Craigingilt	207	19 do	bro or pek	1140	30 bid
41	Foruyce	216	19 do	fans	1425	27
42		219	11 do	dust	1015	26
43	Kanduloya	222	81 do	bro pek	3745	27
44	Myraganga	225	28 ch	or pek	2520	26 bid
45		228	16 do	bro pek	1600	27 bid
46		231	23 hf ch	bro or pek	1265	30
47		234	27 ch	pek	2160	25 bid
48		237	14 do	pek sou	1050	22 bid
50	Gingran Oya	243	12 do	bro pek	1200	34
51		246	13 do	pek	1040	30
52	Mossend	249	20 hf ch	bro or pek	1100	60 bid
53		252	32 do	or pek	1760	41 bid
54		255	29 do	pek	1450	37 bid
55		258	19 do	bro or pek fans	1235	34
57	Mocha	264	24 ch	bro or pek	2400	52
58		267	14 do	or pek	1260	38
59		270	27 do	pek	2565	35
61	Glentilt	276	42 hf ch	bro or pek	2310	55
62		279	30 ch	or pek	2700	38
63		282	23 do	pek	2070	34
64		285	12 do	pek sou	1080	29
65	Natuwakelle	288	24 do	bro or pek	2400	40
66		291	25 do	bro pek	2250	29
67		294	25 do	pek	2250	28
68		297	12 do	pek sou	1080	24
74	Glasgow	315	30 hf ch	bro or pek	1650	51
75		318	48 do	bro pek	2640	34 bid
76		321	51 ch	or pek	4845	35 bid
77		324	29 do	pek	2697	35
78	Agra Ouvah	327	51 hf ch	bro or pek	3009	47 bid
79		330	20 ch	or pek	2000	34 bid
80		333	25 hf ch	pek	1250	33 bid
81	Wattagalla	336	22 ch	bro pek	2200	29
82		339	12 do	or pek	1140	37
83		342	25 do	pek	2250	29
84		345	25 do	pek sou	2000	26
86	L O H	351	18 do	fans	2016	26
88	Gonavy	357	11 do	pek sou	1045	26
91	Coslanda	366	33 hf ch	bro pek	1815	26 bid
92		369	21 ch	pek	1785	24
96	Kahagalla	381	54 hf ch	bro pek	3348	31 bid
97		384	19 ch	pek	1862	31
98		387	12 do	pek sou	1080	29
100	M G	393	13 hf ch	fans	1040	28
101	Birnam	396	23 do	fans	1564	31
102		399	21 do	dust	1764	27
103	Albion	402	11 ch	bro pek	1100	26
106	M L W	411	26 do	bro pek	2600	22 bid
107		414	14 do	pek	1190	20 bid
111	Galloola	426	33 do	bro pek	3300	35
112		429	46 do	pek	4140	32
113		432	27 do	pek sou	2160	28
116	Mt. Vernon	441	44 do	pek	3960	33 bid
117	Ridgemount	444	52 do	bro or pek	2860	withd'n
118		447	73 do	or pek	7300	withd'n
123	Hiralouvah	471	15 do	or pek	1520	23 bid
127		474	24 do	pek	2160	20 bid
131	Cleveland	486	47 hf ch	flow or pek	2547	40 bid
132	Waragalande	489	12 ch	bro or pek	1200	35
133		492	15 do	bro pek	1350	28 bid
134		495	15 do	pek	1350	28
137	Morton	504	38 do	bro pek	2987	25 bid
138	St. John's	507	26 hf ch	bro or pek	1508	47
139		510	25 do	or pek	1250	42
140		513	20 do	pek	1010	38
141		516	22 do	pek sou	1144	33
142		519	19 do	pek fans	1292	29
143	Kolapatna	522	20 do	bro or pek	1040	61 bid
144		525	21 do	or pek	1008	38
145		528	20 do	pek	1000	35
154	Ottery	555	27 ch	flow or pek	2430	36 bid
155		558	22 do	or pek	1760	33
156		561	31 do	pek	2790	31
157		564	24 hf ch	bro or pek	1440	44
158		567	19 ch	pek sou	1710	27
160	Mabanilu	573	22 hf ch	or pek	1210	40
161		576	23 do	bro or pek	1334	54
162		579	32 ch	pek	3040	32
163		582	21 do	pek sou	1785	28
166	Cabin Ella	591	27 do	bro pek	2700	33
167		594	23 do	pek	1955	30 bid
170	Brownlow	603	25 hf ch	bro or pek	1425	54 bid
171		603	18 ch	or pek	1566	37
172		609	23 do	pek	1978	33
173		612	29 do	pek sou	2436	28
174	Gansarapolla	615	42 hf ch	bro or pek	2520	withd'n
175		618	28 ch	bro pek	1512	withd'n
176		621	12 do	pek	1080	withd'n
181	Gonavy	636	51 do	pek	4080	29 bid
182	Higham	639	31 do	bro pek	3100	29 bid
183		642	21 do	pek	1995	29
184		645	12 do	pek sou	1080	27
185	L Y	648	8 do	dust	1200	18
186	Koslanda	651	21 do	pek	1785	24 bid
187	Avington	654	18 do	bro pek	1710	24 bid
188		657	48 do	pek	3840	24
189		660	44 do	pek sou	3080	22
194	Orwell	675	34 do	or pek	3329	withd'n
195	Ratwatte	678	54 do	bro pek	5397	25 bid

SMALL LOTS.

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
16	Choughleigh	53	5 ch	pek sou	450	23
17		56	2 do	dust	306	26
18	E	59	5 ch	bro pek	500	24 bid
19		62	5 do	pek	500	18 bid
20		65	5 do	pek sou	475	14 bid
21		68	2 do	fans	200	22
24	Agrakande	77	4 ch	bro pek	416	29 bid
26		83	3 do	pek sou	306	32
27		86	3 do	bro mix	312	27 bid
28		89	2 hf ch	dust	170	26

Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Wewawatte	1918	14 hf ch	pek	784	17 bid
4		1921	1 do	dust	77	20
5		1924	1 do	fans	71	23
10	Clarendon	1939	4 ch	pek sou	440	28
11		1942	3 hf ch	pek dust	240	26
15	H B L	1954	12 do	bro pek	720	29
16		1957	2 do	bro or pek	132	out
17		1960	5 ch	pek	460	27
18		1963	2 do	pek sou	162	23
19		1966	1 hf ch	fans	75	25
29	O B E C, in estate mark Nillomally	1993	5 ch	fans	500	27
30		1999	2 do	dust	200	26
33	Coldstream Group	2008	11 ch	pek sou	880	26
34		2011	4 hf ch	fans	260	28
35		2014	4 do	dust	320	26
45	Clyde	2044	3 ch	green siftings	354	14
46		2047	3 do	green dust	462	11
47	Salem	2050	3 ch	bro or pek No. 1	300	35
48		2053	8 do	bro or pek No. 2	800	28
49		2056	9 do	pek	900	27
53	St. Paul's Inv. No. 15	2068	10 hf ch	bro or pek	620	33
56	N B	2077	2 ch	dust	326	26
61	Galleheria	2092	1 do	dust	100	26
65	Rickarton, Inv. No. 21	2104	5 do	pek sou	500	27
67		2110	5 hf ch	dust	425	26
69	Bellongalla	2116	10 ch	pek	900	22
70		2119	7 do	pek sou	560	18
71		2122	3 do	fans No 1	360	25
72		2125	2 do	dust	320	25
73	Penrith	2128	4 ch	bro pek	400	22
74		2131	4 do	pek	360	22
75		2134	3 do	pek sou	240	16
76		2137	1 do	fans No 1	120	25
79	Amblapitiya	2146	7 hf ch	pek sou	315	10 bid
80		2149	4 do	dust	288	19
88	Maragalla	2173	11 ch	pek	935	27
89		2176	2 do	pek sou	160	23
90		2179	1 do	dust	150	24
95	S V, in estate mark	2194	5 hf ch	dust	400	26
96		2197	7 ch	pek sou	721	24
103	Poonagalla	2218	5 ch	pek sou	475	30
104		2221	10 hf ch	fans	740	29
105		2224	10 do	dust	900	27
113	Ireby	2248	4 do	fans	280	29
114		2251	6 do	dust	510	27
122	S W	2275	1 ch	bro pek	118	22
123		2278	1 do	pek	90	23
131	Teomp	2302	7 ch	pek sou	525	24
132		2305	2 do	sou	120	21
133		2308	2 hf ch	dust	170	25
139	K P W	2326	4 do	pek fans	360	26
140		2329	3 do	dust	300	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
150	Penrhos	2359	4 ch	fans	300	28
151		2362	1 do	dust	95	24
155	Dolahena	2374	14 hf ch	young hyson	700	out
157		2380	2 do	siftings	140	11
158		2383	8 ch	pek sou	270	20
159	Passara Group	2386	8 ch	or pek	720	33
162		2395	9 do	pek sou	810	29
174	Amblakande	2431	7 do	pek sou	560	22
175		2434	3 do	dust	300	24
176	Kincora	2437	5 do	bro or pek	500	out
177		2440	7 do	bro pek	770	31
178		2443	9 do	or pek	855	36
180		2449	11 do	pek sou	880	29
181		2452	3 do	bro pek fans	360	28
182		2455	4 do	dust	640	26
189	Sutton	2476	2 ch	pek sou	170	35
190		2479	3 hf ch	dust	225	27
202	Maldeniya	2509	2 ch	dust	260	26
202	Monterey	2515	6 ch	sou	540	16
206	Good Hope	2527	2 ch	bro pek fans	220	27
207		2530	2 do	fans	200	26
212	Monkswood	2545	8 hf ch	fans	560	27
213		2548	5 do	dust	450	26
217	N P	2560	2 ch	red leaf	200	11
219	N N	2566	11 hf ch	fans	770	29
223	Devonford	2578	4 do	dust	320	27
223	C R D	2593	2 ch	pek	180	23
229		2596	4 do	sou	320	18
231		2602	2 do	red leaf	150	12
236	Mount Park	2617	6 hf ch	bro pek	300	withdn
237		2620	3 do	pek	135	withdn
254	W W, in est. mark N	2671	2 ch	bro pek	180	30
255	W W, in est. mark L	2674	1 ch	bro pek	86	30
259	Weyungawatte	2683	1 ch	sou	85	16
260		2689	3 hf ch	dust	240	25
267	Moray	2710	8 do	pek dust	640	27
273	Osborne	2728	6 ch	bro pek	660	23
274		2731	5 do	pek	4 5	31
275		2734	4 hf ch	fans	328	27
276		2737	2 do	dust	184	26
288	Harrow	2773	5 hf ch	dust	400	27 bid
296	Dunbar	2797	2 ch	pek sou	196	24
297	Clarendon	2800	11 hf ch	bro pek	693	26
298		2803	5 ch	pek	500	20
299		2806	4 do	pek sou	420	18
300		2809	1 hf ch	pek dust	80	25
305	8 in est mark	2824	15 hf ch	or pek	915	41
306		2827	6 ch	pek	430	34
307		2830	1 hf ch	pek	51	32
308	P L	2833	1 ch	bro pek	107	27
309		2836	1 hf ch	pek	55	23
313	Poengalla	2848	4 ch	pek fans	400	26
314	Augusta	2851	5 ch	dust	725	25
315		2854	1 do	congou	150	21
316	Rosebury	2857	11 hf ch	bro pek	660	22
317		2860	8 do	pek	440	20
318		2863	8 do	pek sou	440	18
320	Ugieside	2869	5 ch	pek fans	500	26
321		2872	8 do	pek fans	800	27
322		2875	10 do	dust	800	25
328	Preston	2893	8 ch	pek fans	512	32
333	Strathmer	2908	10 ch	bro pek sou	980	31
338	Geragama	2923	9 hf ch	dust	720	25
347	Bopitiya	2947	5 hf ch	dust	425	25
348		2950	7 ch	sou	630	out
349	Nynangodde	2953	3 hf ch	br or pek fans	225	26
350		2956	2 do	dust	180	24
351	Rajawatte	2959	7 ch	bro or pek	700	37 bid
363	Broughton	3010	9 hf ch	bro pek	522	36
3 0		3016	7 ch	pek sou	695	29
372		3022	4 hf ch	dust	340	27
379	Sylvakandy	3043	4 ch	dust	400	26
383	Tunisgalla	3070	3 ch	dust	270	26
390	Badulluya	3076	10 ch	or pek	900	23
392	Belton	3082	18 hf ch	bro or pek	990	35 bid
395		3091	3 do	dust	180	26
398	Ninfield	3100	3 ch	pek sou	255	20
399		3103	2 do	dust	214	26
407	Udabage	3 37	18 hf ch	fans	990	13
408		3130	4 do	dust	320	11
415	Errolwood	3151	10 ch	or pek	997	34 bid
419	Waitalawa	3163	7 hf ch	pek sou	350	26
422	Siriwatte	3172	7 ch	bro or pek	700	28
423		3175	6 do	or pek	540	30
424		3178	10 do	pek	800	28
425		3181	4 do	bro pek sou	400	24
426		3184	7 do	bro pek fans	910	27
435	R in est mark	3 11	4 ch	or pek	265	32 bid
439	North Cove	3223	4 ch	pek sou	320	32
440		3226	3 hf ch	dust	720	23
443	Poengalla	3235	9 hf ch	dust	810	26
446	Woodend	3244	6 ch	pek sou	480	21 bid
447		3247	4 do	dust	560	26
456	Clunes	3274	7 ch	bro or pek	735	29 bid
458		3280	10 do	or pek	900	28
460		3286	1 do	pek sou	105	out
461		3289	3 do	bro pek fans	336	24
462		3292	2 do	dust	300	24
467	Gampaha	3307	6 hf ch	pek fans	540	27
469	Erracht	3313	4 ch	dust	680	25
474	Polatagama	3328	3 ch	dust	450	25

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Kottagodde	202	11 ch	pek	830	27
4		205	5 do	pek sou	425	23
5		208	2 hf ch	fans	140	24
6	K G	211	5 ch	sou	490	16
13	Panilkande	232	5 ch	sou	450	27 bid
15	O N	238	7 ch	fans	840	23
16		241	8 do	unast	800	13
17		244	8 do	bro mix	960	18
21	Hyde	256	6 ch	pek sou	600	27
22		259	7 hf ch	fans	455	27
23		262	6 do	pk dust	498	26

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	A B C	385	7 hf ch	br pek	455	out
4	S	394	5 hf ch	dust	400	26
5		397	7 do	sou	350	14 bid
6	A	400	4 hf ch	dust	320	26
7		403	4 do	sou	200	14 bid
10	Laxapangalla	412	7 ch	pek	630	23 bid
11		415	3 do	pek fans	300	26
12		418	2 do	dust	200	24
14	Kallebokka	430	4 ch	fans	500	27
16		433	2 do	pek sou	210	24
17	D	436	8 ch	br pek	800	29
18		439	8 do	pek	760	24
29		442	7 do	pek sou	630	16 bid
20	Mahatenne	454	7 ch	pek sou	630	20 bid
24		457	2 do	fans	210	25
25		460	2 do	dust	290	26
26	Hanagama	475	8 hf ch	dust	672	24
31	Depedene	487	5 hf ch	bro pek fans	350	27
35		490	11 do	dust	850	25
62	Kinchin	508	2 hf ch	dust	170	26
43	Labaduwa	511	9 ch	bro pek	900	23
44		514	7 ch	pek	700	21 bid
46		520	1 do	congou	100	14
47		523	1 do	fans	100	18
48	Maligatenne	526	6 ch	bro or pek	600	27
50		532	8 do	pek	656	22
51		535	2 do	pek sou	224	18
52	California	538	8 ch	bro pek	800	28
54		544	7 do	pek sou	700	14
55		547	1 do	dust	145	22
56	Romania	550	9 ch	bro pek	903	22
57		553	9 do	pek	903	18 bid
58		556	6 do	pek sou	570	14
59		559	2 do	fans	203	15
60		562	1 do	unast	100	13
61		565	1 do	red leaf	100	11
62	New Angamana	568	1 box	golden tips	10	R3
67		583	3 ch	pek fans	345	27
68		586	3 do	dust	480	23
69	Marigold	589	11 hf ch	pek sou No. 2	528	27 bid
75	Meeriatenne	607	5 hf ch	fans	280	28
76		610	6 do	tea dust	540	26
77	Allacollawewa	613	9 hf ch	pek sou No. 2	432	27 bid
79		619	10 do	pek dust	790	28
83	Welgampola	631	7 hf-ch	sou	385	out
84		634	3 do	dust	195	24
85		637	5 do	fans	275	22
88	Rayigam	646	2 ch	dust	250	22
91	Selvawatte	655	2 ch	pek sou	170	out
92		658	2 hf ch	fans	160	23
96	Richlands	670	4 hf ch	dust	320	25
97	Mahagoda	673	4 ch	bro pek	460	27
98		676	9 do	pek	945	15 bid
100	Denmark	682	10 ch	pek	900	withd'n
102		688	2 do	sou	166	withd'n
103		691	1 do	dust	147	withd'n
108	P D in est mark	706	4 hf ch	dust	340	25
109	Mincing Lane	709	4 hf ch	dust	450	27
110		712	4 do	pek fans	300	27
111		715	1 ch	sou	100	15
112	Mahavilla	718	14 hf ch	or pek	700	32 bid
114		724	3 do	sou	170	14 bid
115		727	3 do	dust	249	26
116		730	16 hf ch	bro or pek	928	27 bid
117	Bundalla	733	10 ch	sou	860	10
118		736	6 hf ch	dust	570	14
133	New Valley	781	1 do	dust	95	26
134	G B	784	12 hf ch	dust	600	26

Lot.		Box.	Pkgs.	Name.	lb.	c.
138	Kinross	796	4 ch	sou	320	24
139		799	2 do	pk dust	280	25
140	Glenalmond	802	11 hf ch	bro or pek	660	28 bid
141		805	12 do	or pek	600	26 bid
143		811	10 ch	pek sou	900	23
144		814	4 do	fans	400	24
145		817	3 hf ch	dust	240	26
146	A A	820	9 hf ch	sou	774	10
147		823	5 hf ch	dust	455	14
150	Gwernet	832	7 ch	pek sou	660	25
151		835	2 do	dust	230	26
154	Lachine	844	6 hf ch	dust	540	26
155	Paragahakande	847	6 ch	bro pek	600	27
156		850	10 do	pek	950	18 bid
157		853	3 do	pek sou	285	14
158		856	3 do	fans	300	15
159		859	1 do	congou	100	12
160		862	2 do	bro mixed	200	11
166	Havilland	880	4 ch	dust	416	26
167		883	5 do	fans	582	27
170	Sunny Light	892	4 hf ch	bro pek	229	20
171		895	2 do	pek	104	18
172		898	1 do	pek sou	50	13
179	Mowbray	9 9	9 ch	pek sou	720	out
186	Ramb dde	940	2 hf ch	sou	160	withd'n
187		943	7 do	dust	560	
189	New Angamana	949	10 ch	pek sou	900	out
195	Roselands	967	4 hf ch	br pek	210	25
196		970	9 ch	pek	765	out
206	A B C	1000	7 ch	bro pek	700	22 bid
210	Ferndale	1012	9 ch	pek sou	855	22 bid
211	H J S	1015	13 hf ch	bro pek	780	24
212		1018	9 do	pek sou	540	20
215	Bollagalla	1027	13 hf ch	fans	910	26
222	Cooroodoowatte	1040	6 hf ch	pek fans	480	25
223	Galtota	1051	3 ch	bro pek	300	21
224		1054	2 do	pek	200	17
225		1057	1 do	pek sou	96	14
226	R S	1060	7 ch	bro pek	700	25
227		1063	4 do	pek	400	22
228		1066	5 hf ch	pek fans	325	24
229	Glenamore	1069	10 hf ch	dust	800	27
230	S R K	1072	5 ch	pek	500	20
231		1075	3 do	dust	480	26
232	Oaklands	1078	4 hf ch	dust	320	27
233		1081	2 do	fans	200	27
234	S T K R	1084	1 ch			
			1 hf ch	bro pek	155	18
235		1087	7 ch	pek sou	630	11 bid
236		1090	1 do	sou	80	8 bid
241	Annandale	1105	4 hf ch	dust	340	27
245	Laxapanagalla	1117	6 ch	pek	540	26
246		1120	4 do	pek fans	400	26
247		1123	2 do	dust	200	25
252	Panmure	1138	4 ch	sou	360	18 bid
253		1141	3 hf ch	bro or pk fans	210	27
254		1144	2 do	dust	170	26

[Messrs. E. John & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Wewelmadde	108	1 ch	red leaf	56	12
6		111	1 do	unas	87	14
12	Ohiya	129	8 hf ch	dust	648	26
13	M R	132	9 do	dust	810	26
15	St. Clair	138	11 do	pek dust	935	26
16	Allakande	141	8 ch	sou	988	14
17	I M P, in est. mark	144	1 do	bro pek	101	27
18	Chapelton	147	9 hf ch	dust	810	26
19		150	1 do	dust No. 2	90	25
20		153	6 ch	sou	540	17
23	L H	162	2 hf ch	bro pek	105	20
24		165	9 do	pek	450	17
26	Wadhurst	171	11 ch	pek	990	27
27		174	4 do	pek sou	360	23
28		177	2 hf ch	dust	155	27
39	Craiglngilt	210	9 ch	pek sou	720	23
40		213	4 hf ch	dust	320	26
49	Myraganga	240	4 do	dust	600	26
56	Mossend	261	2 do	dust	160	27
60	Mocha	278	12 ch	fans	960	30
61	Natuwakelle	300	8 do	dust	300	26
70	Eton	303	3 do	bro or pek	300	28
71		306	4 do	or pek	400	25
72		309	4 do	pek sou	400	22
73		312	9 do	sou	900	26
85	Waltagalla	348	11 hf ch	dust	920	26
87	L H O	354	8 do	dust	640	24
89	Gonavy	360	12 do	fans	720	29
90		363	4 do	dust	340	26
93	Coslanda	372	6 ch	pek sou	540	23
94		375	2 do	fans	220	27
95		378	2 do	dust	160	26
99	Kahagalla	390	6 hf ch	dust	504	26
104	Albion	405	11 ch	pek	935	26
105		408	3 do	pek sou	270	21 bid
108	W, in est. mark	417	11 do	pek sou	825	16 bid
109		420	4 hf ch	dust (not bkd.)	340	25
110	W, in est. mark	423	7 do	dust	588	26
114	Galloola	435	9 ch	dust	900	26
115		438	4 do	fans	400	28
119	Eladuwa	450	4 do	unas	240	15
120		453	1 do	dust	80	22
121	O F E	456	7 do	bro pek	700	28
122		459	3 do	or pek	300	22
123		462	4 do	pek	400	15 bid
124	The Farm	465	5 do	dust	425	26
125	Hiralouvah	468	9 hf ch	bro or pek	540	out
128		477	9 ch	pek sou	810	28
129		480	3 do	fans	200	25
130		483	2 hf ch	dust	176	24
135	Waragalande	498	7 ch	pek sou	630	18
136		501	2 do	dust	200	26
146	Kolapatna	531	4 hf ch	fans	240	28
147	Reading	534	1 do	bro pek	46	26
148		537	1 do	or pek	53	22
149		540	2 ch	pek	224	18
150		543	1 hf ch	pek sou	38	16
151		546	1 do	bro pek fans	37	26
152		549	1 box	pek fans	27	26
153		552	1 do	dust	16	26
159	Ottery	570	12 hf ch	dust	960	26
164	Mahanilu	585	6 do	dust	510	26
165		588	7 do	fans	476	23
168	Cabin Ella	597	2 ch	pek fans	140	27
169		600	2 do	pek dust	[illegible]	25
177	L, in est. mark	621	11 do	pek sou	89	21
178	P P P	627	1 do	bro pek	90	24
179		630	3 do	or pek	240	24
180		633	2 do	fans	210	24
190	Avington	663	3 hf ch	dust	[illegible]	25
191	Galata	666	7 do	dust	560	26
192		669	7 ch	sou	595	14
193	R A	672	4 hf ch	dust	321	22

CEYLON COCOA SALES IN LONDON.

(From Our London Correspondent).

MINCING LANE, May 9th.

"Jumna."—L KM in estate mark R, London, 100 bags sold at 54s.

"Memphis."—KMA in estate mark, 70 bags sold at 54s.

"Cambodge."—NJDS in estate mark, 15 bags sold at 55s.

"Scindia."—MAK in estate mark A, 42 bags sold at 56s.

"Shropshire."—KA in estate mark R, 74 bags sold at 55s.

"Sydney."—KA in estate mark R. 150 bags sold at 52s.

"Bingo Maru."—Warriapolla, 40 bags sold at 70s; 101 at 61s 6d; 8 at 49s; 1 at 44s; 12 at 46s 6d; 21 at 33s 6d.

"Scindia."—Suduganga, 34 bags sold at 80s; 9 at 60s; 11 at 50s; 4 at 40s; 6 at 33s.

"City of Benares."—Suduganga, 21 bags sold at 75s 6d; 6 at 61s 6d; 5 at 50s; 3 at 43s; 1 at 30s.

"Peleus."—Kotna No. 1 Cocoa, 4 bags sold at 69s, sea damaged; ditto No. 2, 2 at 27s 6d, sea damaged; ditto No. 3, 2 at 27s 6d, sea damaged; ditto No. 1, 1 at 27s 6d, sea damaged; ditto No. 2, 1 at 27s 6d sea damaged; ditto No. 1, 1 at 27s 6d, sea damaged; ditto No. 2, 2 at 27s 6d, sea damaged; ditto No. 3, 1 at 27s 6d, sea damaged.

"Banca."—North Matale A, 20 bags sold at 70s 6d.

"Duke of Devonshire."—Goonambil, 5 bags sold at 44s 6d; 7 at 45s; 12 at 48s 6d; 2 at 34s; CG in estate mark, 9 bags sold at 64s; 17 at 56s; 1 at 34s; 10 at 50s.

"Clan Sutherland."—KDG, 60 bags sold at 52s 6d.

"Tamba Maru."—Benveula No. 1, 7 bags sold at 45s.

"Duke of Devonshire."—K No. 1, 21 bags sold at 56s.

"Ajax."—NC in estate mark, 88 bags sold at 55s.

"City of Benares."—Togagamuwa HB & Co., 15 bags sold at 57s.

"Clan Sutherland."—Katugastota, 16 bags sold at 56s; 14 at 48s.

"Clan Alpine"—Rockhill AA, 39 bags sold at 58s.

"Glenshiel."—L HMS & Co. in estate mark, Estate Cocoa, 20 bags sold at 50s 6d; 40 at 50s; 55 at 50s 6d; 20 at 51s; O C in estate mark, Estate Cocoa, 49 bags sold at 50s 6d.

"Clan McDonald."—MAKN in estate mark, 3 bags sold at 42s 6d.

"Clan McLeod."—DNA & Co. in estate mark, 15 bags sold at 53s.

No. 22. COLOMBO, JUNE 9, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS

Messrs. E. Benham & Co.

[16,175 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Fuillefield	9	50 hf cb	bro or pek	2750	37 bid
2		12	36 cb	pek	3240	30
5	Hornsey	21	31 hf cb	bro pek	1860	36 bid
6		24	19 ch	pek	1615	33
7	Battalgalla	27	23 do	pek sou	1725	27
9	Galagama	33	17 cb	bro pek	1615	24 bid
10		36	19 do	pek	1710	23 bid

Messrs. Keell and Waldock.

[34,703 lb.

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Dunnottar	289	21 ch	bro pek	2100	30 bid
4		292	22 do	pek	1980	32
10	Minna	310	16 ch	or pek	1440	40 bid
11		313	12 do	pek	1008	34 bid
12		316	15 hf cb	fans	1080	27
14	Shepperton	322	14 cb	pek	1400	24 bid
15		325	14 do	pek sou	1260	25
16	Aigburth	328	25 cb	bro pek	2375	24 bid
17		331	19 do	pek	1710	26
18		334	27 cb	bro pek	2565	24 bid
19		337	18 do	pek	1620	26
20		340	12 do	pek sou	1020	22
24	Lowlands	352	11 ch	bro pek	1100	23 bid
25		355	12 do	pek	1080	22 bid
28	Panilkande	364	20 bf cb	br or pk No 1	1000	48 bid
29		367	22 do	br or pk No 2	2200	41
30		370	24 do	pek	2160	29 bid
31		373	12 do	pek sou	1080	27 bid

Messrs. Forbes & Walker.

[872,051 lb.]

Lot.		Box.	Pkgs.	Name.	lb,	c.
6	Barrington	3364	42 h cb	unas	2100	15
8	Panawatte	3370	12 ch	bro or pek	1416	37
9		3373	24 do	bro pek	2400	32
10		3376	16 do	pek	1488	31
11		3379	13 do	pek sou	1209	27
13	Brayton	3385	62 ch	pek	5580	33 bid
14		3388	24 do	pek sou	1920	32
15	New Peacock	3391	27 hf cb	bro pek	1350	30 bid
16		3394	14 do	pek fans	1050	26
17	Choisy	3397	50 bf ch	bro or pek	2750	38
18		3400	20 ch	or pek	1700	33
19		3403	50 do	pek	4500	28
20	Sirikandure	3406	22 hf cb	bro pek	1100	28
21		3409	26 do	pek	1300	22
22		3412	67 do	pek sou	3015	19
30	G K	3436	18 ch	pek sou	1260	24
33		3445	22 hf ch	dust	1760	26
34	Udapolla	3448	23 ch	bro pek	2300	25
36		3454	25 do	pek	2250	25
40	Bargany	3466	12 ch	bro pek	1260	41 bid
43		3475	24 do	pek No 2	2160	31 bid
44	O B E C, in estate mark Newmarket, Inv. No.	3478	37 bf cb	bro or pek	2072	44
45		3481	41 ch	bro pek	4305	32
46		3484	28 do	pek	2454	31
47		3487	16 do	pek sou	1392	29
50	R M, in estate mark	3496	34 ch	bro or pek	1833	30
51		3499	110 do	bro pek	11000	27
52		3502	55 do	pek	4620	28
53		3505	16 do	pek sou	1323	24
55	Yataderia	3511	28 ch	bro or pek	2940	27
56		3514	15 do	bro pek	1525	24
57		3517	23 do	or pek	2000	28
58		3520	39 do	pek	3276	24
59		3523	13 do	pek sou	1056	22
60	Alton	3526	20 bf ch	dust	1600	27
61	Poonagalla	3529	17 ch	or pek	1615	43
62		3532	21 do	bro pek	2415	58
63		3535	16 do	pek	1520	40
64	Laurawatte	3538	11 cb	bro pek	1221	27
65		3541	16 do	or pek	1352	26
66		3544	12 do	pek	1092	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
69	Poonagalla	3553	23 ch	or pek	2185	41 bid
70		3556	42 do	bro pek	4830	56 bid
71		3559	26 do	pek	2548	33
73	Ingoya	3565	34 cb	youn hyson	3400	33
74		3568	35 do	hyson	3115	31
75		3571	18 do	hyson No 2	1512	28
82	Avoca	3592	25 cb	bro or pek	2750	42
83		3595	26 do	or pek	2860	35
84		3598	41 do	pek	3936	31
87	Tismoda	7	10 ch	bro pek	1000	27
88		10	13 do	pek	1170	26
91	Penatb	19	19 cb	bro pek	1900	25
92		22	24 do	pek	2160	24
96	Matale	34	34 hf ch	bro pek	2040	34
97		37	16 cb	pek	1440	23 bid
98		40	12 do	pek sou	1020	25
100	Pansalatenne	46	47 cb	bro pek	4700	31
101		49	36 do	pek	3060	28
102		52	21 do	pek sou	1785	24
105	Walton	61	23 cb	bro pek	2415	30
106		64	23 do	or pek	1955	28
107		67	19 do	pek	1805	25
109	O B E C, in est te mark Daraawella	73	110 hf ch	bro pek	6820	32 bid
110		76	80 ch	pek	7200	30
114	Dotala	88	17 hf cb	bro or pek	1020	51
115		91	21 ch	pek No 1	1890	32
116	Florence	94	20 cb	or pek	1820	40
117		97	33 hf ch	bro or pek	1815	57
118		100	51 ch	pek	4488	37
119		103	18 do	pek sou	1530	33
120		103	29 bf ch	bro or pek fans	2030	31
121	Maha Eliya	109	22 bf ch	bro or pek	1320	46 bid
122		112	18 do	bro pek	1080	36 bid
123		115	16 ch	or pek	1600	38 bid
124		118	19 do	pek	1786	35 bid
125	Torwood	121	15 cb	bro or pek	1425	30 bid
126		124	16 do	bro pek	1440	28
127		127	19 do	or pek	1615	24 bid
128		130	40 do	pek	3200	24
130	Ardlaw and Wisbford	136	10 ch	bro or pek	1050	48 bid
131		139	16 do	bro pek	1600	34
132		142	13 do	or pek	1144	36
133		145	21 do	pek	1722	31
140	Marlboroug	166	36 hf cb	bro or pek	1836	56 bid
141		169	28 cb	bro pek	2800	38
142		172	25 do	or pek	2450	36
143		175	63 do	pek	5544	32
144		178	19 hf ch	bro pek fans	1178	32
145	Attampettia	181	13 ch	bro pek	1456	58
146		184	16 do	or pek	1520	36
147		187	22 do	pek	1980	32
156	Vincit	214	22 ch	bro pek	2200	27
157		217	23 do	pek	2070	18 bid
162	Palmgarden	232	26 ch	bro pek	2860	withdn.
163		235	25 do	pek	2500	withdn.
164		238	16 do	pek sou	1600	withdn.
168	St, Paul's Inv. No. 16	250	20 hf cb	bro or pek	1200	33
169		253	44 do	or pek	2288	31 bid
170		256	56 do	pek	2688	29 bid
171	Glenorchy	259	81 do	bro pek	4860	46 bid
172		262	51 ch	pek	4845	5 bid
174	New Galway	268	19 hf ch	bro pek	1140	46 bid
175		271	24 do	pek	1320	35 bid
176	Great Valley, Ceylon, in est. mark	274	18 hf ch	bro or pek	1026	43
177		277	12 cb	or pek	1080	35
178		280	30 do	pek	2550	31
179		283	13 do	pek sou	1040	27
180		286	18 do	fans	1170	23
181		289	13 do	dust	1105	26
183	B B, in estate mark	295	31 ch	pek sou	2480	27 bid
191	Elpitiya	319	11 ch	bro pek	1055	20
192		322	14 do	pek	1275	16
195	Thedden	331	30 ch	bro pek	3000	25 bid
200	Dessford	346	27 hf cb	bro pek	1701	36
201		349	30 cb	or pek	3000	37
202		352	16 do	pek	1440	35
203		355	14 do	pek sou	1400	31
204	Galapitakande	358	29 ch	or pek	2900	28 bid
205		361	36 do	bro pek	3600	32
206		364	32 do	pek	3040	28 bid
210	Pine Hill	376	19 hf ch	bro or pek	1140	39
211		379	23 do	bro pek	1495	30
212		382	32 cb	or pek	2880	34

Lot.		Box.	Pkgs.	Name.	lb.	c.
213		385	26 ch	pek	2340	28 bid
214		388	15 do	pek sou	1275	26
215	Mawiliganga-watte	391	65 ch	bro pek	6240	22
216		394	55 do	pek sou	4125	20
218		400	18 hf ch	dust	1170	28
224	Nakiadenia	418	17 ch	bro or pek	1360	37
225		421	13 do	bro pek	1040	33
226		424	22 do	pek	1320	27
227		427	14 do	pek No 2	1120	26
228		430	44 hf cb	pek sou	2460	23
229		433	13 ch	bro tea	1235	22
230		436	14 do	dust	1120	25
231	Penrhos	439	20 hf ch	bro or pek	1060	44
232		442	23 do	bro pek	1334	29
233		445	21 do	or pek	1029	37
234		448	34 ch	pek	2560	28
235		451	16 do	pek sou	1280	24
239	Tembiligalla	463	14 do	bro or pek	1260	28
240		466	16 do	bro pek	1600	26
241		469	19 do	pek	1710	26
246	Pannapitiya	484	12 do	pek	1140	23 bid
251	O B E C, in estate mark New Market	499	33 hf ch	bro or pek	1848	43
252		502	36 ch	bro pek	3675	32
253		505	24 do	pek	2160	33
254		508	19 do	pek sou	1653	30
255	Clyde	511	74 hf ch	young hyson	4144	30 bid
256		514	35 ch	hyson	3500	30 bid
257		517	21 do	hyson No 2	1995	27 bid
258		520	9 do	green tea fans	1035	out
259	Wilpita	523	21 ch	bro pek	2205	24
260		526	14 do	pek	1330	22
261		529	11 do	pek sou	1155	20
269	Bogahagoda-watte	553	10 ch	bro pek	1000	26
270		556	11 do	pek	1056	24
277	Middleton, Inv. No. 16	577	20 hf ch	bro or pek	1200	49
278		580	16 ch	bro pek	1760	33 bid
279		583	22 do	or pek	1980	34
280		586	13 do	pek	1105	32
281	Middleton, Inv. No. 15	589	23 hf ch	bro or pek	1380	46
282		592	23 ch	bro pek	2530	33 bid
283		595	47 do	or pek	4230	32 bid
284		598	22 do	pek	1870	31
289	Gonapitiya	613	22 hf cb	or pek	1122	36
290		616	26 do	bro pek	1482	31 bid
291		619	20 ch	pek	1760	32
293	Kitulgalla	625	21 hf ch	bro or pek	1302	26
294		628	16 cb	or pek	1472	25
295		631	12 do	pek	1032	24
297	Anningkande	637	18 do	pek	1620	24
299	Delta	643	44 ch	bro or pek	4400	31
300		646	49 do	bro pek	4900	26
301		649	33 do	pek	2772	28
302		652	32 do	pek sou	2624	25
303		655	23 do	fans	2760	27
305	Algooltenne	661	19 ch	bro pek	1805	30
306		664	12 do	pek	1020	31
307		667	15 do	pek sou	1200	27
308	Good Hope	670	45 ch	bro pek	4050	26
309		673	28 do	bro or pek	2800	21 bid
310		676	22 do	pek	1980	24
312		682	17 hf ch	dust	1530	25
314	Rickarton	688	20 hf ch	bro or pek	1120	38
315		691	21 do	or pek	1890	35
316		694	26 ch	pek	2600	34
318		700	19 hf ch	bro tea	1330	27
320	Mansfield	706	58 do	bro pek	3480	47
321		709	13 cb	pek	1300	36
322		712	10 do	pek No. 2	1000	33
323		715	12 do	pek sou	1140	32
324	Vogan	718	26 ch	bro or pek	2600	49
325		721	35 do	or pek	3325	35
326		724	44 do	pek	4180	27 bid
327		727	23 do	pek sou	1955	24
330	Mousakeille	736	18 ch	pek	1617	31 bid
331	Macaldeniya	739	31 hf cb	bro pek	1860	35
332		742	31 do	pek	1705	29
338	Nonpariel	760	46 hf cb	bro or pek	2576	40
340		766	18 do	pek	1008	35
344	Dunkeld	778	41 hf ch	bro or pek	2460	34
345		781	44 do	or pek	3960	34
346		784	29 do	pek	2610	30
347	Ganapalla	787	37 ch	or pek	3071	28
348		790	32 do	bro or pek	3200	27
349		793	37 do	pek	3145	24
350		796	15 do	pek sou	1200	22
351	Hanwella	799	50 hf cb	young hyson	3000	30 bid
352		802	26 do	hyson No 1	1560	29
355	Fairlawn	811	31 hf ch	bro or pek	1705	57
356		814	36 do	or pek	1620	42

Lot.		Box.	Pkgs.	Name.	lb.	c.
357		817	37 ch	pek	3145	36
358		820	16 do	pek sou	1360	31
360	Ruanwella	826	17 ch	bro or pek	1870	27
361		829	21 do	bro pek	2100	26
362		832	18 do	or pek	1620	27
363		835	36 do	pek	3240	24
364	High Forest	838	51 hf ch	bro or pek	3723	28
365		841	35 do	pek sou	1575	30
366		844	29 do	pek dust	2610	27
367	Batawatte	847	24 hf cb	bro or pek	1560	30
368		850	50 ch	bro pek	5500	30 bid
369		853	39 do	pek	3705	31
370		856	19 do	pek sou	1710	26
372	High Forest	862	70 hf ch	or pk No 1	4200	43
373		865	47 do	or pek	2491	37
374		868	45 do	pek	2160	34
375	Dammeria	871	58 cb	bro pek	5800	30
376		874	43 do	or pek	3870	28 bid
377		877	35 do	pek	3420	28
378	Dammeria	880	45 cb	bro pek	4500	30
381	Osborne	889	17 ch	bro pek	1870	35 bid
382		892	22 do	or pek	1980	33
388	Maldeniya	910	30 ch	or pek	28[illegible]7	27 bid
389	Templehurst	913	14 ch	bro or pek	1372	38
390		916	14 do	bro pek	1582	34
391		919	14 do	pek	1260	33
393	Eastland	925	46 hf ch	bro or pek	2760	36
394		928	60 do	or pek	2940	29
395	Bramley	931	49 hf ch	bro pek	2937	36 bid
397	Sylvakandy	937	10 ch	br or pek No 1	1000	48
398		940	34 do	br or pek No 2	3400	33
399		943	19 do	or pek	1900	35
300		946	18 do	bro pek	1800	30
301		949	32 do	pek	3200	30
403	St. Heliers	955	29 hf cb	bro or pek	1524	33
404		958	13 ch	pek	1235	29
405	Palmerston	961	19 hf ch	pek	1042	35 bid
406	Waldemar	964	35 hf ch	bro or pek	2240	50
407		967	19 ch	bro pek	2185	32 bid
408		970	24 do	or pek	2352	37
409		973	17 do	pek	1564	33
410		976	19 hf ch	fans	1596	27
411	W in est mark	979	54 ch	pek sou	4590	28
412	Hathmathe	982	34 hf ch	bro pek	1700	withd'n
413		985	29 do	pek	1653	
414		988	22 do	pek sou	1144	
420	Chrystler's Farm	1006	37 hf ch	bro pek	2072	45
421		1009	38 do	pek	3230	33
422	Baddegama	1012	23 ch	or pek	2070	31
426	Penrith	1024	15 ch	bro pek	1500	26
427		1027	15 do	pek	1350	26
433	Talgaswela	1045	19 ch	or pek	1517	30
439	Karde Hantane	1063	14 ch	bro pek	1330	22
440		1066	18 do	pek	1620	22
441		1069	15 do	pek sou	1350	20
444	St. Helen	1078	23 hf cb	bro or pek	1265	31
445		1081	21 cb	or pek	1890	30
446		1084	15 do	pek	1350	26
447		1087	13 do	pek sou	1170	24
448		1090	17 hf ch	fans	1020	27
449	Penrhos	1093	29 hf cb	bro pek	1740	29
450		1096	27 do	or pek	1296	37
451		1099	39 ch	pek	3120	28
452		1102	16 do	pek sou	1328	24
455	Dressford	1111	36 hf ch	bro pek	2265	30 bid
456	Munuketta, Ceylon in est mark	1114	14 cb	or pek	1260	34
457		1117	36 hf ch	bro pek	2160	47
458		1120	23 ch	pek	1840	31
459		1123	12 do	pek sou	1176	27
461	Summer Hill	1129	45 ch	bro or pek	2655	59
462		1132	55 do	bro pek	3410	39
463		1135	39 do	or pek	3510	41
464		1138	18 do	pek	1890	35
465		1141	40 do	pek sou	3800	32
466	Monkswood	1144	23 hf ch	bro pek	1380	57
467		1147	44 do	or pek	2200	48 bid
468		1150	35 ch	pek	3150	39 bid
469	Agraoya	1153	22 cb	bro or pek	2200	31
470		1156	19 do	or pek	1805	32
471		1159	15 do	pek	1350	28
476	Algooltenne	1174	21 cb	bro pek	2100	31
477		1177	14 do	pek	1120	36
478		1180	20 do	pek sou	1600	27
480	Castlereagh	1186	56 hf ch	bro or pek	2800	42
481		1189	21 ch	bro pek	2100	28
482		1192	13 do	or pek	1040	31
483		1195	14 do	pek	1120	29
485	Dambagastalawe	1201	15 ch	br or pek	1650	47
486		1204	23 do	or pek	2532	33 bid
487		1207	39 do	pek	3744	31 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
488	Geragama	1210	12 cb	bro or pek	1120	27
489		1213	27 do	bro pek	2430	26
490		1216	31 do	pek	2480	25
491		1219	33 do	pek sou	2475	23
494	Clunes	1228	22 cb	pek	2090	23 bid
495		1231	17 do	bro pek	1700	25 bid
499	Morankande	1243	22 hf ch	bro or pek	1232	27
500		1246	32 do	or pek	1600	33
501		1249	28 ch	pek	2520	26
505	Pallagodda	1261	24 ch	bro or pek	2400	28
506		1264	37 do	bro pek	3700	28 bid
507		1267	36 do	or pek	3060	26
508		1270	29 do	pek	2465	24
509		1273	29 do	pek sou	2175	23
510	Maha Uva	1276	46 hf ch	bro or pek	2990	31
511		1279	40 cb	or pek	4010	36
512		1282	45 do	pek	4050	33
513		1285	13 do	pek sou	1040	28
516	Maragalla	1294	12 ch	or pek	1017	30
520	Alver	1306	23 hf cb	dust	2090	25
521		1309	19 do	br pk fans	1425	26
522	Holton	1312	18 ch	bro pek	1800	26 bid
523		1315	12 do	pek	1020	25
525	Lauderdale	1321	16 ch	sou	1520	20
529	S R in est mark	1333	15 ch	or pek fans	1500	26
530		1336	20 do	congon	1900	24
532	Harrow	1342	17 hf ch	bro or pek	1020	44
533		1345	12 ch	bro pek	1320	33
534		1348	22 do	pek	2200	33
536	Passara Group	1354	19 ch	or pek	1710	34
537		1357	32 do	bro or pek	3200	32 bid
538		1360	37 do	pek	3330	30
539		1363	16 do	pek sou	1440	27
540	Adisbam	1366	35 ch	bro or pek	1925	45
541		1369	27 do	bro pek	2700	29
542		1372	20 do	pek	1800	29
543	Udaveria	1375	18 hf cb	bro or pek	1080	54
544		1378	34 do	br or pk No 1	2040	35
545		1381	24 do	or pek	2160	35
546		1384	25 do	pek	2125	30
549	El Teb	1393	43 ch	bro or pek	2494	39 bid
550		1396	25 do	or pek	2550	32
551		1399	20 do	bro pek	2600	27 bid
552		1402	25 do	pek	2400	27 bid
553	Puspone	1405	12 cb	bro pek	1248	26 bid
554		1408	24 do	pek	2280	25
555		1411	18 do	pek sou	1530	24
556	Palmerston	1414	18 hf ch	flo or pek	1044	44 bid
557		1417	12 do	pek	1020	35 bid
559	Yelverton	1423	17 ch	bro pek	1785	27 bid
560		1426	12 do	or pek	1080	27 bid
564	Coombe Court	1438	41 hf ch	bro pek	2050	26 bid

Messrs. Somerville & Co.

[380,257 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Avisawella	1156	30 hf ch	bro or pek	1650	38
5		1159	26 ch	or pek	2470	36
6		1162	30 do	pek	2700	27
7		1165	17 do	pek sou	1360	24
10	Depedene No 4	1174	40 hf ch	bro pek	2400	27
11		1177	50 do	pek	2500	26
12		1180	30 do	pek sou	1650	23
15	Marigold	1189	46 hf ch	bro pek	2438	36 bid
16		1192	38 do	pek	1900	33 bid
17		1195	28 do	pek sou	1372	32
18	Allacollawewa	1198	39 hf ch	bro pek	2067	36 bid
19		1201	27 do	pek	1350	33 bid
20		1204	22 do	pek sou	1100	31 bid
21	Abbotsford	1207	19 hf ch	pek sou	1805	28 bid
22	Dryburgh	1210	28 hf ch	bro or pek	1764	26 bid
23		1213	28 do	or pek	2576	32
24	Oakwell	1216	27 ch	bro pek	2970	29 bid
25		1219	27 do	pek	2700	29
26		1222	12 do	pek sou	1068	26
29	R K P	1231	23 ch	or pek	1955	32
30		1234	19 do	bro or pek	1900	26 bid
31		1237	20 do	pek	1600	27
32		1240	12 do	fans	1080	24
33	Naynza	1243	10 ch	br pek	1050	37
34		1246	16 do	pek	1440	31
35	Mahatenne	1249	11 ch	pek	1045	24 bid
36	Rambodde	1252	86 hf ch	bro pek	4730	30
37		1255	74 do	pek	3330	27 bid
38		1258	26 do	pek sou	1300	24
41	Paradise	1267	9 ch	bro or pek	1080	25
42		1270	13 do	bro pek	1300	23
43		1273	16 do	pek	1520	22 bid
44		1276	25 do	pek sou	2250	21
48	Monrovia	1288	40 ch	bro pek	4000	25
49		1291	34 do	pek	3230	23
50		1294	13 do	pek sou	1170	21

Lot.		Box.	Pkgs.	Name.	lb.	c.
54	Hobart	1306	23 ch	pek	1725	withd'n
55	Citrus	1309	52 ch	br pek	5200	20 bid
56		1312	56 do	pek	5600	21
57		1315	10 cb	pek sou	1000	18
58		1318	11 do	fans	1100	16
61	N in est mark	1327	20 hf ch	pek sou	1120	16
66	Cumbawella	1342	12 ch	bro or pek	1200	24 bid
67		1345	19 do	br pek	1710	21 bid
68		1348	21 do	pek	1890	20 bid
72	Ambalawa	1360	12 ch	br pek	1200	24
73		1363	20 do	or pek	1700	26
74		1366	14 do	pek sou	1120	23
76	Southwark	1372	73 ch	br pek	6935	withd'n
77		1375	15 do	pek	1155	withd'n
78		1378	18 hf cb	pek sou	1278	22
80		1384	20 do	fans	1500	25
81	Agra Elbedde	1387	29 hf ch	bro or pek	1740	38
82		1390	39 do	or pek	2145	38
83		1393	26 do	pek	1300	32
90	Florida	1414	15 ch	bro pek	1500	19 bid
91		1417	20 ch	pek	1900	19
95	Columbia	1429	30 hf cb	bro or pek	1800	34 bid
96		1432	41 do	or pek	2132	33
97		1435	58 do	pek	2900	31
98		1438	25 do	pek sou	1250	25
99	D'Oya	1441	19 ch	pek sou	1710	24 bid
100	Scarborough	1444	23 hf ch	bro or pek	1288	withd'n
101		1447	11 ch	or pek	1056	withd'n
102		1450	11 do	pek	1045	withd'n
103		1453	14 do	pek sou	1232	withd'n
105	Annandale	1459	19 hf cb	or pek	1026	43
106		1462	18 do	pek	1026	39
107	Monte Christo	1465	21 ch	br pek	2100	40
111	Kelani	1477	20 ch	bro or pek	2000	27
112		1480	25 do	or pek	2125	30
113		1483	20 ch	pek	1600	25
114		1486	12 do	pek sou	1080	23
120	Mary Hill	1504	50 hf ch	bro pek	3000	29
121		1507	74 do	pek	4070	26
122		1510	30 do	pek sou	1500	24
124	Blinkbonnie	1516	24 hf ch	br pek	1440	40
125		1519	18 ch	pek	1710	35
127	W K P	1525	63 ch	bro pek	6615	27
		1528	44 do	or pek	3960	29
129		1531	88 do	pek	7040	24 bid
130		1534	23 do	pek sou	1725	22
133	M D F in est. mark	1543	25 hf cb	bro or pek	1500	25 bid
134		1546	25 ch	or pek	2250	27
135		1549	36 ch	pek	2880	26
136		1552	28 do	pek sou	2296	23
137	Tientsin	1555	38 ch	bro or pek	3800	28 bid
138		1558	41 do	pek	3485	28 bid
139	Cooroondoo-watte	1561	13 ch	pek	1300	28
140		1564	19 do	pek sou	1900	24
141	Jak Tree Hill	1567	17 ch	br pek	1700	29
143	Kurulugalla	1573	27 ch	bro or pek	2700	26
144		1576	28 do	pek	2520	23
145		1579	12 ch	pek sou	1080	20
149	Labugama	1591	23 hf ch	br pek	1265	28
150		1594	22 cb	pek	1870	27
153	Ingiriya	1603	15 ch	bro pek	1500	26
154		1606	19 do	pek	1786	23
155		1609	25 do	pek sou	2250	22
156		1612	9 do	dust	1260	25
158	Dalukoya	1618	27 hf ch	pek sou	1350	28
159	I P	1621	14 ch	pek sou	1050	24
161		1627	15 hf ch	dust	1320	26
162	Old Madde-gama	1630	13 ch	bro or pek	1040	withd'n
163		1633	15 do	bro pek	1125	withd'n
164		1636	24 do	pek	2040	withd'n
168	A O B	1648	17 hf ch	dust	1071	23
169	Glenalla	1651	42 hf ch	young hyson	2436	30
170		1654	24 do	hyson No 1	2160	27 bid
174	Gangwarily	1666	88 ch	bro pek	8800	28 bid
175		1669	37 do	pek	3145	27
180	Theberton	1684	34 cb	bro pek	3400	25 bid
181		1687	37 do	pek	3145	29
184	Kanda	1696	20 ch	pek	1800	23 bid
186	Yspa	1702	16 ch	pek sou	1360	21
188	Owilikande	1708	25 cb	br pek	2500	26
189		1711	18 ch	pek	1710	25
190		1714	12 do	pek sou	1080	22
193	Kurunegalla	1723	23 hf ch	flo or pek	1334	26
194		1726	25 do	or pek	1250	27
195		1729	19 ch	pek	1615	21
199	Bodawa	1741	50 hf ch	br pek	2750	24
200		1744	12 ch	pek	1080	24
211	Kinchin	1777	15 ch	or pek	1350	31 bid
212		1780	29 hf ch	br pek	1740	32 bid
213		1783	19 ch	pek	1710	29 bid
214	Meddegodde	1786	49 hf ch	bro or pek	2695	29
215		1789	40 do	or pek	2100	30
216		1792	69 do	pek	3450	25
217		1795	55 do	pek sou	2750	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
221	Dikmukalana	1807	47 hf ch	br pek	2585	30
222		1810	34 do	or pek	1700	29
223		1813	40 do	pek	2000	26
224		1816	40 do	pek sou	1920	24
227	Ferndale	1825	10 ch	bro or pek	1000	37 bid
228		1828	44 do	pek	3960	28
230	Rayigam	1834	17 hf ch	bro or pek	1020	37
231		1837	19 ch	or pek	1805	34
232		1840	14 do	br pek	1330	24 bid
233		1843	26 do	pek	2210	27
234		1846	21 do	pek sou	1995	24
237	Neboda	1855	15 ch	bro or pek	1500	34
238		1858	32 do	or pek	3040	30
239		1861	46 do	pek	4600	26
240		1864	21 do	pek sou	1995	23
242	Karangalla	1870	28 do	bro pek	3136	29
243		1873	28 do	pek	2464	26
249	B and D	1891	19 ch	unast	1900	27
251	Liliawatte	1897	30 hf ch	sou	2130	13
252		1	16 ch	bro mixed	1136	10
253	Harangalla	4	24 ch	br pek	2280	29
254		7	46 do	pek	3680	27
255		10	13 do	pek sou	1040	23
256		13	14 hf ch	dust	1120	26
257		16	10 ch	bro pek fans	1000	26
261	Park Hill	28	20 hf ch	bro or pek	1160	24
265	Neuchatel	40	40 ch	or pek	3400	29
266		43	16 do	pek	1280	27
267		46	16 do	pek sou	1280	23
268		49	14 do	bro pek fans	1610	27
272	Balapitiya	61	14 ch	br tea	1246	13
273	Kandaganga	64	10 ch	bro pek	1000	withd'n
278	Deniyaya	79	15 ch	bro or pek	1500	27 bid
280		85	13 do	or pek	1235	34
282		91	22 do	pek No 2	1980	26
283		94	24 do	pek sou	2040	24
285	Farnham	100	27 hf ch	bro or pek	1566	26
286		103	14 ch	or pek	1190	30
287		106	19 do	pek	1520	27

Messrs. E. John & Co.

[270,153 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Karawkettia	693	15 ch	bro pek	1572	withd'n
6		696	12 do	pek	1214	withd'n
8	Allington	702	15 do	bro or pek	1500	29
9		705	14 do	pek	1260	25
14	Woodstock	720	10 do	bro or pek	1000	33
15		723	12 do	pek	1140	33
19	Oonoogaloya	735	16 do	bro or pek	1600	34 bid
20		738	22 do	pek	1870	29
21		741	15 hf ch	dust	1275	27
22	Kandaloya	744	30 do	fans	1500	26
23	Elemane	747	33 ch	bro pek	3600	32
24		750	30 do	pek	2700	31
27	Glassaugh	759	36 hf ch	or pek	2088	53
28		762	27 do	bro or pek	1836	35 bid
29		765	26 ch	pek	2800	35 bid
30		768	10 do	pek sou	1080	37
31	Birnam	771	24 do	pek sou	1680	30
32	Holbrook	774	20 do	bro or pek	2200	32 bid
33		777	16 do	or pek	1520	29 bid
34		780	16 do	pek	1440	26 bid
35	Glassaugh	783	40 hf ch	or pek	2320	53
36		786	17 do	bro or pek	1122	34 bid
37		789	18 ch	pek	1890	37 bid
41	St. Clair	801	62 do	or pek	6200	37
42		804	19 hf ch	bro or pek	1045	52 bid
43		807	26 ch	bro pek	2280	32 bid
44		810	87 do	pek	7482	30 bid
46	Elemane	816	34 do	bro pek	3400	32
47		819	29 do	pek	2610	30
48		822	14 do	pek sou	1260	27
50	Templestowe	828	50 hf ch	bro or pek	2800	39
51		831	35 do	or pek	1610	38
52		834	20 ch	pek	1800	34
53		837	20 do	pek sou	1900	32
56	A T	846	13 do	pek sou	1170	20
63	Eila	867	19 do	bro pek	1900	28 bid
64		870	21 do	or pek	1785	32
65		873	20 hf ch	dust	1600	26
66	Mocha	876	21 ch	bro or pek	2100	46 bid
67		879	19 do	or pek	1710	40
68		882	29 do	pek	2755	35
69	Eila	885	31 do	bro pek	3100	28 bid
70		888	60 do	pek sou	4200	22
71		891	20 hf ch	dust	1600	26
72	Koslanda	894	20 do	bro pek	1100	26
73		897	16 ch	pek	1360	23
77	Ratwatte	909	49 do	bro pek	4900	26
78		912	30 do	pek	2700	24 bid
81	Wattagalla	921	22 do	bro pek	2200	28 bid
82		924	24 ch	pek	2160	31
83		927	26 do	pek sou	2080	25
84		930	12 hf ch	dust	1080	26
85	Ben Nevis	933	23 do	bro pek	1380	45
87		939	21 ch	pek	1890	34
91	Dalhousie	951	19 hf ch	or pek	1045	38
92		954	28 do	pek	1260	33 bid
95	Agra Ouvah	963	71 do	bro or pek	4189	44 bid
96		966	60 do	or pek	2700	39
97		969	20 ch	pek	1900	32
98	Wattagalla	972	45 do	pek sou	3600	26
99	Glasgow	975	34 hf ch	bro or pek	1836	53
100		978	51 do	bro pek	2805	34 bid
101		981	45 ch	or pek	4275	38
102		984	30 do	pek	2790	33
103		987	17 hf ch	pek fans	1054	28
108	Mt. Vernon	2	55 ch	pek	4950	35
109	Wanarajah	8	34 hf ch	fans	2482	27
111	Taunton	14	17 ch	pek sou	1360	25
116	Kandaloya	26	81 hf ch	bro pek	3642	26
117		29	111 do	pek	4440	26
118	Rookwood	32	36 do	bro or pek	2160	39 bid
119		35	27 ch	or pek	2592	37
120		38	22 do	pek	1980	35
123	Muttu Eliya	47	30 hf ch	bro or pek	1800	35
124		50	25 do	pek	1250	29
125		53	19 ch	pek sou	1710	26
126	Warleigh	56	44 do	pek	3737	31
127	Agra Ouvah	59	65 hf ch	bro or pek	3815	46
128		62	46 do	or pek	2438	37
129		65	19 ch	pek	1805	33
130	Gonavy	68	11 do	bro pek	1100	42
131		71	59 do	pek	4720	29 bid
132	L H O	74	24 do	pek sou	2160	22
133	Aroma	77	13 do	bro pek	1285	16
134		80	14 do	pek	1260	14
137	St. Clair	89	37 do	or pek	3700	withd'n
138		92	34 hf ch	bro or pek	1870	withd'n
139		95	42 ch	pek	3612	withd'n
140		98	15 do	pek sou	1290	withd'n
141		101	27 hf ch	bro or pek fans	1674	withd'n
142	North Pundul-oya	104	81 do	yng. hyson	4050	33 bid
143		107	30 ch	hyson	2700	28 bid
146	Nahavilia	116	41 do	or pek	3690	30
147		119	46 do	bro pek	4600	30 bid
148		122	31 do	pek	2790	28
150	Dickapitiya	128	33 hf ch	bro or pek	1815	27 bid
151		131	30 ch	bro pek	3000	28 bid
152		134	42 do	pek	4200	27
156	Elston	146	32 do	pek	2720	28 bid
157		149	24 do	pek sou	2040	26
158		152	29 hf ch	dust	2465	25
159	Coslanda	155	20 do	bro pek	1100	25 bid
160		158	16 ch	pek	1360	23

SMALL LOTS.

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	Yuillefield	15	3 ch	pek sou	270	24
4		18	2 hf ch	dust	160	27
8	Battalgalla	30	6 do	dust	510	27
11	Galagama	39	8 ch	pek sou	720	20 bid

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Thia Shola	283	16 hf ch	or pek	800	35 bid
2		286	18 do	pek	810	34
5	Dunnottar	295	5 ch	pek sou	450	28
6		298	2 do	bro pek No 2	200	26
7		301	2 do	pek No 2	180	25
8		304	4 hf ch	bro pek fans	300	26
9		307	1 do	dust	85	24
13	Minna	319	12 hf ch	dust	900	26
21	Aigburth	343	6 hf ch	fans	420	26
22		346	10 ch	bro mixed	850	18
23	Lowlands	349	9 ch	or pek	810	29
26		358	2 do	pek sou	160	20
27		361	7 hf-ch	dust	560	23

Messrs. Forbes & Walker

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Barrington	3349	4 hf ch	bro pek	260	28
2		3352	6 do	pek	360	26
3		3355	2 do	pek sou	110	23
4		3358	6 do	pek sou	300	22
5	Barrington	3361	12 do	unas	600	22
7		3367	1 do	dust	80	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
12	Panawatte	3382	2 ch	dust	300	26
23	Sirikandure	3 5	1 hf ch	bro pek fans	62	24
24		3418	2 do	congou	73	13
25		3421	1 do	dust	70	20
26		3424	2 do	fans	141	15
27		3427	6 ch	bro pek fans	600	20
28		3430	1 do	pek fans	85	16
29		3433	2 do	bro pek dust	259	24
31	G K	3439	8 ch	sou	520	22
32		3442	5 do	fans	450	26
35	Udapolla	3451	9 ch	or pek	810	30
37		3457	9 do	pek sou	720	23
38		3460	1 hf ch	unas	83	16
39		3463	3 do	dust	240	24
41	Barginny	3469	9 ch	or pek	855	45
42		3472	10 do	pek	900	31 bid
48	Tennenena	3490	1 do	bro pek	109	26
49		3493	2 do	pek	170	19
54	R M, in estate mark	3508	11 hf ch	dust	924	26
67	Laurawatte	3547	7 ch	pek sou	686	22
68		3550	2 hf ch	fans	180	16
72	Poonagalla	3562	7 hf ch	fans	525	28
76	Ingoya	3574	8 ch	sou	800	15
77	B K	3577	9 do	pek fans	845	24
78		3580	6 do	dust	840	26
79		3583	3 do			
			1 hf ch	dust No. 2	500	20
80		3586	6 ch	bro mix	630	14
81		3589	8 do	bro pek fans	960	25
85	Bellongalla	1	7 do	bro pek	700	26
86		4	6 do	pe	540	25
89	Tismoda	13	1 hf ch	fans	60	25
90		16	1 do	dust	85	24
93	Penrith	25	3 ch	pek sou	270	22 bid
94		28	2 hf ch	dust	160	24
95		31	1 do	fans	70	24
99	Matale	4	4 do	fans	280	27
103	Pansalatenne	55	4 ch	bro pek fans	500	26
104		58	1 do	dust	150	25
108	Walton	70	4 ch	sou	320	23
111	I K V	73	7 ch	pe fans	840	25
112	Dotala	82	13 hf ch	or pek	585	37
113		85	11 do	bro pek	715	29
129	Torwood	133	2 ch	dust	270	24
134	Ardlaw and Wishford	148	3 ch	fans	372	27
135	Bundland	151	14 hf ch	bro or pek	770	42
136		154	11 do	bro pek	605	36
137		157	6 do	pek	270	36
138		160	6 do	pek sou	264	36
139		163	2 do	dust	160	26
148	Attampettia	190	6 ch	pek sou	540	25
149		193	6 do	fans	780	27
150	Tunisgalla	196	5 hf ch	bro or pek	275	40
151		199	8 ch	pek	720	27
152		202	10 do	pek sou	850	24
153		205	5 hf ch	bro pek	300	27
154		208	6 ch	sou	480	23
155		211	4 hf ch	dust	360	27
158	Vincit	220	11 ch	pek sou	990	out
158a			5 do	pek sou	450	15
159		223	1 do	sou	90	15
159a			1 do	sou	75	12
160		226	4 ch	fans	480	26
161		229	1 do	dust	145	24
165	Palmgarden	241	1 ch	fans	140	16
166		244	1 do	congou	100	12
167		247	1 do	dust	180	17
173	Glenorchy	265	5 hf ch	dust	425	27
182	R	292	5 ch	dust	600	26
184	B B, in estate mark	298	2 ch	pek	180	26
185		301	2 do	bro pek	200	23
186	W R P	304	3 ch	bro pek	357	17
187		307	2 do	pek	218	15
188		310	1 do	pek sou	118	12
189		313	2 do	unas	238	12
190		316	1 do	sou	66	11
193	Elpitiya	325	1 ch	dust	110	22
194		328	1 do	congou	95	13
196	Thedden	334	10 ch	pek	900	26
197		337	3 do	pek sou	240	21
198		340	3 do	fans	390	26
199		343	1 do	dust	160	24
207	Galapitakande	367	11 ch	pek sou	990	24
208		370	7 hf ch	dust	560	26
209	Allagalla	373	12 ch	bro mix	900	28
217	Mawiliganga-watte	397	2 do	fans	200	20
219	Asgiria (Venetia pgs.)	403	2 do	bro tea	200	24
220	Kitulakanda	406	11 hf ch	bro pek	660	27
221		409	18 do	pek	900	18
222		412	19 do	pek sou	450	15
223	Nakiadenia	415	7 do	flowery pek	105	out
236	Penrhos	454	4 hf ch	fans	295	26
237		457	2 do	pek dust	154	25
238	Dotala	460	2 do	pek fans	150	27
242	Tembiligalla	472	1 ch	pek sou	100	19
243		475	2 do	pek dust	330	24
244	Panapitiya	478	4 ch	or pek	420	25
245		481	9 do	bro pek	900	27
247		487	8 do	pek sou	720	20
248	Katapola	490	2 do	bro pek	150	25
249		493	2 do	pek	164	16
250		496	2 do	pek sou	196	15
262	Wilpita	532	2 ch	bro pek fans	250	20
263		535	1 do	sou	95	14
264		538	1 do	red leaf	105	10
265	Kettadolla	541	4 ch	bro or pek	400	26
266		544	3 do	or pek	285	25
267		547	9 do	pek	810	19
268		550	2 do	sou	126	16
271	Bogahagoda-watte	559	8 ch	pek sou	800	20
272		562	1 do	fans	110	23
273	N P	565	4 ch	bro pek	400	26
274		568	5 do	pek	450	20
275		571	1 do	pek sou	75	18
276		574	1 do	sou	76	18
285	B D W G	601	13 hf ch	bro or pek	650	withdn
286		604	3 do	dust	270	25
287	B D W P	607	8 do	bro pek fans	880	28
288		610	2 do	dust	160	25
292	Ganapitiya	622	9 ch	pek sou	711	30
296	Kitulgalla	634	2 ch	dust	292	25
298	Anningkande	640	2 ch	dust	230	25
304	Delta	658	11 hf ch	dust	935	26
311	Good Hope	679	3 ch	bro pek fans	300	26
313		685	3 do	fans	300	25
317	Rickarton	697	4 ch	pek sou	400	26
319		703	5 hf ch	dust	425	26
328	Vogan	730	7 do	dust	500	26
329		733	2 ch	pek fans	250	26
333	Macaldenia	745	4 hf ch	pek sou	220	24
334		748	2 do	fans	140	27
335		751	2 do	dust	170	26
336	Theydon Bois	754	7 hf ch	dust	525	26
337		757	6 do	fans	360	27
339	Nonpareil	763	11 hf ch	or pek	616	35
341		769	10 do	pek sou	550	27
342		772	2 do	dust	180	26
343		775	1 do	bro or pek fans	70	27
353	Hanwella	805	2 hf ch	hyson No 2	145	23
354		808	3 do	hyson dust	170	13
359	Fairlawn	823	3 hf ch	dust	225	26
371	Batawatte	859	4 ch	dust	400	26
379	Dammeria	883	11 hf ch	bro pek fans	880	27
380		886	6 do	dust	600	26
383	Osborne	895	4 ch	bro pek	420	27
384		898	4 do	pek	360	27
385		901	4 hf ch	fans	320	26
386		904	1 do	br or pek fans	52	25
387		907	1 do	dust	100	25
392	Templehurst	922	2 ch	pek fans	266	26
396	H S	934	1 hf ch	bro or pek	40	24
402	Sylvakandy	952	4 ch	dust	400	26
415	Hathmathe	991	3 hf ch	fans	180	withd'n
416		994	2 do	dust	188	withd'n
417		997	2 ch	congou	12	withd'n
418		1000	1 hf ch	pek fans	65	withd'n
419	B B B in est mark	1003	7 hf ch	dust	560	26
423	Baddegama	1015	8 ch	pek	630	27
424		1018	8 do	pek sou	640	24
425		1021	4 do	fans	480	26
428	Penrith	1030	2 ch	pek sou	180	22
429		1033	1 hf ch	fans	65	24
430		1036	2 do	dust	160	24
431	Talgaswela	1039	9 ch	bro or pek	900	38
432		1042	8 do	or pek	640	31
434		1048	3 do	pek	640	25
435		1051	12 do	pek sou	900	22
436	Ambanpitiya	1054	2 ch	bro tea	224	17
437		1057	1 do	dust	116	23
438	Karde Hantane	1060	5 ch	bro or pek	500	24
442		1072	8 do	fans	960	25
443		1075	4 do	dust	560	24
453	Penrhos	1105	4 hf ch	fans	300	28
454		1108	1 do	pek dust	78	25
460	Munukettia, Ceylon in est mark	1126	6 hf ch	dust	492	26
472	Agraoya	1162	4 hf ch	fans	280	25
473		1165	2 do	dust	190	25
474	C R D	1168	5 ch	pek	450	20
475		1171	6 do	sou	480	16
479	C N N	1183	3 hf ch	dust	270	27
484	Kirrimettia	1198	2 ch	congou	180	16
492	Geragama	1222	6 hf ch	dust	480	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
493	Clunes	1225	8 ch	or pek	720	32
496		1231	5 do	bro or pek	575	28
497		1237	2 do	br pek fans	221	25
498		1240	2 do	dust	300	25
502	Moranhande	1252	12 ch	pek sou	840	24
503		1 55	4 hf ch	bro or pk fans	280	25
504		1258	2 do	dust	180	25
514	Maha Uva	1288	5 hf ch	fans	350	25
515		1291	8 do	dust	640	26
516	C S	1297	3 hf ch	sou	151	13
518		1300	1 do	un ssorted	40	14
519	Alver	1303	14 ch	bro or pek	980	27 bid
524	Holt n	1318	5 ch	pek sou	425	21
526	T C L in est mark	1321	4 ch	pek fans	400	20
527		1327	5 hf ch	bro pek dust	400	25
528		1330	3 ch	pek dust	240	23
531	S R in est mark	1339	8 hf ch	dust	680	24
535	Harrow	1351	3 hf ch	dust	246	26
547	Udaveria	1387	7 hf ch	bro pek fans	511	27
548		1390	3 do	d st	270	26
558	Palmerst n	1420	8 hf ch	dust	696	27
561	Yelveit n	1429	10 ch	pek	900	25
562		1432	5 do	pek sou	400	22
563	Coombe Court	1435	18 hf ch	bro or pek	900	31 bid
565		1441	8 ch	pek	680	26 bid
566		1444	6 do	pek sou	510	23 bid
567	Mousakellie	1447	9 ch	bro or pek	990	38 bid
568		1450	8 do	pek	720	29 bid
569		1453	9 do	or pek	855	34 bid
570		1456	4 do	pek sou	340	26
571		1459	3 hf ch	dust	150	26

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	U K	1147	9 ch	sou	855	14
2	Ferriby	1150	4 ch	sou	360	16
3		1153	10 hf ch	dust	850	25
5	Avisawella	1168	3 ch	sou	240	19
9		1171	3 do	fans	345	25
13	Depedene No 4	1183	2 hf ch	bro pek fans	140	25
14		1186	4 do	dust	320	24
27	Oakwell	1225	1 hf ch	fans	83	26
28		1228	3 ch	pek dust	204	24
39	Rambodde	1261	2 hf ch	sou	100	22
40		1264	7 do	dust	560	26
45	Paradise	1279	4 ch	fans	440	25
46		1282	3 do	unast	300	17
47		1285	4 do	pek dust	640	24
51	Monrovia	1297	2 ch	sou	180	15
52		1300	8 do	fans	800	22
53		1303	1 do	pek dust	136	24
59	Citrus	1321	4 ch	dust	600	22
60	N in est mark	1324	13 hf ch	br pek	728	16
62	Kerenvilla	1330	8 ch	br pek	800	24
63		1333	9 do	pek	900	20
64		1336	3 do	pek sou	300	16
65		1339	2 do	fans	200	15
69	Oumbawella	1351	10 ch	pek sou	900	22
70		1354	3 do	pek fans	366	25
71		1357	2 do	dust	320	23
75	Handrokande	1369	4 ch	br pek	380	24
79	Southwark	1381	10 hf ch	dust	850	25
84	Agra Elbedde	1396	14 hf ch	pek sou	630	30
85	X X	1399	6 hf ch	br or pek fans	390	27
86		1402	3 d	pek dust	255	26
87	L	1405	5 hf ch	dust	400	22
88	Allakolla	1408	1 ch	br pek	100	25
89	Florida	1411	5 ch	bro or pek	500	22
92		1420	10 do	pek son	960	16
93		1423	2 do	dust	300	22
94		1426	1 do	red leaf	90	9
104	Scarborough	1456	5 hf ch	fans	340	withd'n
108	Monte Christo	1468	2 ch	sou	200	26
109		1471	3 do	fans	300	26
110		1474	4 hf ch	dust	340	26
115	O O R in est. mark	1489	1 ch 1 hf ch	bro pek	160	22
116		1492	1 ch 1 hf ch	pek	155	20
117		1495	1 ch 1 hf ch	pek sou	152	17
118		1498	1 ch	sou	88	16
119		1501	1 do	pk dust	125	18
123	Mary Hill	1513	8 hf ch	dust	640	26
126	Blinkbonnie	1522	4 ch	pek sou	344	32
131	W K P	1537	6 ch	souchong	456	16
132		1540	10 hf ch	dust	808	25
142	Jak Tree Hill	1570	2 ch	br pek	200	withd'n
146	Kurulugalla	1582	3 ch	or pek fans	300	22
147		1585	2 do	bro tea	190	13
148		1588	2 do	or pk dust	230	24
151	Labugama	1597	5 ch	pek sou	400	23
152		1600	2 hf ch	dust	160	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
157	Ingiriya	1615	10 ch	bro t a	960	18
160	I P	1624	2 hf ch	bro tea	103	14
165	Old Maddegama	1639	4 ch	pek sou	340	withd'n
166		1642	3 do	br or p k fans	31	withd'n
167	Palm Garden	1645	9 ch	br pek	990	27
171	Glenalla	1657	1 ch	hys n No 2	100	16
172		1660	4 do	g t fans	488	12 bid
173		1663	1 do	g t dust	154	12
176	Gangwarily	1672	11 ch	pek sou	935	25
177		1675	5 hf ch	dust	425	25
178		1678	16 do	or pek fans	960	25
179		1681	6 do	sou	510	19
182	Theberton	1690	1 ch	sou	85	20
183		1693	2 do	fans	200	25
185	P G	1699	4 hf ch	dust	360	26
187	Y na	1705	5 ch	p dust	700	26
191	Owilikande	1717	4 hf ch	fans	280	26
192		1729	3 do	dust	255	25
196	Kurunegalla	1732	6 ch	pek sou	480	22
197		1735	6 hf ch	fans	310	25
198		1738	4 do	dust	320	25
201	Bodawa	1747	10 ch	pek sou	850	21
202		1750	2 do 1 hf ch	bro pek fans	380	24
203		1753	1 ch	bro mix	92	11
204	H R	1756	3 hf ch	br pek	135	27
205		1759	3 do	pek	138	21
206		1762	1 do	dust	83	22
207		1765	1 do	young hyson	70	13
208	R in est mark	1768	1 ch	bro pek	100	25
209		1771	1 do	pek	95	25
210	O	1774	1 box	pek sou	28	18
218	Meddegodde	1798	6 hf ch	dust	450	25
219		1801	3 do	sou	150	19
220		1804	3 do	ro pek fans	165	25
225	Ankande	1819	1 ch	dust	140	24
226		1822	1 do	sou	100	16
229	Ferndale	1831	10 ch	pek sou	930	26
235	Rayigam	1849	7 hf ch	fans	455	27
236		1852	5 do	dust	425	26
241	Neboda	1867	8 hf ch	dust	680	25
244	Karangalla	1876	7 ch	pek sou	630	23
245		1879	2 do	sou	210	20
246		1882	3 do	dust	315	24
247	St Leonards-on-Sea	1885	1 hf ch	fans	70	13
248		1888	2 do	siftings	160	12
250	Liliawatte	1894	7 ch	pek sou	539	16
253	G A	19	10 ch	sou	750	20
259		22	12 hf ch	dust	960	25
260	Park Hill	25	5 ch	bro pek	450	24
262		31	9 do	pek	819	24
263		34	5 do	pek sou	390	22
264		37	2 do	sou	160	19
269	Neuchatel	52	5 ch	dust	750	25
270	Balapitiya	55	3 ch	fans	348	18
271		58	4 do	dust	356	17 bid
274	Kandaganga	67	9 ch	pek	855	withd'n
275		70	7 do	pek sou	630	withd'n
276		73	3 do	bro pek fans	29.	withd'n
277		76	3 do	br pek dust	27	withd'n
279	Deniya	82	4 hf ch	flo or pek	260	45
281		88	8 ch	pek No. 1	720	withd'n
284		97	5 do	fans	500	25
288	Farnham	109	7 ch	pek sou	560	23
289		112	3 hf ch	fans	219	25
290		115	6 do	dust	516	25

[Messrs. E. John & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Iona	681	5 hf ch	bro or pe fans	350	27
2		684	2 do	dust	180	26
3	E & H	687	7 do	fans	490	27
4		690	7 do	dust	630	26
7	Karawkettia	699	6 ch	pek sou	655	withd'n
10	Allington	708	8 do	pek sou	720	20
11		711	1 do	dust	120	20
12		714	1 do	bro pek fans	120	25
13		717	1 do	c ngou	90	15
16	Woodstock	726	2 do	pek sou	190	26
17		729	3 do	dust	2 5	27
18	Oonoogaloya	732	10 do	or pek	900	36
25	Elemane	753	11 do	pek sou	990	26
26		756	1 do	fans	100	27
33	H B K	792	5 do	bro pek	525	12 bid
39		795	7 do	pek	630	18
40		798	6 do	dust	900	26
45	Heatherly	813	3 do	siftings	495	13
49	Elemane	825	6 do	fans	600	26
54	Katukitula	840	1 hf ch	bro or pek	38	29
55		843	1 do	pek	50	18
57	A T	849	2 ch	dust	240	23
58		852	2 do	fans	200	23
59		855	4 do	congou	360	14

Lot.		Box.	Pkgs.	Name.	lb.	c.
60	H M	858	3 ch	psk sou	255	16
61		861	1 do	bro pek fans	110	25
62		864	1 do	dust	130	20
64	Koslanda	900	1 do	pek sou	90	15
75		903	3 do	fans	330	24
76		906	3 hf ch	dust	240	26
79	Ratwatte	915	6 ch	pek sou	480	19
80		918	5 hf ch	dust	400	25
86	Ben Nevis	936	10 ch	or pek	850	43
88		942	4 do	pek sou	340	26
89		945	4 hf ch	dust	332	26
90	Dalhousie	948	14 do	bro pek	770	55 bid
93		957	12 do	psk sou	600	27
94		960	5 do	bro pek fans	325	27
104	Awliscombe	990	5 do	bro pek	550	32
105		993	6 do	pek	570	27
106		996	3 do	pek sou	285	23
107		999	1 hf ch	dust	95	24
109	Wanarajah	5	1 ch	pek sou	102	27
111		11	8 hf ch	dust	720	26
113	Taunton	17	6 ch	pek fans	480	15
114		20	8 do	fans	880	25
116		23	4 hf ch	dust	360	24
121	Rookwood	41	7 ch	bro pek	490	23 bid
122		44	2 do	psk dust	176	31
135	Aroma	83	1 hf ch	sou	59	13
136		86	7 do	dust	525	22
144	North Pundul-oya	110	8 ch	hyson No. 2	800	25 bid
145		113	12 hf ch	siftings	840	14
149	M G	125	12 ch	fans	960	27
153	Dickapitiya	137	10 hf ch	dust	800	26
154		140	12 do	fans	840	26
155		143	2 ch	sou	200	17
161	Coslanda	161	1 do	pek sou	90	16
162		164	3 do	fans	330	24
163		167	3 hf ch	dust	240	25

CEYLON COCOA SALES IN LONDON.

(From Our London Correspondent).

MINCING LANE, May 16th.

"Duke of Devonshire."—North Matale, Ceylon Cocoa A, 70 bags sold at 70s 6d; ditto A, 28 at 28s, sea damaged; ditto B, 8 at 52s; ditto B, 5 at 45s, sea damaged.

"Tamba Maru."—OO, G in estate mark, 42 bags sold at 54s 6d.

"Clan Macneill."—MS in estate mark, Estate Cocoa 28 bags sold at 50s; S in estate mark, 17 at 50,

"Cheshire."—Galagama, OGWS in estate mark, 2 bags sold at 42s.

"Ulysses."—KPG, 80 bags sold at 66s.

"Staffordshire."—KPG, 27 bags sold 53s; 2 at 40s; 19 at 46s; 2 at 30; Maousava AA, 16 at 66s; B, 5 at 30s; C, 1 at 46s; Rockhill AA, 51 at 64s 6d; 20 at 65s; 2 at 30s; 6 at 46s.

"Ulyssss."—MAK in estate mark, A, 16 bags sold at 57s.

"Jumna."—A in estate mark, 16 bags sold at 52s.

CEYLON CARDAMOMS SALES IN LONDON.

"Jumna."—Elkadua O, 4 cases sold at 1s 1d; ditto 1, 8 at 1s 2d; ditto 2, 3 at 1s; ditto seed, 1 at 1s 7d.

"Shanghai."—Elkadua O, 2 cases sold at 1s 8d; ditto O, 1 at 1s 7d; ditto 1, 4 at 1s 4d; ditto 3, at 1s 1d; ditto B & S, 1 at 1s; ditto seed, 1 bag sold at 1s 6d; Midlands 1, 2 at 1s 3d.

"Ajax."—Elkadua O, 2 cases sold at 1s 8d; ditto 1, 4 at 1s 4; ditto 2, 1 at 1s 2d; ditto B & S, 1 at 1s; ditto seed, 1 at 1s 6d; Midlands O, 4 at 1s 8d; ditto 1, 4 at 1s 4d; ditto 1, 1 at 1s 3d; ditto 2, 1 at 1s; ditto B& S, 1 at 11d.

"Ulysses."—Delpotonoya, 3 cases sold 1s 9d; 4 at 1s 5d; 2 at 1s 2d; 3 at 1s 1d; 1 at 1s; 3 at 1s 2d; 1 at 1s; NS in estate mark, L C, 1 at 2s.

"Clan Sutherland."—Kellie Cardamoms B, 2 cases sold at 1s 8d; ditto 2 at 1s 9d; ditto 2 at 1s 8d; ditto D, 2 at 1s; ditto D B & S, 2 at 11d.

"Bingo Maru."—LH in estate mark, Nawanagalla 2, 10 cases sold at 1s 6d; ditto 4, 1 at 1s 6s; ditto 5, 2 at 1s 1d: ditto seed, 1 at 1s 6d.

No. 23. COLOMBO, JUNE 16th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[40,285 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	10	44 hf ch	hro pek	2420	34 bid
2		13	16 ch	pek sou	1120	27
3	Chouhleigh	16	10 ch	hro or pek	1000	35 hid
4		19	21 do	bro pek	2100	24 hid
5		22	25 do	bro pek	2307	24 hid
6		25	23 do	pek	1840	27
7		28	21 do	pek	1782	27
10	Haputale-wella	37	20 hf ch	hro pek	1200	33 bid
14	Torrington	49	24 ch	or pek	2157	25 hid
15		52	22 do	bro pek	2197	28
16		55	24 hf ch	bro or pek	1317	23
17	Bunyan and Ovoca	58	71 do	bro or pek	4260	39 hid
18		61	90 do	or pek	4500	38
19		64	40 ch	pek	3800	29 hid
20		67	26 do	pek No. 2	2470	33 hid
21		70	39 do	pek sou	3510	29 hid

Messrs. Forbes & Walker.

[720,614 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Mimosa-watte	1471	18 ch	hyson	1980	out
3		1474	17 do	hyson No 1	1870	24
4		1477	24 do	hyson No 2	2640	22
6	Rahawatte	1483	11 do	twanky	1155	10
8	Rockside	1489	15 ch	bro pek fans	1800	27
10	Choisy	1495	60 hf ch	bro or pek	3310	33 hid
11		1498	25 ch	or pek	2125	33
12		1501	60 do	pek	5100	27 hid
15	Salem	1510	10 ch	pek	1000	withdn
17	St. Paul's Inv. No. 17	1516	39 hf ch	or pek	2028	3
18		1519	53 do	pek	2650	30 hid
19		1522	19 do	hro or pek	1140	34
20	Rickarton, Inv. No. 20	1525	28 ch	hro or pek	1288	39
21		1528	24 do	or pek	2160	35
22		1531	31 do	pek	3100	34
24		1537	15 hf ch	bro tea	1050	29
26	P	1543	33 ch	pek sou	2640	27
29	G, in estate mark	1552	23 hf ch	sou	2070	24 bid
33	N	1564	34 ch	pek fans	4080	26
38	O B E C, in estate mark Sindumally	1579	23 ch	bro or pek	2415	32
39		1582	46 do	bro pek	4370	27
40		1585	47 do	pek	3995	26
41		1588	31 do	pek sou	2170	23
42		1591	8 do	fans	1000	27
44	Lyegrove	1597	14 ch	bro pek	1470	28
45	Moray	1600	30 hf ch	or pek	1380	38
46		1603	60 do	hro or pek	3480	42
47		1606	70 ch	pek	5950	32
50	Sirikandura	1615	40 hf ch	bro pek	2000	26
51		1618	24 do	pek	1080	23
53	Kotagaloya	1624	29 ch	bro pek	3045	30
54		1627	38 do	pek	3230	28
55		1630	16 hf ch	dust	1280	27
56	St. Paul's Inv. No. 18	1633	20 do	hro or pek	1240	withdn.
57		1636	52 do	or pek	2704	withdn.
58		1639	60 do	pek	300	withdn.
59	Alloowihare	1642	29 ch	bro or pek	2900	28 bid
60		1645	18 do	or pek	1440	33
61		1648	23 do	pek	2070	30
65	Naseby	1660	40 hf ch	bro or pek	2400	57
66		1663	33 do	or pek	1551	45 bid
67		1666	27 do	pek	1350	43
68		1669	12 do	dust	1110	28
69	M P	1672	19 ch	sou	1520	23
71		1678	10 do	pek fans	1200	26
73	Strathspey	1684	12 ch	bro or pek	1224	57
75		1690	21 do	or pek	2037	40
76		1693	25 do	pek	2300	36
78	Florence	1699	18 ch	or pek	1638	44
79		1702	24 hf ch	hro or pek	1320	64
80		1705	63 ch	pek	5544	38
81	Kullevathena	1708	33 ch	dust	2305	25
83	Semhawatte	1714	21 ch	young hyson	2 00	34 bid
84		1717	21 do	hyson	1890	31 bid
87	Poonagalla	1726	35 ch	or pek	3325	39 bid
88		1729	45 do	bro pek	5040	54 bid
89		1732	60 do	pek	4900	37
92	Scrubs	1741	21 hf ch	dust	1659	27
93	K C E	1744	26 ch	bro pek	2857	16 hid
94		1747	25 do	pek	2197	14 bid
95		1750	16 do	pek sou	1597	12 bid
96	Putupaula	1753	18 ch	bro or pek	1710	41
97		1756	50 do	or pek	4250	31
98		1759	59 do	pek	4720	26 hid
99		1762	10 do	bro pek fans	1200	28
111	Harrow	1798	34 hf ch	bro pek	2037	34
112		1801	22 do	bro or pek	1317	46
113		1804	25 ch	pek	2197	30 bid
114		1807	11 do	pek sou	1020	29
115	Marlborough	1810	43 hf ch	bro or pek	2150	54
116		1813	26 ch	hro pek	2600	36 bid
117		1816	29 do	or pek	2842	34 hid
118		1819	72 do	pek	6192	30 bid
119		1822	17 do	pek sou	1445	28
121	Erlsmere	1828	18 ch	bro pek	1800	38
122		1831	17 do	pek	1530	30
123	Dehiowita	1834	7 ch	dust	1050	26
124	Norton	1837	25 hf ch	hro or pek	1600	35 hid
125		1840	26 ch	pek	2340	29 bid
127	Nillomally, O B E C, in est. mark	1846	23 ch	hro or pek	2300	38
128		1849	18 do	or pek	1476	39
129		1852	28 do	pek	2464	31
130		1855	21 do	pek sou	1764	29
134	Beverley	1867	40 hf ch	or pek	2000	33
135		1870	20 do	hro pek	1000	34
136		1873	34 do	pek	1700	29
137		1876	23 do	pek sou	1035	25
138	Yogama	1879	14 ch	bro pek	1470	34
139		1882	16 do	or pek	1520	32
140		1885	25 do	pek	2250	28
143	Mahayaya	1894	10 ch	hro pek	1030	28
149	Kennington	1912	27 ch	pek sou	2106	24
153	Cranley	1924	21 ch	pek sou	1785	29 bid
155	Vogan	1930	34 ch	bro pek	3230	44 hid
156		1933	40 do	or pek	3600	35
157		1936	48 do	pek	4320	28
158		1939	25 do	pek sou	2125	24
161	K P W	1948	66 hf ch	hro or pek	3960	28
162		1951	71 do	hro pek	2905	27
163		1954	22 do	or pek	1320	32
164		1957	80 do	pek	4000	26
165		1960	20 do	pek sou	1200	24
170	Glendon	1975	21 ch	bro pek	2200	42
171		1978	53 do	or pek	5194	32
172		1981	44 do	pek	3740	27
173		1984	14 do	pek sou	1260	24
174	Kirklees	1987	37 hf ch	bro or pek	2220	39
175		1990	23 ch	or pek	2185	35
176		1993	36 do	pek	3240	32
177		1996	9 do	pek fans	1080	30
178	Clunes	1999	18 ch	pek	1620	22
179	Dunkeld	2002	18 hf ch	pek fans	1224	28
180		2005	14 do	dust	1232	27
181	Seenagolla, V	2008	21 do	hro or pek	1302	46
182		2011	19 ch	or pek	1805	40
183		2014	17 do	pek	1700	34
184	Dunkeld	2017	46 hf ch	bro or pek	2760	36
185		2020	25 ch	or pek	2250	35
186		2023	22 do	pek	1980	30
187		2026	31 do	pek	2787	30
188	B A	2029	26 hf ch	bro or pek	1560	26
191	Aberdeen	2038	31 ch	hro pek	3100	33
192		2041	40 do	pek	3240	27
193		2044	12 do	sou.	1032	22
195	Killarney	2050	22 hf ch	hro or pek	1210	56
196		2053	25 do	hro pek	1375	32 bid
197		2056	15 ch	or pek	1275	33
198		2059	18 do	pek	1530	34
199	Sylvakandy, Inv. No. 18	2062	15 ch	bro or pek No 1	1500	48
200		2065	40 do	hro or pek No2	4000	36
201		2068	21 do	bro pek	2100	31
202		2071	23 do	or pek	2300	34
203		2074	39 do	pek	3900	31
205	Queensland	2080	30 hf ch	bro or pek	1500	58
206		2083	20 ch	bro pek	2100	37
207		2086	12 do	or pek	1140	35
208		2089	20 do	pek	1700	36

Lot.		Box.	Pkgs.	Name.	lb.	c.
209		2092	12 do	pek sou	1020	33
213	Devonford	2104	27 hf ch	bro or pek	1512	66
214		2107	15 ch	or pek	1500	46
215		2110	22 do	pek	2002	47
216		2113	18 do	pek sou	1620	43
224	Tymawr, Inv. No. 11	2137	22 hf ch	or pek	1210	36
225		2140	17 do	bro or pek	1020	45
226		2143	29 do	pek	1392	30
227	Kitulgalla	2146	18 do	bro or pek	1116	27
228		2149	22 ch	or pek	1870	28
229		2152	15 do	pek	1200	24
235	Tempo	2170	14 ch	bro pek	1400	38 bid
236		2173	17 do	or pek	1530	33
237		2176	25 do	pek	2125	27
241	Dolahena	2188	27 hf ch	hyson	1347	27
242	O B E C, in estate mark Forest Creek	2191	24 ch	bro or pek	2328	50
243		2194	36 do	bro pek	3708	38
244		2197	26 do	or pek	2418	36
245		2200	51 do	pek	4845	32
246	Haputalewella	2203	28 hf ch	bro pek	1680	34 bid
247		2206	26 do	pek	1170	30 bid
251	Tismoda	2218	14 ch	bro pek	1400	29
252		2221	13 do	pek	1170	29
255	Penrith	2230	15 ch	bro pek	1500	28
256		2233	15 do	pek	1350	27
260	Hatton	2245	32 ch	bro pek	3260	40
261		2248	31 do	pek	2790	33
263	Glencorse	2254	16 ch	bro pek	1600	34
264		2257	32 do	bro pek	3200	32
265		2260	21 do	pek	1680	28
266		2263	44 do	pek sou	3300	25
267	S L A	2266	24 ch	bro pek	2640	withdn.
269	Bellongalla	2272	16 ch	bro pek	1600	27
270		2275	13 do	pek	1170	25
274	New Peacock	2287	27 hf ch	bro pek	1347	33
275	Adanwatte	2290	17 ch	bro pek	1700	27
278	Nawalapitiya	2299	12 ch	sou	1200	out
279		2302	26 hf ch	dust	2210	26
281	Glenorchy	2308	81 hf ch	bro pek	4840	46 bid
282		2311	51 ch	pek	4845	34 bid
283	Palmerston	2314	18 hf ch	bro or pek	1044	46
284		2317	22 do	bro pek	1210	35
285		2320	16 ch	pek	1260	34
287	Roeberry	2326	54 ch	pek	4968	28
288		2329	27 do	bro pek	2700	30
291	Geragama	2338	11 ch	bro or pek	1155	29
292		2341	27 do	bro pek	2430	27
293		2344	31 do	pek	2480	26
294		2347	31 do	pek sou	2325	24
295	Bandara Eliya	2350	70 hf ch	or pek	3850	36
296		2353	59 do	bro or pek	3540	37
297		2356	83 do	pek	3984	34
298	Palmerston	2359	18 hf ch	bro or pek	1044	48
299		2362	19 do	bro pek	1042	35
300		2365	12 do	pek	1020	34
301	El Teb	2368	43 ch	bro or pek	2494	38 bid
302		2371	20 do	bro pek	2600	28 bid
303		2374	25 do	pek	2400	27 bid
304	Preston	2377	13 ch	br or pek	1352	53
306		2383	15 do	pek	1200	39
307		2386	19 do	pek sou	1425	34
309	Montery	2392	21 ch	pek sou	1890	23
311	Koskellie	2398	30 ch	or pek	3000	33 bid
312		2401	20 do	pek	1920	32
313		2404	34 do	pek sou	3060	30
314		2407	12 hf ch	dust	1080	27
315	K H I	2410	8 ch	fans	1040	28
317	D in est mark	2416	17 hf ch	br or pk fans	1105	29
320	El Teb	2425	50 hf ch	bro or pek	3050	29 bid
321		2428	30 ch	or pek	3060	31 bid
322		2431	27 do	pek	2565	28 bid
323	Gonapitiya	2434	24 hf ch	or pek	1200	37
324		2437	26 do	bro pek	1482	33
325		2440	20 ch	pek	1780	30
328	Middleton	2449	17 hf ch	bro or pek	1020	45 bid
329		2452	21 ch	or pek	1890	31 bid
330		2455	15 do	bro pek	1650	30 bid
331		2458	15 do	pek	1275	27 bid
332	Nahalma	2461	26 ch	bro pek	2990	28
333		2464	22 do	pek	2200	25
334		2467	14 do	pek sou	1330	23
336	Deaculla	2473	67 hf ch	bro pek	3685	35
337		2476	60 do	pek	4200	31
338	Gonapitiya	2479	22 hf ch	or pek	1100	37
339		2482	26 do	bro pek	1430	34
340		2485	21 ch	pek	1827	32
342	Anningkande	2491	12 ch	bro pek	1080	33
343		2494	12 do	or pek	1108	28
346	Handford	2503	12 ch	bro or pek	1200	35
347		2506	13 do	pek	1170	26
351	North Cove	2518	63 hf ch	bro pek	8528	35
352		2521	20 ch	pek	1800	33
353	Monkswood	2524	25 hf ch	bro pek	1500	50
354		2527	43 do	or pek	2150	48
355		2530	36 do	or pek	1800	48 bid
356		2533	35 ch	pek	3150	40
357	Errollwood	2536	35 hf ch	br or pek	2205	33 bid
358		2539	17 ch	pek	1530	27 bid
359		2542	20 do	pek	1900	27 bid
362	Algooltenne	2551	28 hf ch	bro pek	1400	30
363	Mawiliganga-watte	2554	47 ch	bro pek	4512	24
364		2557	33 do	pek sou	2475	23
365	Poonagalla	2560	23 ch	or pek	2116	33 bid
366		2563	46 do	bro pek	5290	52 bid
367		2566	36 do	pek	3523	36
368	Maha Eliya	2569	22 hf ch	bro or pek	1320	
369		2572	18 do	bro pek	1080	withd'n
370		2575	16 ch	or pek	1600	
371		2578	19 do	pek	1786	
372	Stamford Hill	2581	51 hf ch	bro pek	3060	38 bid
373		2584	40 do	or pek	1920	40 bid
374		2587	40 ch	pek	3600	33 bid
375		2590	12 do	pek sou	1080	3
377	J P in est mark	2696	20 hf ch	dust	1600	26
378		2599	19 ch	sou	1900	23
381	Kalupahana	2608	14 ch	pek	1242	21
382		2611	14 do	pek sou	1180	20
384		2617	12 do	fans	1208	16
388	Tembiligalla	2629	19 ch	bro or pek	1710	30
389		2632	20 do	bro pek	2000	27
390		2635	24 do	pek	2160	26
395	Luckyland	2650	28 hf ch	bro or pek	1680	34 bid
396		2653	41 ch	or pek	3936	38
397		2656	28 do	pek	2380	34
398		2659	15 do	pek sou	1350	30
399	Hanwella	2662	25 hf ch	yng hyson	1375	29 bid
402	High Forest	2671	90 hf ch	or pek No 1	5220	38 bid
403		2674	66 do	or pek	3498	35
404		2677	52 do	pek	2496	33
405		2680	60 do	or pek No 1	2900	42
406		2683	40 do	or pek	2120	36
407		2686	34 do	pek	1632	34
408	Glengariffe	2689	50 hf ch	bro or pek	3000	33 bid
409		2692	28 ch	pek	2576	29 bid
410		2695	13 do	or pek	1144	34
411		2698	27 do	pek sou	2006	26
412		2701	15 hf ch	fans	1050	31
413	Bowlana	2704	31 bf ch	bro or pek	1860	39 bid
414		2707	22 ch	pek	2090	33 bid
415		2710	17 do	or pek	1700	35 bid
419	Udabage	2722	19 hf ch	yong hyson	1140	31
428	H G M	2749	21 hf ch	bro or pek	1155	35
429		2752	31 ch	pek	2635	26 bid
430		2755	21 hf ch	fans	1365	29
431	Pine Hill	2758	18 hf ch	bro or pek	1080	33 bid
432		2761	19 do	bro pek	1235	29
433		2764	24 ch	or pek	2160	34
434		2767	22 do	pek	1980	29
435	Amblakande	2770	14 ch	bro pek	1400	28
436		2773	32 do	pek	2560	26
437		2776	13 do	pek sou	1040	24
438	Swinton	2779	17 ch	bro or pek	1700	37
439		2782	20 do	or pek	2000	30
440		2785	17 do	pek	1530	29
444	B D W P	2797	26 ch	bro pek	2600	30 bid
445		2800	13 do	pek	1170	28 bid
448	Gonapitiya	2809	22 ch	or pek	1119	36 bid
449		2812	24 do	bro pek	1389	39
450	St. Martins	2815	36 hf ch	bro pek	1440	28
451		2818	39 do	pek	1560	26
455	M T P in est mark	2830	13 ch	fans	1300	27
458	Woodend	2839	44 ch	bro pek	4400	26 bid
459		2842	55 do	pek	4840	26
460		2845	16 do	pek sou	1312	24
467	B G W	2866	13 ch	hyson	1170	16

Messrs. Somerville & Co.

[267,000 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Walahanduwa	118	16 ch	bro or pek	1600	28 bid
2		121	16 do	or pek	1360	30
3		124	23 do	pek	2070	26
4	Grange Gardens	127	13 ch	bro or pek	1300	42
5		130	12 do	or pek	1200	31 bid
6		133	14 do	pek	1400	22
7	Polgahakande	136	23 ch	or pek	1810	28
8		139	15 do	br pek	1500	26
9		142	19 do	pek	1425	25
10		145	13 do	pek sou	1040	23
11	Narangoda	148	21 ch	bro pek	1995	33

Lot.		Box.	Pkgs.	Name.	lb.	c.
12		151	15 do	pek	1350	26
14	Siriniwasa	157	17 ch	bro pek	1700	33
15		160	27 do	pek	2565	25
16		163	18 do	pek sou	1620	23
20	Kudaganga	175	10 cb	br pek	1000	28
25	Dover	190	40 hf cb	bro or pek	2200	30
26		193	24 cb	or pek	2160	29 bid
27		196	36 do	pek	3240	25 bid
28		199	35 do	pek sou	2625	23
35	Kallebokka	220	12 ch	bro or pek	1260	52 bid
36		223	31 do	bro pek	3100	32 bid
37		226	21 do	pek	1890	31
44	Theberton	247	13 ch	br pek	1300	29 bid
45		250	15 do	pek	1275	28
48	Ravenscraig	259	33 hf cb	br pek	1815	30
49		262	22 ch	pek	1980	25 bid
50	Mahatenne	265	11 ch	bro or pek	1100	36 bid
51		268	10 do	or pek	1000	28 bid
52		271	13 do	pek	1235	26
53	Forest Hill	274	25 ch	bro pek	2375	28
54		277	47 do	pek	3942	26
55		280	14 do	pek sou	1176	23
56	Mousakande	283	11 ch	bro or pek	1100	28
57		286	13 do	bro pek	1066	31
58		289	18 cb	pek	1584	26
59		292	15 do	pek sou	1200	23
60		295	23 hf cb	fans	1679	26
67	Oonankande	316	29 hf ch	bro pek	1450	31
68		319	32 do	pek	1760	28
69		322	17 ch	pek sou	1190	24 bid
71	Glenalla	328	19 ch	young hyson	2014	31 bid
72		331	19 do	hyson No. 1	1824	30
76	Mousa Eliya	343	22 ch	bro or pek	2200	31
77		346	20 do	or pek	1700	31
78		349	21 do	pek	1995	27
79	Blinkbonnie	352	26 cb	bro or pek	1560	40
80		355	16 do	or pek	1568	29
81		358	18 do	pek	1710	34
87	Nyanza	376	21 hf ch	br pek	1260	34 bid
88		379	12 ch	pek	1040	29
90		385	17 hf cb	dust	1275	26
91	Oolapane	388	25 hf cb	dust	2000	25
93	Mount Temple	394	37 ch	bro pek	3141	25
94		397	25 do	pek	1950	25
95		400	16 hf cb	br or pk fans	1008	25
98	M N	409	48 cb	pek	3840	20
99	Mahavilla	412	48 hf ch	pek sou	2400	22
100		415	22 do	pek	1210	26
101		418	18 do	bro or pek	1026	27
105	Mount Temple	430	25 cb	bro or pek	2250	22 bid
106		433	53 ch	bro pek	4876	25
107		436	31 do	pek	2450	24
108		439	20 do	pek sou	1500	23
109		442	24 hf cb	br or pk fans	1560	26
110	Weygalla	445	20 hf ch	bro or pek	1000	56 bid
111		448	47 cb	pek	4230	29
112		451	10 do	pek sou	1000	24
114	Damblagolla	457	15 ch	bro or pek	1350	28
115		460	22 hf ch	bro pek	1320	28
116		463	25 cb	pek	2125	26
117		466	15 do	pek sou	1200	24
119		472	19 ch	pek	1615	26
120		475	16 do	pek sou	1280	24
121	Cbarlie Hill	478	40 hf cb	bro pek	2200	26
122		481	23 do	pek	1150	23
125	Kanatota	490	20 cb	bro or pek	1800	20
126		493	20 do	pek	1400	21
129	Avisawella	502	30 hf ch	bro or pek	1650	32 bid
130		505	30 ch	or pek	2850	32
131		508	30 do	pek	2700	26
132		511	22 do	pek sou	1760	24
134	Rayigam	517	20 hf cb	bro or pek	1200	35
135		520	16 ch	or pek	1520	34
136		523	17 do	br pek	1615	26
137		526	32 do	pek	2560	26
138		529	26 do	pek sou	2470	25
141	Scarborough	538	23 hf ch	bro or pek	1483	45 bid
142		541	11 ch	or pek	1056	38
143		544	11 do	pek	1045	34
144		547	14 do	pek sou	1232	29 bid
150	Old Maddegama	565	13 ch	bro or pek	1040	39
151		568	24 do	pek	2040	33
154	Rambodde	577	86 hf ch	br pek	4730	30
156	Jak Tree Hill	583	24 ch	bro pek	2400	21
157		586	19 do	pek	1710	18
158		589	23 do	pek sou	2070	16
162	Owilikande	601	23 cb	bro pek	2800	29
163	Scarborough	604	11 ch	or pek	1100	37 bid
164		607	11 do	pek	1100	34
165	New Valley	610	21 ch	bro or pek	2100	38 bid
166		613	16 do	or pek	1600	34
167		616	17 do	pek	1700	31
168		619	20 do	pek	2000	31
169		622	23 do	pek sou	2070	28
170	Panmure	625	44 hf ch	or pek	2200	33

Lot.		Box.	Pkgs.	Name.	lb.	c.
172	Walla Valley	631	38 hf ch	bro or pek	1815	withd'n
173		634	13 cb	bro pek	1235	withd'n
174		637	40 do	pek	3200	withd'n
175		640	20 hf ch	bro or pek	1100	withd'n
176		643	11 ch	or pek	1045	withd'n
177		646	17 do	pek	1445	withd'n
178	Hanagama	649	26 ch	or pek	2600	22 bid
179		652	24 do	pek	2400	18 bid
180		655	13 do	pek sou	1170	18 bid
181	New Angamana	658	11 ch	bro or pek	1100	33 bid
182		661	27 do	pek	2430	26 bid
183	Ravenscraig	664	10 ch	br pek	1000	30 bid
184		667	16 do	pek	1440	27
187	Cotesburst	676	18 cb	bro or pek	1800	32 bid
188	Yarrow	679	70 hf ch	bro or pek	3780	28 bid
189		682	55 do	or pek	2585	28
190		685	58 do	pek	2552	26
191		688	55 do	pek sou	2585	24
192		691	29 do	fans	1914	26
193		694	19 do	dust	1710	25
194	Handrokande	697	12 ch	bro pek	1311	25
196	Siriniwasa	703	31 ch	pek	2945	25 bid
202	Columbia	721	46 hf ch		2300	30 bid
206	Cumbawella	733	21 cb		1590	23

Messrs. Keell and Waldock.

[42,559 lb.

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hyde	376	18 cb	or pek	1800	34 bid
2		379	24 hf hf	bro or pek	1416	33
3		382	29 cb	pek	2784	31
5	Hangranoya	388	15 ch	bro or pek	1425	38 bid
6		391	44 do	br pek	3960	28 bid
7		394	28 do	pek	2330	27
8		397	15 do	pek sou	1200	24
9	Ouvah	400	22 hf cb	bro or pek	1210	35 bid
10		403	41 do	pek	2050	28 bid
11		406	24 ch	pek sou	2208	27 bid
12		409	18 hf ch	bro pek fans	1224	28 bid
15	Dunnottar	418	14 ch	br pek	1400	withd'n
16		421	13 do	pek	1170	withd'n
22	Navanagalla	439	22 hf ch	br pek	1232	33 bid
25	Morahela	448	14 ch	bro or pek	1442	33 bid
26		451	27 do	bro pek	2700	33 bid
27		454	49 do	or pek	4263	30 bid
28		457	33 do	pek	2838	26 bid
31	Alpha	466	11 cb	bro pek	1100	28 bid

Messrs. E. John & Co.

[305,250 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	G T	176	11 cb	pek	1045	35
4	Kadienlena	179	36 hf cb	bro or pek fans	2700	27
5	Longville	182	31 ch	bro pek	3100	29 bid
6		185	23 do	pek	2300	30
8		191	16 do	fans	1120	28
10	St. Clair	197	25 do	or pek	2500	36
11		200	33 do	pek	2838	32
12	Moragalla	203	19 do	bro pek	1805	27 bid
13		206	13 do	pek	1040	25
14	Elston	209	41 do	pek	3280	27 bid
15		212	34 do	pek sou	2890	26
16	Mahanilu	215	21 hf cb	or pek	1155	39
17		218	18 do	bro or pek	1044	48 bid
18		221	15 cb	pek	1425	34
19		224	18 do	pek sou	1530	28
20	Balado	227	17 do	pek	1530	26 bid
21		230	15 hf ch	dust	1200	27
22		233	17 do	pek sou	1330	25
23	Brownlow	236	27 hf ch	bro or pek	1566	51
24		239	18 cb	or pek	1656	37
25		242	31 do	pek	2635	33
27	Gangawatte	248	23 do	bro or pek	2300	49 bid
28		251	21 do	bro pek	2100	34 bid
29		254	48 do	pek	4320	32
30		257	13 do	pek sou	1170	30
31		260	17 hf ch	fans	1105	30
32	Glassaugh	263	34 do	or pek	1904	51 bid
33		266	17 do	bro or pek	1122	40
34		269	20 ch	pek	2160	37
35		272	14 hf ch	fans	1106	31
36	Glentilt	275	41 do	bro or pek	2155	49 bid
37		278	25 cb	or pek	2250	37
38		281	29 do	pek	2610	33
39		284	16 hf ch	fans	1280	29
40	St. John's	287	50 do	bro or pek	1750	37 bid
41		290	28 do	or pek	1300	44 bid
42		293	30 do	pek No. 1	1410	35

Lot.		Box.	Pkgs.		Name.	lb.	c.
43		296	26	do	pek	1352	35
44	Mocha	299	21	ch	bro or pek	2100	46 bid
45		302	30	do	pek	2850	35
46		305	21	do	pek sou	1890	32
47	Ashburton	308	12	do	bro or pek	1272	38 bid
48		311	26	do	bro pek	2730	29 bid
49		314	20	do	pek	1800	28 bid
50		317	13	do	pek sou	1131	27
59	Oonoogaloya	344	23	do	or pek	2070	35
60		347	14	do	bro or pek	1400	35 bid
61		350	30	do	pek	2550	28 bid
62	Katawella	353	10	do	bro pek	1000	27
63		356	12	do	pek	1080	25
65	Devon	362	34	hf ch	bro or pek	2040	withd'n
66		365	37	ch	or pek	3885	withd'n
67		368	17	do	pek	1700	withd'n
68		371	19	do	pek	1840	withd'n
70	Kelaneiya and Braemar	377	20	do	bro or pek	2000	43 bid
71		380	15	do	or pek	1500	35
72		383	25	do	pek	2375	31 bid
73	Castle Hill	386	15	do	bro or pek	1500	26
74		389	23	do	or pek	2300	26
75		392	21	do	pek	1890	25
76		395	21	do	pek sou	1890	23
77		398	10	do	dust	1000	25
78	A A	401	52	do	bro pek	5200	33 bid
79		404	30	do	pek	2400	27 bid
81	Natuwakelle	410	16	do	bro or pek	1600	37 bid
82		413	33	do	bro pek	2970	37 bid
83		416	17	do	pek	1530	27
84		419	12	do	pek sou	1080	25
86	Morton	425	38	do	bro pek	3990	27
87		428	28	do	pek	2380	24 bid
88		431	25	hf ch	or pek	1125	27
90	Glentilt	437	44	do	bro or pek	2420	53
91		440	30	ch	or pek	2700	37
92		443	29	do	pek	2610	33
93	Holbrook	446	41	hf ch	bro or pek	2457	32 bid
94		449	19	ch	or pek	1802	28 bid
95	Warleigh	452	20	hf ch	bro or pek	1120	57
96		455	21	ch	or pek	2037	34 bid
97		458	36	do	pek	3060	32 bid
99	Wattagalla	464	28	do	bro pek	2940	31
100		467	32	do	pek	2880	29
101		470	26	do	pek sou	2080	26
107	Agra Ouvah	483	60	hf ch	bro or pek	3540	46
108		491	46	do	or pek	2430	37
109		494	16	ch	pek	1520	35
110	Glasgow	497	27	hf ch	bro or pek	1485	50
111		500	21	do	bro pek	2100	32 bid
112		503	34	do	or pek	3230	32 bid
113		506	18	do	pek	1674	31 bid
114	Gonavy	509	22	do	or pek	1980	34 bid
118	Karawkettia	521	15	do	bro pek	1569	22
118		524	12	do	pek	1211	18 bid
121	Kolapatna	530	18	hf ch	bro or pek	1008	56
122		533	20	do	or pek	1000	35
123		536	20	do	pek	1000	32
125	Cocoawatte	542	22	ch	bro pek	2200	31
126		545	29	do	pek	2900	27 bid
127		548	20	do	pek sou	2000	25
135	Salem	572	10	do	pek	1000	26
137	Mt. Vernon	578	40	do	pek	3600	35
139	Kandaloya	584	55	hf ch	bro or pek	2475	withd'n
140		587	64	do	or pek	2560	withd'n
141		590	38	do	dust	1900	withd'n
142	Templestowe	593	43	do	bor or pek	2408	37 bid
143		596	32	do	or pek	1440	37
144		599	22	ch	pek	1980	34
145		602	10	do	unas	1050	28
146		605	12	hf ch	dust	1140	27
147	Dubena	608	34	do	bro pek	1700	27
148		611	29	do	pek	1653	23 bid
149		614	22	do	pek sou	1144	22
154	Galloola	629	43	ch	bro pek	4300	33 bid
155		632	57	do	pek	5130	31
156		635	30	do	pek sou	2400	28
159	Ottery	644	28	do	fly. or pek	2520	36
160		647	20	do	or pek	1600	30
161		650	30	do	pek	2700	29
162		653	20	hf ch	bro or pek	1200	36 bi
163	Cabin Ella	656	35	ch	bro pek	3500	37
164		659	28	do	pek	2380	31
167	Birnam	668	22	hf ch	pek sou	1540	36
168		671	25	ch	fans	1700	30
169		674	17	do	dust	1428	27
171	Battalawatte	680	19	do	bro or pek	1900	31
172		683	12	do	pek	1140	withd'n
173	Perth	686	18	do	bro or pek	1764	32
174		689	20	do	or pek	1700	29
179	Captains Garden	704	24	do	pek	2160	24
182	Kundulu-kandera	713	28	do	bro pek	2800	24 bid
183		716	24	do	pek	2280	23
184		719	20	do	pek sou	1800	21
185	Dalhousie	722	28	hf ch	pek	1255	32
186	Brownlow	725	21	ch	bro or pek	1176	45
187		728	20	do	or pek	1880	37
188		731	23	do	pek	1955	32 bid
189	Lameliere	734	45	do	bro or pek	4680	30 bid
190		737	24	do	or pek	2040	30
191		740	48	do	pek	4380	28
192		743	15	do	sou	1590	24

SMALL LOTS.

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
8	Chougleigh	31	6	ch	pek sou	480	24
9		34	3	do	dust	420	26
11	Haputale-wella	40	15	hf ch	pek	750	30
12		43	9	do	pek sou	405	28
13		46	2	do	fans	160	26

Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	S G	1463	6	ch	pek	568	23
5	Mimosawatte	1480	6	ch	twanky	630	10
7	Rockside	1486	5	ch	pek sou	400	26
9		1492	6	do	dust	810	27
13	Salem	1504	4	ch	bro or pek No 1	400	withdn.
14		1507	5	do	bro or pek No 2	500	withdn.
16		1513	1	do	dust	140	withdn.
23	Riccarton, Inv. No. 26	1534	4	ch	pek sou	400	28
25		1540	6	hf ch	fans	510	26
27	P	1546	5	ch	bro or pek fans	600	29
28		1549	5	do	dust	750	26
30	G, in estate mark	1555	9	ch	congou	810	20
31	N	1558	9	ch	sou	900	16
32		1561	6	do	bro tea	600	15
34	A B F	1567	2	hf ch	bro pek	100	18
35		1570	2	do	pek	100	18
36		1573	3	do	pek sou	150	16
37		1576	1	do	fans	50	16
43	O B E C, in estate mark Sindumally	1594	11	hf ch	dust	935	26
48	Moray	1609	10	do	dust	800	27
49	Sirikandure	1612	8	hf ch	bro or pek	400	28
52		1621	6	do	pek sou	450	18
62	Alloowihare	1651	1	ch	fans	110	25
63		1654	2	hf ch	dust	160	26
64	K B	1657	11	do	pek dust	880	29
70	M P	1675	6	ch	dust	840	26
72		1681	4	do	dust No. 2	680	24
74	Strathspey	1687	7	ch	bro pek	700	34
77		1696	3	do	dust	315	26
82	Kullevathana	1711	10	hf ch	pek fans	650	26
85	Sembawatte	1720	11	ch	hyson No 2	934	29
86		1723	5	do	fans	500	12
90	Poonagalla	1735	7	hf ch	dust	658	26
91	Scrubs	1738	4	do	fans	280	30
100	Putupaula	1765	1	ch	dust	155	26
101	St. H	1768	5	hf ch	pek sou	270	30 bid
102	Mt. Pleasant	1771	20	box	bro or pek	200	33
103		1774	10	do	or pek	100	27
104		1777	10	do	pek	100	24
105		1780	4	ch	pek	336	22
106		1783	7	do	bro pek	588	27
107		1786	1	do	pek sou	84	17
108		1789	2	do	sou	168	14
109		1792	3	do	congou	252	14
110		1795	1	do	fans	84	15
120	Erlsmere	1825	15	hf ch	bro or pek	825	47
126	Nort n	1843	12	ch	pek sou	900	26
131	Nillomally, O B E C, in est. mark	1858	7	ch	fans	700	28
132		1861	2	do	dust	200	26
133	Beverley	1864	10	hf ch	bro or pek	500	43
141	Yogama	1888	5	ch	pek sou	425	25
142		1891	3	do	dust	360	26
144	Mahayaya	1897	9	ch	pek	792	25
145		1900	3	do	or pek	285	28
146		1903	4	do	pek sou	368	23
147		1906	1	do	fans	100	19
148		1909	1	hf ch	dust	84	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
159	Kennington	1915	7 ch	bro t a	525	19 bid
151		1918	4 do	dust	580	26
152		1921	2 do	dust	194	23
154	Cranley	1927	7 hf ch	dust	630	23
159	Vogan	1942	8 do	dust	640	27
160		1945	3 ch	pek fans	375	28
166	K P W	1963	6 hf ch	pek fans	540	27
167		1966	4 do	dust	400	26
168	Kelvin	1969	5 hf ch	dust	425	25
169		1972	1 ch	bro mix	85	14
189	B A	2032	8 hf ch	fans	520	25
190		2035	10 do	dust	850	25
194	Aberdeen	2047	10 ch	bro pek fans	700	26
204	Sylvakandy, Inv. No. 15	2077	6 ch	dust	600	27
210	Queensland	2095	1 do	bro pek dust	107	25
211		2098	1 hf ch	dust No 1	82	28
212		2101	14 do	bro pek dust	924	27
217	Ookoowatte	2116	2 ch	pek fans	240	28
218		2119	4 do	bro pek fans	540	26
219		2122	2 do	pek sou	140	22
220		2125	1 hf ch	dust	100	25
221	B D W P	2128	7 ch	bro pek fans	770	29
222		2131	1 hf ch	sou No 1	55	22
223		2134	1 do	dust	105	25
230	Kitulgalla	2155	3 hf ch	dust	255	25
231		2158	2 do	bro or pek fans	124	23
232	A G	2161	1 ch	bro pek	100	34
233		2164	1 do	or pek	90	29
234		2167	2 do	pe	170	26
238	Tempo	2179	6 ch	pek sou	450	24
239		2182	2 do	sou	130	22
240	Dolahena	2185	14 hf ch	young hyson	697	29
248	Haputele-wella	2209	12 do	pek sou	480	26 bid
249		2212	4 do	fans	320	26
250	Indurana	2215	1 ch	pek sou	90	24
253	Tismoda	2224	2 ch	pek sou	180	25
254		2227	1 do	fans	75	25
257	Penrith	2236	3 ch	pek sou	270	24
258		2239	1 do	fans	75	26
259		2242	1 do	dust	85	24
262	Hatton	2251	5 ch	dust	750	26
268	S L A	2269	4 ch	pek sou	400	withdn.
271	Bellongalla	2278	10 ch	pek sou	800	23
272		2281	4 do	fans	480	25
273		2284	2 do	dust	320	24
276	Adanwatte	2293	5 ch	pek	485	23
277		2296	6 do	pek sou	570	23
280	Nawalapitiya	2305	6 hf ch	pek fans	372	44
286	Palmerston	2320	6 ch	pek sou	450	32
289	Roeberry	2332	5 ch	bro or pek	500	36
290		2335	5 do	pek sou	450	27
305	Preston	2380	15 hf ch	or pek	690	44
308		2389	5 do	br or pek fans	320	34
310	Kirklees	2395	14 hf ch	bro pek	812	50
316	K H L	2413	5 ch	dust	775	26
318	D in est mark	2419	7 hf ch	pek fans	480	25
319		2422	9 do	pek dust	765	26
326	Genapitiya	2413	9 ch	pek sou	711	28
327	K W D	2446	7 ch	br or pek fans	525	29
335	Nahalma	2470	5 hf ch	dust	425	25
341	Gonapitiya	2488	9 ch	pek sou	711	23
344	Anningkande	2497	3 ch	pek sou	270	24
345		2500	1 do	fans	110	26
348	Handford	2509	6 ch	pek sou	540	24
349		2512	1 do	fans	110	26
350		2515	1 do	dust	115	25
360	Errollwood	2545	9 ch	pek sou	855	27
361		2548	11 hf ch	or pek fans	770	29
376	Stamford Hill	2593	6 hf ch	dust	540	27
379	Kalupahana	2602	9 ch	bro pek	945	33
380		2605	5 do	or pek	475	24
383		2614	2 do	bro mixed	208	13
385		2620	3 do 1 hf ch	dust	530	22
387	R in est mark	2626	4 ch	or pek	218	35
391	Tembiligalla	2638	2 ch	pek sou	200	24
392		2641	3 do	pek dust	425	24
393		2644	4 do	bro mixed	400	16
394		2647	1 do	bro pek fans	125	25
400	Hanwella	2665	13 hf ch	hyson No 1	780	26
401		2668	2 do	hyson dust	170	12
416	Bowlana	2713	9 ch	pek sou	765	31
417		2716	6 hf ch	fans	420	29
418		2719	3 do	dust	255	26
420	Udabage	2725	2 hf ch	hyson No 1 A	110	26
421		2728	8 do	hyson No 1 B	400	27
422		2731	3 do	hyson No 2	165	23
423		2734	8 do	fans	440	16
424		2737	2 do	dust	160	12
425		2740	12 do	young hyson	720	30
426		2743	3 do	hyson No 1 A	165	26
427		2746	2 do	hyson No 1 B	100	25
441	Swinton	2788	9 ch	pek sou	765	26
442		2791	2 do	fans	200	27
443		2794	2 do	dust	220	26
446	B D W P	2803	7 ch	pek sou	695	26 bid
447		2806	4 do	sou	320	26 bid
452	St. Martins	2821	5 hf ch	pek sou	200	24
453		2824	6 do	fans	360	26
454	Harrow	2827	1 ch	bro pek	100	32
456	M T P in est mark	2833	7 ch	dust	700	26
457		2836	1 do	bro tea	100	16
461	Woodend	2848	2 ch	fans	214	25
462		2851	3 do	dust	420	25
463	Poengalla	2854	4 ch	pek fans	400	withd'n
464		2857	9 do	dust	810	withd'n
465		2860	4 do	fans	400	29
466		2863	3 hf ch	dust	270	26
468	Anningkande	2869	1 ch	pek	90	24

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	H	395	3 hf ch	dust	255	18
13	Dunnottar	412	16 hf ch	bro or pek	880	withd'n
14		415	11 do	or pek	550	withd'n
17		424	3 ch	pek sou	270	27
18		427	3 hf ch	br or pk fans	225	27
19		430	1 do	dust	80	25
20		433	2 ch	bro pek No. 2	200	26
21		436	2 do	pek No. 2	180	24
23	Navanagalla	442	6 ch	pek	510	26 bid
24		445	4 do	pek sou	364	24
29	Morahela	460	1 ch	sou	86	20
30		463	3 hf ch	dust	231	26
32	Alpha	469	9 ch	pek	720	25
33		472	1 do	fans	116	27
34		475	1 do	pek sou	90	24

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
13	Narangoda	154	10 ch	pek sou	900	23
17	Siriniwasa	166	5 ch	bro pek fans	525	25
18		169	2 do	dust	300	23
19		172	2 do	sou	160	17
21	Kudaganga	178	9 ch	pek	855	25
22		181	7 do	pek sou	630	23
23		184	3 do	bro pek fans	291	24
24		187	3 do	bro pek dust	375	25
29	Buena Vista	202	9 ch	br pek	900	27
30		205	4 hf ch	bro pek No. 2	240	24
31		208	10 ch	pek	800	26
32		211	2 do	pek sou	160	24
33		214	1 do	sou	78	18
34		217	1 hf ch	dust	84	23
38	Kallebokka	229	2 ch	pek sou	210	27
39		232	1 hf ch	dust	90	26
40	W in est mark	235	4 ch	sou	360	23
41		238	4 do	fans	500	23
42		241	1 do	dust	175	21
43		244	2 do	congou	156	16
46	Theberton	253	1 ch	bro pek fans	100	27
47		256	1 do	pek fans	100	26
61	M K	298	3 ch	pek sou	237	12
62		301	3 do	sou	261	12
63		304	3 hf ch	fans	158	12
64		307	2 do	dust	160	15
65	H	310	4 ch	sou	334	14
66		313	6 do	bro mix	492	17
70	Oonankande	325	6 hf ch	dust	393	26
73	Glenalla	334	1 ch	hyson No 2	115	20
74		337	3 do	fans	336	12
75		340	1 do	dust	154	13
82	Blinkbonnie	361	6 ch	pek sou	516	31
83	F F	364	8 ch	pek sou	800	27 bid
84		367	10 hf ch	fans	780	28
85		370	2 do	dust	200	26
86	Nyanza	373	10 ch	or pek	900	33 bid
89		382	8 do	pek sou	680	24
92	Oolapane	391	18 hf ch	fans	840	26
96	B F	403	7 hf ch	dust	560	25
97	G B	406	14 hf ch	dust	700	27
102	Donside	421	7 ch	sou	595	16
103		424	5 hf ch	dust	400	22
104		427	8 do	fans	480	19
113	Weygalla	454	3 hf ch	dust	240	30
118	D B G	469	9 hf ch	dust	720	23
123	Charlie Hill	484	9 hf ch	pek sou	450	22
124		487	3 do	dust	240	25
127	Kanatota	496	10 ch	pek sou	830	14
128		499	2 do	dust	275	20
133	Avisawella	514	6 hf ch	dust	450	26
139	Rayigam	532	10 hf ch	fans	650	27
140		535	4 do	dust	340	26
145	Scarborough	550	5 hf ch	fans	349	25
146	Z	553	2 hf ch	bro pek	120	26
147		556	2 do	pek	110	24
148		559	3 ch	pek sou	240	16

Lot.		Box.	Pkgs.		Name.	lb.	c.
149		562	1	do	dust	140	19
152	Old Madde-gama	571	4	ch	pek sou	340	27
153		574	3	do	br or pek fans	515	28
155	R A in est mark	580	5	hf ch	dust	400	24
159	Jak Tree Hill	592	3	ch	dust	300	22
160		595	3	do	fans	300	19
161		598	1	do	congou	90	14
171	Panmure	628	4	ch	sou	360	25
180	Ravenscraig	670	2	ch	pek sou	200	24
186		673	3	hf-ch	dust	640	24
195	Siriniwasa	700	10	ch	pek	950	25
197	A	706	8	hf ch	pek fans	480	19
198		709	1	do	dust	95	18
199		712	4	do	dust	356	22
200	Blinkbonnie	715	12	do	fans	864	32
201		718	8	do	dust	736	31
203	S W	724	1	do	or pek	50	23
204		727	1	do	pek	56	24
205		730	1	do	pek	49	19

[Messrs. E. John & Co.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Hoonoocotua	170	3	ch	bro mix	300	12
2	G T	173	5	do	bro pek	525	30
7	Longville	188	10	do	pek sou	950	25
9		194	4	do	dust	400	25
26	Brownlow	245	7	do	sou	595	28
51	Ashburton	320	3	do	fans	369	28
52		323	2	do	dust	300	25
53	A	326	2	hf ch	bro or pek	120	25
54		329	11	do	pek sou	550	23
55	H F D	332	1	ch	bro or pek	100	29 bid
56		335	2	do	or pek	200	25
57		338	3	do	pek	300	23
58		341	6	do	dust	600	25
64	Katawella	359	1	do	dust	150	25
69	Devon	374	13	hf ch	fans	988	withnd'

Lot.		Box.	Pkgs,		Name.	lb.	c.
80	A A	407	4	ch	pek sou	320	25
85	Natuwakelle	422	4	do	dust	400	28
89	Morton	434	4	hf ch	dust	300	25
93	Warleigh	461	7	do	fans	441	30
102	Wattagalla	473	7	do	dust	630	26
103	Eton	476	1	ch	bro or pek	100	27
104		479	3	do	or pek	200	28
105		482	2	do	pek sou	200	24
106		485	2	do	sou	190	18
115	Gonavy	512	9	do	pek No. 2	900	26 bid
116		515	10	hf ch	fans	600	30
117		518	4	do	dust	340	27
120	Karawakettia	527	6	ch	pek sou	652	16
124	Kolapatna	539	5	hf ch	fans	370	29
128	Cocawatte	551	3	ch	dust	300	26
129		554	2	do	fans	200	27
130	W L K	557	9	do	fans	810	20
131		560	13	do	pek sou	975	19
132		563	1	hf ch	pek sou	39	19
133	Salem	566	4	ch	bro or pek No. 1	400	40
134		569	5	do	do No. 2	500	28 bid
136		575	1	do	dust	140	25
138	Lamiliere	581	1	do	pek	80	25
150	Dubena	617	3	hf ch	fans	180	out
151		620	2	do	dust	168	20
152		623	2	ch	congou	120	13
153		626	1	hf ch	pek fans	68	23
157	Galloola	638	5	ch	dust	500	27
158		641	2	do	fans	200	28
165	Cabin Ella	662	2	hf ch	pek fans	140	27
166		665	2	do	pek dust	180	29
170	S	677	1	ch	bro pek	100	27
175	Perth	692	12	do	pek	960	27
176		695	1	do	fans	135	27
177	P	698	4	do	pek dust	560	27
178	Captain's Garden	701	6	do	bro pek	700	26
180		707	3	do	pek sou	270	18
181		710	1	do	congou	70	12

OBSERVER PRINTING WORKS.

No. 24. COLOMBO, JUNE 23rd, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

LARGE LOTS.

Messrs. E. Benham & Co.

[13,110 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Hornsey	11	37 ch	pek	2960	29 bid
2		14	15 hf ch	dust	1275	27
3	Yuillefield	17	41 do	bro or pek	2255	39
4		20	23 cb	pek	2070	30
8	Hornsey	32	52 hf ch	bro pek	3120	33 bid
9		35	15 do	bro pek	1050	28

Messrs. Forbes & Walker.

[795,777 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	O B E C, in estate mark Darrawella	2872	44 cb	pek sou	3608	26
2	Dunbar	2875	20 hf ch	bro or pek	1040	57
3		2878	20 ch	pek	16?0	36
4	Lindupatna	2881	19 do	bro pek	2090	42
5		2884	32 do	or pek	3520	34
6		2887	40 do	pek	3840	29
7	Graceland	2890	49 ch	pek	2695	out
11	Irex	2902	35 ch	bro or pek	3?00	34
12		2905	21 do	or pek	1680	32
13		2908	25 do	pek	2250	28
21	Chrystlers Farm	2932	33 hf ch	bro pek	1848	44
22		2935	35 do	pek	2975	33
28	Great Valley Ceylon, in estate mark	2953	41 ch	bro or pek	2337	40
29		2956	19 do	or pek	1710	33
30		2959	71 do	pek	6248	30
31		2962	33 do	pek sou	2640	26
32		2965	25 do	bro pek	2375	33
33		2968	12 do	dust	1020	26
34		2971	16 do	fans	1040	28
35	St. Paul's Inv. No. 15	2974	20 hf cb	bro or pek	1237	34 bid
36		2977	52 do	or pek	2701	33 bid
37		2980	60 do	pek	2997	30
38	Osborne	2983	34 ch	bro or pek	3400	30 bid
39		2986	24 do	or pek	2040	29 bid
45	Harrow	3004	14 ch	bro pek	1540	33 bid
46		3007	19 hf ch	bro or pek	1140	46
47		3010	25 ch	pek	2500	31
50	Kincora	3019	10 do	bro or pek	1050	44
51		3022	14 do	bro pek	1610	30
52		3025	15 do	or pek	1425	35
53		3028	35 do	pek	3150	31
55	Mahawala	3034	22 cb	bro pek	2200	31
56		3037	32 do	or pek	3200	30
57		3040	42 do	pek	3780	26
58		3043	26 do	pek sou	2470	24
59	Geragama Inv. No. 14	3046	15 cb	bro or pek	1575	31
60		3049	30 do	bro pek	2700	28
61		3052	39 do	pek	3120	26
62		3055	37 do	pek sou	2775	24
64	Bramley	3061	47 hf cb	bro pek	2726	32 bid
65		3064	26 do	or pek No 1	1248	27 bid
66		3067	48 do	pek	2592	30
67		3070	43 do	or pek	2236	32
68	Pansalatenne	3073	44 ch	bro pek	4400	31 bid
69		3076	10 do	bro or pek	1000	40
70		3079	36 do	pek	3060	28
71		3082	18 do	pek sou	1530	26
75	Sirikandura	3094	11 ch 1 hf ch	bro pek	1040	39
80	Choisy	3109	70 do	bro or pek	3855	32
81		3112	20 ch	or pek	1700	30
82		3115	40 do	pek	3400	27
85	St. Clive	3124	20 hf cb	young hyson	1000	31
89	Castlereagh	3136	42 do	bro or pek	2100	46
90		3139	13 ch	or pek	1040	32
91		3142	13 do	pek	1040	28
92		3145	13 do	pek sou	1040	26
93	Yataderia	3148	19 ch	bro or pek	2014	28
94		3151	10 do	bro pek	1000	25
95		3154	11 do	or pek	1045	29
96		3157	45 do	pek	3780	25
98	Laurawatte	3163	14 ch	bro pek	1540	28
99		3166	16 do	or pek	1568	28
100		3169	16 ch	pek	1456	24
101		3172	11 do	pek sou	1100	24
104	Sylvakandy	3181	13 ch	bro or pek No	1300	46
105		3184	46 do	bro or pek No 2	4?00	36
106		3187	25 do	bro pek	2500	3?
107		3190	26 do	or pek	2600	35
109		3196	46 do	pek No. 2	4600	31
112	Monteney	3205	13 ch	sou	1170	20
113	Ireby	3208	58 ch	bro pek	3480	38
114		3211	25 do	pek	2125	33
115		3214	12 do	pek sou	1020	29
117	Dolahena	3220	27 hf ch	hyson	1350	27
119	Malpita	3226	12 ch	bro pek	1260	27
120		3229	12 do	pek	1140	22
131	Knavesmire	3262	140 ch	bro pek	14000	27 bid
132		3265	45 do	pek	3825	25 bid
133		3268	25 do	pek sou	2?00	23
134	B B, in estate mark	3271	16 ch	pek sou	1277	27 bid
135	Bargany	3274	12 ch	bro pek	1257	36 bid
136	Penrhos	3277	23 hf cb	bro or pek	1219	44
137		3280	26 do	bro pek	1508	31
138		3283	22 do	or pek	1056	36
139		3286	33 ch	pek	2574	28
140		3289	13 do	pek sou	1014	24
143	Moray	3298	24 hf ch	or pek	1104	37
144		3301	63 do	bro or pek	3654	40
145		3304	75 ch	pek	6375	29
147	Torwood	3310	15 ch	bro or pek	1380	31
148		3313	14 do	bro pek	1260	30
149		3316	15 do	or pek	1260	26
150		3319	36 do	pek	2880	25
153	Rajawatte	3328	12 cb	or pek	1200	32
154		3331	18 do	pek	1620	28 bid
155	Yatiyana	3334	18 ch	or pek	1890	25
162	Kotagaloya	3355	22 ch	bro pek	2310	29
163		3358	26 do	pek	2210	28
164		3361	16 do	pek sou	1440	24
166	Galkande	3367	37 hf cb	or pek	18?0	33
167		3370	37 ch	pek	2960	30
168	Purana	3373	11 do	bro pek	1100	29
170		3379	32 do	pek	2560	28
171		3382	17 do	pek sou	1224	26
174	Pine Hill	3391	18 hf cb	bro or pek	1080	40
175		3394	26 do	bro pek	1?90	32
176		3397	22 ch	or pek	1980	35
177		3400	27 do	pek	2430	29
178		3403	13 hf ch	dust	1105	27
179	Weyunga-watte	3406	33 ch	bro pek	3300	28
180		3409	31 do	pek	2635	25
181		3412	27 do	pek sou	2160	24
185	Mariawatte	3424	34 hf cb	dust	2720	26
186	Maragalla	3427	15 ch	bro pek	1575	33
187		3430	14 do	or pek	1?90	29
188		3433	11 do	pek	1045	26
192	Middleton Inv. No. 18	3445	22 hf cb	bro or pek	1320	44
193		3448	18 ch	bro pek	1890	33
194		3451	26 do	or pek	2340	38
195		3454	15 do	pek	1275	28
196		3457	24 hf cb	dust	2040	27
197	Tymawr, Inv. No. 12	3460	19 hf ch	or pek	1045	36
198		3463	17 do	bro or pek	1020	50
199		3466	26 do	pek	1248	30
200		3469	27 do	pek	1296	30
201		3472	21 do	pek sou	1050	26
204	Malvern, Inv. No. 19	3481	40 hf ch	bro pek	2200	38
205		3484	40 ch	pek	2800	29
206	Agraoya	3487	24 ch	bro or pek	2400	withdn.
207		3490	24 do	or pek	22?0	withdn.
208		3493	19 do	pek	1710	withdn.
209	Good Hope, Inv. No. 19	3496	13 ch	bro or pek	1300	27
210		3499	34 do	bro pek	3060	26
214	Madulkelle	3511	14 ch	bro or pek	1400	44
215		3514	12 do	bro pek	1200	40
216		3517	32 hf ch	or pek	1536	39
217		3520	14 ch	pek No 1	1?60	35
218		3523	18 do	pek No. 2	1440	32
221		3532	18 do	sou	1350	26
222	Edward Hill	3535	23 ch	bro pek	2461	29
223		3538	15 do	or pek	13?0	29
224		3541	14 do	pek	1176	27
226	Algooltenne, Inv. No. 27	3547	45 ch	bro pek	4275	29
227		3550	36 do	pek	2880	27
228		3553	18 do	pek sou	1410	25
229	J M K	3556	17 hf ch	dust	1190	26
230	Delta, Inv. No. 13	3559	45 cb	bro or pek	4500	32

Lot.		Box.	Pkgs.	Name.	lb.	c.
281		3562	39 do	bro pek	3900	28
282		3565	31 do	pek	2604	28
233		3568	19 do	pek sou	1558	26
234	Waitalawa	3571	60 bf ch	bro pek	3000	47
235		3574	80 do	pek	4000	28
236	Tempo	3577	11 ch	bro pek	1100	39
237		3580	12 do	or pek	1080	34
238		3583	34 do	pek	2890	28
245	Nugagalla	4	57 hf ch	bro pek	2850	35
246		7	125 do	pek	6250	28
248	Queensland	13	30 hf ch	bro or pek	1500	60
249		16	20 ch	bro pek	2000	37
350		19	11 do	or pek	1045	34
251		22	16 do	pek	1360	32
257	Pallagodde	40	30 ch	bro or pek	3000	27
258		43	37 do	bro pek	3697	withdn.
259		46	30 do	bro pek	3000	27
260		49	29 do	or pek	2320	26
261		52	25 do	pek	2000	25
262		55	30 do	pek sou	1950	24
266	Massena	67	53 hf ch	bro or pek	2650	28
267		70	57 do	bro pek	2850	31
268		73	50 do	pek	2500	25 bid
270		79	29 do	bro pek fan	1450	27
271		82	15 do	dust	1050	26
272	Seenagolla	85	19 hf ch	bro or pek	1140	46
273		88	25 do	pek	1275	27
274	Inverness	91	18 ch	bro or pek	1800	38 bid
275		94	30 do	or pek	2700	44 bid
276		97	23 do	pek	1955	35 bid
277	Killarney	100	32 bf ch	bro pek	1760	33
278		103	24 ch	pek	2040	32
279		106	15 hf ch	fans	1080	28
280	Carfax	109	25 ch	or pek	2250	34 bid
282	B P C	115	21 hf ch	dust	1638	26
283	Ganapalla	118	30 ch	bro or pek	3000	27
284		121	30 do	or pek	2490	32
285		124	54 do	pek	4590	26
286		127	16 do	pek sou	1200	23
287		130	12 hf ch	dust	1032	26
288	Hanwella	133	49 hf ch	young hyson	2450	30
289		136	23 do	hyson No 1	1265	27
292	Letchmey	145	14 ch	pek sou	1050	24
296	High Forest	157	44 hf ch	or pek No 1	2552	43
297		160	3 do	or pek	1749	37
298		163	30 do	pek	1440	35
299	Dammeria	166	36 ch	bro pek	3600	29
301		172	57 do	pek sou	5130	25 bid
302		175	21 hf ch	bro pek fans	1680	28
303	Maha Uva	178	64 do	bro or pek	4160	31
304		181	47 ch	or pek	4700	35
305		184	45 do	pek	4050	33
306		187	16 do	pek sou	1280	28
307	Dammeria	190	50 ch	or pek	4500	28 bid
308		193	17 do	bro or pek	1190	29
309	Erracht	196	33 ch	bro or pek	3300	27
310		199	30 do	or pek	2550	82
311		202	47 do	pek	3995	24
313	Riversdale	208	48 bf ch	pek sou	2064	25
314		211	16 do	br pek fans	1120	28
315		214	15 ch	dust	1350	27
316	Walpita	217	53 ch	bro pek	53 0	28
317		220	44 do	pek	3960	26
318		223	13 do	pek sou	1040	24
321	Rickarton	232	28 bf cb	bro or pek	1680	37 bid
322		235	27 ch	or pek	2430	30 bid
323		238	50 bf ch	pek	2800	28 bid
325	Glencorse	244	24 ch	dust	2040	26
326	Clarendon	247	38 hf ch	bro pek	2432	30 bid
327		250	31 do	or pek	1767	34
328		253	21 ch	pek	2100	28
331	Florence	262	20 ch	or pek	1820	48
332		265	24 hf ch	bro or pek	1320	69
333		268	54 ch	pek	4752	37
334		271	24 do	pek sou	2040	33
335		274	27 hf ch	br or pk fans	1755	34
336	Naseby	277	25 hf ch	bro or pek	1500	58
337		280	25 do	or pek	1175	47
338		283	25 do	pek	1250	41
339		286	14 do	fans	1078	32
311	E D P	292	15 hf ch	dust	1200	26
342	St. Helens	295	23 hf ch	bro or pek	1190	34
343		298	16 ch	or pek	1440	31
344		3:1	26 do	pek	2340	28
345		304	14 do	pek sou	1260	25
347	Lunes	310	11 ch	bro or pek	1155	29
348		313	19 do	bro pek	1900	26
349		316	14 do	or pek	1260	33
350		319	33 do	pek	3135	24
357	Middleton	340	15 ch	bro pek	1647	30
358		343	21 do	or pek	1887	29 bid
359		346	47 do	or pek	4227	28 bid
360		349	15 do	pek	1272	26
361	Avoca	352	25 ch	bro or pek	2747	42
363	Halbarawa	358	19 ch	pek	1520	22

Lot.		Box.	Pkgs.	Name.	lb.	c.
365	Freds Ruhe	364	32 ch	bro pek	3200	30
366		367	21 do	pek	1995	26
367		370	14 do	pek sou	1330	24
370	Drayton	379	37 hf ch	or pek	1850	41
371		382	58 ch	pek	5220	32
372		385	36 do	pek sou	2880	28
373	Thedden	388	34 ch	bro pek	3400	30
378	Dunbar	403	12 ch	or pek	1032	35 bid
379		406	12 do	pek	1020	25 bid
380		409	10 do	bro pek	1010	40
381		412	10 do	br pek fans	1010	33
382	Duckwari	415	72 ch	bro pek	7560	
383		418	62 do	pek	5580	withd'n
384		421	54 do	pek sou	4590	
385		424	20 do	pek fans	2400	
386	Norton	427	25 hf ch	bro or pek	1497	36
387		430	26 ch	pek	2337	29
388	H G M	433	33 ch	bro pek	2970	29 bid
389		436	36 do	pek	3060	27
390	Galapitakande	439	29 ch	or pek	2897	28
391		442	32 do	pek	3037	27
392	Dambagas-talawe	445	23 ch	or pek	2527	32
393		448	39 do	pek	3742	29 bid
494	Talgaswella	451	20 ch	bro or pek	2.00	34
395		454	24 do	or pek	1920	29
396		457	27 do	pek	2160	25
397		460	25 do	pek sou	1875	24
398		463	22 hf ch	cro pk No 2	1320	26
400	Marlborough	469	43 hf ch	bro or pek	2150	55
401		472	27 ch	bro pek	2700	40
402		475	36 do	or pek	3348	34
403		478	72 do	pek	6120	30
405		484	17 hf ch	br pek fans	1054	32
406	Yelverton	487	12 ch	bro pek	1260	30
407		490	13 do	pek	1620	27
408		493	16 do	pek sou	1300	25
409	Castlereagh	496	30 bf ch	bro or pek	1500	45
410		499	12 ch	bro pek	1200	29 bid
411		502	14 do	or pek	1120	31
412		505	15 hf ch	fans	1050	28
413	Handford	508	18 cn	or pek	1710	28
418	Gonapitiya	523	23 bf ch	bro pek	[illegible]	34
419		526	22 do	or pek	1100	34
420		529	21 ch	pek	1827	29
424		535	30 bf ch	or pek	1500	34
[illegible]		538	44 do	bro pek	2464	34
424		541	27 ch	pek	2376	29
426		547	16 hf ch	pek fans	1024	30
427	Middleton	550	16 ch	bro pek	1510	28 bid
428		553	14 do	or pek	1410	26 bid
429	Gonapitiya	556	24 bf ch	bro pek	1392	33
430		559	30 do	or pek	1500	32
431		562	22 do	or pek	1122	33
432	F C T in est mark	565	16 ch 1 hf ch	unassorted	1580	15
433	New Peacock	568	26 bf ch	bro pek	1300	30
434		571	22 do	bro mixed	1100	24
435		574	16 do	pek fans	1200	28
436	Penath	577	11 ch	bro pek	1100	27
437		580	12 do	pek	1080	27
446	Udabade	607	59 hf ch	young hyson	3540	withd'n
447	Robgill	610	26 ch	bro pek	2340	45
448		613	23 do	pek	1840	33 bid
449	Passara Group	616	15 ch	or pek	1350	29 bid
450		619	26 do	bro or pek	2600	35
451		622	27 do	pek	2430	29
452		625	12 do	pek sou	[illegible]	26
453	Blarneywatte	628	11 ch	bro pek	1100	31
454		631	11 do	bro pek	1091	28
458	Osborne	643	21 ch	bro or pek	2142	32
459		646	18 do	bro pek	1530	26 bid
460	R H H	649	12 ch	bro pek	1200	25
461		652	12 do	pek	1080	23
464	High Forest	661	70 hf ch	or pek No 1	4200	43
465		664	55 do	or pek	3025	38
466		667	45 do	pek	2250	36
467	Dunkeld	670	48 hf ch	bro or pek	2880	33
468		673	23 cb	or pek	2070	34
469		676	22 do	pek	1980	30
470	Oodoowerre	679	12 ch	bro pek	1200	29
471		682	25 do	pek	2000	26
474	Beverley	691	34 hf ch	pek	1700	26 bid
475	Gonopitiya	694	24 ch	pek	1388	32 bid
476	Macaldeniya	697	33 hf ch	bro pek	1910	33
477		700	34 do	pek	1870	31
481	Queensland	712	17 ch	bro pek	1785	39
482		715	12 do	pek	1080	32
484	Templehurst	721	14 ch	bro or pek	1372	32 bid
485		724	10 do	bro pek	1130	28
486		727	13 do	pek	1196	28 bid
488	Preston	783	15 ch	bro or pek	1560	50
490		739	15 do	pek	1200	36
491		742	19 do	pek sou	1425	33
493	St. Margarets	748	23 ch	bro pek	2300	27 bid
495		754	14 do	pek sou	1050	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
499	St. Heliers	766	34 hf ch	bro or pek	1904	35
500		769	14 ch	pek	1330	29
502	Ardlaw and Wishford	775	16 ch	bro or pek	1680	61
503		778	39 do	bro pek	3900	32
504		781	27 do	or pek	2376	35
505		784	54 do	pek	4428	30

Messrs. E. John & Co.

[330,711 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
7	Glassaugh	764	28 hf ch	or pek	1596	50
8		767	16 do	bro or pek	1072	45
9		770	15 ch	pek	1620	38
10	Cabin Ella	773	26 do	bro pek	2600	35
11		776	22 do	pek	1870	30
14	Ratwatte	785	51 do	bro pek	5100	26
15		788	30 do	pek	2700	25
18	Holbrook	797	42 hf ch	bro or pek	2520	35 bid
19		800	20 ch	or pek	1900	30
20		803	17 do	pek	1530	27 bid
21		806	12 do	pek fans	1320	28
22	Elston	809	17 do	pek	1360	28
23		812	24 do	pek sou	1920	26
24		815	16 hf ch	bro mix	1200	25
28	St. Clair	827	37 ch	or pek	3700	34 bid
29		830	34 hf ch	bro or pek	1870	48 bid
30		833	42 ch	pek	3612	31 bid
31		836	15 do	pek sou	1293	28 bid
32		839	27 hf ch	bro or pek fans	1674	30 bid
33	Nabavilla	842	26 ch	or pek	2340	29
34		845	41 do	bro pek	4100	30 bid
35		848	27 do	pek	2430	27
36		851	16 do	pek sou	1280	24
37	Higham	854	31 hf ch	bro or pek	2015	31
38		857	30 ch	bro pek	3000	32
39		860	28 do	pek	2660	29
40		863	17 do	pek sou	1615	20
45	St. Clair	878	44 do	or pek	4400	35 bid
46		881	32 hf ch	bro or pek	1760	48 bid
47		884	58 ch	pek	4988	32 bid
48		887	20 hf ch	bro or pek fans	1240	32 bid
50		893	21 do	pek dust	1785	26
54	Woodstock	905	12 ch	bro or pek	1200	32
55		908	12 do	pek	1140	28 bid
56	Natuwakelle	911	21 do	bro or pek	2100	35
57		914	25 do	bro pek	2250	31
58		917	22 do	pek	1980	29
61	Poilakande	926	44 do	bro or pek	3960	28
62		929	64 do	bro pek	5760	26
63		932	52 do	pek	4160	25
64	Winwood	935	31 hf ch	bro or pek	1550	41 bid
65		938	41 ch	or pek	3690	31
66		941	50 do	pek	4500	28
67		944	18 hf ch	fans	1080	27
68	Cleveland	947	63 do	fly. or pek	3150	44
70		953	73 do	pek	5650	34
71		956	23 do	pek sou	1150	33
73	Glentilt	962	39 do	bro or pek	2145	50
74		965	27 ch	or pek	2430	36
75		968	31 do	pek	2790	34
76		971	15 hf ch	fans	1200	28
77	St. John's	974	40 do	bro or pek	2320	45 bid
78		977	18 do	or pek	1620	42 bid
79		980	24 do	pek	2304	36
80		983	24 do	pek fans	1632	31
82	Gonavy	989	21 ch	or pek	1785	34
83		992	12 do	bro pek	1200	44
84		995	25 do	pek	2000	27 bid
87	Bittacy	4	25 do	bro pek	2450	31 bid
88		7	23 do	pek	1932	32 bid
93	Glasgow	22	25 hf ch	bro or pek	1375	45 bid
94		25	23 ch	bro pek	2300	32 bid
95		28	34 do	or pek	3230	34
96		31	20 do	pek	1860	33
97	Midlothian	34	22 hf ch	bro pek	1320	37
99		40	40 do	pek	2080	35
101	Callander	46	30 do	or pek	1650	34
102		49	21 do	pek	1050	32
104	Mount Everest	55	48 do	bro or pek	2400	49 bid
105		58	45 do	or pek	2250	38
106		61	38 ch	pek	3800	32
107		64	17 do	pek sou	1530	30
110	Poilakanda	73	27 do	bro or pek	2430	27
111		76	29 do	bro pek	2610	25
112		79	30 do	pek	2400	24
115	Mahanilu	88	25 hf ch	or pek	1400	34 bid
116		91	17 do	bro or pek	1020	44 bid
117		94	23 ch	pek	2208	29 bid
118		97	14 do	pek sou	1260	26 bid

Lot.		Box.	Pkgs.	Name.	lb.	c.
120	Kahagalla	103	31 hf ch	bro pek	1922	34
121		106	12 ch	pek	1176	29
122		109	12 do	pek sou	1080	26 bid
124	N	115	23 hf ch	dust	1955	26
125	Brownlow	118	20 do	bro or pek	1160	51 bid
126		121	22 ch	or pek	2040	35 bid
127		124	29 do	pek	2552	31
134	Mt. Vernon	145	35 do	pek	3150	35
135		148	46 do	pek sou	3910	31 bid
136		151	17 hf ch	fans	1190	29
141	Battalawatte	166	12 ch	pek	1140	22 bid
142	Lancefield	169	18 do	bro pek	1800	24
143		172	15 do	pek	1425	24
144		175	18 do	pek sou	1458	18
147	Lamiliere	184	45 do	bro or pek	4680	withd'n
148		187	24 do	or pek	2010	withd'n
149		190	48 do	pek	4380	withd'n
150		193	15 do	sou	1570	withd'n
151	Bowella	196	15 do	bro pek	1500	28
152		199	22 do	pek	1870	24 bid
156	Myraganga	211	48 do	or pek	4080	27
157		214	19 do	bro pek	1900	28
158		217	21 do	bro or pek	2100	29
159		220	38 do	pek	3040	26
160	Gingranoya	223	29 do	pek	2320	30
161		226	19 do	pek sou	1330	25 bid
162	Poolbank	229	14 do	pek	1400	30 bid
163	Ottery	232	21 do	fly. or pek	1890	33 bid
164		235	21 hf ch	bro or pek	1155	33 bid
165		238	16 do	or pek	1280	26 bid
166		241	21 do	pek	1785	24 bid
167		244	15 do	pek sou	1275	23
168		247	14 hf ch	dust	1120	26
169	Cresta	250	40 do	bro pek	2000	28
170		253	16 ch	pek	1360	25
171	Glasgow	256	34 do	or pek	3227	34
172	Rookwood	259	60 hf ch	bro or pek	3000	36 bid
173		262	39 ch	or pek	3744	32 bid
176		271	40 do	pek	3600	28 bid
179	Warleigh	280	21 do	or pek	2034	36
180		283	36 do	pek	3057	29 bid
182	Upper Hewahetta	289	47 hf ch	bro or pek	2820	withd'n
183		292	39 ch	or pek	3744	withd'n
184		295	14 do	pek No. 1	1260	withd'n
187		304	43 do	pek	3870	withd'n
188	North Pundul-oya	307	61 hf ch	yng. hyson	3355	32 bid
189		310	33 ch	hyson	3135	29 bid
192	E K, in estate mark	319	10 do	bro mix	1000	16
193	Doonhinde	322	30 do	bro pek	3000	33 bid
194		325	32 do	pek	3200	32
198	Mocha	337	25 do	bro or pek	2500	44 bid
199		340	16 do	or pek	1440	36 bid
200		343	27 do	pek	2565	36
201		346	12 hf ch	fans	1020	27 bid

Messrs. Somerville & Co.

[348,001 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Dartry	736	22 hf ch	dust	2112	24
4	Salawe	745	10 ch	bro or pek	1200	25
5		748	11 do	bro pek	1155	24
6		751	11 do	pek	1100	24
7		754	16 do	pek sou	1520	23
10	Nellicollay-watte	763	45 hf-ch	bro pek	2970	32
11		756	16 ch	pek	1504	27
15	Hatdowa	778	25 hf ch	bro or pek	1500	27
16		781	11 ch	br pek	1100	26
17		784	14 do	pek	1260	25
18		787	21 do	pek sou	1890	23
21	Polgahakande	796	14 ch	or pek	1050	26
22		799	15 do	br pek	1500	25 bid
23	St. Andrews K	802	32 hf ch	bro pek	1920	28
30	Laxapanagalla	823	31 ch	bro or pek	3100	32
31		826	14 do	or pek	1400	25
35	Mowbray	838	14 ch	bro pek	1400	32
36		841	22 do	pek	1870	27
38	M T C L in est mark	847	22 ch	or pek	2310	33 bid
39		850	13 ch	pek	1300	29
40	Moragalla	853	10 ch	bro pek	1000	31
41		856	14 do	pek	1400	20 bid
42		859	24 do	pek sou	2400	18
43		862	10 do	fans	1000	16
46	Oononagalla	871	83 hf ch	bro or pek	4150	33 bid
47		874	84 ch	pek	7140	28 bid
48		877	22 do	pek sou	1870	26 bid
49	Rahatungoda	880	49 hf ch	bro or pek	2793	35 bid
50		883	59 do	or pek	3304	34
51		886	24 do	bro pek	1728	28
52		889	67 do	pek	3551	30

Lot.		Box.	Pkgs.		Name.	lb.	c.
4		895	12	do	pk dust	1020	26
55	Hobart	898	22	ch	pek	1760	24 bid
56	New Angamana	901	18	ch	bro pek	1710	30
57		904	21	do	pek	1890	26
60	Yarrow	913	27	hf ch	bro or pek	1458	28
61		916	30	do	or pek	1562	26
62		919	34	do	pek	1496	24
63		922	26	do	pek sou	1118	23
65	Meeriatenne	928	19	hf ch	bro pek	1121	38
66		931	32	do	pek	1600	34
68	Pindeni Oya	937	52	ch	pek	4160	23
69		940	22	do	pek sou	1760	22
71	Grange Gardens	946	12	ch	bro or pek	1200	40
72		949	10	do	or pek	1000	33
73		952	14	do	pek	1400	29
77	Cooroondoo-watte	964	14	ch	br pek	1400	34
78		967	15	do	pek	1425	26
79		970	15	do	pek sou	1500	24
83	St. Catherine	982	36	hf ch	bro or pek	1803	34
84		985	21	ch	pek	1788	27
86	Agra Elbedde	991	27	hf ch	bro or pek	1620	35
87		994	39	do	or pek	2145	34
88		997	31	do	pek	1488	31
92	Agra Tenne	1009	22	ch	bro pek	2200	30 bid
93		1012	13	do	pek	1235	29
99	Theherton	1030	16	ch	bro pek	1600	31
100		1033	17	do	pek	1445	30
104	Kurulugalla	1045	23	ch	bro or pek	2[illegible]00	27
105		1048	32	do	pek	2880	21 bid
106		1051	14	do	pek sou	1260	18
110	W K P	1063	65	ch	bro pek	6825	31
111		1066	39	do	or pek	3510	30
112		1069	92	do	pek	7360	25
113		1072	25	do	pek sou	1875	24
117	Beausejour	1084	30	ch	br pek	3000	27 bid
118		1087	15	do	or pek	1350	26
119		1090	22	do	pek	1760	24
123	Scarborough	1102	19	hf ch	bro pek	1045	49
124		1105	11	ch	pek	1100	34
125	Monte Christo	1108	22	ch	bro pek	2200	41 bid
126	Mora Ella	1111	12	ch	bro or pek	1176	33 bid
127		1114	23	do	pek	2070	26
128		1117	12	do	pek sou	1020	26
129		1120	18	hf ch	bro pek	1080	27
130		1123	13	ch	or pek	1170	32
131	Dalukoya	1126	27	hf ch	bro or pek	1620	37 bid
132		1129	33	do	or pek	1815	32 bid
133		1132	20	do	pek	1100	30 bid
134	Annandale	1135	20	hf ch	bro or pek	1200	58
135		1138	25	do	or pek	1350	39
136		1141	22	do	pek	1254	35
137		1144	31	do	pek sou	1550	31
141	Oolowatte	1156	14	ch	bro or pek	1050	withd'n
142		1159	14	do	br pek	1050	withd'n
143		1162	30	do	pek	2400	withd'n
149	Dryburgh	1180	43	ch	pek	3569	25
150	Kelani	1183	25	ch	or pek	2125	33
151		1186	17	do	bro or pek	1700	30
152		1189	20	do	pek	1400	26 bid
153		1192	12	do	pek sou	1080	25
158	Murrayth-watte	1207	20	ch	br pek	2000	32
163	Ferndale	1222	30	ch	pek	2700	34
164	Pinkandi	1225	23	hf ch	bro or pek	1219	32
165		1228	12	ch	pek	1080	27
169		1240	22	hf ch	bro pek	1166	32
174	R K P	1255	22	ch	or pek	1870	32
175		1258	15	do	bro or pek	1500	29
176		1261	18	do	pek	1260	25
177		1264	12	do	pek sou	1080	24
178	S	1267	20	hf ch	sou	1000	18
182	Grange Gardens	1279	12	ch	or pek	1200	34
183	Avisawella	1282	30	hf ch	bro or pek	1500	36
184		1285	27	ch	or pek	2565	33
185		1288	31	do	pek	2790	26
186		1291	20	do	pek sou	1600	24
188	Ferriby	1297	38	hf ch	bro or pek	1900	33
189		1300	27	ch	or pek	2295	28 bid
190		1303	37	do	pek	2960	26
191		1306	25	do	pek sou	2000	24
194	Ravenscraig	1315	22	ch	pek	1980	26
195	Yspa	1318	31	ch	pek sou	2635	26
198	Laxapana-galla	1327	30	ch	bro or pek	3000	32
199		1330	17	do	or pek	1700	27
205	Yarrow	1348	71	hf ch	bro or pek	3875	28
214	Bodava	1375	37	hf ch	bro pek	2035	26
219	Nyanza	1390	31	hf ch	bro pek	1860	34 bid
220	Laukka	3570	33	ch	bro pek	1393	27
221		2970	34	do	pek	1396	25
224	Mount Temple	1405	13	ch	or pek	1170	30
225		1408	26	do	bro pek	2548	25
226		1411	19	do	pek sou	1482	24
227		1414	20	do	br or pk fan	2000	25
228		1417	12	do	or pek	1080	31
229		1420	23	do	br pek	2116	25
230		1423	15	do	br or pk fan	1500	25
233	Warakamure	1432	60	ch	bro pek	7000	29
234		1435	58	do	pek	4988	24
235		1438	24	do	pek sou	2040	23
236		1441	22	hf ch	fans	1650	26
238	Galphele	1447	15	ch	bro or pek	1500	42 bid
239		1450	31	do	or pek	3100	35
240		1453	34	do	bro pek	3400	30
241		1456	51	do	pek	4590	31
247	Panmure	1474	37	hf ch	bro or pek	2035	35 bid
248		1477	55	do	or pek	2750	33
249		1480	35	ch	pek	3150	28 bid
253	Dalukolawatte	1492	25	hf ch	bro or pek	1500	withd'n
254		1495	21	do	pek	1155	withd'n
255		1498	12	ch	pek sou	1080	withd'n
257	D'Oya	1504	19	ch	pek sou	1710	25 bid
259	Deniyaya	1510	14	ch	bro or pek	1400	29
260		1513	19	do	pek	1710	25 bid
261		1516	17	do	pek sou	1530	24
262		1519	13	do	sou	1170	22
265	B and D	1528	15	hf ch	unast	1425	25
267		1534	16	do	dust	1230	26
272	M T	1549	23	hf ch	bro pek fans	2208	14 bid

Messrs. Keell and Waldock.

[39,195 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Moneragalla	476	27	ch	bro or pek	2079	36 bid
2		481	28	do	or pek	2128	31
3		484	29	do	pek	2038	28
4		487	17	do	pek sou	1020	25
8	Nyanza	499	14	ch	or pek	1260	33 bid
9	Walla Valley	502	16	ch	pek	1520	30 bid
11	Taprobana	508	55	hf ch	bro pek	3025	30 bid
12		511	47	do	pek	2350	23
14	Brecon	517	19	hf ch	or pek	1045	30
15		520	19	do	or pek	10[illegible]5	30
16		523	17	do	bro or pek	1020	32 bid
17		526	20	do	pek	1000	27 bid
27	Gampai	556	42	hf ch	or pek	1974	30
28		559	83	do	bro or pek	4618	28 bid
29		562	38	ch	pek	3040	26
30		565	37	do	pek sou	2829	25
32	E B in est. mark	571	29	hf ch	or pek	1720	32 bid

SMALL LOTS.

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.		Name.	lb.	c.
5	Yuillefield	23	2	ch	pek sou	180	27
6		26	1	hf ch	s u	50	24
7		29	2	do	dust	150	26

Messrs. Forbes & Walker.

Lot.		Box.	Pkgs.		Name.	lb.	c.
8	Graceland	2893	4	hf ch	red leaf	180	12
9		2896	2	do	congou	90	14
10		2899	7	do	dust	525	28
14	Irex	2911	4	ch	pek sou	320	25
15		2914	1	do	fans	110	26
16		2917	2	hf ch	dust	170	25
17	Bogahagoda-watte	2920	3	ch	bro pek	270	30
18		2923	2	do	pek	192	24
19		2926	3	do	pek sou	300	22
20		2929	2	do	fans	196	23
23	Chrystler's Farm	2938	4	hf ch	pek sou	340	26
26		2941	4	do	dust	320	27
25	D	2944	5	ch	young hyson	525	28
26		2947	7	do	hyson	630	25
27		2950	7	do	hyson No 2	560	24
40	Osborne	2989	4	ch	bro pek	408	26
41		2992	4	do	pek	340	25
42		2995	4	hf ch	fans	320	27
43		2993	2	do	bro or pek fans	100	26
44		3001	2	do	dust	180	26
48	Harrow	3013	8	ch	pek sou	760	26
49		3016	4	hf ch	dust	340	27
54	Kincora	3031	3	ch	dust	450	26
63	Geragama, Inv. No. 14	3058	10	hf ch	dust	800	26
	Pansalatenne	3085	3	ch	bro pek fans	360	26
73		3088	1	do	dust	150	25
74	Siiikandure	3091	5	ch	bro or pek	500	27

Lot.		Box.	Pkgs.	Name.	lb.	c.
76		3097	11 do	pek	880	23
77		3100	10 do	pek sou	700	18
78		3103	3 ch			
			1 hf ch	fans	435	27
79		3106	2 ch			
			1 hf ch	red leaf	235	13
83	B B, in estate mark	3113	3 ch	bro pek	300	25
84		3111	3 do	pe	240	22
86	St. Clive	3127	17 hf ch	hyson	765	29
87		3130	12 do	hyson No 2	540	28
88		3133	5 do	hyson fans	250	10
97	Yatadaria	3160	12 ch	pek sou	972	22
102	Laurawatte	3175	3 hf ch	fans (Venesta)	234	23
103	Kabragalla	3178	7 do	dust	595	27
108	Sylvakandy	3193	7 ch	pek No 1	700	33
110		3199	5 do	pek sou	500	25
111		3202	5 do	dust	500	27
116	Dolahena	3217	10 hf ch	young hyson	500	30
118		3223	2 do	siftings	140	13
121	Walpita	3232	5 ch	pek sou	500	20
122		3235	2 do	bro pek fans	210	10
123		3238	3 do	sou	255	12
124		3241	1 do	red leaf	100	12
125	Kettadolla	3244	3 ch	bro or pek	300	28
126		3247	4 do	or pek	310	23
127		3250	9 do	pek	720	19
128		3253	1 do	sou	85	14
129		3256	1 do	bro mix	80	16
130		3259	1 do	dust	103	21
141	Penrhos	3292	6 hf ch	fans	450	27
142		3295	2 do	pek dust	178	25
146	Morsy	3307	10 do	dust	800	28
151	T[illegible]wood	3322	3 ch	sou	270	20
152	Rajawatte	3325	8 ch	bro or pek	800	46
156	Yatiyana	3337	10 ch	bro pek	980	23
157		3340	5 do	pek No 1	460	21
158		3343	4 do	pek	4 4	18
159		3346	1 do	pek sou No 1	84	17
160		3349	1 do	pek sou	88	15
161		3352	1 do	dust	141	15
165	Kotagaloya	3364	9 hf ch	dust	720	26
169	Purana	3376	25 box	or pek	450	35
172		3385	3 hf ch	dust	255	25
173		3388	2 do	fans	180	27
182	Weyunga-watte	3415	1 ch	sou	95	20
183		3418	4 hf ch	dust	320	25
184	Mariawatte	3421	10 ch	sou	950	23
189	Marigalla	3436	2 ch	pek sou	160	24
190	C R S	3439	4 do	pek sou	292	15
191		3442	3 hf ch	pek fans	150	15
202	Tymawr, Inv. No. 12	3475	7 hf ch	dust	630	27
203		3478	6 do	fans	450	30
211	Mousakelle	3502	7 ch	pek sou	595	28
212		3505	4 do	sou	320	25
213		3508	4 hf ch	dust	300	26
219	Madulkelle	3526	2 ch	dust	210	26
220		3529	2 do	fans	210	27
225	Edward Hill	3544	7 ch	pek sou	644	25
239	Tempo	3586	11 ch	pek sou	825	24
240		3589	4 do	dust	320	25
241	A G	3592	1 ch	bro pek	95	35
242		3595	1 do	or pek	80	31
243		3598	3 do	pek	255	26
244		1	1 do	pek sou	65	24
247	Nugagalla	10	6 hf ch	dust	540	26
252	Queensland	25	1 ch	bro pek No 1	107	22
253		28	1 do	pek No 2	93	21
254		31	1 do	sou	90	16
255		34	7 hf ch	bro pek dust	448	28
256		37	1 do	dust No 2	76	28
263	R	58	9 ch	or pek	810	33
264		61	12 do	pek sou	960	25
265		64	1 do	dust	150	26
269	Massena	76	16 hf ch	pek sou	800	24
281	B P C	112	7 do	fans	490	28
290	Hanwella	139	1 hf ch	hyson No. 2	50	24
291		142	3 do	hyson dust	255	12
293	Letchmey	148	4 hf ch	bro or pek fans	280	28
294		151	10 do	pek fans	650	27
295		154	3 do	dust	270	26
300	Dammeria	169	10 ch	or pek	900	28
312	Erracht	205	5 ch	dust	805	26
319	Walpita	226	5 ch	sou	400	21
320		229	2 do	dust	300	27
324	Rickarton	241	5 hf ch	fans	425	26
329	Clarendon	256	7 ch	pek sou	735	25
330		259	5 hf ch	pek dust	400	26
340	Bopitiya	289	7 ch	sou	627	22
346	St. H	307	5 hf ch	pek sou	267	27 bid
351	Lunes	322	5 ch	bro pek fans	560	27
352		325	4 do	dust	680	25
353	R in est mark	328	1 ch	bro pek	85	26
354		331	1 do	pek	91	23
355		334	1 do	sou	93	out
356		337	1 do	fans	153	10
362	Hibarawa	355	9 ch	or pek	810	20 bid
364		361	10 do	pek sou	750	19
368	W A	373	4 ch	dust	640	24
369		376	3 do	bro mixed	345	23
374	Thedden	391	9 ch	pek	855	27 bid
375		394	2 do	pek sou	170	25
376		397	3 do	unassorted	390	27
377		400	1 do	dust	13	25
399	Talgaswella	466	5 hf ch	dust	450	5
404	Marlborough	481	9 ch	pek sou	765	27 bid
411	Handford	511	1 ch	fans	110	26
412		514	1 do	dust	115	25
416	C R D	517	5 ch	sou	400	18
417		520	4 do	pek	360	19
421	Ganapitiya	532	9 do	pek sou	711	26
425		544	9 ch	pek sou	729	26
438	Penrith	583	4 ch	pek sou	360	23
439		586	1 hf ch	fans	70	18
440		589	1 do	dust	80	25
441	Ti-moda	592	7 ch	bro pek	700	27
442		595	8 do	pe	720	27
443		598	1 do	pek sou	90	23
444		601	1 hf ch	fans	70	26
445		604	1 do	dust	80	25
455	Blarneywatte	634	10 ch	pek	900	26
456		637	2 do	pek sou	180	23
457		640	2 hf ch	dust	170	25
462	R H H	655	2 ch	fans	250	24
463		658	1 do	dust	150	24
472	Oodoowerre	685	8 ch	pek sou	600	22
473		688	2 hf ch	dust	160	24
478	Macaldeniya	703	3 hf ch	pek sou	165	27
479		706	3 do	fans	210	27
480		709	2 do	dust	170	26
483	Queensland	718	2 hf ch	bro pek dust	132	27
487	Templehurst	730	2 ch	pek fans	200	26
489	Preston	736	15 ch	or pek	630	43
492		745	2 do	fans	128	32
494	St. Margaret's	751	7 ch	pek	588	25 bid
496		757	5 hf ch	bro or pek fans	20	28
497	Coombecourt	760	3 hf ch	dust	225	26
498		763	5 do	fans	300	26
501	St. Heliers	772	8 hf ch	dust	656	26
506	Ardlaw and Wishford	787	4 ch	fans	496	27
507		790	2 do	dust	[illegible]	26
508	S W	793	9 ch	bro pek No 1	945	27
509		796	4 do	bro pek No 2	4[illegible]	22
510		799	4 do	pek	336	23

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Moneragalla	490	5 ch	fans	500	25
6		493	2 do	dust	212	26
7	P C L in est mark	496	1 ch	pek	90	25
10	Berugalla	505	10 ch	or pek	960	26
13	S W	514	1 hf ch	pek	49	17
18	Brecon	529	2 hf ch	fans	150	27
19		532	3 do	dust	270	25
20	D	535	9 ch	bro pek	900	30
21		538	7 do	pek	665	23
22		541	7 do	pek sou	630	18
23		544	1 do	congou	90	12
24	X X in est mark	547	1 ch	bro pek	100	24
25		550	1 do	bro or pek	99	22
26	C B in est mark	553	1 ch	bro or pek	99	23
31	Gampai	568	7 hf ch	dust	550	26

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	A E in est mark	739	3 ch	bro pek	261	out
3		742	2 do	pek	151	17 bid
8	Salawe	757	2 ch	pek fans	230	24
9		760	2 do	pk dust	368	25
12	Nellicollaywatte	769	7 ch	pek sou	595	25
13		772	2 hf ch	dust	174	26
14		775	2 do	fans	152	25
19	Hatdowa	790	5 ch	fans	500	25
20		793	5 hf ch	dust	400	26
24	St. Andrew's K	805	18 hf-ch	pe	900	25
25		808	2 do	pek sou	160	18 bid
26		811	2 do	dust	100	25
27	California	814	9 ch	bro pek	900	25
28		817	7 do	pek	700	20
29		820	6 do	pek sou	600	15
32	Laxapanagalla	829	6 ch	pek	540	24
33		832	2 do	fans	200	24
34		835	2 do	dust	200	25

Lot.		Box.	Pkgs.	Name.	lb.	c.
37	Mowbr y	841	7 ch	pek sou	595	24
44	M ragalla	8·5	2 ch	dust	226	24
45		863	2 bags	red leaf	128	10
53	Rahatung da	893	5 hf h	pek sou	260	28
58	New Angaman	90	11 ch	pek sou	990	25
59		910	3 do	fans	366	25
61	Yarrow	92	7 hf ch	fans	462	25
64a		9 a	3 do	fans No 2	193	27
67	Merriatenne	931	9 hf ch	pe sou	855	29
70	Pin eni Oya	943	3 ch	dust	420	24
74	Grange Gardens	9.5	5 ch	pek sou	500	24
75		953	4 do	fans	400	25
76		9.1	4 hf h	dust	340	26
80	Cooroondoowatte	7	4 ch	congou	410	14
81		976	3 hf ch	pe fans	240	25
82		979	3 ch	dust	310	23
85	St. Catherine's	9·3	3 ch	bro pek fans	318	26
89	Agra Elie. de	1	hf ch	pek sou	630	29
90	X X	1003	7 hf ch	br or pek fans	455	25
91		1006	2 do	pek dust	170	26
94	Agra Tenne	1015	ch	pek sou	700	27
95		1018	2 hf ch	dust	170	25
96	Handrokande	1021	5 ch	bro pek	525	25
97		1024	1 do	pek	100	18
98		1027	1 do	dust	140	20
101	Theberton	1036	1 ch	sou	85	23
102		1039	2 do	bro pek fans	200	27
103		1042	3 do	fans	300	26
107	Kurulugalla	1054	2 ch	bro tea	190	12
108		1057	2 do	bro pek fans	190	16
109		1060	2 do	or pk dust	280	22
114	W K Pj	1075	7 ch	sou	532	21
115		1078	10 hf ch	dust	794	25
116	G B	1081	12 hf ch	dust	600	26
120	Beausejour	1093	8 ch	pe sou	560	19
121		1096	4 do	br pek fans	360	22
122		1099	3 hf ch	dust	225	25
138	Annandale	1147	7 hf ch	fans	476	28
139	Fin est mark	1150	4 ch	pek sou	412	27
140		1153	6 hf ch	dust	486	26 bid
144	Oolowatte	1166	10 ch	pek sou	850	withd'n
145	O L W	1168	3 ch	br or pek fans	300	27
146		1171	2 do	dust	200	26
147	H J S	1174	6 hf ch	pe	360	20
148		1177	14 hf ch	pek sou	840	18
154	Kahatagala	1195	3 ch	or pek	255	30
155		1198	2 do	bro or pek	200	27 bid
156		1201	3 do	pek	210	24
157		1204	2 do	pek sou	160	20 bid
156	Murray-thwaite	1210	11 ch	pek	935	27
160		12	do	pek sou	480	24
161		1216	2 do	dust	310	24
162		1219	4 do	br pek fans	520	26
166	Iinkandi	12 1	ch	pek sou	405	24
167		1234	3 hf ch	bro or pk fans	204	26
168		1.3	do	dust	63	24
170		1243	10 ch	pek	900	27
171		1246	5 do	pek sou	405	23
172		1249	hf ch	bro or pk fans	204	25
173		12 2	1 do	dust	68	21
179	S	1270	hf ch	dust	480	26
180	A	1273	hf ch	sou	470	17
181		1276	4 do	dust	320	25
187	Avissawella	1294	6 hf ch	pek	400	26
192	Fernly	1309	4 hf ch	fans	260	24
193		1312	3 do	dust	225	25
196	Yspa	1321	3 ch	pek dust	420	26
197		1324	4 do	bro pek fans	500	27
200	Laxapana-galla	1 33	4 ch	pek	360	25
201		1336	2 ch	pek fans	200	21
202		1 3	2 do	dust	200	24
203	St Leys	1342	7 ch	sou	671	25
204		13 5	3 hf ch	fans	258	23
206	S T K R	1351	6 hf ch	bro pek	360	16
207		1354	5 ch	pek sou	425	12
208		1357	2 do	sou	190	10
209		1360	4 hf ch	bro or fans	280	14
210		1363	5 do	pek fans	360	17
211		1366	5 do	pek dust	450	15
212		1369	5 do	dust	450	15
213	M in est mark	1372	2 hf ch 1 box	pek sou	97	13
215	Bodawa	1378	9 ch	pek	810	25
216		1381	8 do	pek sou	680	21
217		1384	1 ch 1 hf ch	bro pek fans	220	25
218		1387	1 ch	bro mixed	92	12
222	Lauka	1399	5 ch	pek sou	450	22
223		1402	8 hf ch	dust	600	25
231	A H	1426	2 do	bro pek fans	140	25
232	R K	1429	6 do	fans	390	6 bid
237	Varalamure	14.4	4 do	dust	360	24
242	Ravenoya	1459	4 ch	pek sou	400	23
243		1462	1 do	sou	80	22
244		1465	5 do	fans	745	26
245	Passara	1468	2 hf ch	pek fans	140	24 bid
246	P engalla	1471	4 ch	pek fans	400	withd'n
250	Panmure	1483	4 ch	sou	360	24
251		1486	5 hf ch	br or pek fans	350	27
252		1489	4 do	dust	340	26
256	D K W	1501	11 do	s u	605	11 bid
258	Deniyaya	1507	8 ch	or pek	760	31
263		1522	5 hf ch	dust	475	25
264		1525	4 ch	pek fans	400	26
266	B and D	1531	7 hf ch	br pek fans	434	27
268	Pieters Hill	1537	5 ch	br pek	525	28
269		1540	4 do	pek	380	25
270		1.43	2 do	pek sou	180	22
271		1546	1 hf ch	dust	80	24

Messrs E. John & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Y	746	6 ch	red leaf	540	11
2	R M	749	9 hf ch	dust	810	25
3	S	752	2 ch	or pek	200	29
4		755	3 hf ch	bro or pek	165	out
5		758	1 ch	pek	85	23
8	Heatherly	761	3 do	siftings	465	12
12	Cabin Ella	779	2 hf ch	pe fans	140	27
13		782	2 do	pek dust	180	25
16	Ratwatte	791	5 ch	pek sou	400	22
17		794	5 hf ch	dust	400	25
25	Galata	818	10 do	dust	770	25
26	Elston	821	5 ch 1 hf ch	pek	448	21 bid
27		824	1 ch	bro pek fans	60	23
41	Higham	866	2 hf ch	dust	190	25
42		869	2 ch	sou	200	19
43		872	9 hf ch	bro pek fans	675	27
44	Allakanda	875	10 ch	sou	860	15
49	St. Clair	890	10 do	pek sou	810	27
51		693	6 do	fans	654	30
52	Iona	899	6 hf ch	bro or pe fans	420	27
53		902	5 do	dust	425	26
59	Natuwakelle	920	8 ch	pek sou	720	24
60		923	3 do	dust	300	26
69	Cleveland	950	10 hf ch	bro pek	600	33
72		959	7 do	fans	560	27
81	Gonavy	986	16 do	bro or pek	880	38
85	Theresia	998	6 do	dust	480	26
86		1	1 ch	sou	100	25
89	Bittacy	10	12 hf ch	bro or pek	600	48 bid
90		13	4 ch	fans(not bkd.)	440	28
91		16	2 do	pek sou do	180	26
92		19	3 hf ch	dust do	252	26
93	Midlothian	37	18 do	or pek	900	28
101		43	3 do	fans	240	26
103	Callander	52	14 do	pek sou	630	27
108	Mount Everest	67	14 do	bro pek fans	980	28
109		70	4 do	dust	400	26
113	P K T	82	11 ch	fans	770	25
114		85	11 do	dust	935	24
119	Mahanilu	100	4 hf ch	dust	336	26
123	Rahagalla	112	3 do	dust	252	26
128	Brownlow	127	10 do	bro pek fans	760	28
129	Hiralouvah	130	10 ch	pek sou	950	20 bid
130		133	5 hf ch	dust	420	24
131	Eladuwa	136	1 do	pek sou	30	13
132		139	2 ch	unas	200	13
133		142	3 do	dust	310	22
137	Mt. Vernon	154	8 hf ch	dust	744	27
138	Galpotta	157	13 do	fans	845	12
139	Y K	160	9 ch	pek fans	900	20
140		163	12 do	sou	720	12
145	Lanefield	178	3 do	bro pek fans	303	20 bid
146	The Farm	181	6 do	dust	510	26
153	Bowella	202	2 do	pek sou	180	23
154		205	3 hf ch	dust	225	24
155		208	1 ch	fans	100	25
174	Rookwood	265	3 do	bro pek	306	27
175		268	2 do	pek dust	280	25
177	L F	274	3 do	sou	270	15
178		277	4 hf ch	dust	286	18
181	E tie	286	1 do	bro or pek	58	35
185	Upper Hewa-hetta	298	2 ch	bro pek	264	withd'n
186		301	3 do	pek dust	420	withd'n
190	North Pundul-oya	313	7 do	byson No 2	700	26
191		316	11 hf ch	siftings	770	12 bid
195	Doonhinde	328	8 ch	pek sou	800	26
196		331	2 do	fans	200	26
197		334	4 do	dust	440	26

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, May 30th.

"Ulysses."—C T P & Co., Pita Ratmalie Ceylon, London B, 1 cask and 1 tierce sold at 85s; ditto C, 1 tierce sold at 53s; Mousagala A, 2 barrels old at 109s; ditto B, 3 casks sold at 94s.

CEYLON COCOA SALES IN LONDON.

"Clan Ferguson."—Katugastota, 20 bags sold at 67s 6d; 12 at 67s; 9 at 61s; 10 at 55s.
"Japan."—Ingurugalle A, 89 bags sold at 60s; T, 4 at 40s.
"Peleus."—Ingurugalle A, 18 bags sold at 59s; T, 1 at 33s.
"Persia."—AM in estate mark, London A, 23 bags sold at 50; ditto B, 2 at 38s 6d.
"Wakasa Maru."—2 Yattawatte, 6 bags sold at 45s 6d; 1 ditto, 28 at 54s.
"Peleus."—2 Yattawatte, 6 bags sold at 45s 6d; Broken, 1 bag sold at 51s.
"Ajax."—NC in estate mark A, 1 bag sold at 49s.
"Shropshire."—2 Yattawatte, 2 bags sold at 45s 6d.
"City of Perth."—AL in estate mark, Estate Cocoa, 8 bags sold at 52s, L in estate mark, 25 bags sold at 52s.
"Tamba Maru."—1 G in estate mark, 6 bags sold at 50s.
"Dordogne."—A in estate mark, 1 bag sold at 45s; AA in estate mark, 2 bags sold at 45s; A in estate mark, 6 bags sold at 45s.
"Ajax."—H in estate mark, 1 bag sold at 45s.
"Bingo Maru."—Middlemarch Forestero No. 1, 2 bags sold at 54s 6d; ditto No. 2, 1 at 45s: ditto No. 1, 1 at 45s; ditto No. 2, 2 at 45s 6d; ditto Black, 2 at 20s.
"Ulysses."—Warriapolla, 40 bags sold at 66s 6d; 3 at 51s 6d; 13 at 49s 6d; 6 at 38s 6d.
"Clan Ferguson."—Udapolla A, 39 bags sold at 59s; ditto B, 12 at 57s 6d; ditto G, 8 at 45s; ditto C, 10 at 30s 6d; ditto Pieces, 1 at 34s.
"Senator."—Beredewelle C O C Ex. No. 1, 22 bags sold at 74s; ditto B, 5 at 39s 6d; ditto T, 1 at 35s.
"Ulysses."—Laxahena O, 7 bags sold at 61s; ditto OO, 8 at 66s 6d; ditto 2, 1 at 44s.
"Clan Ferguson."—K M A in estate mark, 130 bags sold at 52s; 20 at 52s 6d; K M in estate mark, 149 bags sold at 53s.
"Bombay."—K A in estate mark, 175 bags sold at 53s.
"Ulysses."—K A in estate mark, 21 bags sold at 44s.
"Clan Ferguson."—F OBEC in estate mark, Kondesalle Ceylon O, 16 bags sold at 68s; F ditto 1, 3 at 52s; ditto O, 2 at 63s; ditto D 2, 2 at 49s 6d; ditto G, 1 at 16s: ditto B, 3 at 33s 6d.
"Ulysses."—N N, 2 bags sold at 50s 6d; 9 at 45s; Arduthie, 9 bags sold at 50s; 2 at 44s 6d; Arangalla, 3 bags sold at 31s 6d; 3 at 51s.
"Bingo Maru."—Monarakelle 1, 20 bags sold at 66s 6d; 26 at 66s; 2, 2 at 43s; Broken, 1 at 50s.
"Clan Sutherland."—Woodthorpe, 20 bags sold at 61s 6d; 19 at 61s; 1 at 18s; Pieces, 2 at 50s.
"Kamakura Maru."—Meegama 1, 26 bags sold at 57s; B, 4 at 44s 6d; 1 at 45s; 1, 1 at 51s.

CEYLON CINNAMON SALES IN LONDON.

"Clan Ferguson."—ABC in estate mark, London, 40 bags sold at 2⅝d; 40 at 2½d; 190 at 2 9-16d.
"Tonkin."—NJDS in estate mark, Dehigoda Plantation London, 8 bales sold at 8½d; 8 at 8d; 5 at 7d; 2 at 6¼d.
"Scindia."—MAK in estate mark, Plantation Cinnamon Ceylon, 4 bags sold at 8d; 6 at 7½d; 6 at 6¾d; 6 at 5½d; 5 at 5d.
"Jumna."—M D A & Co, R in estate mark, 2 bags sold at 7½d; 6 at 6½d; 4 at 5d; 2 at 4d.
"Tonkin."—NJDS in estate mark, Ekelle Plantation, 1 bag sold at 8d; 22 at 5½d.
"Historian."—NJDS in estate mark, Ekelle Plantation, 8 bags sold at 6¼d; 3 at 6¼d; 3 at 6½d; 3 at 7½d.
"Sanuki Maru."—M D & Co, R in estate mark, Ekele, 2 bags sold at 6d; ditto Estate Peacas, 16 at 1d.
"Staffordshire."—ASGB in estate mark, Kaderane, 6 bales sold at 1s 8d; 2 at 1s 9d; 6 at 1s 6d; 8 bales and 1 parcel at 1s 5d; 6 bales at 1s 4d; 10 at 1s 5d; 4 bales and 1 parcel at 1s 3d; 8 bags at 11d; 6 at 10d; 1 at 9½d; 6 at 8½d; 1 box at 9d; 1 bag at 9½d; 4 bags at 9½d.
"Ajax."—FSK Kaderane, 6 bales sold at 1s 5d; 11 at 1s 4d; 5 at 1s 2d; 4 at 11d; 9 at 8½; 1 box at 9d; 4 bags at 9½.
"Bombay."—FSWS in estate mark, Kaderane, 4 bales sold at 1s 5d; 5 at 1s 3d; 5 at 1s 2d; 2 at 10½d; 1 at 8½d; 3 at 9½d; 5 at 8½d; 1 at 11d; 4 at 10d; 4 at 9d; 1 bale and 1 parcel at 7½d; 1 bag at 8½d; 2 at 2½d; FSWS, North Kaderane, 7 bales at 1s 5d; 8 at 1s 3d; 3 at 1s 2d; 2 at 11d; 1 at 8½d; 2 bags at 9d; 1 at 7d; 1 at 3½d; RSKW, Jaela, 3 bales at 1s 4d; 4 at 1s 3d; 2 at 1s 2d; 1 bale and 1 parcel 8½d; 2 bags at 9d.
"Sado Maru."—C H de S, Ratmalane, 2 bales sold at 1s 2d; 10 at 1s; 7 at 10d; C H de S, Morotto, 3 at 10½d; 6 at 10d; 2 at 9½d; 3 at 8d; C H de S, Kandevalle, 2 at 10s; 4 at 9½d; 6 at 8½d; C H de S, Koottariavalle, 1 at 1s 2d; 3 at 11½d; 4 at 9½d; 1 at 8d.
"Jumna."—C H de S, Rustoom, 1 bale sold at 1s 2d; 9 at 1s; 13 at 9½d; Salawa, 1 at 1s 1d; 4 at 1s; 4 at 9½d; Bagatelle, 2 at 1s 3d; 4 at 1s; 3 at 9½d; 1 at 8d.
"Bingo Maru."—GH, in estate mark, Ekella Plantation, 24 bales sold at 9s; 25 at 8d.
"Peleus."—FFS, in estate mark, 3 bales sold at 9d; 2 at 8d; 1 at 7d.
"Clan Ferguson."—XMAK, in estate mark, Plantation, 5 bales sold at 8d; 5 at 7d; 4 at 6d; 3 at 5d; R and Co, in estate mark, London, 120 bags at 2⅝d.

CEYLON CARDAMOMS SALES IN LONDON.

"Senator."—Midlands O, 6 cases sold at 1s 8d; ditto 1, 8 at 1s 4d; ditto 2, 2 at 1s.
"Somali."—B & S, 1 case sold at 1s 1d; Elkadua O, 2 at 1s 9d; ditto O, 2 at 1s 10d; ditto 1, 7 at 1s 4d; ditto 2, 1 at 1s; ditto B & S, 1 at 1s 1d; ditto seed, 1 at 1s 6d.
"Clan Ferguson."—OBEC, in estate mark, Naranhena AAAA, 1 case sold at 2s 5d; AAA, 2 at 2s 2d; ditto AAA, 3 at 2s 1d; ditto AA, 2 at 1s 5d; ditto AA, 2 at 1s 6d; ditto A, 1 at 1s 2d; ditto BB, 1 at 1s 1d; ditto B, 1 at 1s; ditto R, 1 at 1s 9d; O BEC, in estate mark, Nilloomally. Mysore OOO, 1 at 1s 6d; AL Mysore 1, 5 at 1s 3d; ALL Malabar, 4 at 2s 10d; ditto 2, 2 at 11d; AL 1, seed, 10 at 1s 8d; ditto L, seed, 1 at 1s 2d.

TEA COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 25. COLOMBO, JUNE 30th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[46,584 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Bunyan and Avoca	12	69 hf ch	bro or pek	4140	42 bid
2		15	81 do	or pek	4050	35 bid
3		18	36 ch	pek	3420	28 bid
4		21	26 do	pek No. 2	2470	35
5		24	32 do	pek sou	2880	27
6		27	47 hf ch	pek fans	3055	28
7		30	22 do	dust	1870	27
9	Hornsey	36	52 do	bro pek	3117	33 bid
10		39	37 ch	pek	2957	27 bid
11	Torrington	42	40 ch	or pek	3400	37
13		45	26 do	bro pek	2600	37 bid
13		48	17 do	bro or pek	1700	39 bid
14		51	52 do	pek	4160	24 bid
15	Hornsey	54	48 hf ch	bro pek	2880	37 bid
16		57	25 ch	pek	2125	27 bid
17		60	22 do	pek sou	1540	24 bid

Messrs. Forbes & Walker.

[649,554 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Drayton	802	40 ch	pek	3600	31
2		805	20 do	pek sou	1600	28
9	O B E C, in estate mark Sindumally	826	16 ch	bro or pek	1680	34
10		829	27 do	bro pek	2430	31
11		832	27 do	pek	2295	26
12		835	18 do	pek No 1	1620	25
13		838	16 do	pek sou	1120	23
19	Ninfield	856	13 ch	bro pek	1300	29
20		859	22 do	pek	1980	25
24	Eastland	871	11 ch	bro or pek	1568	35
25		874	20 do	or pek	1820	33
26	Matale	877	33 hf ch	bro pek	2280	34
27		880	18 ch	pek	1620	30
28		883	12 do	pek sou	1080	23
37	O B E C, in estate mark Newmarket	910	13 ch	fans	1599	30
38		913	11 do	dust	4650	23
39	P M, in estate mark	916	40 hf ch	bro or pek	2160	33
40		919	80 ch	bro pek	8000	25 bid
41		922	50 do	pek	4200	28
49	Haputelewella	946	26 hf ch	bro pek	1677	33 bid
50		949	26 do	pek	1167	31
54	Newgalway	961	23 do	bro pek	1380	43
55		964	22 do	pek	1210	34
56	Avoca	967	20 ch	pek sou	1920	26 bid
57		970	1? do	bro pek fans	1485	27
58	Lindupatna	973	17 ch	pek sou	1632	27 bid
60	Glenorchy	979	101 hf ch	bro pek	6060	39 bid
61		982	57 ch	pek	5415	31 bid
62		985	51 do	pek sou	4845	withdn.
63		988	51 do	pek	4842	31 bid
65	St. Paul's Inv. No. 19	994	23 hf ch	bro or pek	1508	32 bid
66		997	36 do	or pek	1800	24
67		1000	111 do	pek	5499	29 bid
69	O B E C, in est. mark Nillomally,	1006	27 ch	pek	2430	30
70		1009	21 do	or pek	1722	37
71		1012	27 do	bro or pek	2700	55 bid
72		1015	28 do	pek sou	2352	26
74	Chrystler's Farm	1021	50 hf ch	bro pek	2750	43
75		1024	35 ch	pek	3150	31
78	Panawatte	1033	12 ch	bro or pek	1392	33
79		1036	30 do	bro pek	3000	32
80		1039	19 do	pek	1767	30
81		1042	14 do	pek sou	1302	26
83	O B E C, in est. mark Newmarket	1048	28 hf ch	bro pek dust	2166	50
84		1051	42 ch	bro pek	4410	34
85		1054	31 do	pek	2790	29 bid
86		1057	19 do	pek sou	1710	28
91	Tonacombe	1072	50 ch	or pek	4500	32
92		1075	46 do	bro pek	4600	32 bid
93		1078	62 do	pek	5270	27 bid
94		1081	25 do	pek sou	2000	25
95	Koskellie	1084	17 hf ch	bro pek	1020	39 bid
96		1087	25 ch	or pek	2500	33
97		1090	16 do	pek	1536	30
98		1093	49 do	pek sou	4410	27
100	Dromoland	1099	26 hf ch	bro or pek No 1	1456	40 bid
101		1102	26 do	bro or pek No 2	1300	34
102		1105	15 ch	pek	1290	27 bid
107	Marlborough	1120	28 hf ch	bro or pek	1400	56
108		1123	24 ch	bro pek	2400	35 bid
109		1126	21 do	or pek	1890	33
110		1129	30 do	pek	2850	30
111		1132	14 do	pek sou	1260	27
112	Ingoya	1135	29 ch	young hyson	2900	33 bid
113		1138	28 do	hyson	2520	30 bid
114		1141	16 do	hyson No 2	1444	28 bid
116	Poonagalla	1147	20 ch	or pek	1900	39 bid
117		1150	54 do	bro pek	6048	53 bid
118		1153	61 do	pek	5795	35 bid
120		1159	17 hf ch	fans	1258	28
121		1162	12 do	dust	1104	27
122	Udapolla	1165	17 ch	bro pek	1700	26
124		1171	18 do	pek	1020	25
127	Strathisla	1180	27 ch	bro or pek	2700	31
128		1183	14 do	or pek	1120	25 bid
129		1186	23 do	pek	2070	26
132	Stranraer	1195	38 ch	bro or pek	3800	33 bid
133		1198	19 do	or pek	1710	30
134		1201	25 do	pek	2000	31
135		1204	19 do	pek No. 2	1805	29
136		1207	20 do	bro pek fans	2000	28
137	Clyde	1210	78 hf ch	young hyson	4212	33
138		1213	36 ch	hyson	3456	30
139		1216	21 do	do No 2	1932	28
142	Putupaula	1225	12 ch	bro or pek	1140	44
143		1228	55 do	or pek	4675	29 bid
144		1231	41 do	pek	3075	25 bid
148	B B, in estate mark	1243	15 ch	pek sou	1197	withdn
149	Monterey	1246	18 ch	pek sou	1620	22
150	O B E C, in eestate mark Summerhill	1249	27 ch	bro or pek	1593	50 bid
151		1252	35 do	bro pek	2240	45
152		1255	21 do	or pek	1911	36 bid
154	G D	1261	11 ch	pek	1034	28
156	Mansfield	1267	53 hf ch	bro pek	3180	47
157		1270	20 ch	pek	2060	36
159	Lauderdale	1276	15 ch	sou	1425	22
164	Forest Creek	1291	39 ch	bro pek	4017	out
166	Sylvakandy	1297	11 ch	bro or pek No 1	1100	45
167		1300	32 do	bro or pek No 2	3200	37
168		1303	13 do	bro pek	1300	33
169		1306	17 do	or pek	1700	34
170		1309	31 do	pek	3100	30
173	Bramley	1318	31 ch	bro pek	1860	32
174		1321	26 do	pek	1352	29
176		1327	40 do	or pek	2080	35
177	Wyamita	1330	11 ch	bro pek	1210	31
178		1333	16 do	pek	1520	25
179		1336	12 do	pek sou	1020	24
183	Dickoya	1348	22 hf ch	bro or pek	1210	49
184		1351	21 ch	bro pek	2100	39
185		1354	19 do	pek	1805	26 bid
187	Puspone	1360	11 ch	or pek	1056	28
188		1363	50 do	pek	5600	28
189	Amblakande	1366	11 ch	bro pek	1100	29
190		1369	21 do	pek	1680	24
193	Coreen	1378	32 ch	bro pek	3520	38
194		1381	40 do	or pek	3600	32 bid
195		1384	24 do	pek	2040	30
196	Dambagastalawa	1387	17 ch	pek sou	1632	27
198	R M, in estate mark Bopitiya	1393	28 ch	bro or pek	2940	withdn.
199		1396	29 do	or pek	2610	withdn.
200		1399	20 do	pek	1800	withdn.
201		1402	19 do	pek sou	1710	withdn.
203	Carlabeck	1408	30 ch	pek sou	2880	25 bid
204		1411	13 do	bro pek fan	1755	27
209	Stafford	1426	23 ch	or pek	2300	34 bid
210		1429	16 do	pek	1440	30 bid
213	St. Heliers	1438	26 hf ch	bro or pek	1456	39

Lot.		Box.	Pkgs.	Name.	lb.	c.
216	Palmerston	1417	18 hf ch	bro or pek	1044	49
217		1450	18 ch	pek	1530	3? bid
218	Battawatte	1453	18 hf ch	bro or pek	1170	30
219		1456	42 ch	bro pek	4620	31
220		1459	35 do	pek	3325	29
221		1462	18 do	pek sou	1620	25
223	Kirklees	1468	45 hf ch	bro or pek	2700	38
224		1471	33 ch	or pek	2970	34
225		1474	25 do	pek sou	2250	28
226		1477	12 hf ch	dust	1080	23
227	Ruanwella	1480	16 ch	bro or pek	1600	27
228		1483	18 do	bro pek	18 0	25
229		1 86	20 do	or pek	1800	28
230		1489	32 do	pek	2880	23
231		1492	11 do	pek sou	1045	22
232		14?5	11 do	bro pek sans	1210	27
234	Dea Ella	1501	25 hf ch	bro or pek	1375	30
235		1504	40 do	or pek	2200	28
236		1507	35 do	pek	1750	24
240	Erracht	1519	16 ch	bro or pek	1600	27
241		15 2	12 do	or pek	1020	33
243		152?	20 do	pek	1700	23 bid
246	Inverness	1537	22 ch	bro or pek	2200	37 bid
247		1540	41 do	or pek	3690	41
248		1543	29 do	pek	2465	36
249	Ganapalla	1 46	30 ch	or pek	2100	withd'n
250		1549	30 do	bro or pek	2850	withd'n
251		1552	62 do	pek	4?74	withd'n
252		1555	12 hf ch	dust	1032	withd'n
253	Seenagolla V.	1558	22 hf ch	br or pek	1364	43
254		1561	16 ch	or pek	1520	38
255		1564	17 do	pek	1700	34
257	Fairlawn	1570	26 hf ch	bro or pek	1430	53
258		1573	34 do	or pek	1530	40
259		1576	29 ch	pek	2465	33
260		1579	14 do	pek sou	1190	28
262	Killarney	1585	20 hf ch	bro or pek	1100	56
263		1588	18 do	bro pek	1044	34
264		1591	15 do	or pek	1230	35
265		1594	18 do	pek	1530	29 bid
266	Bandara Eliya	1597	65 hf ch	or pek	3575	33 bi
267		1600	50 do	br or pek	3000	34 bid
268		1603	72 do	pek	3456	30 bid
270	Stamford Hill	1609	51 hf ch	bro pek	3057	36 bid
271		16?2	40 do	or pek	1917	40
272		1615	40 ch	pek	3?97	30 bid
273	Penrhos	1618	30 hf ch	bro pek	1710	30
274		1621	36 do	or pek	17?8	33
275		1624	30 ch	pek	24 0	27
276		1627	15 do	pek so	1155	23
283	Munukettia, Ceylon in est mark	1648	14 ch	or pek	1260	33
284		1651	38 hf ch	bro pek	2280	49
285		1654	22 ch	pek	1760	30
286		1657	13 do	pek sou	1274	27
287	Coldstream Group.	1660	143 hf ch	bro pek	8030	33
288		1663	64 ch	pek	5120	28
289		1666	16 do	pek sou	1280	24
292	Geragama	1675	13 ch	bro or pek	1?65	28
293		1678	40 do	bro pek	3600	27
294		1681	46 do	pek	3680	24
295		1684	52 do	pek sou	3900	23
296	Cranley	1687	21 ch	pek sou	1785	26 bid
297	Baddegama	1690	22 ch	bro or pek	2200	29 bid
298		1693	12 do	or pek	1080	23 bid
309	Erroll wood	1726	39 hf ch	bro or pek	23 0	31 bid
310		1729	16 ch	or pek	1600	31
311		1732	20 do	pek	1900	27
317	North Cove	1750	20 hf ch	bro or pek	1200	56
318		1753	41 do	bro pek	2578	34
319		1756	17 ch	pek	1615	30 bid
320	Middleton	1759	23 hf ch	bro or pek	1380	63
321		1762	29 ch	or pek	2610	32
322		1765	20 do	bro pek	2100	38
323		1768	18 do	pek	1530	29
327	Penrith	1780	12 ch	bro pek	1200	26
330	Halbarawe	1789	29 ch	bro pek	2900	24
333	Gallcheria	1793	18 ch	bro or pek	1800	51 bid
334		1801	20 do	or pek	1600	38 bid
335		1804	36 do	pek	3240	32 bid
336		1807	16 do	pek sou	1520	29 bid
338	El Teb	18 3	35 ch	or pek	3675	30 bid
339		1816	43 hf ch	bro or pek	2623	40 bid
340		1819	30 ch	pek	2850	26 bid
342	Yataderia	1825	22 hf ch	dust	1980	26
343	Mawiliganga-watte	1828	73 ch	bro pek	7008	25
344		1831	42 do	pek sou	3150	21 bid
345		1834	10 do	dust	1000	27
346	Glengariffe	1837	30 hf ch	bro or pek	1800	34
347		1840	29 ch	pek	2368	28
348		1843	18 do	or pek	1584	32
349		1846	27 do	pek sou	2025	25
350		1849	14 hf ch	dust	1120	27
351	Monkswood	1852	19 hf ch	bro pek	1116	59 bid
352	Mousa Eliya	1855	13 ch	bro or pek	1280	27 bid
353	Laurawatte	1858	19 hf ch	fans	1539	26
354	Deaculla	1861	67 hf ch	bro pek	3685	34
355		1864	63 do	pek	4100	28
366	Cloyne	1897	12 ch	bro or pek	1296	27 bid
367		1900	12 do	or pek	1140	29 bid
368		1903	20 do	pek	1800	26
374	Pallegodde	1921	22 ch	bro or pek	2?00	27
375		1924	31 do	bro pek	3100	27
376		1927	27 do	or pek	2160	25
377		1930	31 do	pek	2480	25
378		1933	29 do	pek sou	2030	22
383	Bandara Eliya	1948	49 hf ch	or pek	2695	35
384		1951	59 do	bro or pek	3540	33 bid
385		1954	33 do	pek	1650	33
390	Templehurst	1969	14 ch	bro or pek	1369	31 bid
391		1972	13 do	pek	1193	28
392	Morankande	1975	21 hf ch	bro or pek	1260	28
393		1978	33 do	or pek	1650	53
394		1981	30 ch	pek	2700	25
398	Waldemar	1993	42 hf ch	bro or pek	2688	44 bid
399		1996	20 ch	bro pek	2000	37 bid
400		1999	40 do	or pek	4000	37 bid
401		2002	17 do	pek	1564	34
402		20?5	18 do	pek sou	1530	27 bid
403		2008	13 hf ch	fans	1092	28
404	Osborne	20?1	26 ch	bro or pek	2?30	32 bid
405		2014	21 do	or pek	1848	27 bid
406		2017	10 do	bro pek	1070	27
410	Bramley	2029	47 hf ch	bro pek	2723	31 bid
411		2032	26 do	or pek No 1	1445	40
412	Ambalangode	2035	24 ch	bro or pek	1200	30 bid
413		2038	26 do	or pek	2600	28 bid
414		2041	22 do	pek	1980	26 bid
415		2044	13 do	pek sou	1105	24

Messrs. Keell and Waldock.

[49,908 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Morahela	574	29 ch	bro or pek	2712	28 bid
2		577	34 do	br pek	3400	33 bid
3		580	39 do	or pek	3510	29 bid
4		583	40 do	pek	3440	22 bid
9	Kinchin	598	13 ch	or pek	1170	28 bid
10		601	24 do	pek	2160	26 bid
12	Lowlands	607	27 ch	br pek	2700	26 bid
14		613	10 do	br pek	1000	26 bid
18	Panilkande	625	20 hf ch	br or pk No 1	1000	47 bid
19		628	21 ch	bro or pek	2100	30 bid
20		631	20 do	pek	1800	29 bid
23	Aigburth	640	25 ch	bro pek	2375	28 bid
24		643	17 do	pek	1530	26
25		646	14 do	pek sou	1190	23
27	H in est. mark	652	24 ch	pek	2400	22 bid
28		655	13 do	pek sou	1170	20
29	Hyde	658	13 ch	or pek	1196	36
30		661	18 hf ch	bro or pek	1098	37
31		664	18 do	pek	1656	34
34	Taprobana	673	37 hf ch	bro pek	2?35	27 bid
35		676	25 ch	pek	2000	24 bid

Messrs. Somerville & Co.

[239,983 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Paradise	1561	17 ch	bro pek	1785	25
5		1564	14 do	pek	1335	23
6		1567	15 do	pek sou	1350	22
9	Carney No. 1	1576	23 hf ch	br pek	1150	30
10		1579	17 do	pek	1215	24
11		1582	26 do	pek sou	1300	23
16	Marigold	1597	64 hf ch	bro pek	2916	35
17		1600	38 do	pek	1824	31
18		1603	31 do	pek sou	1488	28
19	Allacollawewa	1606	40 hf ch	bro pek	2160	35
20		1609	25 do	pek	1200	33
21		1612	22 do	pek sou	1056	28
24	S R K	16?1	12 ch	pek	1200	29
26	Roths	1627	31 hf ch	bro pek	2108	32 bid
27		1630	14 ch	pek	1330	29
30	Columbia	1639	34 hf ch	bro or pek	2040	31 bid
31		1642	38 hf ch	or pek	1900	32
32		1645	25 ch	pek	2325	30
34	Carney	1651	23 hf ch	bro pek	1150	31
35		1654	24 do	pek	1080	24
36		1657	23 do	pek sou	1150	23

Lot.		Box.	Pkgs.		Name.	lb.	c.
41	Mousa Eliya	1672	21	ch	br pek	2100	30
42		1675	11	do	or pek	1232	31
43		1678	17	do	pek	1615	27
45		1684	10	ch	dust	1000	26
46	Ramboddle	1687	43	hf ch	br pek	2365	30 bid
47		1690	48	do	pek	2160	23 bid
52	Nyanza	1705	14	ch	or pek	1330	32
53		1708	21	hf ch	bro or pek	1155	43
54		1711	17	ch	pek	1530	28
55	Ravenscraig	1714	27	hf ch	br pek	1485	34
56		1717	12	ch	pek	1080	27
61	Patulpane	1732	12	ch	br pek	1200	22
67	Tavalamtenne	1750	47	hf ch	bro or pek	2820	32 bid
68		1753	90	do	pek	5040	25 bid
69		1756	117	do	sou	5850	24 bid
73	Harangalla	1768	40	ch	br pek	3400	31
74		1771	73	do	pek	5840	25 bid
75		1774	19	do	bro pek fans	1900	26 bid
76		1777	16	do	pek sou	1280	23 bid
78	Roseneath	1783	34	ch	br pek	3400	29
79		1786	17	do	pek	1530	26
80		1789	21	do	pek sou	1785	23
83	Blinkbonnie	1793	24	hf ch	bro or pek	1440	45
84		1801	18	ch	pek	1710	33
86	Owilikande	1807	32	ch	br pek	3200	28
87		1810	24	do	pek	2280	24
91	Kinross	1822	17	ch	bro or pek	1870	27 bid
92		1825	14	do	or pek	1330	31
93		1828	27	do	pek	2130	29
95	Waganila	1834	15	ch	bro pek	1500	33 bid
96		1837	25	do	pek	2375	
99	Kurunegalle Est Company	1846	26	hf ch	bro or pek	1503	26
100		1849	34	do	or pek	1700	27
101		1852	28	ch	pek	2380	25
102		1855	17	do	pek sou	1360	23
104	Ambalawa	1861	19	ch	pek	1520	24
105		1864	12	do	or pek	1020	24
106		1867	10	do	bro pek	1000	26
107	Hapugasmulle	1870	10	ch	bro pek	1100	26
109		1876	13	do	unast	1300	18
111	Cooroondoowatte	1882	13	ch	bro pek	1300	28
112		1885	37	do	pek	3565	25
116	Mahatenne	1897	10	ch	bro or pek	1000	39
117		1	11	do	or pek	1100	29
118		4	14	do	pek	1330	24 bid
119		7	12	do	pek sou	1140	23
122	Citrus	16	31	ch	br pek	3100	22
123		19	31	do	pek	3100	21
129	Labuduwa	37	11	ch	pek sou	1100	22
131	Old Maddegama	43	14	ch	bro or pek	1092	56
133		49	25	do	pek	2125	37
136	Dalukolawatte	58	25	hf ch	bro or pek	1500	34 bid
137		61	21	do	pek	1155	23 bid
138		64	12	ch	pek sou	1080	24 bid
139	Meddegodde	67	59	hf ch	bro or pek	3215	29
140		70	33	do	or pek	1650	32
141		73	88	do	pek	4400	27
142		76	53	do	pek sou	2650	23
146	Hobart	79	21	ch	bro pek	2058	24 bid
154	Jak Tree Hill	112	18	ch	bro pek	1800	23 bid
155		115	17	do	pek	1530	25
156		118	20	do	pek sou	1800	22
158	Scarborough	124	17	ch	or pek	1700	34 bid
159		127	15	do	pek	1500	35
161	D M O G in mark	133	39	hf ch	bro pek	2145	28 bid
162		136	31	do	or pek	1550	30 bid
163		139	25	ch	pek	2000	26 bid
164		142	24	do	pek sou	1800	25
165	Annandale	145	19	hf ch	or pek	1026	41
166		148	20	do	pek	1080	36
169	Hawa Ella	157	17	ch	pek sou	1530	23 bid
170	Panmure	160	35	ch	pek	3150	28 bid
171	Oonanagalla	163	51	hf ch	br pek	2805	33
172		166	51	ch	pek	[illegible]	28 bid
173		169	42	do	pek	3570	28
			42	do	pek	3570	out
174		172	19	do	pek sou	1615	25 bid
176	Warakamure	178	33	ch	br pek	3300	27
177		181	23	do	pek	1978	24
185	Damblagalla	205	12	ch	or pek	1170	31
186		208	40	hf ch	bro pek	2400	28
187		211	20	ch	pek	1700	25 bid

Messrs. E. John & Co.

[238,214 lb.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
4	L H O	358	22	ch	pek sou	1980	20 bid
5		361	16	do	fans	1792	26
7	Dickbedde	367	10	do	bro pek	1003	withd'n
8		370	14	do	pek	1400	withd'n
10	Oonogaloya	376	19	do	or pek	1710	34
11		379	16	do	bro or pek	1600	34 bid
12		382	29	do	pek	2465	29
17	Koslanda	397	27	hf ch	bro pek	1485	25 bid
18		400	18	ch	pek	1530	23
21	Fordyce	409	20	hf ch	fans	1500	27
22		412	14	do	dust	1169	26
23	Templestowe	415	45	do	bro or pek	2520	39
24		418	33	do	or pek	1485	36
25		421	24	ch	pek	2112	32
26		424	20	do	pek sou	1800	29
27		427	17	hf ch	fans	1190	29
28	Eila	430	114	ch	pek No. 2	9120	21 bid
29	Winwood	433	33	hf ch	bro or pek	1650	39 bid
30		436	23	ch	or pek	2070	29 bid
31		439	30	do	pek	2700	28
32		442	23	do	pek sou	2070	23 bid
33	Merrow	445	45	hf ch	bro pek	2520	27
34		448	16	ch	pek	1600	24 bid
36	Kelaneiya and Braemar	454	22	do	bro or pek	2200	46
37		457	13	do	or pek	1300	35
38		460	34	do	pek	3230	30
42	Upper Hewahetta	472	47	hf ch	bro or pek	2820	30 bid
43		475	39	ch	or pek	3744	26 bid
44		478	14	do	pek No. 1	1260	26 bid
47		487	43	do	pek	3870	25 bid
48	Moragalla	490	27	do	bro pek	2700	30
49		493	13	do	pek	1105	25
51	St. Clair	499	36	do	or pek	3600	withd'n
52		502	30	do	pek	2880	withd'n
53	Balado	505	20	do	pek	2000	24 bid
54		508	19	do	pek sou	1520	24 bid
61	Ohiya	529	12	do	pek sou	1020	25 bid
64	Brownlow	538	21	hf ch	bro or pek	1176	56
65		541	26	ch	or pek	2314	33 bid
66		544	18	do	pek	1584	30 bid
67	Katawella	547	13	do	bro pek	1300	27 bid
68		550	12	do	pek	1080	25
70	Myraganga	556	29	do	bro or pek	2900	23 bid
71		559	43	do	pek	3570	25 bid
72	Coslanda	562	27	hf ch	bro pek	1485	25 bid
73		565	18	ch	pek	1530	24
76	Gonavy	574	28	do	pek	2240	27
77	Agra Ouvah	577	58	hf ch	bro or pek	3304	49
78		580	41	do	or pek	2173	35
79		583	16	ch	pek	1520	34
80		586	21	do	pek sou	1932	30
81		589	47	hf ch	pek fans	3760	28
83	Glasgow	595	23	do	bro or pek	1265	49
84		598	17	ch	bro pek	1700	34
85		601	28	do	or pek	2660	33 bid
86		604	17	do	pek	1581	32 bid
89	Dalhousie	613	29	hf ch	pek	1305	31
92	Callander	622	27	do	bro or pek	1620	33
93		625	26	do	or pek	1378	35
94		628	26	do	pek	1248	30 bid
96		634	18	do	fans	1296	27
97	Midlothian	637	18	do	bro pek	1030	45
98		640	36	do	pek	1872	33
99		643	20	do	pek sou	1000	28
102	Maryland	652	10	ch	bro pek	1000	36
103		655	10	do	pek	1000	25
105	Wanarajah	661	24	hf ch	fans	1776	28
109	Pelmadulla	673	23	ch	bro pek	2305	31 bid
110		676	16	do	pek No. 1	1520	25
111		679	20	hf ch	pek	1060	24
113	Gingranoya	685	17	ch	bro pek	1700	31 bid
114		688	16	do	bro or pek	1600	36 bid
115		691	25	do	or pek	2125	32 bid
118		700	19	do	pek sou	1327	24 bid
123	Kolapatna	715	18	hf ch	bro pek	1026	withd'n
124		718	17	do	bro pek fans	1075	withd'n
126		721	13	do	pek sou	1040	withd'n
128	Orwell	730	13	ch	or pek	1235	28
134	Nabavilla	748	33	do	or pek	2970	31 bid
135		751	30	do	bro pek	3030	33 bid
136		754	14	do	pek	1260	29
138	Gangawatte	760	25	do	bro or pek	[illegible]	45 bid
139		763	22	do	bro pek	2200	34 bid
140		766	55	do	pek	4950	30 bid
141		775	19	hf ch	fans	1235	28
144	Eilaoya	778	18	ch	bro pek	1710	24 bid
145		781	15	do	pek	1275	24 bid
146		784	17	do	pek sou	1530	21
147	Rookwood	787	50	hf ch	bro or pek	2997	30 bid
148		790	39	ch	or pek	3744	28 bid
149		793	40	do	pek	3597	26 bid
153	Acton	805	16	do	pek	1360	25
157	G navy	817	25	do	pek	1997	27
158	North Pundul-oya	820	81	hf ch	yng. hyson	4047	32
159		823	30	ch	hyson	2697	29 bid
161	Perth	829	22	do	bro or pek	2090	[illegible] bid
162		832	33	do	bro pek	2970	29 bid
163		835	40	do	or pek	3200	27 bid
164		838	39	do	pek	2925	25 bid

SMALL LOTS.

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
8	Bunyan and Avoca	33	2 ch	red leaf	220	13

Messrs. Forbes & Walker

Lot.		Box.	Pkgs.	Name.	lb.	c.
3	T C	808	4 ch	pek	388	25
4		811	3 hf ch	or pek	180	30
5	T C S	814	1 do	bro pek	55	23
6		817	1 do	pek	59	16
7		820	1 do	pek sou	58	17
8		823	1 do	dust	48	24
14	Kitulakande	841	11 hf ch	bro pek	660	29
15		844	14 do	pek	695	16
16		847	6 do	pek sou	270	12 bid
17		850	2 do	do No 2	90	15
18		853	3 do	bro pek fans	165	17
21	Ninfield	862	3 ch	pek sou	255	20
22		865	1 do	fans	100	26
23		868	2 do	dust	200	25
29	Matale	886	5 hf ch	dust	210	26
30		889	4 ch	sou	360	23
31	B K	892	6 ch	bro pek fans	720	24
32		895	6 do	s u	480	12
33		898	5 do	bro mix	450	12
34		901	3 do	dust	420	25
35		904	2 do	dust No 2	270	24
36		907	7 do	pek fans	735	22
42	P M, in estate mark	925	12 ch	pek sou	996	21
43		928	9 hf ch	dust	756	26
44	H B L	931	11 do	bro pek	682	30
45		934	4 do	bro or pek	232	34
46		937	5 do	pek	460	28
47		940	3 do	pek sou	228	24
48		943	1 do	bro or pek fans	72	28
51	Hanutalewella	952	12 hf ch	pek sou	477	24 bid
52	G, in estate mark	955	7 ch	bro or pek	700	33
53		958	2 do	pek	190	28
59	Lindupatna	976	7 ch	bro pek fans	945	27
64	Glenorchy	991	6 hf ch	dust	510	withdn.
68	St. Paul's, Inv. No. 9	1003	14 do	bro pek	742	30
73	O B E C, in estate mark Nillomally	1018	5 ch	fans	500	27
76	Chrystler's Farm	1027	6 ch	pek sou	510	27
77		1030	6 do	dust	480	27
82	Panawatte	1045	3 ch	dust	450	26
87	Norton	1060	7 ch	bro pek	679	29
88		1063	8 do	pek	704	21
89		1066	10 hf ch	bro or pek fans	680	27
90		1069	9 do	dust	765	26
99	Koslanda	1096	5 hf ch	bro pek fans	350	27
103	Dromoland	1108	8 ch	pek sou	680	23 bid
104		1111	7 hf ch	bro or pek fans	441	28
105		1114	2 do	pek fans	120	26
106		1117	5 do	dust	440	26
115	Ingoya	1144	7 ch	fans	700	withdn.
119	Poonagalla	1156	8 ch	pek sou	760	28 bid
123	dapolla	1168	7 do	or pek	630	29
125		1174	6 do	pek sou	735	22
126		1177	3 hf ch	dust	480	25
130	Strathisla	1189	1 ch	fans	100	27
131		1192	3 do	dust	255	26
140	Clyde	1219	1 do	green tea fan	115	13
141		1222	6 do	siftings	900	11
145	Putupaula	1234	7 ch	bro pek fans	305	28
146		1237	1 do	dust	150	26
147		1240	3 do	bro tea	255	13
153	G D	1258	8 ch	bro pek	800	32
155		1264	4 do	pek sou	316	25
158	Mansfield	1273	8 hf ch	dust	760	27
160	T C L, in est mark	1279	2 ch	pek fans	200	16
161		1282	4 hf ch	bro pek dust	320	24
162		1285	2 do	pek dust	160	22
163	Bandara Eliya	1288	19 hf ch	pek	950	26 bid
165	Kennington	1294	7 ch	bro tea	622	15 bid
171	Sylvakandy	1312	3 ch	dust	300	26
172	Hethersleigh	1315	1 ch	bro or pek	100	28
175	Bramley	1324	20 hf ch	or pek No 1	960	36
180	Wyamita	1339	2 ch	sou	160	20
181		1342	2 hf ch	dust	190	26
182		1345	3 do	fans	225	26
186	Dickoya	1357	7 ch	pek sou	630	24
191	Amblakande	1372	6 do	pek sou	480	22
192		1375	3 do	dust	300	26
197	Dambagastalawa	1390	7 ch	bro pek fans	945	27
202	R M, in estate mark	1405	9 hf ch	dust	720	26
205	Nynangodde	1414	4 do	bro or pek fans	300	26
206		1417	2 do	dust	180	23
207	Ragalla	1420	3 ch	dust	270	28
208	Stafford	1423	13 ch	bro or pek	845	47
211		1432	2 hf ch	fans	150	27
212		1435	1 ch	dust	155	26
214	St. Heliers	1441	9 do	pek sou	800	24
215		1444	1 do	fans	80	18
222	Battawatte	1465	3 ch	dust	300	26
233		1498	9 hf ch	dust	720	25
237	Dea Ella	1510	13 hf ch	pek sou	650	23
238		1513	6 do	fans No 1	480	27
239		1516	12 do	fans No 2	720	27
242	Erracht	1525	4 ch	bro pek	400	25
244		1531	3 do	bro pek fans	420	26
245		1534	3 do	dust	480	25
256	Seenagolla V.	1567	9 ch	pek sou	936	28
261	Fairlawn	1582	4 hf ch	dust	300	27
269	A O in est mark	1606	9 ch	pek	966	15
277	Penrhos	1630	3 ch	fans	234	27
278		1633	1 do	pek dust	88	24
279	Horagaskelle	1636	7 hf ch	bro pek	446	27
280		1639	5 do	pek	286	18
281		1642	9 do	pek sou	534	17
282		1645	1 do	bro mixed	68	13
290	Coldstream Group	1669	10 hf ch	fans	650	27
291		1672	5 do	dust	400	26
299	Baddegama	1696	5 ch	pek	425	27
300		1699	4 do	pek sou	320	25
301	O Z in est mark	1702	3 hf ch	bro or pek	150	21
302		1705	3 ch	pek	240	17
303		1708	1 do	fans	84	23
304		1711	3 do	red leaf	219	12
305	B K	1714	4 ch	dust No 1	560	25
306		1717	5 do	dust No 2	665	14
307		1720	3 do	pek fans	300	14
308		1723	4 do	bro pek fans	460	26
312	Errollwood	1735	10 hf ch	dust	900	27
313	N P	1738	1 ch	red leaf	100	12
314	C R D	1741	3 ch	pek	270	20
315		1744	4 do	sou	320	17
316		1747	9 do	dust	900	25
324	Ookoowatte	1771	2 hf ch	dust	200	24
325		1774	1 ch	pek fans	115	25
326	B D W P	1777	8 ch	bro pek fans	880	28
328	Penrith	1783	9 ch	pek	810	25
329		1786	6 do	pek sou	480	22
331	Halbarawe	1792	8 ch	or pek	680	20
332	P R S	1795	4 ch	dust	540	26
337	Galleberia	1810	1 ch	dust	100	27
341	El Teb	1822	12 hf ch	dust	984	26
356	Y N	1867	2 ch	bro or pek	200	27
357		1870	2 do	bro pek	202	30
358		1873	6 do	or pek	540	24
359		1876	4 do	pek	368	20
360		1879	10 do	pek sou	830	15
361		1882	1 hf ch	dust	80	25
362	Y	1885	1 ch	bro pek	97	29
363		1888	1 do	or pek	63	28
364		1891	1 do	pek	61	19
365		1894	1 hf ch	pek sou	57	15
369	Cloyne	1906	5 ch	pek sou	480	22
370		1909	2 do	sou	170	19
371		1912	1 do	br or pk fans	110	26
372		1915	2 do	unassorted	210	18
373		1918	2 do	bro tea	230	26
379	H S F in est mark	1936	1 ch	bro pek	76	27
380		1939	1 hf ch	pek	43	out
381		1942	3 do	pek sou	138	out
382		1945	2 do	fans	112	25
386	R B	1957	15 hf ch	bro pek	900	20 bid
387		1960	12 do	pek	660	16 bid
388		1963	8 do	pek sou	440	17 bid
389		1966	2 do	fans	120	20
395	Morankande	1984	10 ch	pek sou	700	20
396		1987	3 hf ch	br or pk fans	210	26
397		1990	1 do	dust	90	25
407	Osborne	2020	8 hf ch	fans	640	28
408		2023	3 do	br or pek fans	168	29
409		2026	2 do	dust	196	27
416	Amblangode	2047	2 ch	fans	200	27
417		2050	3 do	dust	330	26

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
5	Morahela	586	5 ch	sou	430	20
6		589	6 hf ch	dust	504	27
7	Kinchin	592	16 hf ch	bro or pek	880	36 bid
8		595	16 do	bro pek	960	34 bid
11		604	4 do	dust	320	27
13	Lowlands	610	4 ch	or pek	360	28 bid
15		616	11 do	pek	990	25 bid
16		619	3 do	pek sou	240	20
17		622	1 do	dust	80	24
21	Panilkande	634	10 ch	pek sou	900	26
22		637	10 do	sou	900	24
26	H in est mark	649	10 ch	bro pek	980	23 bid
32	Hyde	667	5 hf ch	fans	320	28
33		670	5 do	dust	420	27

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Isledon	1552	1 ch	dust	100	25
2		1555	1 do	red leaf	99	14
3	Paradise	1558	6 ch	bro or pek	690	28
7		1570	3 do	fans	330	23
8		1573	4 do	pek dust	660	24
12	Carney No 1	1585	4 hf ch	bro pek fans	200	27
13		1588	4 do	sou	200	18
14		1591	2 do	dust	100	25
15		1594	1 do	pek fans	50	24
22	Dryburgh	1615	11 ch	pek sou	961	23
23		1618	7 hf ch	fans	560	26
25	S R K	1624	4 ch	br or pek fans	520	27
28	Rothes	1633	1 hf ch	pek sou	52	20
29		1636	1 do	dust	90	25
33	Columbia	1648	8 hf ch	pek dust	704	26
37	Carney	1660	8 hf ch	bro pek dust	400	27
38		1663	4 do	sou	200	18
39		1666	1 do	dust	50	25
40		1669	1 do	pek fans	50	24
44	Mousa Eliya	1681	4 ch	pek sou	400	22
48	Rambodde	1693	5 hf ch	sou	250	18
49		1696	3 do	dust	240	26
50	R C	1699	5 hf ch	br pek	300	29
51		1702	4 do	pek	380	20
55	Ravenscraig	1720	3 hf ch	dust	240	26
58	N S C	1723	1 hf ch	pek	59	18
59	Sunny Light	1726	4 hf ch	br pek	233	18
60		1729	3 do	pek	157	16
62	Patulpane	1735	9 ch	pek	900	19
63		1738	5 do	pek sou	450	18
64		1741	2 hf ch	dust	172	22
65		1744	2 ch	bro mix	180	14
66	R S	1747	3 hf ch	dust	182	22
70	Tavalamtenne	1759	4 hf ch	dust	340	25
71		1762	8 do	pek fans	520	27
72		1765	7 do	pek fans	455	25
77	Harangalla	1780	11 hf ch	dust	935	25
81	Roseneath	1792	2 ch	dust	200	26
82		1795	1 do	bro mix	90	14
85	Blinkbonnie	1804	5 ch	pek sou	430	30
88	Owilikande	1813	11 ch	pek sou	990	22
89		1816	4 hf ch	bro pek fans	280	27
90		1819	4 do	dust	320	26
94	Kinross	1831	7 ch	sou	595	26
97	Waganila	1840	7 ch	pek sou	630	25
98		1843	2 do	dust	190	26
103	Kurunegalle Est Company	1858	5 hf ch	dust	400	26
108	Hapugasmulle	1873	10 ch	pek	960	23
110		1879	1 do	dust	150	19
113	Cooroondoowatte	1888	8 ch	pek sou	760	22
114		1891	5 hf ch	pek fans	400	25
115		1894	3 ch	congou	270	16
120	Mahatenne	10	3 ch	dust	360	26
121		13	2 do	fans	216	26
124	Citrus	22	7 ch	pek sou	700	17 bid
125		25	6 do	fans	600	15
126		28	2 do	dust	330	20
127	Labuduwa	31	6 ch	bro pek	600	26
128		34	4 do	pek	400	22 bid
130	Allakolla	40	6 hf ch	dust	570	26
132	Old Maddegama	46	6 ch	or pek	450	37
134		52	6 do	pek sou	510	31
135		55	2 do	br or pek fans	200	29
141	R in est mark	82	2 hf ch	bro or pek	104	26
145		85	2 do	pek	68	17
146		88	1 ch	dust	107	25
147	Danawkande	91	6 ch	br pek	600	31
148		94	8 do	pek	800	25
149		97	6 do	pek sou	510	23
150		100	2 do	sou	160	20
151		103	4 do	fans	420	24

Lot.		Box.	Pkgs.	Name.	lb.	c.
152		106	1 do	congou	80	16
153		109	1 do	dust	135	23
157	Jak Tree Hill	121	2 ch	dust	200	withd'nt
160	Scarborough	130	8 hf ch	dust	640	28
167	F A in est mark	151	2 ch	pek sou	170	27
168		154	2 do	dust	200	27
175	Oonanagalla	175	11 hf ch	fans	880	27
178	Warakamure	184	11 ch	pek sou	935	22
179		187	1 hf ch	dust	90	24
180	M	190	9 ch	br pek	855	24 bid
181		193	3 do	bro or pek	305	26
182		196	8 do	pek	705	26
183		199	2 do	pek sou	165	22
184		202	2 hf ch	bro pek fans	147	26

Messrs. E. John & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Salem	349	3 ch	bro or pek No. 1	300	33
2		352	8 do	„ No. 2	800	33
3		355	9 do	pek	900	25
6	L H O	364	7 hf ch	dust	560	25
9	Dickbedde	373	6 ch	pek sou	603	withd'n
13	Oonogaloya	385	9 do	pek sou	765	25
14		388	11 hf ch	dust	935	27
15		391	12 do	bro or pek No. 2	840	30
16		394	14 do	fans	910	27
19	Koslanda	403	2 ch	fans	220	24
20		406	2 hf ch	dust	160	25
35	Merrow	451	6 ch	pek sou	600	22
39	Kelaneiya and Braemar	463	8 do	pek sou	760	27
40		466	9 do	bro pek fans	900	28
41		469	5 hf ch	dust	400	26
45	Upper Hewahetta	481	2 ch	bro pek	264	27
46		484	3 do	pek dust	420	24
50	Moragalla	496	3 hf ch	pek fans	225	26
55	Balado	511	3 do	or pek	150	29
56	M, in est. mark	514	3 ch	bro pek	285	18
57		517	4 do	pek	340	16
58	Ohiya	520	2 do	or pek	180	29
59		523	1 hf ch	bro or pek	57	36
60		526	2 do	bro pek	114	32
62		532	10 do	fans	630	27
63		535	7 do	dust	560	26
69	Katawella	553	1 ch	dust	125	25
74	Coslanda	568	2 do	fans	220	24
75		571	2 hf ch	dust	160	24
82	Agra Ouvah	592	4 do	dust	400	27
87	Dalhousie	607	13 do	bro pek	780	54
88		610	18 do	or pek	900	34 bid
90		616	13 do	pek sou	650	26
91		619	6 do	bro pek fans	390	27
95	Callander	631	6 do	pek sou	258	27
100	Midlothian	646	3 do	bro pek fans	210	28
101	Anamallai	649	2 do	dust	170	26
104	Wanarajah	658	10 ch	pek sou	103	23
106		664	7 hf ch	dust	630	26
107	M	667	7 ch	pek sou	560	21
108		670	5 hf ch	dust	350	26
112	Pelmadulla	682	8 do	pek dust	480	26
116	Gingranoya	694	8 ch	fans	960	27
117		697	4 do	dust	560	26
119	Bambragalla	703	8 hf ch	bro or pek	424	31
120		706	7 do	bro pek	350	27
121		709	11 do	pek	550	26
122		712	6 do	pek sou	276	24
126	Kolapatna	724	7 do	fans	490	withd'n
127	Oonoogaloya	727	2 do	bro pek	100	31
129	Orwell	733	4 ch	bro or pek	240	32
130		736	12 do	pek	924	25
131		739	8 do	pek sou	640	24
132		742	2 hf ch	dust	170	26
133		745	5 do	pek fans	325	26
137	Nabavilla	757	10 do	pek fans	700	28
141	Gangawatte	769	11 ch	pek sou	990	25 bid
142		772	11 hf ch	dust	935	27
150	Acton	796	4 ch	bro or pek	400	46
151		799	8 do	bro pek	800	32
152		802	3 do	or pek	240	30
154		808	1 do	pek sou	90	29
155		811	1 do	fans	130	26
156		814	2 do	dust	260	26
160	North Pundul-oya	826	8 do	hyson No 2	797	27
165	Perth	841	4 do	pek sou	280	23 bid
166		844	7 do	fans	910	25
167	Craigingilt	847	12 do	pek sou	900	24

No. 26. COLOMBO, JULY 7th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[18,105 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Coodoogalla	13	88 hf ch	bro pek	4400	26 bid
2		16	35 do	pek	1750	24 bid
5	Battalgalla	25	19 ch	pek sou	1425	28
6	Hornsey	28	34 hf ch	bro pek	2040	34 bid
7		31	35 ch	pek	2975	33
8		34	14 do	pek sou	1050	28
9	Yuillefield	37	29 hf ch	bro or pek	1595	29
10		40	20 ch	pek	1800	31

Messrs. Forbes & Walker.

[847,199 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Choisy	2053	40 hf ch	bro or pek	2200	31 bid
2		2056	23 ch	or pek	1955	30
3		2059	76 do	pek	6460	26 bid
8	Darrawella, Inv. No. 4	2074	59 ch	bro pek	6608	33
9		2077	52 do	or pek	4940	31
10		2080	41 do	pek	3690	32
11	O B E C, in estate mark Forestcreek, Invoice No. 5	2083	16 ch	bro or pek	1648	64
12		2086	44 do	bro pek	4532	34
13		2089	20 do	or pek	1800	36
14		2092	41 do	pek	3895	32 bid
15	Strathspey	2095	11 ch	bro or pek	1100	53 bid
17		2101	17 do	or pek	1649	35 bid
18		2104	19 do	pek	1748	33 bid
20	Glencorse, Inv. No. 10	2110	20 ch	bro pek	2000	31
21		2113	21 do	or pek	1890	33
22		2116	13 do	pek	1040	26
23		2119	18 do	pek sou	1356	22
24	Rickarton, Inv. No. 26	2122	34 hf ch	bro or pek	2074	39
25		2125	24 ch	or pek	2160	35
26		2128	40 do	pek	3600	33
31	Moray	2143	25 hf ch	or pek	1125	36
32		2146	56 do	bro or pek	3248	39
33		2149	73 ch	pek	6205	31
35	Escot	2155	23 do	bro pek	2300	30
36		2158	15 ch	pek sou	1275	22
41	Palmgarden	2173	20 ch	pek	1900	21
42		2176	23 do	pek sou	2070	21
45	Dotala	2185	24 hf ch	or pek	1080	35
46		2188	31 ch	bro pek	1860	43 bid
47		2191	32 do	pek	2880	28
48	New Peradeniya	2194	18 hf ch	dust	1040	27
49	Chrystler's Farm	2197	26 do	bro pek	1430	48
50		2200	22 do	pek	1980	33
53	Naseby	2209	25 hf ch	bro or pek	1500	49
54		2212	25 do	or pek	1175	52
55		2215	25 do	pek	1250	45
63	J P, in estate mark	2239	16 do	dust	1280	27
64		2242	13 do	sou	1300	20
65	C	2245	13 ch	sou	1235	16
67	Torwood	2251	16 ch	bro or pek	1472	31
68		2254	14 do	bro pek	1260	28
69		2257	16 do	or pek	1344	27
70		2260	39 do	pek	3120	24
72	Castlereagh	2266	44 hf ch	bro or pek	2200	46
73		2269	13 ch	or pek	1040	33
74		2272	14 ch	pek	1120	28
80	Poonagalla	2290	22 ch	or pek	2024	39
81		2293	43 do	bro pek	4816	54
82		2296	33 do	pek	3135	36
85	Ismalle	2305	17 ch	bro pek fans	2330	26
86	Alver	2308	21 ch	sou	1680	21
87		2311	21 do	bro pek fans	1575	27
88	R H H	2314	14 ch	bro pek	1400	24
89		2317	13 do	pek	1180	22
90		2320	12 do	pek sou	1080	20
94	O B E C, in estate mark Nillomally, Inv. No. 7	2332	23 ch	bro or pek	2300	36
95		2335	31 do	pek	2790	33
96		2338	27 do	pek sou	2268	31
97		2341	17 do	or pek	1394	39
99	Bencon	2347	15 ch	bro pek	1500	23
100		2350	17 do	pek	1632	16
104	O B E C, in eestate mark Inv. No. 5, Sindumally	2362	13 ch	bro or pek	1365	34
105		2365	28 do	bro pek	2520	31
106		2368	24 do	pek	2040	32
108	Badulla Oya	2374	10 ch	bro pek	1050	30
110		2380	15 do	pek sou	1275	23
111	Ardlaw and Wishford	2383	11 ch	bro or pek	1155	60
112		2386	25 do	bro pek	2500	35
113		2389	15 do	or pek	1350	36
114		2392	22 do	pek	1804	32
115	Tunisgalla	2395	45 hf ch	bro pek	2700	34
116		2398	33 do	bro or pek	1815	51
117		2401	69 do	or pek	3450	34
118		2404	48 ch	pek	4320	31
119		2407	20 do	pek sou	1790	26
122	Marlborough	2416	43 hf ch	bro or pek	2150	58
123		2419	36 ch	bro pek	3600	35
124		2422	24 do	or pek	2160	34
125		2425	62 do	pek	5394	32
126		2428	17 do	pek sou	1462	31
127		2431	16 do	bro pek fans	1040	33
134	Digdola	2452	21 ch	bro pek	2100	30
135		2458	76 do	pek	5300	25
137		2461	28 do	pek sou	1960	21
140	Waitalawa	2470	16 hf ch	bro pek	2050	41
141		2473	105 do	pek	5[illegible]0	31
144	Vogan	2482	25 ch	bro or pek	2375	48
145		2485	31 do	or pek	2790	33
146		2488	40 do	pek	3600	26
147		2491	21 do	pek sou	1785	24
151	Attampettia	2503	31 ch	pek	2852	34
153	Attampettia	2509	13 ch	bro pek	2[illegible]70	41
154		2512	29 do	or pek	2755	36
156	Yogama	2518	14 ch	bro pek	1400	34
157		2521	16 do	or pek	1600	28
158		2524	24 do	pek	2160	25
164	Ingoya	2542	35 ch	young hyson	3500	32 bid
165		2545	38 do	hyson	3314	30 bid
166		2548	30 do	do No 2	2370	28 bid
167		2551	10 do	fans	1000	13 bid
169	Maldeniya	2557	24 ch	bro or pek	2520	36 bid
170		2560	38 do	or pek	3610	32
171		2563	38 do	pek	3420	24
172		2566	18 do	pek sou	1530	22
174	Kaha Oya	2572	38 hf ch	bro pek fans	2584	28
175		2575	47 do	dust	4136	28
176	Sembawatte	2578	20 ch	young hyson	2000	35
177		2581	21 do	hyson	1806	31
178		2584	16 do	hyson No 2	1264	29
180	Rajawatte	2590	17 ch	pek	1[illegible]15	25
183	Knavesmire	2599	25 ch	bro or pek	1500	28
184		2602	150 do	bro pek	15000	26
185		2605	30 ch	pek	2[illegible]50	23 bid
186		2608	25 do	pek sou	1875	21 bid
188	Elsmere	2614	19 hf ch	bro pek	1015	3
189		2617	18 ch	pek	1800	3
191	Passara Group	2623	17 ch	or pek	1530	34
192		2626	26 do	bro or pek	2600	34
193		2629	28 do	pek	2[illegible]20	31
194		2632	12 do	pek sou	1080	29
196		2638	22 hf ch	fans	1540	29
197	Puspone	2641	33 ch	or pek	3168	29
198		2644	17 ch	bro pek	1904	30
199		2647	19 do	pek	17[illegible]0	27
200		2650	21 do	pek sou	1785	25
202		2656	12 hf ch	dust	1080	26
204	Geragama, Inv. No. 16	2662	21 ch	bro pek	1890	27
205		2665	28 do	pek	2240	26
206		2668	27 do	pek sou	2025	23
209	Wewawatte	2677	61 hf ch	bro pek	1281	[illegible]6 bid
211	Riversdale	2683	[illegible]0 do	pek sou	1290	24
218	Freds Ruhe	2704	2[illegible] ch	bro pek	2000	31
219		2707	14 do	pek	1330	27
221	Mahayaya (Venesta pkgs.)	1713	23 hf ch	bro pek	13[illegible]7	23
233	Florence	2749	29 do	bro or pek	1695	66
234		2752	62 ch	pek	5456	38
235		2755	23 do	or pek	2093	50

Lot.		Box.	Pkgs.	Name.	lb.	c.
236	Glenorcby	2758	101 hf ch	bro pek	6057	34 bid
237	Lyegrove	2761	18 ch	bro pek	1890	29
241	Ganapalla	2773	30 ch	bro or pek	2880	28
242		2776	30 do	or pek	2400	32
243		2779	62 do	pek	4774	24
244		2782	12 hf ch	dust	1032	26
245	Seenagolla	2785	17 do	or pek	1020	42
246		2788	20 do	pek	1020	36
247		2791	18 do	pek sou	1044	24
248	Inverness	2794	17 hf ch	bro or pek	1700	withdn.
249		2797	32 do	or pek	2880	withdn.
250		2800	20 do	pek	1700	withdn.
251	St. Paul's Inv. No. 19	2803	26 hf cb	bro or pek	1505	withdn.
252		2806	111 do	pek	5436	withdn.
253	B P G	2809	20 do	dust	1560	26
254		2812	17 do	fans	1020	21
255	Seenagolla V	2815	15 cb	or pek	1425	39
256		2818	13 do	pek	1300	36
257	Polatagama	2821	34 cb	bro or pek	3400	32
258		2824	36 do	bro pek	3420	31
259		2827	45 do	pek	4050	26
260		2830	37 do	pek sou	3515	23
261		2833	14 do	fans	1400	25
263	Higb Forest	2829	87 hf ch	or pek No 1	5220	40
264		2842	72 do	or pek	3960	37
265		2845	59 do	pek	2950	35
266	Maha Uva	2848	66 hf cb	bro or pek	4290	30
267		2851	40 cb	or pek	4000	35
268		2854	44 do	pek	3960	33
269		2857	18 do	pek sou	1440	29
270		2860	19 hf ch	dust	1615	27
271	Weoya	2863	54 ch	bro or pek	5670	28
272		2866	92 do	bro pek	9200	27 bid
273		2869	40 do	pek	3600	23 bid
274		2872	17 do	pek sou	1360	23
275		2875	13 do	bro pek fans	1560	25
277	O B E C, in estate mark Nillomally	2881	27 ch	bro or pek	2697	withdn.
278	Clunes	2884	41 ch	pek	3690	23
279		2887	12 do	or pek	1080	31
280		2890	17 do	bro pek	1700	27
284	Gampaha	2902	66 ch	bro or pek	7260	32
285		2905	55 do	or pek	5280	34 bid
286		2908	54 do	pek	4590	32
287		2911	38 do	pek sou	3420	30
289	Parsloes	2917	58 ch	bro pek	5800	27 bid
290		2920	43 do	pek	3870	26 bid
291		2923	21 do	pek sou	1680	22 bid
293	O B E C, in est. mark Newmarket	29 9	31 ch	pek	2787	withdn.
295	Vegan	2935	17 ch	bro or pek	1700	47
296		2938	21 do	or pek	2160	33
297		2941	28 do	pek	2520	27
298		2944	13 do	pek sou	1105	24
301	Tempo	2953	12 cb	bro pek	1200	38
302		2956	16 do	or pek	1360	32
303		2959	23 do	pek	1955	25
311	Strathisla	2983	14 cb	or pek	1117	withd'n
316	Pannawatta	2998	12 ch	bro or pek	1392	42
317		3001	25 do	bro pek	2575	32
318		3004	21 do	pek	2016	30
319		3007	21 do	pek sou	2037	26
321	Osborne	3013	26 cb	bro or pek	2727	withd'n
322		3016	21 do	or pek	1845	withd'n
323	Hanwella	3019	69 hf ch	young hyson	3450	31
324		3022	45 do	hyson No. 1	2475	28
327	Inverness	3031	30 ch	or pek	2700	withd'n
328		3034	23 do	pek	1955	withd'n
329	Woodend	3037	25 ch	bro pek	2500	30
330		3040	38 do	pek	3420	24 bid
336	Relugas	3058	8 ch	dust	1360	24
338	Sylvakandy	3064	12 ch	bro or pek	1200	49
339		3067	38 do	br or pek No 2	3800	39
340		3070	20 do	bro pek	2000	37
341		3073	21 do	or pek	2100	36
342		3076	42 do	pek	4200	32
347	G K	3091	20 hf ch	br pek fans	1300	26
349		3097	21 do	dust	1680	25
353	Dammeria	3109	30 ch	bro pek	3000	28
354		3112	72 do	pek	6480	27
356	Ruanwella	3118	17 ch	bro or pek	1785	27
357		3121	19 do	or pek	1710	27
358		3124	15 do	bro pek	1500	27
359		3127	35 do	pek	3150	24
363	Broughton	3139	20 cb	or pek	1920	38
364		3142	29 do	pek	2755	33
366		3148	20 do	bro or pek	1160	65
368	Pine Hill	3154	32 hf ch	bro or pek	1920	41
369		3157	26 cb	or pek	2340	35
370		3160	37 do	pek	3330	30
371		3163	14 do	pek sou	1190	28

Lot.		Box.	Pkgs.	Name.	b.	c,
372	Bowlana	3166	30 hf cb	bro or pek	1800	44
373		3169	19 ch	or pek	1900	36
374		3172	24 do	pek	2280	34
378	Inverness	3184	17 cb	bro or pek	1700	38
379		3187	32 do	or pek	2880	47
380		3190	30 do	or pek	2697	42
381		3193	20 do	pek	1700	33
382		3196	23 do	pek	1952	33 bid
384	I K V	3202	10 cb	pek fans	1200	26
386	Forest Creek	3208	13 ch	fans	1365	28
387		3211	25 do	pek dust	2000	28
392	Osborne	3226	25 ch	bro or pek	2500	32
393		3229	18 do	or pek	1584	28
394		3232	12 do	pek	1104	26
398	Talgaswella	3244	17 ch	bro or pek	1700	33
399		3247	16 do	or pek	1280	31
400		3250	21 do	pek	1680	26
401		3253	19 do	pek sou	1425	23
402	Deita	3256	61 ch	bro or pek	6100	32
403		3259	56 do	bro pek	5600	28
404		3262	43 do	pek	3612	29
405		3265	29 do	pek sou	2378	27
406		3268	11 do	fans	1320	27
408	Gonapitiya	3274	19 hf ch	or pek	1007	39
409		3277	22 do	bro pek	1298	39
410		3280	64 do	pek	3072	33
411		3283	23 do	pek sou	1058	31
412		3286	16 do	pek fans	1024	29
413		3289	43 hf ch	pek fans	2752	30
414		3292	25 do	dust	2200	28
415	Middleton	3295	19 hf cb	bro or pek	1140	59
416		3298	24 ch	or pek	2090	37
417		3301	19 do	bro pek	2160	37
418		3304	17 do	pek	1445	33
419	Algooltenne	3307	32 ch	bro pek	3200	29
420		3310	39 do	pek	3315	27
424	Devonford	3322	22 cb	bro or pek	1232	65
425		3325	12 do	or pek	1200	46 bid
426	Tymawr	3328	20 hf ch	or pek	1100	35
427		3331	17 do	bro or pek	1020	47
428		3334	26 do	pek	1248	33
429		3337	23 do	pek sou	1150	29
432	Queensland	3346	20 hf ch	bro or pek	1000	65
433		3349	10 cb	bro pek	1050	36
434		3352	10 do	or pek	1000	35
438	Lindoola	3364	12 cb	dust	1080	27
439	Mawiliganga-watte	3367	76 ch	bro pek	7296	25
440		3370	64 do	pek sou	4480	21
441	Yataderia	3373	35 ch	bro or pek	3710	27
442		3376	10 do	bro pek	1050	25
443		3379	28 do	or pek	2578	28
444		3382	46 do	pek	3864	24
445		3385	17 do	pek sou	1377	22
446	Weyunga-watte	3388	25 cb	bro pek	2500	26
447		3391	29 do	pek	2465	25
448		3394	25 do	pek sou	2000	22
451	K P W	3403	70 hf ch	bro or pek	4200	28
452		3406	80 do	bro pek	4000	28
453		3409	28 do	or pek	1400	29
454		3412	49 do	pek	2450	25
455		3415	66 do	pek	3300	25
456		3418	30 do	pek sou	1500	23
459	Tembiligalla	3427	16 ch	bro or pek	1600	28
460		3430	28 do	or pek	2520	29
461		3433	33 do	pek	2970	25
465	Penritb	3445	24 ch	bro pek	2400	27
466		3448	25 do	pek	2250	27
470	Tismoda	3460	12 ch	bro pek	1200	29
475	Loolecondera	3475	34 ch	bro or pek	3536	withd'n
476		3478	51 do	bro pek	5304	withd'n
477		3481	20 do	pek fans	2680	28
478		3484	10 do	dust	1700	27
481	Perawatte	3493	31 ch	bro or pek	3255	27
482		3496	40 do	or pek	3600	27
483		3499	21 do	pek	1890	26
484		3502	22 do	pek sou	1980	22
487	Galapita-kande	3511	34 ch	or pek	3400	29
488		3514	50 do	bro pek	5000	30 bid
489		3517	42 do	pek	3780	26
490		3520	24 do	pek sou	2160	26
493	Kincora	3529	10 ch	bro pek	1100	33
494		3532	13 do	or pek	1235	34
495		3535	25 do	pek	2250	30
496	Cloyne	3538	14 ch	bro or pek	1428	29 bid
497		3541	12 do	or pek	1128	29
498		3544	14 do	pek	1260	27
504	Udabage	3562	49 cb	yong hyson	2940	32
505		3565	35 do	hyson No 1 A	1925	29
506		3568	53 do	hyson No 1 B	2915	28
508		3574	20 do	fans	1100	12
510	Robgill	3580	24 ch	bro or pek	1200	63 bid
511		3583	29 do	bro pek	2610	44
512		3586	22 do	pek	1760	38

Messrs. Keell and Waldock.

[49,521 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Cottes Brooke	679	30 hf ch	or pek	1500	32 bid
2		682	20 do	pek	1000	27
3		685	17 ch	pek sou	1530	23 bid
4	Hangranoya	688	30 ch	bro pek	2700	29
5		691	20 do	pek	1700	27
7		697	15 do	fans	1800	26
17	Bargany	727	45 hf-ch	bro pek	2700	31 bid
18		730	12 ch	bro pek	1254	28 bid
19		733	24 hf ch	or pek	1200	36
22		742	18 ch	pek No 2	1620	28
24	Ashton	748	30 ch	or pek	2520	32 bid
25		751	47 hf ch	bro pek	2223	30 bid
26		754	34 ch	pek	3230	28 bid
27	Dunnottar	757	20 ch	bro pek	2000	30
28		760	21 do	pek	1890	30
32	S M Y	772	30 hf ch	bro or pek	1950	25 bid
33		775	31 ch	pek	3100	26 bid
41	P	799	12 ch	br pek	1200	26
43		805	18 do	pek	1710	18 bid
44		808	14 do	pek sou	1260	20 bid

Messrs. Somerville & Co.

[256,755 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
1	Mosville	214	22 hf ch	dust	1870	26
3	Dartry	220	40 hf ch	fans	2960	25
6	Donside	229	11 hf ch	bro pek fans	660	19 bid
6a		229a	9 do	br pek	540	
8	Avisawella	235	26 hf ch	bro or pek	1300	35 bid
9		238	26 ch	or pek	2470	30
10		241	27 do	pek	2430	24 bid
11		244	20 do	pek sou	1600	21
14	Meeriatenne	253	28 hf ch	br pek	1540	38
15		256	44 do	pek	2200	36
16		259	27 do	pek sou	1215	33
19	Agra Elbedde	268	24 hf ch	bro or pek	1392	43
20		271	27 do	or pek	1485	36
25	C W M	286	20 hf ch	bro or pek	1100	32 bid
26		289	24 do	or pek	1200	32 bid
27		292	24 do	bro pek	1440	30
28		295	30 ch	pek	2700	30 bid
31	Kelani	304	30 ch	or pek	2400	28 bid
32		307	21 do	bro or pek	2100	26
33		310	20 do	pek	1400	26
34		313	12 do	pek sou	1080	23
35	R K P	316	19 ch	or pek	1520	27 bid
36		319	18 do	bro or pek	1800	26
37		322	15 do	pek	1050	26
38		325	13 do	pek sou	1170	23
39	Yspa	328	22 ch	pek sou	1870	25
41	Polgahakande	334	18 ch	pek	1260	22 bid
42	Invery	337	29 hf ch	dust	2552	26 bid
43	Monrovia	340	30 ch	br pek	3000	26
44		343	25 do	pek	2375	25
45		346	12 do	pek sou	1080	22
47	Laxapanagalla	352	22 ch	bro or pek	2200	31
48		355	13 do	or pek	1300	26
52	Rambodde	367	26 hf ch	br pek	1430	37
53		370	27 do	pek	1215	28
54		373	48 do	pek sou	2400	23
56	New Angamana	379	16 ch	bro or pek	1600	30
57		382	19 do	bro pek	1805	29
58		385	30 do	pek	2700	25
59		388	14 do	pek sou	1260	23
62	Dover	397	60 hf ch	bro or pek	3000	28
63		400	40 ch	or pek	3600	26 bid
64		403	40 do	pek	3400	25
65		406	23 do	pek sou	1725	22
71	Atabahena	424	18 hf ch	bro pek	1008	28
75	Harrangalla	436	13 ch	or pek	1170	30
76		439	16 do	br pek	1600	29 bid
77		442	40 do	pek	3200	27
78	Mahatenne	445	13 ch	pek	1235	27
79	Ferndale	448	10 ch	bro or pek	1000	40 bid
80		451	25 do	pek	2250	28
82	Weygalle	457	39 ch	pek	2700	30
83	Ingeriya	460	19 ch	bro pek	1805	26
84		463	14 do	pek	1260	22
85		466	12 do	pek sou	1080	21
88	Murraythwaite	475	16 ch	bro pek	1600	32
89		478	13 do	pek	1040	25
91	Dikmukalana	484	48 hf ch	bro pek	2640	29
92	Blairavon	487	17 hf ch	bro or pek	1020	32
93		490	12 ch	pek	1080	28
94	M T	493	23 hf ch	bro pek fans	2208	24 bid
95	Kurulugalla	496	16 ch	bro or pek	1600	28
96		499	12 do	or pek	1080	27
97		502	21 ch	pek	1890	22
100	Cooroondoowatte	514	11 ch	bro pek	1100	33
102		517	12 do	pek sou	1200	22
103	Ambalawa	520	13 ch	pek sou	1040	21
104	L	523	27 hf ch	dust	2295	26
111	Neboda	544	14 ch	bro or pek	1470	36
112		547	25 do	or pek	2300	29
113		550	39 do	pek	3900	24
114		553	15 do	pek sou	1425	22
117	Neuchatel	562	53 ch	or pek	4505	29
118		565	20 do	pek	1600	26
119		568	14 do	pek sou	1190	22
121		574	11 do	bro or pek	1100	36 bid
122		577	14 do	bro pk fans	1610	26
123	Dalveen	580	38 ch	br pek	3010	26
124		583	41 do	pek	3485	26
125		586	11 do	or pek fans	1100	26
126		589	15 do	pek sou	1425	22
130	Kurunegalla	601	15 ch	pek	1290	24
135	Old Maddegama	616	20 ch	pek	1700	37
138	Mount Temple	625	24 ch	bro pek	2232	25 bid
139		628	12 do	pek	1332	25 bid
140		631	13 do	pek A	1070	26 bid
141		634	18 do	pek sou	1440	22 bid
142		637	27 do	br or pk fan	2700	26 bid
146	Adawatte	649	40 hf ch	bro pek	2200	32
147		652	25 do	pek	1250	31
154	Scarborough	673	21 hf ch	bro or pek	1155	42 bid
155		676	13 ch	or pek	1300	41
156		679	11 do	pek	1056	34
158	Rayigam	685	19 hf ch	bro or pek	1045	34 bid
159		688	15 ch	or pek	1350	32
160		691	14 do	bro pek	1330	25
161		694	31 do	pek	2480	24
162		697	23 do	pek sou	2185	22 bid
165		706	11 ch			
			1 hf ch	bro or pek	1177	31 bid
166	Cumbawella	709	10 ch	bro or pek	1000	24 bid
167		712	11 do	bro pek	1045	27
168		716	15 do	pek	1350	25
172	Elchico	727	20 ch	bro or pek	2100	2
173		730	12 do	or pek	1200	25
174		733	13 do	pek	1300	25
176		739	16 hf ch	br or pk fan	1120	24
177	Mousa Eliya	742	21 ch	bro pek	2100	31
178		745	14 do	or pek	1190	33
179		748	19 do	pek	1805	28
180	Rahatungoda	751	104 hf ch	pek	5512	33
181		754	46 do	bro or pek	2530	37
182		757	84 do	or pek	4704	35
183	Mary Hill	760	35 hf ch	bro pek	2100	32
184		763	35 do	pek	1925	25 bid
185		766	20 do	sou	1000	22
188	Mahavilla	775	27 hf ch	or pek	1404	35
198	Salawe	805	10 ch	bro or pek	1200	26
199		808	10 do	bro pek	1050	25
200		811	19 do	pek	1900	22
201		814	23 do	pek sou	2185	21

Messrs. E. John & Co.

[320,975 lb.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
9	Karawkettia	874	10 ch	bro pek	1040	23
12	A T	883	12 do	pek sou	1080	21
16	Natuwakelle	895	18 do	bro or pek	1800	35
17		898	22 do	bro pek	1950	28 bid
18		901	17 do	pek	1530	28
21	Warleigh	910	19 hf ch	bro or pek	1064	56
22		913	22 ch	or pek	2134	35
23		916	34 do	pek	2890	30
24		919	36 do	pek	3054	withd'n
27	Mocha	928	31 do	bro or pek	3100	
28		931	14 do	or pek	1330	36 bid
29		934	22 do	pek	2090	35
30		937	12 do	pek sou	1020	33
31	B K	940	11 hf ch	dust	1023	24
32	Glentilt	943	42 do	bro or pek	2310	54
33		946	25 ch	or pek	2340	37
34		949	30 do	pek	2700	34
35		952	12 do	pek sou	1080	31
36	Templestowe	955	44 hf ch	bro or pek	2464	39
37		958	27 do	or pek	1242	37
38		961	23 ch	pek	2070	31
39		964	13 do	fans	1365	25
40		967	12 do	dust	1020	27
44	Kandahar	979	20 hf ch	bro or pek	1120	52
45		982	27 do	or pek	1431	36
46		985	44 do	pek	2420	31
49	Oonoogaloya	994	19 ch	or pek	1710	33
50		997	14 do	bro or pek	1400	34 bid
51		1000	27 do	pek	2295	30
52	Poilakanda	3	14 do	bro or pek	1260	26 bid
53		6	24 do	bro pek	2160	25
54		9	23 do	pek	1840	23

Lot.		Box.	Pkgs.	Name.	lb.	c.
55	Glassaugh	12	48 hf ch	or pek	2088	57
56		15	33 do	bro or pek	2211	50
57		18	26 ch	pek	2808	47
58		21	13 hf ch	dust	1235	29
61	Elston	30	29 ch	pek	2320	27
62		33	31 do	pek sou	2480	25
65	Mahanilu	42	23 hf ch	or pek	1288	41
66		45	14 do	pek	1372	37
67	M G	48	14 do	fans	1092	27
68	Westhall	51	56 do	dust	4760	24
69	Morton	54	21 ch	bro pek	2100	27
71		60	24 do	pek	2010	23
72		63	24 do	pek sou	1680	21
74	Wadhurst	69	29 hf ch	bro pek	1740	28
75		72	16 ch	pek	1440	27
78	Castle Hill	81	17 do	bro or pek	1700	25
79		84	21 do	or pek	2100	23
80		87	20 do	pek	1800	21
81		90	17 do	pek sou	1530	17
82		93	10 do	dust	1000	25
83	Medenpenne-kanda	96	56 do	bro pek	5600	
84		99	22 do	pek	1760	withd'n
85		102	24 do	pek sou	1650	
86	M K	105	19 do	pek fans	1805	23
87		108	21 do	sou	1260	18
88	Mt. Vernon	111	56 do	pek	5040	37
89		114	21 do	pek sou	1785	36
90	O F E	117	13 do	bro pek	1300	30
91		120	11 do	or pek	1100	21
92		123	16 do	pek	1600	18
99	Bowella	144	11 do	bro or pek	1100	28
104	Stubton	159	38 do	bro pek	3810	26 bid
105		162	13 do	pek	1300	20 bid
106		165	11 do	pek sou	1100	18
107	Glentilt	168	42 hf ch	bro or pek	2310	54
108		171	25 ch	or pek	2250	40
109		174	27 do	pek	2130	36
110	Rondura	177	86 do	bro pek	9027	26 bid
111		180	78 do	bro pek	8190	24 bid
112		183	66 do	pek	5940	23 bid
114		189	7 do	dust	1155	24
115	Agra Ouvah	192	60 hf ch	bro or pek	3600	53
116		195	40 do	or pek	2160	38
117		198	15 ch	pek	1425	40
118	Wattagalla	201	36 do	bro pek	3780	28 bid
119		204	28 hf ch	or pek	1400	35
120		207	40 ch	pek	3600	28
121		210	38 do	pek sou	3040	25
122		213	12 hf ch	dust	1080	27
127	Ben Nevis	228	32 do	bro pek	1920	35 bid
128		231	24 do	or pek	1152	39
129		234	29 ch	pek	2610	30 bid
132	Glasgow	243	23 hf ch	bro or pek	1265	55
133		246	17 ch	bro pek	1700	40
134		249	29 do	or pek	2755	38
135		252	28 do	or pek	2657	withd'n
136		255	13 do	pek	1209	35
137		258	17 hf ch	pek fans	1071	31
138	Ratwatte	261	35 ch	bro pek	3500	30
139		264	21 do	pek	1890	26
142	Cabin Ella	273	23 do	bro pek	2300	35
143		276	19 do	pek	1615	33
146	Gingranoya	285	17 do	bro pek	1697	28 bid
147		288	16 do	bro or pek	1597	32 bid
148		291	25 do	or pek	2122	32
149		294	19 do	pek sou	1324	22 bid
150	Bittacy	297	25 do	bro pek	2447	20 bid
152	Elemane	303	50 do	bro pek	3000	32
153		306	30 do	pek	2700	31
156	North Pundul-oya	315	46 do	yng. hyson	2530	33
157		318	31 do	hyson	2790	30
160	Brownlow	327	20 hf ch	bro or pek	1160	53
161		330	2[illegible] ch	or pek	1995	36
162		333	28 do	pek	2[illegible]76	31
163		336	20 do	pek sou	1760	28
164	Elemane	339	32 do	bro pek	3200	35
165		342	26 do	pek	2340	32
168	Waragalanda	351	10 do	bro or pek	1000	33
169		354	13 do	bro pek	1170	30
170		357	13 do	pek	1170	27
173	Gingranoya	366	22 do	pek	1760	27 bid
174		369	13 do	or pek	1105	36
177	Acton	378	14 do	pek	1190	29
182	Elston	393	27 do	pek sou	2295	26
183	Stonyhurst	396	21 do	or pek	1995	29 bid
185	Ottery	402	20 do	pek sou	1600	22
190	Gonavy	417	21 do	pek	1785	28 bid
191		420	13 do	pek No. 2	1235	27
195	Kolapatna	429	17 hf ch	bro or pek	1020	57
195		432	34 do	bro pek	2108	31 bid
196		435	19 do	or pek	1026	34 bid
197		438	16 do	pek	1045	32
198		441	13 do	pek sou	1040	30
200	Craigingilt	447	17 hf ch	bro or pek	1020	36
201		450	12 ch	or pek	1200	31 bid
202		453	16 do	pek	1280	28 bid
205	Battalawatte	462	16 do	pek sou	1440	26
207	Balado	468	25 do	pek	2375	27
208		471	40 do	pek sou	3200	23
209		474	14 hf ch	dust	1120	26
210	Eila	477	80 ch	pek sou	5600	22
211	Elemane	480	36 do	bro pek	3600	withd'n
212		483	38 do	pek	3420	
215	Oodoovil	492	10 do	bro pek	1000	24
219	O V	504	23 do	sou	1955	17

SMALL LOTS

Messrs. E. Benham & Co.

Lot.		Box.	Pkgs.	Name.	lb.	c.
	Coodoogalla	19	5 hf ch	pek sou	250	22
4		22	7 do	dust	560	26
11	Yuillefield	43	2 ch	pek sou	180	28
12		46	1 hf ch	dust	80	26

Messrs. Forbes & Walker

Lot.		Box.	Pkgs.	Name.	lb.	c.
4	Rockside	2062	6 ch	pek sou	480	21
5		2065	7 do	bro pek fans	840	29
6		2068	3 do	dust	405	26
7		2071	2 do	dust No 2	340	25
16	Strathspey	2098	5 ch	bro pek	500	36
19		2107	3 do	dust	318	27
27	Rickarton, Inv. No 26	2131	7 ch	pek sou	630	29
28	Beruketiya	2134	8 ch	bro pek	850	24
29		2137	9 do	pek	792	21
30		2140	1 do	pek dust	138	23
34	Moray	2152	9 hf ch	dust	720	27
37	Tennehena	2161	1 ch	bro pek	98	25
38		2164	1 ch			
			1 hf ch	pek	144	18
39	Palmgarden	2167	9 ch	bro pek	800	25
40		2170	5 do	or pek	500	27
43		2179	4 hf ch	fans	300	24
44		2182	2 do	dust	154	25
51	Chrystler's Farm	2203	3 ch	pek sou	240	26
52		2206	3 do	dust	240	27
56	Mount Plea-sant	2218	3 hf ch	bro or pek	180	38
57		2221	4 do	or pek	200	26
58		2224	3 do	pek	150	21
59		2227	5 do	pek sou	250	18
60		2230	1 do	sou	60	14
61		2233	1 do	fans	59	22
62		2236	1 do	congou	51	14
66	Welkandala	2248	3 hf ch	dust	252	25
71	Torwood	2263	2 ch	bro pek fans	240	23
75	Asgeria (Venesta pkgs.)	2275	2 ch	bro tea	210	15
76		2278	2 do	dust	330	31
77	Kirimettia	2281	3 ch	congou	270	16
78		2284	4 hf ch	fans	230	27
79		2287	3 do	dust	255	26
83	Kabragalla	2293	6 do	dust	510	27
84	Imale	2302	4 ch	sou	3[illegible]0	21
91	R H H	2323	2 ch	sou	130	21
92		2326	4 do	fans	500	25
93		2329	1 do	dust	160	20
98	O B E C, in est. mark Nillomally, Inv. No. 7	2314	7 ch	fans	700	29
101	Bencon	2353	4 ch			
			1 hf ch	bro pek fans	520	18
102		2356	1 ch	sou	104	13
103		2359	1 do			
			3 hf ch	dust	375	19
107	Palmgarden	2371	1 do	dust	77	21
109	Badulla Oya	2377	10 ch	pek	950	27
120	Tunisgalla	2410	5 do	sou	410	22
121		2413	7 hf ch	dust	630	27
128	V O A	2434	4 ch	bro tea	400	14
129	Ardross	2437	3 do	sou	210	18
130		2440	11 hf ch	dust	935	26
131	Gabella	2443	12 do	bro pek	660	28
132		2446	14 do	pek	720	21
133		2449	11 do	pek sou	6[illegible]0	17
135	Digdola	2455	10 ch	or pek	800	27
138		2464	6 do	bro pek fans	540	24
139		2467	7 hf ch	dust	525	25
142	Waitalawa	2476	8 do	pek sou	400	23
143		2479	9 do	dust	810	27

Lot.		Box.	Pkgs.	Name.	lb.	c.
143	Vogan	2494	3 ch	pek fans	376	27
149		2497	6 hf ch	dust	480	26
150	Dotala	2500	3 do	pek fans	225	28
152	Attampitia	2506	8 ch	pek sou	720	29
155	Attampitia	2515	5 hf ch	dust	490	26
159	Yogama	2527	8 ch	pek sou	680	23
160		2530	2 do	dust	300	26
161	Cardig	2533	11 hf ch	bro pek	550	28
162		2536	12 do	pek	540	18
163		2539	2 do	bro pek fans	130	18
168	Cardig	2554	4 hf ch	pek No 2	180	16
173	Maldeniya	2569	7 ch	dust	910	26
179	Sembawatte	2587	5 do	fans	500	13
181	Rajawatte	2593	11 hf ch	fans	715	27
182		2596	9 do	dust	720	26
187	Erlsmere	2611	17 do	bro or pek	935	46
190		2620	6 cb	pek sou	540	25
195	Passara Group	2635	5 hf ch	dust	450	26
201	Puspone	2653	5 do	fans	365	27
203	Geragama, Inv. No. 6	2659	8 ch	bro or pek	840	28
207		2671	3 bf ch	bro pek fans	180	27
208		2674	11 do	dust	880	26
210	Wewawatte	2680	16 do	pek	896	24 bid
212	Riversdale	2686	5 do	bro or pek fans	350	29
		2689	9 do	pek fans	630	27
214		2692	3 do	dust	270	26
215	Elpittia	2695	3 ch	pek	270	18
216		2698	2 do	pek	170	17
217		2701	1 do	fans	110	15
220	Freds Ruhe	2710	6 ch	pek sou	600	23
222	Mahayaya (Venesta pkgs.)	2716	5 bf ch	or pek	265	27
223		2719	19 do	pek	893	24
224		2722	8 do	pek sou	384	22
225		2725	4 do	fans	228	20
226		2728	2 do	dust	180	23
227	Belgodde	2731	11 hf ch	bro or pek	550	28
228		2734	8 do	pek	400	19
229		2737	14 do	pek sou	630	14
230		2740	2 do	dust	86	19
231	Dehiowita	2743	3 ch	dust	460	25
232	R, in estate mark	2746	1 ch	fans	150	28
238	Lyegrove	2764	10 ch	pek	950	28
239		2767	4 do	pek sou	540	24
240		2770	3 hf ch	dust	225	27
262	Polatagama	2836	3 cb	dust	450	25
276	Weoya	2878	6 do	dust	960	26
281	Clunes	2893	4 ch	pek sou	360	21
282		2896	6 do	bro pek fans	672	27
283		2899	4 do	dust	600	25
288	Gamoaha	2914	6 hf ch	pek fans	540	27
292	Paisloes	2926	2 do	dust	180	25
294	H F	2932	1 ch	bro or pek	110	27
299	Vogan	2947	5 bf ch	dust	460	26
200		2950	2 ch	pek fans	250	27
304	Tempo	2962	4 ch	pek No 2	360	33
305		2965	2 do	pek fans	190	26
306		2968	3 do	dust	240	26
307	A G	2971	1 ch	bro pek	65	24
308		2974	1 do	or pek	85	30
309		2977	2 do	pek	160	24
310		2980	1 do	unassorted	90	26
312	L N S in est mark	2986	2 cb	bro pek	134	23
313		2989	1 do	pek	48	17
314		2992	4 do	pek sou	344	14
315		2995	1 do	dust	70	21
320	Pannawatta	3010	4 cb	dust	600	26
325	Hanwella	3025	2 do	hyson No 2	107	28
326		3028	4 hf cb	dust	340	10
331	Woodend	3043	8 ch	pek sou	592	22
332		3046	2 do	bro pek fans	216	24
333		3049	2 do	dust	280	25
334	Poengalla	3052	5 ch	fans	500	28
335		3055	3 bf cb	dust	270	26
337	B G W	3061	3 ch	hyson	270	12
343	Sylvakandy	3079	5 cb	dust	500	27
344	Dromoland	3082	8 ch	pek sou	677	23
345	G K	3085	16 ch	pek sou	900	22
346		3088	4 do	sou	240	20
348		3094	4 do	fans	340	22
350	H S F in est mark	3100	1 bf ch	pek	40	22
351		3103	3 do	pek sou	135	14
352	Dammeria	3106	14 ch	bro or pek	980	29 bid
355		3115	4 do	dust	400	26
360	Ruanwella	3130	2 cb	bro pek fans	220	27
361		3133	8 do	dust	640	25
362		3136	4 do	fans	400	23
366	Broughton	3145	6 ch	pek sou	510	30
367		3151	5 hf ch	dust	425	27
375	Bowlana	3175	10 ch	pek sou	850	30
376		3178	6 bf ch	fans	420	28
377		3181	4 do	dust	310	27
383	I K V	3199	4 ch	sou	300	18
385	Forest Creek	3205	10 ch	sou	900	24
388	R in est mark	3214	1 ch	sou	93	12
389	B B B in est mark	3217	6 hf ch	dust	468	27
390	Memorakande	3220	4 ch	dust	400	25
391		3223	9 do	fans	720	26
395	Osborne	3235	2 bf ch	fans	164	27
396		3238	1 do	bro or pek fans	56	27
397		3241	1 do	dust	92	26
407	Delta	3271	11 hf ch	dust	935	25
421	Algooltenne	3313	12 ch	pek sou	960	23
422		3316	3 do	fans	330	26
423	J M K	3319	5 bf ch	dust	350	26
430	C R D	3340	3 ch	sou	240	22
431		3343	1 do	pek	90	24
435	Queensland	3355	1 ch	sou	100	14
436		3358	1 hf ch	dust No 1	78	29
437		3361	3 do	bro pek dust	192	27
449	Weyungawatte	3397	1 ch	sou	80	20
450		3400	3 hf ch	dust	240	25
457	K P W	3421	6 hf ch	pek fans	450	27
458		3424	4 do	dust	330	26
462	Tembiligalla	3436	1 cb	pek sou	100	20
463		3439	1 do	bro pek fans	130	27
464		3442	2 do	dust	330	25
467	Penrith	3451	8 ch	pek sou	720	23
468		3454	2 hf ch	fans	140	26
469		3457	3 do	dust	255	25
471	Tismoda	3463	9 ch	pek	810	25
472		3466	2 do	pek sou	810	24
473		3469	1 bf ch	fans	75	26
474		3472	1 do	dust	85	25
479	Mount Park	3487	7 ch	bro pek	350	withd'n
480		3490	4 do	pek	180	withd'n
485	Ferawatte	3505	5 ch	sou	450	20
486		3508	10 hf ch	fans	700	27
491	Galapitakande	3523	10 hf ch	dust	800	26
492	Kincora	3526	7 ch	bro or pek	735	47
499	Clyne	3547	5 ch	pek sou	480	22
500		3550	3 do	sou	240	19
501		3553	2 do	bro tea	220	25
502		3556	1 do	br or pk fans	130	26
503		3559	1 do	dust	150	24
507	Udabage	3571	8 ch	hyson No 2	410	25
509		3574	7 do	dust	560	11

Messrs. Keell and Waldock.

Lot.		Box.	Pkgs.	Name.	lb.	c.
6	Hangranoya	694	6 ch	sou	480	22
8		700	3 do	dust	255	25
9		703	8 do	bro tea	640	16
10	B V in est mark	706	11 hf cb	bro or pek	660	37 bid
11		709	5 ch	or pek	500	36
12		712	3 do	pek sou	255	30
13		715	2 hf ch	fans	140	28
14		718	1 do	dust	85	27
15		721	8 ch	pek	760	32
16	T B in est mark	724	1 ch	Ceylon tea	90	19
20	Bargany	736	10 ch	pek No. 1	900	26 bid
21		739	9 do	pek sou	720	24
23		745	7 bf cb	dust	560	26
29	Dunnottar	763	1 ch	bro pek No. 2	100	22
30		766	3 do	pek	270	21
31		769	5 hf ch	br or pek fans	375	27
34	Thia Shola	778	16 bf ch	bro or pek	960	39
35		781	8 do	or pek	900	32 bid
36		784	20 do	pek	900	27 bid
37	O N	787	1 hf cb	pek	52	27
38		790	1 ch	dust	122	26
39		793	1 do	fans	120	27
40		796	1 do	sou	90	17
42	P	802	7 ch	or pek	700	25

[Messrs. Somerville & Co.]

Lot.		Box.	Pkgs.	Name.	lb.	c.
2	Mossville	217	8 ch	red leaf	720	11
4	Dartry	223	1 ch	sou	94	16
5	G B	226	13 hf cb	dust	650	26
7	Donside	232	8 ch	sou	680	19
12	Avisawella	247	6 ch	sou	480	16
13		250	4 hf ch	fans	280	13
17	Meeriatenne	262	4 bf cb	bro pek fans	292	28
18		265	4 do	tea dust	340	27
21	Agra Elbedde	274	20 hf ch	pek	960	38
22		277	11 do	pek sou	495	37
23	X X	280	6 hf ch	br or pek fans	390	27
24		283	2 do	dust	170	26

Lot.		Box.	Pkgs.		Name.	lb.	c.
29	C W M	298	12	ch	pek sou	960	27
30		301	12	hf ch	dust	960	27
40	Yspa	331	4	ch	br pek fans	500	27
46	Monrovia	349	6	ch	fans	600	19
49	Laxapanagalla	358	3	ch	pek	270	26
50		361	1	do	pek fans	100	26
51		364	1	do	dust	100	24
55	New Angamana	376	1	box	golden tips	10	out
60		391	7	ch	pek fans	840	23
61		394	2	ch	dust	340	21
66	Manangoda	409	5	ch	bro pek	503	23
67		412	6	do	pek	603	16
68		415	3	do	pek sou	285	14
69		418	4	do	bro mixed	403	14
70		421	2	do	red leaf	196	10
72	Atbahena	427	12	hf ch	pek	648	18
73		430	13	do	pek sou	715	17
74		433	1	do	pek dust	69	17
81	Ferndale	454	9	ch	pek sou	837	25
86	Ingeriya	469	3	ch	sou	285	13
87		472	2	do	dust	240	23
90	Ankande	481	2	ch	dust	280	26
98	Kurulugalla	505	7	ch	pek sou	630	21
99		508	3	do	bro pek fans	200	18
100		511	2	do	or pek dust	280	24
105	L	526	7	ch	bro mixed	685	15
106	Uggala	529	15	hf ch	bro pek	840	24
107		532	16	do	pek sou	896	17
108		535	11	do	fans	53	17
109		538	1	do	dust	80	24
110	B K	541	6	hf ch	fans	330	16 bid
115	Neboda	556	5	ch	dust	425	25
116		559	2	bags	tea fluff	200	8
120	Neuchatel	571	2	ch	dust	280	26
127	Dalveen	592	5	hf ch	dust	425	26
128	Kurunegalla	595	12	hf ch	bro or pek	696	28
129		598	12	do	or pek	600	26
131		604	9	ch	pek sou	720	21
132		607	6	do	congou	510	18
133		610	3	hf ch	dust	246	26
134	Old Madegama	613	9	ch	bro or pek	720	47
136		619	2	do	bro or pk fans	200	29
137		622	1	do	dust	110	27
143	St. Leonards-on-Sea	640	5	hf ch	hyson No 2	230	26
144		643	2	do	siftings	172	12
145		646	2	do	yng hyson fan	140	12
148	Adawatte	655	15	hf ch	pek sou	675	23
149	Patulpana	658	6	ch	bro pek	600	33
150		661	4	do	or pek	400	24
151		664	6	do	pek	600	19
152		667	2	do	pek sou	180	19
153		670	1	hf ch	dust	90	22
157	Scarborough	682	9	hf ch	fans	630	23
163	Rayigam	700	12	hf ch	fans	720	26 bid
164		703	7	do	dust	560	25
169	Cumbawella	718	11	cb	pek sou	990	20
170		721	4	do	pek fans	460	25 bid
171		724	2	do	dust	320	22
175	Elchico	736	11	ch	pek sou	990	20
186	Mary Hill	769	6	hf ch	dust	460	25
187	Mahavilla	772	5	hf ch	bro or pek	285	26
189		778	8	hf ch	pek	440	26
190		781	17	do	pek sou	884	23
191		784	1	do	sou	56	17
192		787	4	do	dust	340	25
193	M A H	790	1	hf ch	bro mixed	47	13
194		793	1	do	br pek	21	27
195	Mawatara	796	10	ch	br pek	950	26
196		799	6	ch	pek sou	420	22
197		802	1	hf ch	dust	83	26
202	Salawe	817	5	ch	pek fans	525	25
203		820	2	do	pek dust	320	25
204		823	2	do	dust	300	22
205	Paradise	826	8	ch	br pek	840	27
206		829	7	do	pek	665	21 bid
207		832	9	do	pek sou	810	22
208		835	1	do	fans	113	24
209		838	1	ch			
			1	bf ch	pek dust	217	24
210		841	2	ch	unast	210	18
211		844	1	do	bro mixed	110	14

Messrs. E. John & Co.]

Lot.		Box.	Pkgs.		Name.	lb.	c.
1	Kalkanda	850	5	ch	bro or pek	500	23
2		853	4	do	pek	360	23
3		856	3	do	pek sou	255	20
4		859	1	do	bro or pe fans	110	25
5	W R K	862	2	do	bro pek	224	22
6		865	2	do	pek	218	18
7		868	1	do	pek sou	100	13
8		871	2	do	sou	214	12
10	Karawakettia	877	7	do	pek	704	20
11		880	4	do	pek sou	424	18

Lot.		Box.	Pkgs.		Name.	lb.	c.
13	A T	886	1	do	dust	120	23
14		889	1	do	bro or pe fans	110	20
15		892	2	do	pek fans	200	26
19	Natuwakelle	904	10	do	pek sou	1000	23
20		907	2	do	dust	180	26
25	Warleigh	922	11	hf ch	fans	693	29
26		925	5	do	dust	425	27
41	H M Kalkande	970	4	ch	bro or pek	400	26
42		973	4	do	pek	360	21
43		976	4	do	pek sou	340	18
47	E and H	985	6	bf ch	fans	420	27
48		991	5	do	dust	450	26
59	K P	24	4	do	dust	370	25
60		27	13	do	fans	962	27
63	Chapelton	36	2	do	dust No. 2	150	24
64		39	9	ch	sou	810	17
70	Morton	57	8	do	or pek	720	27
73		66	3	hf ch	dust	240	24
76	Wadhurst	75	7	ch	pek sou	630	22
77		78	2	hf ch	dust	160	26
93	O F E	126	8	ch	pek sou	600	15
94		129	2	do	bro pek fans	200	17
95	Taunton	132	4	do	pek sou No. 2	340	19
96		135	3	do	sou	255	15
97		138	4	hf ch	fans	240	27
98		141	4	do	dust	360	26
100	Bowella	147	7	ch	or pek	665	25
101		150	11	do	pek	935	23
102		153	5	do	pek sou	420	21
103		156	2	hf ch	sou	111	16
113	Rondura	186	9	ch	bro pek fans	900	24
123	Eton	216	1	do	bro or pek	100	23
124		219	1	do	or pek	100	26
125		222	1	do	pek sou	100	25
126		225	3	do	sou	300	22
130	Ben Nevis	237	8	do	pek sou	720	26
131		240	4	do	dust	360	27
140	Ratwatte	267	3	do	pek sou	240	22
141		270	3	hf ch	dust	240	26
144	Cabin Ella	279	2	do	pek fans	140	28
145		282	2	do	pek dust	180	26
151	Bittacy	300	12	do	bro or pek	597	48
154	Elemane	309	10	ch	pek sou	900	23
155		312	4	do	fans	400	27
158	North Pundul-oya	321	4	do	hyson No. 2	400	27
159		324	9	hf ch	siftings	630	11
166	Elemane	345	9	ch	pek sou	810	24
167		348	2	do	fans	200	27
171	Waragalanda	360	7	do	pek sou	630	24
172		363	2	do	dust	200	27
175	Acton	372	4	do	bro or pek	400	45
176		375	7	do	bro pek	665	32
178		381	2	do	or pek	160	30
179		384	2	do	pek sou	180	28
180		387	4	do	fans	260	27
181		390	2	do	dust	160	26
184	Stonyhurst	399	5	hf ch	pek fans	330	27
186	Ottery	405	9	do	dust	720	27
187	Gonavy	408	2	do	bro or pek	120	39
188		411	9	ch	or pek	810	35
189		414	5	do	bro pek	500	44
192		423	9	hf ch	fans	540	28
193		426	4	do	dust	340	26
199	Kolapatna	444	7	do	fans	490	28
203	Craigingilt	453	2	ch	pek sou	150	24
204	Battalawatte	459	6	do	pek	540	27
206	Ratwatte	465	2	do			
			1	hf ch	pek sou	205	18
213	Elemane	486	10	ch	pek sou	900 }	withd'n
214		489	4	do	fans	400 }	
216	Oodoovil	495	6	do	bro pek	600	26
217		498	5	do	pek	495	22
218		501	3	do	pek sou	300	20
220	O V	507	4	do	dust	320	32
221	M	510	1	do	pek sou	80	17

CEYLON COCOA SALES IN LONDON.

MINCING LANE, June 7th.

"Kanagawa Maru."—North Matale, Ceylon cocoa, 30 bags sold at 48s.

"Persia."—NC in estate mark, 3 bags sold at 55s.

"Ajax."—Lower Haloya 1 bag sold at 22s; Maousava A, 5 at 59s.

"Shropshire."—Bandarapola 1, 8 bags sold at 56s 6d; ditto T, 1 at 31s.

"Oruba."—Bandarapola B, 17 bags sold at 55s 6d.

"Jumna."—Bandarapola 1, 9 bags sold at 55s.

MINCING LANE, June 13th.

"Ulysses."—New Peradeniya 1, 1 bag sold at 50s 6d; ditto 2, 1 at 47s; Owella Ceylon Cocoa A,

1 bag sold at 50s; ditto B, 1 at 64s; 1 at 40s.

"Bingo Maru."—Asgeria A, 1 bag sold at 43s; Kumaradola A, 23 bags sold at 60s; B, 5 at 57s; S, 2 at 43s 6d; B, 1 at 40s; A, 4 at 29s 6d.

"Duke of Westminster."—Glen Urquhart, 20 bags sold at 63s 6d; 84 at 63s; 7 at 41s; KPG, 3 bags sold at 60s; 10 at 54s; 22 at 56s; 5 at 50s 6d; 40 at 49s.

"Orizaba."—KPG, 7 bags sold at 53s 6d; 23 at 45s 6d.

"Shropshire."—B 1 Yattawatte, 32 bags sold at 54s.

"Bavaria."—KM in estate mark, 81 bags sold at 52s.

"Clan Ferguson."—Palli London T, 5 bags sold at 52s; Pathregalla London T, 3 bags sold at 52s; Hampshire London T, 3 bags sold at 53s; PKY London T, 2 bags sold at 50s 6d.

"Antenor."—1 M A K in estate mark, Estate Cocoa 54 bags sold at 59s; MM in estate mark, 180 bags sold at 53s.

"Hakata Maru."—Monarakelle A 2, 2 bags sold at 36s 6d; Broken, 1 at 55s; A 1, 1 at 44s; North Matale, 2 SD bags sold at 53s.

"Persia."—Marakona 1, 29 bags sold at 60s; 1 at 38s; II, 7 at 50s; Nibs, 41 at 40s; Ankanda 1. 9 bags sold at 56s; 2, 4 at 40s.

"Antenor."—Armagh 2, 3 bags sold at 50s; 3, 1 at 40s; T, 1 at 20s; Pieces, 1 at 50s; Pondappa 2, 4 bags sold at 50s; T, 2 at 20s.

"Duke of Westminster."—Woodslee Estate RP London, 15 bags sold at 55s; RP London, 16 bags sold at 50s.

"Statesman."—Marakona, 20 bags sold at 60s 6d; 20 at 60s.

"Soudan."—Kotua, 2 bags sold at 56s.

"Somali."—Sirigalla T, 2 bags sold at 45s 6d.

"Persia."—Polwatta, 2 bags sold at 51s 6d; 2 at 60s 6d; 1 at 51s 6d; 2 at 46s; 5 at 35s; 3 at 20s; 2 at 45s.

"Dardanus."—Kobo OO, 2 cases sold at 2s 10d; ditto O, 6 at 2s; ditto OS, 1 at 1s 9d; ditto 1, 2 at 1s 4d; 3 at 1s 5d.

"Warwickshire."—Dromoland No. 1, 3 cases sold at 2s 1s; ditto No. 2, 1 at 1s 5d; 2 at 1s 4d; No. 3, 1 at 1s 1d; ditto seed 1 bag at 1s 6d.

"Hakata Maru."—Yattawatte No. 1, 1 case sold at 1s 7d; ditto No. 2, 1 at 1s 2d; ditto mixed 1 at 6d; ditto seed 1 at 1s 6d.

"Dardanus."—Midlands O, 5 cases sold at 1s 10d; ditto 1, 7 at 1s 4d; ditto 2, 1 at 1s 4d; ditto B and S, 1 at 1s.

"Arabia."—F D, 2 cases sold at 2s 4d; 4 at 1s 8d; 2 at 1s 11d; 6 at 1s 3d; 3 at 1s; 1 packet at 1s 3d; 2 cases at 1s 3d; 2 at 1s 11d; 1 at 1s; 2 cases and 2 packets at 1s 8d; 1 packet at 1s 5d; 1 at 1s 2d; 1 case at 1s 1d; 1 at 1s; 1 pakcet at 1s 3d.

"Antenor."—No. 1, C 58, Cardamoms Ooononagalla Estate, 1 case sold at 1s 8d; No. 2, C 62, ditto, 2 at 1s 4d; No. 3, C 63, ditto, 1 at 1s 3d.

"Japan."—Galgawatte Malabar A, 1 case sold at 1s 3d.

"Bingo Maru."—Galgawatte A, 1 case sold at 1s 4d.

"Bingo Maru."—Wariagalla Mysore A, 4 cases sold at 1s 8d.

"Antenor."—Delpotenoya, 1 case sold at 2s 3d; 1 at 2s 2d; 4 at 1s 10d; 5 at 1s 4d; 1 at 1s 2d.

"Duke of Westminster."—Forest Hill 2, 2 cases sold at 1s 10.

"Prometheus."—AL 1, 2 cases sold at 1s 3d; 2 at 1s 3d.

"Historian."—NJDS, in estate mark, 2 cases sold at 1s 2d.

"Ulysses."—Gavatenne, Mysore O, 7 cases sold at 1s 7d; 15 at 1s 4d; ditto 2, 1 at 1s 1d; ditto B, 5 at 1s 2d; ditto S, 2 at 1s.

"Duke of Westminster."—Mausakanda O, 1 case sold at 2s 7d; ditto 1, 2 at 2s 2d; ditto 2, 2 at 1s 6d; ditto 3, 2 at 1s 3d.

"Duke of Devonshire."—Mausakanda O, 1, 2 cases sold at 1s 8d; ditto 2, 2 at 1s 5d.

"Jumna."—DBM, 2 tins sold at 1s.

"City of Benares."—Gallantenne Cardamoms AA, 1 case sold at 3s; ditto A, 5 at 2s; ditto B, 1 at 1s 9d; 1 at 1s 10d; ditto C, 2 at 1s 7d; 1 at 1s 6d; ditto E, 2 at 1s 9d.

"Persia."—Altwood Ceylon Cardamoms, 2 cases sold at 1s 10d; 2 at 1s 5d; 1 at 1s.

"Ulysses."—Nicholaoya Ceylon Cardamoms 1, 2 cases sold at 2s 1d; ditto 1, 1 at 2s; ditto 2, 5 at 1s 6d; ditto 3, 3 at 1s 1d.

"Ajax."—Pingarawa Cardamoms OO, 1 case sold at 2s 9d; ditto 1, 3 at 1s 9d.

"Somali."—Vedehette Cardamoms EX, 1 case sold at 2s 6d; ditto AA, 3 at 2s; ditto A, 3 at 1s 4d; ditto C, 1 at 1s.

"Bavaria."—Katooloya Cardamoms EX, 1 case sold at 2s 7d; ditto AA, 2 at 2s; 1 at 1s 11d; ditto A, 3 at 1s 4d; ditto B, 2 at 1s 3d; 1 at 1s 2d; ditto C, 1 at 1s; Galaha Cardamoms EX, 1 at 2s 11d; ditto AA, 4 at 2s 1d; ditto A, 4 at 1s 5d; ditto B, 2 at 1s 3d; ditto C, 1 at 1s.

OBSERVER PRINTING WORKS.

TEA COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 27. COLOMBO, JULY 14th, 1902. { PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[39,610 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	25 ch	or pek	2600	36 bid
	20 do	pek	1800	31 bid
Hornsey	42 hf ch	bro pek	2520	32 bid
	21 do	pek	1785	33
Chouhleigh	10 ch	bro or pek	1000	30 bid
	20 do	bro pek	2000	29
	22 do	pek	1870	25 bid
Torrington	49 ch	or pek	4165	25 bid
	28 do	bro or pek	2800	28
	53 do	pek	4240	25
	17 do	pek sou	1275	22 bid
Bunyan and Ovoca	50 hf ch	bro or pek	3000	44 bid
	51 do	or pek	2550	37
	22 ch	pek	2090	30 bid
	19 do	pekNo. 2	1805	35
	20 do	pek sou	1800	30

Messrs. Forbes & Walker.

[715,033 lb.]

	Pkgs.	Name.	lb.	c.
Rawatte	15 ch	young hyson	1575	24
	14 do	hyson No 1	1190	22
Rickarton, Invoice No. 27	26 hf ch	bro or pek	1586	41
	20 ch	or pek	1840	36
	32 do	pek	2944	31
Nakiadenia	13 ch	or pek	1300	26 bid
	20 do	pek	1600	27
	18 do	pek sou	1260	24
Moray	24 hf ch	or pek	1080	36
	49 ch	bro or pek	2842	46
	69 do	pek	5865	31
Sirikandure	19 ch	bro pek	1710	28
	16 do	pek	1200	25
P K	25 ch	pek	2125	24
	22 hf ch	bro pek fans	1210	22
G, in estate mark	19 ch	sou	1710	23
Lauderdale	16 do	sou	1520	22
Castlereagh	37 hf ch	bro or pek	1850	48
	12 ch	bro pek	1200	33
	13 do	or pek	1040	31
	14 do	pek	1120	30
Yataderia	25 ch	bro or pek	2650	27
	10 do	bro pek	1050	23 bid
	22 do	or pek	2024	27
	34 do	pek	2856	21 bid
	12 do	pek sou	1008	20 bid
Poonagalla	33 ch	or pek	3135	40
	47 do	bro pek	5405	56
	53 do	pek	5035	36
Marlborough	32 hf ch	bro or pek	1600	54 bid
	24 ch	bro pek	2400	35
	20 do	or pek	1800	33
	36 do	pek	3132	32
	17 do	pek sou	1462	32
Laurawatte	13 ch	bro pek	1430	28
	17 do	or pek	1666	28
	14 do	pek	1274	24
	10 do	pek sou	1000	23
Clyde	61 hf ch	young hyson	3355	34
	25 ch	hyson	2500	30 bid
	12 do	do No 2	1176	29
St. Helen's	20 hf ch	bro or pek	1100	32
	12 ch	or pek	1020	32
	21 do	pek	1890	25
	13 do	pek sou	1170	23
	16 hf ch	fans	1040	26
O W	34 ch	or pek	3332	28 bid
N C	40 ch	or pek	3400	28 bid
C F, in estate mark	10 ch	bro pek	1050	31 bid
	21 do	pek	1950	26 bid
K G	9 ch	dust	1350	27
Vellana	17 ch	bro pek	1615	31
	14 do	pek	1120	30
Pansalatenne	47 ch	bro pek	4465	37 bid
	10 do	bro or pek	1000	38
	38 do	pek	3040	29
	18 do	pek sou	1530	24
Irehy	64 hf ch	bro pek	3.40	38 bid

	Pkgs.	Name.	lb.	c.
	28 ch	pek	2380	34 bid
	16 do	pek sou	1360	30
L L	30 hf ch	dust	2250	26
C C	20 do	dust	1500	26
Coombecourt	20 hf ch	bro or pek	1100	50 bid
	62 do	bro pek	3100	36 bid
	16 ch	pek	1280	32 bid
Glendon	14 ch	bro pek	1400	39
	39 do	or pek	3900	31
	42 do	pek	3570	23
	17 do	pek sou	1530	21
	12 hf ch	dust	1020	26
St. Heliers	42 do	bro or pek	2352	33
	16 ch	pek	1520	23
Tembiligalla	15 ch	or pek	1350	31
	25 do	pek	2250	26
Penrhos	21 hf ch	bro pek	1281	30
	27 do	or pek	1296	36
	23 ch	pek	1955	30
	13 do	pek sou	1014	26
Penrhos	21 hf ch	bro or pek	1134	54
	28 do	bro pek	1568	29 bid
	41 ch	pek	3280	29
	18 do	pek sou	1404	24
Oshorne	19 ch	bro or pek	2090	31 bid
	18 do	or pek	1674	33
R S	28 hf ch	or pek	1400	31
Adisham	28 do	bro or pek	1540	57
	17 ch	bro pek	1700	32 bid
	15 do	pek	1500	30
Harrow	19 ch	or pek	1900	35
	25 hf ch	bro or pek	1500	45
	34 ch	pek	3400	33
Ardlaw and Wishford	13 do	bro pek	1365	35
	17 do	pek	1462	33
Sylvakandy	11 ch	bro or pek No 1	1100	46
	25 do	do No 2	2500	38
	14 do	bro pek	1400	36
	14 do	or pe	1400	35
	25 do	pek	2500	31
Geragama, Inv. No. 17	21 ch	bro pek	1890	27
	26 do	pek	2080	24
	31 do	pek sou	2325	22
O B E C, in estate mark Nillomally	21 ch	pek	1890	33
	21 do	pek sou	1764	29
	27 do	bro or pek	2700	36
St. Paul' Inv. No. 20	21 hf ch	bro or pek	1218	33
	48 do	pek	2352	31
	26 do	or pek	1300	35
	31 do	bro pek No 2	1705	28
Roeberry I	23 ch	bro or pek	2300	39
	41 do	bro pek	4100	29 bid
	75 do	pek	6900	28
	39 do	pek sou	3510	26
	15 do	dust	1500	26
	30 do	fans	3000	27
Roeberry H	45 ch	bro or pek	4500	41
	104 do	bro pek	10400	31
	68 do	pek	6256	30
S. Heliers	36 hf ch	bro or pek	2016	37
	13 ch	pek	1235	29
Queensland	10 ch	bro pek	1050	41
	12 do	pek sou	1020	33
Hatton	36 ch	bro pek	3960	37
	56 do	pek	5240	33
Ilrex	21 ch	bro or pek	2100	29
	17 do	pek	1530	29
O B E C, in est. mark Summerhill	27 hf ch	bro or pek	1539	56
	23 do	bro pek	1449	43
	17 do	or pek	1564	42
	34 do	pek	3162	34
	39 do	pek sou	3042	30
Carolina	16 ch	young hyson	1536	32
	20 do	hyson	1880	29
Nugagalla	57 hf ch	bro pek	2850	34 bid
	119 do	pek	5950	24 bid
High Forest	61 do	or pek No 1	3538	42 bid
	53 do	or pek	2862	38
	37 do	pek	1776	35
Aberdeen	31 ch	bro pek	2976	31
	35 do	pek	2870	25
Dunkeld	60 hf ch	bro or pek	3300	34 bid
	26 ch	or pek	2340	33
	27 do	pek	2430	31
Clunes	16 hf ch	or pek	1440	31
	17 ch	bro pek	1700	27
	48 do	pek	4320	22 bid
Dunkeld	38 hf ch	bro or pek	2280	36
	17 ch	or pek	1530	35

	Pkgs.	Name.	lb.	c.
	18 do	pek	1620	32
Inverness	14 ch	bro or pek	1400	33 bid
	21 do	pek	1785	34 bid
	18 hf ch	dust	1530	27
Polatagama	22 ch	bro or pek	2200	32
	28 do	bro pek	2660	30
	37 do	pek	3330	27
	29 do	pek No. 2	2610	24
Weoya	43 ch	bro or pek	4300	28
	60 do	bro pek	6000	26
	40 do	pek	3400	23
	14 do	pek sou	1120	21
Drayton	50 hf ch	or pek	2500	43
	39 ch	pek	3510	33
	22 do	pek sou	1760	31
Forest Creek	14 ch	bro or pek	1412	70
	43 do	bro pek	1429	34
	18 do	or pek	1620	36
	34 do	pek	3280	33
Bandaraeliya	61 hf ch	or pek	3355	37
	48 do	bro or pek	2880	33 bid
	69 do	pek	3312	32 bid
Glencorse	55 ch	pek sou	4125	
	21 do	bro pek	2100	withd'n
	13 do	or pek	1170	
K B	21 hf ch	pek dust	1365	27
Dunbar	32 hf ch	bro or pek	1696	55
	12 ch	or pek	1032	35
	27 do	pek	2295	35
Delta	28 ch	bro or pek	2100	30 bid
	23 do	bro pek	2300	27
	29 do	pek	2436	26
	16 do	pek sou	1312	24 bid
Good Hope	52 ch	bro pek	4680	28
	51 do	bro or pek	5100	28
	30 do	pek	2700	26
C N N	12 ch	pek sou	1020	26
Kitulgalla	30 hf ch	bro or pek	1740	26
	14 ch	or pek	1190	27
	17 do	pek	1360	24
Nahalma	24 ch	bro pek	2640	22 bid
	16 do	bro or pek	1840	26 bid
	22 do	pek	2200	22
	18 do	pek sou	1710	19 bid
Devonford	20 hf ch	bro or pek	1120	78
	12 ch	or pek	1200	49
	18 do	pek	1638	44
	17 do	pek sou	1530	40
Middleton	22 hf ch	bro or pek	1320	61
	18 ch	or pek	1620	33 bid
	13 do	bro pek	1300	34 bid
	16 do	pek	1360	0 bid
Vincit	10 ch	bro pek	1000	29
	12 do	pek	1080	24
Chrystler's Farm	25 ch	bro pek	1375	50
	30 do	pek	2700	32
Waldemar	27 hf ch	bro or pek	1728	53 bid
	18 ch	bro pek	2070	36 bid
	27 do	or pek	2700	39
	14 do	pek	1288	34
Palmerston	18 hf ch	bro or pek	1080	58
	20 ch	bro pek	1140	41
	18 do	pek	1530	44
Lochiel	27 hf ch	dust	2214	23
Eastland	40 hf ch	bro or pek	2560	32
	44 ch	or pek	3960	25 bid
Bandara Eliya	55 hf ch	or pek	3080	37
	58 do	bro or pek	3480	33 bid
	64 do	pek	3072	35
Poonagalla	16 ch	or pek	1504	37 bid
	29 do	bro pek	3335	52 bid
	21 do	pek	1995	35
Mawillgangawatte	44 ch	bro pek	4224	25
	35 do	pek sou	2625	22
	20 do	dust	13 0	26
Ingoya	16 ch	yng hyson	2600	35 bid
	37 do	hyson	3330	31 bid
	35 do	hyson No 2	2765	28 bid
	10 do	fans	1000	15 bid
Wella	39 ch	or pek	1950	
	41 do	bro pek	2050	withd'n
	55 do	pek	2750	
Choisy	76 ch	pek	6457	25 bid
Beverley	31 hf ch	pek	1700	27
Gonapitiya	24 ch	bro pek	1369	31 bid
Udaveria	19 hf ch	bro or pek	1140	50
	35 do	br or pk No 1	2100	32
	16 do	or pek	1440	34
	15 do	pek	1275	32
Gingran Oya	11 ch	or pek	1105	34 bid
Erlsmeere	19 hf ch	bro pek	1015	32 bid
Strathspey	17 ch	or pek	1646	35 bid
	19 do	pek	1745	30 bid
Koskellie	18 hf ch	bro pek	1080	39 bid
	20 ch	or pek	2000	33
	25 do	pek	2375	33

	Pkgs.	Name.	lb.	c.
	33 do	pek sou	2970	33
Tunisgalla	20 hf ch	or pek	1000	34
	13 ch	pek	1170	32
Swinton	18 ch	bro or pek	1800	30 bid
	22 do	or pek	2200	29
	21 do	pek	1890	25 bid
	13 do	pek sou	1105	23 bid
Dambagastalawe	11 ch	bro or pek	1210	49
	21 do	or pek	2184	33
	25 do	pek	2375	32
Bullugolla	33 ch	bro or pek	3300	30 bid
	43 do	or pek	4300	29
	28 do	pek sou	2380	24
Amblangoda	26 ch	or pek	2600	26 bid
Coreen	40 ch	or pek	3600	31 bid
Amblakande	10 ch	bro pek	1000	32
	18 do	pek	1440	25
Perawatte	31 ch	bro or pek	3255	28
	40 do	or pek	3600	30
	21 do	pek	1890	26
	23 do	pek sou	2070	22
H. G. M.	37 hf ch	bro or pek	2035	30 bid
	22 ch	pek	1870	26 bid
	16 hf ch	fans	1040	27 bid
	16 ch	pek sou	1280	22 bid
Preston	15 ch	bro or pek	1560	51
	13 do	pek	1040	38
	22 do	pek sou	1650	33
Uragalla	13 ch	bro pek	1300	28 bid
	25 do	pek	1200	26 bid
Ugieside	15 ch	bro tea	1350	17 bid
	11 do	fans	1045	23
	19 do	sou	1425	20
Macaldeniya	30 ch	bro pek	1800	33
	32 do	pek	1760	33
Ganapalla	15 ch	bro or pek	1500	27
	17 do	or pek	1360	33
	39 do	pek	3003	25
	20 do	pek sou	1560	21
	11 do	br pek fans	1199	27
High Forest	66 hf ch	or pek No 1	3960	50 bid
	55 do	or pek	3025	46
	49 do	pek	2450	40
Maha Uva	42 hf ch	bro or pek	2730	30 bid
	46 ch	or pek	4600	36
	42 do	pek	3780	32
	14 do	pek sou	1120	29
Kirklees	38 hf ch	br or pek	2280	58
	20 ch	or pek	2000	36
	31 do	pek	2790	32
Gampaba	28 ch	bro or pek	2050	35
	38 do	or pek	3648	35
	27 do	pek	2295	32
Hayes	36 hf ch	dust	2520	27
Dammeria	44 ch	or pek	3960	29
	13 do	br or pek	1300	28
	63 do	bro pek	6300	28 bid
	46 do	pek sou	4140	23 bid

Messrs. Keell and Waldock.

[59,154 lb.]

	Pkgs.	Name.	lb.	c.
K G	9 ch	sou	1008	17 bid
M B	22 ch	bro pek	2200	27 bid
	40 hf-ch	fans	2080	26
Moneragalla	15 ch	bro or pek	1185	36 bid
	17 do	or pek	1224	30
	49 do	pek	3332	27
	21 do	pek sou	1281	23 bid
Taprobana	30 hf ch	br pek	1650	29 bid
	28 ch	pek	2240	25 bid
Dunnottar	23 hf ch	bro or pek	1265	39 bid
	13 ch	br pek	1300	28 bid
	14 do	pek	1190	29
	12 do	pek sou	1080	26
E W in est mark	15 ch	or pek	1425	28 bid
	14 do	bro or pek	1694	22 bid
Alpha	11 ch	bro pek	1100	29 bid
Hangranoya	19 ch	bro or pek	1805	39 bid
	28 do	bro pek	2660	27 bid
	18 do	pek	1620	27
	21 do	pek sou	1680	23 bid
Walla Valley	16 ch	pek	1520	29 bid
Gampai	49 ch	or pek	2-52	25 bid
	103 hf ch	bro or pek	5768	28 bid
	34 ch	pek	2842	22 bid
	28 do	pek sou	2184	20 bid

Messrs. Somerville & Co.

[281,968 lb.]

	Pkgs.	Name.	lb.	c.
Pindeni Oya	43 ch	or pek	3870	27
	35 do	bro or pek	3325	23 bid
	26 do	pek	2080	23 bid

	Pkgs.		Name.	lb.	c.
Avisawella	24	hf ch	bro or pek	1200	37
	20	ch	or pek	1900	32
	22	do	pek	1980	25
	16	do	pek sou	1280	21
Theberton	24	ch	br pek	2400	31 bid
	34	do	pek	2890	27
Nyanza	15	ch	or pek	1425	34
	19	hf ch	bro or pek	1045	44
	17	ch	pek	1530	28
Polgahakande	15	ch	or pek	1200	23
	14	do	br pek	1470	23
Hatdowa	30	hf ch	bro or pek	1800	25
	12	ch	bro pek	1200	25
	15	do	pek	1425	23
	18	do	pek sou	1620	20
Kudaganga	12	ch	bro pek	1200	26
	11	do	pek	1045	24
Lyndhurst	60	hf ch	br pek	3300	26 bid
	63	do	pek	2835	25
	53	do	pek sou	2226	20
Bodawa	38	hf ch	bro pek	2090	27
Gwernet	19	ch	bro pek	1995	31
	30	do	pek	2550	30
Kelani	19	ch	or pek	1520	31
	17	do	br or pek	1700	25 bid
	15	do	pek	1050	24
	12	do	pek sou	1080	21
Yarrow	31	hf ch	bro or pek	1550	29 bid
	43	do	or pek	1978	29
	53	do	pek	2279	22 bid
	46	do	pek sou	2024	22
Dryburgh	23	hf ch	bro or pek	1311	27
	50	ch	pek	4150	24
Ravenscraig	19	hf ch	br pek	1045	33
	12	ch	pek	1080	27
Hobart	25	ch	pek	2000	25
Labugama	27	hf ch	br pek	1458	29
	26	ch	pek	2210	24
Dmburgh	26	ch	or pek	2444	31
Damblagolla	12	ch	pek	1020	28
	14	do	pek sou	1120	23
D B G	10	ch	fans	1000	26
S R K	10	ch	pek	1000	32
Paragakande	14	ch	bro pek	1377	25
	18	do	pek	1803	20
Ferndale	19	ch	pek	1596	30 bid
Tavalamtenne	47	hf ch	bro or pek	2820	30 bid
	90	do	pek	5040	25 bid
	117	do	sou	5850	21 bid
R T in est mark	30	hf ch	fans	2100	27
Raglan	16	ch	bro pek	1600	20
	14	do	pek	1330	19
Ferndale	28	ch	pek	2520	30
Mount Temple	34	ch	bro pek	3230	27 bid
	18	do	pek	1584	26 bid
	19	do	pek sou	1520	21 bid
Selvawatte	53	hf ch	bro or pek	2915	26 bid
	16	ch	pek	1520	21 bid
Deniyaya	1	ch	pek sou	2160	23
Naiangoda	30	ch	bro pek	2850	30
	20	do	pek	1800	25
	13	do	pek sou	1170	21
M T C L in est mark	22	ch	or pek	2310	33
Marigold	45	hf ch	bro pek	23 5	31 bid
	14	do	pek dust	1050	27 bid
Allakollawewa	25	hf ch	br pek	1325	32 bid
Walhanduwa	25	ch	bro or pek	2500	32
	25	do	or pek	22 0	29
	32	do	pek	2880	26
Rayigam	10	ch	bro or pek	1000	34
	14	do	or pek	1260	32
	13	do	bro pek	1235	26
	34	do	pek	2720	25
	26	do	pek sou	2170	21
Monte Christo	24	ch	bro pek	2400	40 bid
Annandale	19	hf ch	bro or pek	1140	57 bid
	19	do	or pek	1045	37 bid
	24	do	pek	1296	37
	32	do	pek sou	1632	31 bid
Farnham	22	hf ch	bro pek	1320	35 bid
	22	ch	or pek	1892	31 bid
	11	do	pek	1045	26 bid
	13	do	pek No 2	1105	25 bid
Wewebedde	52	ch	bro pek	5200	withd'n
	50	do	pek	4500	withd'n
	17	do	pek sou	1530	withd'n
C W M	24	hf ch	or pek	1200	24 bid
	30	ch	pek	2700	3 bid
Forest Hill	20	hf ch	bro or pek	1160	30
	12	ch	br pek	1140	50
	29	do	pek	2437	27
Mousakande	10	ch	bro or pek	1000	23
	29	do	bro pek	2631	29
	37	do	pek	3256	28
	16	do	pek sou	1360	23
Oonankande	29	hf ch	bro pek	1450	29 bid

	Pkgs.		Name.	lb.	c.
	32	ch	pek	1760	26 bid
	15	do	pek sou	1050	23
Jak Tree Hill	22	ch	bro pek	2200	27
	14	do	pek	1260	23 bid
Havilland	34	ch	bro or pek	3400	28 bid
	30	do	or pek	2550	31
	21	do	br pek	2100	27
	44	do	pek	3740	26
	15	do	pek sou	1170	20 bid
Oonanagalla	16	ch	pek sou	1360	24
Harrangalla	12	ch	or pek	1080	28 bid
	12	do	bro pek	1200	31 bid
	35	do	pek	2975	27
	14	do	pek sou	1120	22
S in est mark	23	hf ch	bro pek	2208	22 bid
Mary Hill	27	hf ch	bro pek	1620	30 bid
	30	do	pek	1650	23
Blinkbonnie	18	ch	or pek	1800	36
	18	do	pek	1710	33
Cooroondoowatte	29	do	pek	2900	24 bid
	13	do	pek sou	1300	19 bid
Mount Temple	24	ch	bro pek	2232	27 bid
	18	do	pek sou	1440	20 bid
Hobart	21	ch	bro pek	2058	26 bid

Messrs. E. John & Co.

[228,045 lb.]

	Pkgs.		Name.	lb.	c.
Elston	46	ch	pek	3680	28
	36	hf ch	dust	3060	27
	29	ch	pek sou	2465	26
Birnham	25	hf ch	pek sou	1750	36
M L W	34	ch	bro pek	3400	29 bid
	16	do	pek	1360	24 bid
	17	do	pek sou	1275	22 bid
Dickapitiya	28	do	bro pek	2800	29 bid
	32	do	pek	3200	24 bid
Koslanda	34	hf ch	bro pek	1870	28
	15	ch	pek	1275	30 bid
St. John's	40	hf ch	bro or pek	2300	52
	22	ch	or pek	2024	54
	28	do	pek	2660	44
	12	do	pek sou	1104	28 bid
	15	hf ch	dust	1290	29
Eila	89	ch	pek sou	62[illegible]0	21
St. Andrews	24	hf ch	dust	2040	27
Elemane	36	ch	bro pek	3600	33
	38	do	pek	3420	32
Agra Ouvah	50	hf ch	bro or pek	3000	54
	33	do	or pek	1782	58
	13	ch	pek	1235	40
Glasgow	20	hf ch	bro or pek	1100	56
	19	ch	bro pek	1900	42
	26	do	or pek	2470	38
	18	do	pek	1674	36
Wattagalla	18	do	bro pek	1980	withd'n
	35	do	pek	3150	withd'n
	45	do	pek sou	3600	withd'n
C slanda	34	hf ch	bro pek	1870	28
	15	ch	pek	1275	21
Gingranoya	11	do	bro pek	1100	28 bid
Templestowe	43	hf ch	bro or pek	2408	42
	26	do	or pek	1126	36
	28	ch	pek	2464	31
	12	do	pek sou	1080	29
Carendon	24	do	bro pek	2400	27
	21	do	pek	2100	22 bid
	12	do	pek sou	1200	19 bid
Myraganga	12	do	or pek	1020	32
	11	do	bro or pek	1100	32 bid
	15	do	pek	1[illegible]0	28
Mt. Vernon	46	do	pek	4140	36
	20	do	pek	1800	33 bid
Y K	11	do	dust	1650	25
Kandahar	26	hf ch	pek	1430	33
Galloola	29	ch	bro pek	2900	32 bid
	41	do	pek	3[illegible]90	32
	30	do	pek sou	[illegible]	27
C[illegible]awatte	30	do	bro pek	3000	30 bid
	33	do	pek	3300	28
	29	do	pek sou	2900	24
Rondura	55	do	bro pek	5500	26
	35	do	pek	3150	20 bid
Wattagalla	54	do	pek sou	4320	23 bid
Callander	19	hf ch	or pek	1035	55
Madulkelle	23	ch	bro or pek	2[illegible]	withd'n
	30	do	pek	2700	withd'n
	21	do	pek sou	1[illegible]9	withd'n
Winwood	30	hf ch	bro or pek	1500	40 bid
	26	ch	or pek	23[illegible]0	31
	38	do	pek	3420	28
	12	hf ch	dust	10[illegible]0	8
L H O	21	ch	pek sou	1[illegible]90	21

	Pkgs.	Name.	lb.	c.
	14 do	fans	1568	27
Glentilt	35 hf ch	bro or pek	1925	55
	21 ch	or pek	1890	38
	19 do	pek	1710	34 bid
	14 do	fans	1120	29
D K	11 do	bro pek fans	1100	27
Balado	13 do	pek	1300	27
	21 do	pek sou	1680	24
Brownlow	19 do	bro or pek	1026	54
	24 do	or pek	2304	36
	23 do	pek	2024	31
Gangawatte	20 do	bro or pek	2000	55
	17 do	bro pek	1700	32
	38 do	pek	3420	33
	13 do	pek sou	1170	29
Kadienlena	15 do	sou	1200	18
C B	11 do	bro pek fans	1100	26 bid
Heatherly	57 do	yng. hyson	5586	33 bid
	55 do	hyson	5225	29 bid
	18 do	hyson No. 2	1620	28
M N	10 do	bro pek fans	1000	26 bid
Mahanilu	19 do	or pek	1064	40
	22 do	bro or pek	1276	46 bid
	18 do	pek	1746	35 bid
K R	11 do	bro pek fans	1087	26 bid
Orwell	15 do	or pek	1425	28 bid
	15 do	pek	1230	26
	16 do	pek fans	1040	26 bid
K'Watte	11 do	bro pek fans	1100	26 bid
Holbrook	41 hf ch	bro or pek	2454	28 bid
	19 ch	or pek	1859	28

SMALL LOTS

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Chouhleigh	4 ch	pek sou	336	23
	2 do	dust	260	26
	2 do	fans	224	27
Torrington	10 ch	bro mixed	[illegible]	19
	4 do	dust	720	25

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Rawatte	4 ch	hyson No 2	320	18
Rickarton, Inv. No 27	9 hf ch	bro pek fans	765	28
Dunbar	3 ch	pek sou	276	28
N B	3 do	dust	486	27
Nakiadenia	6 ch	bro tea	570	21
	2 do	bro mix	170	18
	1 do	bro mix	85	15
	5 do	dust	400	26
Moray	9 hf ch	dust	720	27
Sirikandure	11 ch	pek sou	715	20
	2 do	sou	260	25
P K	6 hf ch	dust	510	21
K H L	7 ch	fans	910	28
T C L, in est. mark	1 ch	pek fans	100	21
	3 hf ch	bro pek dust	240	26
	2 do	pek dust	160	24
Poonagalla	7 do	fans	525	30
S V, in est. mark	14 hf ch	pek fans	980	28
	8 do	dust	720	27
	7 ch	pek sou	700	21
	1 do	bro tea	95	21
V O A	3 ch	bro tea	300	18
Laurawatte	2 hf ch	fans	180	25
Clyde	6 ch	green tea fans	680	14
St. Helen's	7 hf ch	dust	595	26
F, in est. mark	6 ch	pek	480	withdn.
C, in est. mark	6 hf ch	dust	540	13
K G	7 ch	sou	630	20
Vellana	3 do	bro or pek	300	36
	7 do	pek sou	595	24
	2 do	bro pek fans	230	26
	1 do	dust	140	25
Ambanpitiya	2 ch	dust	310	26
	4 do	bro tea	408	21
Pansalatenne	1 ch	dust	150	25
	3 do	bro pek fans	375	26
Ireby	4 hf ch	fans	280	34
	6 do	dust	510	27
Coombe Court	10 ch	pek sou	800	withdn.
	2 do	sou	160	23
	1 hf ch	dust	80	26
	2 do	fans	[illegible]	28
K, in estate mark	1 do	bro pek fans	70	18
B, in estate mark	1 ch	fans	107	17
St. Heliers	4 hf ch	dust	328	27
B K	3 ch			
	1 hf ch	dust No 2	497	14

	Pkgs.	Name.	lb.	c.
Tembiligalla	9 ch	bro or pek	900	28
	1 do	bro pek fans	125	26
	1 do	dust	150	25
Penrhos	2 hf ch	fans	150	27
	1 do	pek dust	80	25
Penrhos	4 do	fans	300	27
	1 do	pek dust	96	25
R	1 ch			
	1 hf ch	or pek	125	26
R S	18 do	pek	900	22
	18 do	pek sou	900	20
	12 do	fans	600	20
	5 do	dust	250	20
	8 do	bro tea	400	20
	4 do	congou	200	14
Adisham	4 hf ch	dust	340	26
Harrow	5 do	dust	425	26
S W	5 ch	bro pek	525	26
	6 do	pek	516	23
Sylvakandy	3 ch	dust	300	27
Geragama, Invoice No. 17	7 ch	bro or pek	735	27
	3 hf ch	dust	240	26
Roseberry H	2 ch	fans	200	27
	1 do	dust	100	26
Queensland	1 do	pek No 2	98	20
Hatton	5 ch	pek sou	425	26
Irex	12 do	or pek	960	31
	2 do	pek sou	160	27
	2 do	fans	[illegible]	27
	2 do	dust	170	25
Carolina	6 ch	hyson No 2	564	28
	4 do	siftings	436	12
Nugagalla	6 hf ch	dust	540	26
Florence	2 ch	pek	174	30
Penrhos	1 do	pek	78	26
Aberdeen	10 hf ch	bro pek fans	700	27
Clunes	6 ch	pek sou	810	20
	4 do	pek fans	400	24
	4 do	bro pek fans	448	26
	2 do	dust	300	24
Inverness	6 ch	pek sou	600	30
Polatagama	7 do	fans	700	26
	1 do	dust	150	21
Weoya	6 ch	bro pek fans	690	26
	4 do	dust	600	25
Dunbar	8 ch	bro pek	784	40
	7 do	bro pek fans	749	36
Tullybody	3 ch	sou	306	24
Good Hope	3 ch	fans	300	23
	3 do	bro pek fans	330	26
	9 hf ch	dust	810	25
C N N	8 hf ch	dust	680	29
	11 do	fans	770	28
Kitulgalla	3 hf ch	dust	246	25
Nahalma	6 hf ch	dust	510	25
B D W P	7 ch	bro pek fans	770	28
	2 do	sou No 1	150	20 bid
Middleton	11 hf ch	dust	935	28
Vincit	6 ch	pek sou	540	22
	2 do	fans	250	26
	1 do	dust	150	25
Chrystler's Farm	3 ch	pek sou	255	28
	3 do	dust	240	27
Monterey	9 ch	sou	810	20
Kennington	7 ch	bro tea	619	16
Findlater	8 hf ch	dust	600	27
Eastland	5 ch	pek	515	25
	10 hf ch	pek dust	940	27
Poonagalla	11 hf ch	dust	990	28
Ingurugalla	4 ch	pek sou	360	21
	8 hf ch	bro tea	630	26
Wella	15 ch	pek sou	750	with'dn
	3 do	dust	270	
Udaveria	6 hf ch	fans	510	27
Koskellie	9 hf ch	fans	648	27
	8 do	dust	680	27
Tunisgalla	12 hf ch	bro pek	720	32
	11 ch	pek sou	935	25
	10 hf ch	bro or pek	550	52
	2 ch	sou	160	22
	3 hf ch	dust	270	28
Glentenne	15 hf ch	bro or pek	890	29 bid
Swinton	2 ch	fans	200	27
	2 do	dust	220	25
Dambagastalawe	3 ch	pek sou	300	28
	5 do	bro pek fans	600	28
Bullugolla	4 ch	fans	400	27
	2 do	dust	220	26
Coreen	8 ch	pek sou	640	29
	12 hf ch	fans	840	29
	7 do	dust	595	28
Ambalakande	7 ch	pek sou	560	23
Perawatte	5 do	sou	450	20
	10 hf ch	fans	700	27
R M, in estate mark	9 do	dust	720	27
Kelburne	6 do	dust	510	25

	Pkgs.		Name.	lb.	c.
Augusta	8	ch	fans	960	with d'n
St. Margarets	9	do	bro pek	900	.0
	3	do	pek	252	25
	8	do	pek sou	606	23
	6	hf ch	bro or pek fans	384	28
Preston	15	do	or pek	690	47
	10	do	bro or pek fans	680	35
	8	do	unas	432	23
Uragalla	7	ch	pek sou	315	22 bid
	1	do	dust	90	24 bid
Ugieside	5	do	pek fans	475	23
	9	do	dust	765	25
Macaldeniya	3	do	pek sou	1?5	26
	2	do	dust	170	26
	2	do	fans	140	23
Gampaha	5	do	pek sou	450	27
	6	hf ch	pek fans	540	27
Dammeria	9	do	bro pek fans	720	27
	5	do	dust	500	26

Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
P P P	2	hf ch	bro or pek	144	25
	5	do	pek	381	2)
	1	ch	fans	120	22
M L W	4	hf ch	dust (not b.)	3 0	23
Koslanda	5	ch	pek sou	450	16
	2	do	fans	220	20
	1	hf ch	dust	80	22
Glentilt	1	ch	or pek	87	35
Elemane	10	do	pek sou	900	28
	4	do	fans	400	27
Wattagalla	7	hf ch	dust	6 0	with 'n
Coslanda	5	ch	pek sou	450	16
	2	do	fans	220	19
	1	hf ch	dust	80	22
Carendon	1	ch	congou	90	16
	1	do	dust	100	21
Y K	8	do	pek fans	800	20
	10	do	bro tea	800	15
Galloola	4	do	dust	400	27
	1	do	fans	100	28
Cocoawatta	4	do	dust	400	25
	4	do	fans	400	23
Rondura	9	do	or pek	765	28
	6	do	bro pek fans	630	24
	5	do	dust	525	24
Callander	8	hf ch	bro or pek	450	37
	16	do	pek	800	27
L H O	6	do	dust	480	25
Brownlow	12	ch	bro pek fans	924	29
Gangawatte	14	hf ch	fans	910	29
	5	ch	sou	450	22
Heatherly	3	do	yng. hyson fans	387	13
	3	do	siftings	510	11
Mahanilu	4	do	dust	328	26
	5	do	fans	380	27

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
G in est mark	4	ch	bro pek	388	27
	2	do	pek	180	23
	3	do	pek sou	258	21
	2	do	dust	240	24
Moneragalla	5	ch	br or pek fans	500	27
	3	do	or pek fans	292	26
	1	do	dust	112	26
Dunnottar	9	hf ch	or pek	450	35
	1	ch	fans	75	27
	1	do	dust	80	26
Alpha	12	ch	pek	960	25
	2	do	pek sou	180	24
	2	do	fans	150	24
	1	hf ch	dust	80	18
Navanagalla	14	ch	br pek	770	34 bid
	8	do	pek	720	26 bid
	5	do	pek sou	475	23
	2	do	dust	180	25
O T in est mark	6	ch	br pek	600	25
	4	do	pek	360	22
	5	do	pek sou	450	20
	4	ch	dust	400	24
	2	do	unassorted	180	17
B	1	hf ch	young hyson	43	17
	1	do	hyson	34	14
	1	do	hyson No 2	52	12
M M	11	hf ch	or pek	605	24
	15	do	pek sou	750	19
X F T in est mark	6	hf ch	dust	504	15 bid
Gampai	7	ch	dust	721	25

Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Pindeni Oya	10	ch	pek sou	800	19
	6	do	dust	840	22
Avisawella	8	hf ch	dust	600	26
Theberton	1	ch	sou	85	24
	3	do	bro pek fans	3 0	27 bid
	3	do	pek fans	300	26 bid
Hatdowa	3	ch	fans	300	24
	6	hf ch	dust	480	26
Kudaganga	7	ch	pek sou	630	21
	6	do	bro pek fans	510	16
	4	do	br pek dust	480	25
Lyndhurst	4	hf ch	dust	320	25
Bodawa	7	ch	pek	630	26
	7	do	pek sou	695	22
	1	do	bro mix	83	14
	1	ch			
	1	hf ch	bro pek fans	230	26
Gwernet	9	ch	pek sou	720	24
	2	do	dust	200	27
Bodageda	3	ch	bro pek	3 0	27
	4	do	pek	400	23
	2	do	pek sou	2 0	16
	1	do	dust	100	18
Yarrow	11	hf ch	br or pek fans	726	27
	6	ch	pek dust	540	27
Hobart	11	hf ch	bro or pek	660	22 bid
Nikawela	8	ch	br pek	800	30
	7	do	pek	630	25
	5	do	pek sou	450	21
	1	hf ch	dust	80	24
Labugama	4	ch	pek sou	320	22
	5	hf ch	bro pek fans	300	27
	3	do	dust	240	27
G B	12	hf ch	dust	600	27
S R K	3	ch	br or pek fans	390	28
	3	do	dust	480	27
Paragakande	4	ch	pek sou	435	17
	3	do	unassorted	293	13
T C A	2	ch	red leaf	200	16
R T in est mark	10	hf ch	dust	900	26
	8	ch	bro mix	880	20
Raglan	3	ch	dust	420	17
G A	5	ch	pek	450	18
	9	do	pek sou	756	21
	4	do	sou	284	20
	11	hf ch	dust	880	25
Selvawatte	2	ch	pek sou	160	15
	3	hf ch	fans	240	26
	1	ch	dust	105	20
Deniyaya	1	ch	or pek	95	29
	2	do	pek sou	85	20
H R	2	hf ch	bro pek	112	26
	3	do	pek	145	23
	1	do	dust	78	24
	1	do	hyson	35	11
Narangoda	8	hf ch	dust	640	24
Rayigam	10	hf ch	fans	600	26
	5	do	dust	480	25
Monte Christo	3	ch	fans	300	27
	1	do	sou	90	23
	2	do	bro tea	170	21
	5	hf ch	dust	400	27
Annandale	7	hf ch	dust	595	27
Farnham	2	hf ch	dust	164	26
	6	do	fans	432	26
Wewebedde	5	ch	fans	500	withd'n
Mousakande	2	ch	sou	166	20
	14	hf ch	fans	980	26
Oonankande	7	hf ch	dust	462	26 bid
Jak Tree Hill	5	ch	pek sou	450	20
	2	do	dust	2 0	26
	1	do	congou	90	19
Havilland	4	ch	sou	316	20
	3	do	dust	312	25
	5	do	fans	600	23
Neboda	1	ch	bro or pek	96	32
Mary Hill	3	hf ch	dust	225	26
Blinkbonnie	5	ch	pek sou	344	31
K	6	hf ch	dust	330	19 bid
W	3	ch	sou	300	21
	2	do	congou	164	19
	7	do	fans	840	21
	2	do	dust	340	17 bid
S R	2	hf ch	bro pek	110	25
	2	do	pek	100	21
	2	do	pek sou	200	20
	1	do	dust	130	22
	1	box	hyson	15	11
Ballapitiya	9	ch	bro or pek	900	27
	8	do	or pek	640	22
	9	do	pek	966	18
A	11	ch	pek	921	26
Coorcondoowatte	7	ch	congou	700	17

No. 28. COLOMBO, JULY 21st, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[32,277 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	23 ch	or pek	2300	31 hid
	22 do	pek	1980	30
Mapitigama	17 ch	bro or pek	1785	29
	25 do	bro pek	2375	29
	14 do	or pek	1190	28
	18 do	pek	1440	22 hid
R C M, in est. mark	21 hf cb	hro or pek	1155	37 bid
	33 do	bro pek	1815	out
Hornsey	20 do	or pek	1100	35
	28 ch	pek	2380	31
	16 do	pek sou	1200	28
Battalgalla	25 ch	or pek	2497	29 hid
	31 do	pek sou	2325	withdn.
Chouhleigh	22 ch	pek	1867	withdn.

Messrs. Forbes & Walker.

[685,515 lb.]

	Pkgs.	Name.	lb.	c.
Rawatte	23 ch	young hyson	2530	out
	11 do	hyson No 1	1210	out
Bogahagodawatte	10 ch	hro pek	1060	28
Strathisla	27 ch	bro or pek	2700	31
	18 do	or pek	1440	30
	25 do	pek	2250	27
	17 do	pek sou	1360	26
O B E C, in estate mark, New Market Invoice No. 6	36 hf ch	bro or pek	2088	47
	40 ch	hro pek	4200	34
	26 do	pek	2414	30
	12 do	pek sou	1128	30
Dolahena	31 hf ch	hyson No 1	1550	27
Tokatiamullal	13 ch	bro pek	1300	26
Bellengalla	12 ch	bro pek	1200	26
O B E C, in est. mark Darrawell, Invoice No. 5	32 hf ch	hro or pek	1856	47 bid
	35 ch	hro pek	3920	32 bid
	43 do	pek	3526	30
	30 do	or pek	2850	39
St. Paul's Inv. No 21	50 hf ch	pek	2300	31 bid
	25 do	bro or pek	1450	31 bid
Vincit	13 cb	hro pek	1300	32
Avoca	24 ch	hro or pek	2544	44 hid
	45 do	or pek	4500	34 bid
	45 do	pek	4140	28 bid
Templehurst	25 ch	bro or pek	2500	33
	17 do	pek	1496	31
Tonacombe	63 do	or pek	5670	33
	63 do	bro pek	6300	31 bid
	73 do	pek	6205	29
	15 do	pek sou	1200	25
	22 hf ch	dust	1870	27
Broughton	40 bf ch	or pek	2160	37
	47 do	pek	2444	31 hid
	18 do	bro or pek	1044	63
Pusella (Venesta packages)	24 hf ch	bro or pek	1440	27 bid
	24 cb	or pek	2640	26
	20 do	pek	2000	22 bid
Kennington	21 ch	pek sou	1470	20
R M in estate mark, Bopitiya	19 ch	bro or pek	1900	31
Pingarawa	28 do	sou	2210	27
Rajawatte	15 cb	or pek	1500	32
Moray	23 hf ch	or pek	1035	37
	60 do	bro or pek	3180	42
	90 do	pek	7650	30
O B E C, in est. mark Sindumally	10 cb	bro or pek	1050	34
	22 do	bro pek	1980	32
	21 do	pek	1785	30
	22 do	pek sou	1540	28
El Teb	35 hf ch	bro or pek	2100	42
	32 ch	or pek	3264	33
	20 do	hro pek	2640	27 bid
	36 do	pek	3456	26 bid
Erlsmere	12 ch	bro pek	1200	35
Adisham	30 hf ch	bro or pek	1620	66
	15 ch	bro pek	1500	35
	11 do	pek	1100	33

	Pkgs.	Name.	lb.	c.
Passara Group	20 ch	or pek	1800	33
	32 do	bro or pek	3200	34
	36 do	pek	3240	31
	14 do	pek sou	1260	28
Florence	28 hf ch	bro or pek	1540	79
	24 ch	or pek	2184	59
	50 do	pek	4400	39 hid
	25 do	pek sou	2125	36
	27 do	sou	2295	29
	40 hf ch	dust	3240	29
	39 do	bro or pek fans	2535	39
Waitalawa	35 do	bro pek	1750	44
	44 do	pek	2200	30
Stamford Hill	51 hf ch	bro pek	3054	52 bid
	40 ch	pek	3594	29 bid
	37 hf ch	hro pek	2220	35
	30 do	or pek	1440	39
	28 cn	pek	2520	32
Udabage	43 do	young hyson	2580	32
	18 do	hyson No 1 A	1080	29
	61 do	do No 1 B	3355	29
Riverside, Inv. No. 4	49 bf ch	pek sou	2156	24
Ardlaw and Wishford	12 ch, 1 hf ch	hro or pek	1376	59
	11 ch	bro pek No 1	1232	36
	18 cb, 1 hf ch	or pek	1760	36
	21 ch, 1 bf ch	pek	1856	34
Sylvakandy	20 ch	bro or pek No 2	2000	34
	10 do	or pek	1000	34
	17 do	pek	1700	30
St Martins	34 hf ch	hro pek	1360	27
	38 do	pek	1520	24 hid
Pine Hill	40 do	bro or pek	2400	37
	32 cb	or pek	3040	33
	39 do	pek	3510	30
F, in estate mark	27 ch	dust	2295	15 bid
Harrow	14 do	or pek	1400	35
	19 hf ch	hro or pek	1140	65
	30 cb	pek	3000	33
Mousakelle (Venesta packages)	18 ch	bro or pek	2016	37 bid
	18 do	or pek	1980	34 bid
	20 do	pek	2000	29
Matale	35 hf ch	hro pek	2100	33
	17 ch	pek	1530	29
	12 do	pek sou	1020	25
High Forest	60 hf ch	bro or pek	4440	30
	42 do	pek sou	1932	29
	17 do	pek dust	1564	28
High Forest	45 do	or pek No 1	2700	46 hid
	40 do	or pek	2200	40 bid
	30 do	pek	1440	37
Pallagodde	18 ch	bro or pek	1800	27
	32 do	bro pek	3200	29
	28 do	or pek	2380	26
	25 do	pek	2125	25
	24 do	pek sou	2040	23
High Forest	40 hf ch	or pek No 1	2400	46 bid
	32 do	or pek	1760	40 hid
	35 do	pek	1680	37
B A	18 do	bro or pek	1170	27
Dunkeld	28 do	bro or pek	1680	40
	12 ch	or pek	1080	35
	12 do	pek	1080	32
	21 hf ch	pek fans	1420	27
	18 do	dust	1620	27
F, in estate mark	11 cb	fans	1164	out
Monkswood Invoice No. 11	17 hf ch	bro pek	1020	57
	45 do	or pek	2250	52
	30 do	pek	2700	44
Gonaptiya, Inv. No. 4	22 do	or pek	1100	43
	27 do	bro pek	1620	37
	39 do	pek	1911	35
W V R A, Inv. No 7	30 do	bro or pek	1650	47
Gonapitiya, Invoice No. 15	22 do	or pek	1100	45
	27 do	bro pek	1620	41
	39 do	pek	1911	34
Monkswood, Inv. No. 10	23 hf cb	bro pek	1380	53
	55 do	or pek	2750	49
	47 ch	pek	4230	35 bid
	14 do	pek sou	1190	33
	18 hf ch	fans	1200	3[illegible]
Anningkande, Inv. No. 4	23 ch	bro or pek	[illegible]	27 bid
	14 do	or pek	1330	25
	18 do	pek	1620	24

	Pkgs.		Name.	lb.	c.
Delta, Inv. No. 16	34	ch	bro or pek	3400	32
	32	do	bro pek	3200	31
	36	do	pek	3024	28
	17	do	peksou	1394	25
Deaculla	45	hf ch	bro pek	2475	33 bid
	43	do	pek	3010	26 bid
Tymwar Inv. No. 14	21	do	or pek	1155	36
	18	do	bro or pek	1080	39
	26	do	pek	1300	30
	20	do	pek sou	1000	23 bid
Wilpita	12	ch	bro pek	1200	31
	11	do	pek	1045	22
	14	do	pek sou	1260	19
Algooltenne, Inv. No. 31	37	ch	bro pek	3700	28
	44	do	pek	3520	26
	12	do	pek sou	1020	24
	22	hf ch	bro or pek	1100	34
Tempo	11	ch	bro pek	1100	38 bid
	17	do	or pek	1360	32
	21	do	pek	1785	25
H G M	29	hf ch	bro or pek	1595	33
	13	ch	bro pek	1170	30
	27	da	pek	2295	27
	12	hf ch	dust	1080	26
Wewawatte	21	do	bro pek	1278	28
Glencorse	21	ch	bro pek	2100	35 bid
	19	do	or pek	1710	34
	19	do	pek	1520	27
	30	do	pek sou	2250	22
	26	do	pek sou	1950	22
Marlborough	39	hf ch	bro or pek	1950	51 bid
	37	ch	bro pek	3700	34
	25	do	or pek	2125	34
	55	do	pek	4510	32
	16	do	pek sou	1344	30
	17	hf ch	br pek fans	1054	33
Poonagalla	23	ch	or pek	2208	39
	34	do	bro pek	3910	50 bid
	38	do	pek	3648	35
Maragalla	21	ch	bro pek	2205	31
	20	do	or pek	1700	28
	16	do	pek	1520	26
Weyungawatte	28	ch	bro pek	2800	27
	29	do	pek	2465	26
	25	do	pek sou	2000	23
Yelverton	12	ch	bro pek	1260	32 bid
	24	do	pek	2280	29
	20	do	pek sou	1700	23
Castlereagh	56	bf ch	bro or pek	2800	48
	14	ch	bro pek	1400	28 bid
	17	do	or pek	1850	33
	17	do	pek	1360	32
D in est mark	22	hf ch	bro or pek fans	1419	28
New Peacock	42	ch	bro pek	2100	32
	23	do	pek fans	1725	28
Freds Ruhe	17	ch	bro pek	1700	28
	11	do	pek	1045	27
	10	do	pek sou	1000	23
W A	11	ch	bro pek	1100	26
Edward Hill	22	ch	bro pek	2376	29
	12	do	or pek	1014	29
	15	do	pek	1155	23
Monterey	18	ch	pek sou	1620	22
	17	do	dust	1700	27
Dea Ella	35	ch	or pek	1925	32
	39	do	or pek	2145	31
	39	do	pek	1950	26
Carfax	25	ch	or pek	2247	41
	12	do	pek	1080	36
Morankande	26	hf ch	bro or pek	1560	27
	40	do	or pek	2000	32
	36	ch	pek	3420	25
Seenagolla	18	hf ch	bro or pek	1080	44
	33	do	pek	1716	37
Talgaswella	14	ch	bro or pek	1400	37
	18	do	or pek	1440	32
	21	do	pek	1680	26
	19	do	pek sou	1425	24
Digdola	24	ch	pek	1920	22 bid
W G	52	hf ch	pek	3380	22 bid
Cranley	27	ch	pek sou	2160	25 bid
	12	do	dust	1080	28
R M in est mark	33	hf ch	bro or pek	1782	30
	56	ch	bro pek	5660	23 bid
	37	do	pek	3108	27
Walpita	40	ch	bro pek	4000	29
	32	do	pek	2880	26
Graceland	44	hf ch	pek	2420	12
Tembiligalla	14	ch	or pek	1260	29
	19	do	pek	1710	25
K. P. W.	35	hf ch	bro or pek	2100	27
	39	do	bropek	1950	27
	30	do	pek	1500	25
	24	do	pek sou	1200	22
Bandara Eliya	62	hf ch	or pek	3410	37 bid

	Pkgs.		Name.	lb.	c.
	69	do	pek	3312	32 bid
	72	do	pek	3456	33 bid
	25	do	dust	2150	27
	27	do	fans	1728	28
Knavesmire	25	ch	or pek	2250	27
	127	do	bro pek	12700	24 bid
	30	do	pek	2550	21 bid
Delta	16	ch	pek sou	1309	25
Opalgalla	31	hf ch	dust	2480	27
Amblangoda	21	ch	bro or pek	2100	30
	25	do	or pek	2500	28
	24	do	pek	2160	25
	15	do	pek sou	1275	23
Cloyne	11	ch	bro or pek	1210	29
	11	do	or pek	1045	32
	12	do	pek	1080	27
Kincora	10	ch	bro or pek	1100	41
	19	do	or pek	1710	34
	31	do	pek	2790	31
Coreen	49	hf ch	bro pek	2940	36
	27	ch	or pek	2565	33
	17	do	pek	1632	30
Swinton	18	ch	bro or pek	1797	31
	21	do	pek	1887	25
	13	do	pek sou	1102	22 bid
Bullugolla	33	ch	bro or pek	3297	28 bid
Laurawatte	14	ch	bro pek	1540	27
	16	do	or pek	1584	27
	13	do	pek	1183	24
	10	do	pek sou	1000	21
Grastor	12	ch	fans	1320	out
K G in est mark	9	ch			
	1	bf ch	fans	1045	out
Fairlawn	32	hf ch	bro or pek	1760	57
	34	do	or pek	1530	41
	43	ch	pek	3655	34
	21	do	pek sou	1785	30
Hanwella	44	hf cb	yng hyson	2200	30
	33	do	hyson	1815	28
Dickoya	10	ch	bro pek	1000	25 bid
Roscrea	10	ch	pek	1000	22
W R E	15	ch	bro pek	1500	26 bid
	28	do	pek	2240	21 bid
Woodend	38	ch	bro pek	3800	28
	74	do	pek	6512	22 bid
Geragama	17	ch	bro pek	1530	27
	28	do	pek	2240	25
	26	do	pek sou	1950	21
Galapitakande	50	ch	bro pek	4997	28 bid
Coreen	40	ch	or pek	3597	32
Amblangoda	26	ch	or pek	2597	27
U S A	12	ch	fans	1020	15 bid
	12	do	dust	1200	22
Cholankanda	30	ch	or pek	2400	31

Messrs. Keell and Waldock.

[35,827 lb.]

	Pkgs.		Name.	lb.	c.
Hyde	15	cb	or pek	1365	35 bid
	25	do	pek	2425	34
Kurugalla	13	ch	bro pek	1300	32 bid
	22	dc	pek	2090	27 bid
	17	do	pek sou	1530	23 bid
A H A	19	ch	pek fans	2375	27
	21	do	fans	2877	16 bid
Taprobana	37	hf ch	br pek	2035	30 bid
	25	cb	pek	2000	27
Panilkande	20	bf ch	br or pk No 1	1000	44 bid
	23	ch	bro or pek	2300	30 bid
	22	do	pek	1980	29 bid
O D	12	ch	pek	1104	out
	13	do	pek sou	1080	18 bid
	13	do	fans	1300	out
C in est mark	30	ch	or pek	2400	24 bid

Messrs. Somerville & Co.

[263,772 lb.]

	Pkgs.		Name.	lb.	c.
H G L	15	hf ch	dust	1200	25
Ysoa	24	ch	pek sou	1920	24
Owilikande	30	ch	br pek	3000	28
	21	do	pek	1995	23
	14	do	pek sou	1260	19 bid
Warakamure	46	ch	br pek	4600	28
	44	do	pek	3960	23
	20	do	pek sou	1600	21
Galpbele	10	ch	bro or pek	1000	46
	19	do	or pek	1900	35
	23	do	bro pek	2300	27 bid
	26	do	pek	2430	28
Morantenne	20	bf ch	br pek	1100	31

	Pkgs.		Name.	lb.	c.
Laxapanagalla	27	ch	bro or pek	2700	28 bid
	15	do	or pek	1500	27
S L A	24	ch	br pek	2640	24
Ambalawa	12	ch	or pek	1020	27
	22	hf ch	bro pek	1210	26
	14	ch	pek	1190	24
Karangalla	13	ch	bro pek	1430	30
	13	do	pek	1181	26
Hanagama	21	ch	or pek	2100	26
	26	do	pek	2600	22
Oononagalla	27	ch	bro or pek	2835	42 bid
	12	do	or pek	1020	36 bid
	40	do	pek No. 1	3800	32 bid
	17	do	pek No. 2	1445	28 bid
	18	do	pek sou	1620	25 bid
New Valley	34	ch	bro or pek	3400	39
	22	do	br pek	2200	33
	27	do	pek	2700	31
	31	do	pek sou	2790	28
Sangaly Toppoe	18	hf ch	bro pek	1152	25 bid
Rayigam	10	ch	bro or pek	1000	33
	11	do	or pek	1045	33
	15	do	bro pek	1125	27
	33	do	pek	2640	24
	18	do	pek sou	1710	23
Welidale	11	ch	pek	1210	20
I P	15	ch	pek sou	1125	24
	15	hf ch	dust	1320	27
Coteshurst	17	ch	bro or pek	1700	38
	23	do	pek	2070	29
	17	do	pek sou	1530	25
Ferriby	45	hf ch	bro or pek	2250	33
	22	ch	or pek	1760	28
	33	do	pek	2640	24
	28	do	pek sou	2240	22
Avisawella	26	hf ch	bro or pek	1300	37
	12	ch	or pek	1140	32
	24	do	pek	2160	24
	16	do	pek sou	1280	22
Cooroondoowatte	18	ch	bro pek	1800	29
	10	do	pek	1000	26
	18	do	pek sou	1800	20
Ruhatungoda	54	hf ch	bro or pek	2024	39
	75	do	or pek	4275	37
	25	do	bro pek	1750	29
	114	do	pek	6156	33
	12	do	dust	1080	27
Ingeriya	17	ch	bro pek	1700	28 bid
	12	do	pek	1140	26
Mora Ella	14	ch	bro or pek	1372	35 bid
	14	do	or pek	1288	33 bid
	13	do	pek No. 1	1066	30
	30	do	pek No. 2	2700	27
	13	do	pek sou	1105	27
	18	hf ch	bro or pek fans	1260	28
Eilandhu	22	ch	bro pek	2090	31
	20	do	pek	1800	24
Siriniwasa	25	ch	bro pek	2500	34
	40	do	pek	3800	24
	23	do	pek sou	2070	20
Bodawa	43	hf ch	bro pek	2365	26
Ferndale	14	ch	pek	1260	27
Weygalla	23	hf ch	bro or pek	1150	67
	35	ch	pek	3150	28
California	11	ch	pek	1100	22
Charlie Hill	25	hf ch	bro pek	1375	27
Rambodde	20	hf ch	br pek	1100	33
	27	do	pek	1215	31
	21	do	pek sou	1050	23
Dikmukalana	43	hf ch	br pek	2365	27 bid
	45	do	pek	2250	22 bid
Gangwarily	17	ch	or pek	1360	29 bid
	75	do	br pek	7500	27 bid
	35	do	pek	2975	25 bid
Glenalla	16	ch	young hyson	1520	33 bid
	24	do	hyson No 1	2280	30
Mousakande	17	ch	bro pek	1598	28
	18	do	pek	1476	28
Kanatota	19	ch	bro or pek	1710	20
	17	do	pek	1275	19
Pindeniya	26	ch	pek	2080	24
Agra Elbedde	22	hf ch	bro or pek	1232	46
	23	ch	or pek	1265	35
Ranasinghapatna	41	hf ch	or pek	1968	29
	83	do	bro or pek	4731	27 bid
	27	ch	pek	3182	25
	29	do	pek sou	2204	22
Yarrow	53	hf ch	pek	2279	24
Kurunegalla	20	hf ch	bro or pek	1160	28
Oonankande	32	hf ch	pek	1760	27
Glenalmond	33	hf ch	or pek	1650	29
	28	ch	pek	2520	26
Scarborough	17	ch	pek	1700	30 bid
Cooroondoowatte	29	ch	pek	2900	26
Kinross	12	ch	bro or pek	1296	33
	13	do	or pek	1170	32
	16	do	pek	1280	30

Messrs. E. John & Co.

[273,914 lb.]

	Pkgs.		Name.	lb.	c.
Salem	10	ch	bro or pek	1000	34
	11	do	pek	1100	26
Ratwatte	26	do	bro pek	2600	27 bid
	17	do	pek	1530	25 bid
Kadienlena	14	do	sou	1120	12
Kahagalla	33	hf ch	bro pek	2046	35
	13	ch	pek	1274	32
	15	do	pek sou	1350	27
Holbrook	43	hf ch	bro or pek	2580	40 bid
	20	ch	or pek	1900	34 bid
	14	do	pek	1260	34 bid
	9	do	pek fans	1035	30 bid
Midlothian	23	hf ch	or pek	1150	43
	35	do	pek	1820	33
Agra Ouvah	52	do	bro or pek	3120	50 bid
	35	do	or pek	1890	38
	12	ch	pek	1140	35
Cresta	25	hf ch	bro pek	1250	28
	17	ch	pek	1445	22 bid
Katawella	13	do	bro pek	1300	25 bid
	14	do	pek	1260	20 bid
Poilakanda	38	do	bro or pek	3420	27
	48	do	bro pek	4320	25
	52	do	pek	4160	23
P K T	17	do	dust	1360	25
Oonoogaloya	22	do	or pek	1980	34
	16	do	bro or pek	1600	36
	27	do	pek	2565	30
Ashburton	12	do	bro or pek	1272	41
	28	do	bro pek	2940	29 bid
	18	do	pek	1692	28 bid
Mocha	26	do	bro or pek	2600	51
	13	do	or pek	1235	42
	25	do	pek	2500	37
O	17	do	sou	1530	13
Acton	7	do			
	14	hf ch	pek	1365	28
Oodoovil	14	ch	bro or pek	1400	25
	12	do	bro pek	1200	24
	13	do	pek	1170	22
	17	do	pek sou	1632	16
M P S	21	hf ch	pek dust	1575	23 bid
O W	25	ch	bro pek	2375	25 bid
	14	do	pek	1260	23
Ottery	14	do	bro or pek	1400	36 bid
	16	do	flow or pek	1440	31 bid
	16	do	or pek	1280	31
	27	do	pek	2430	27 bid
Gonavy	17	do	or pek	1530	35
	21	hf ch	bro pek	1155	41 bid
	35	do	pek	2800	38 bid
Stubton	38	ch	bro pek	3797	25 bid
	13	do	pek	1297	20 bid
Kandahar	20	hf ch	or pek	1060	36 bid
Wattagalla	18	ch	bro pek	1980	29
	35	do	pek	3150	29
	45	do	pek sou	3600	24
	54	do	pek sou	4317	23
Lameliere	27	do	bro or pek	2808	33 bid
	17	do	or pek	1445	31
	23	do	pek	2116	28
	21	hf ch	pek fans	1512	28
Happugasmulle	10	ch	bro pek	1100	26
A L	22	hf ch	pek fans	1672	28
Hiralouvah	12	ch	pek sou	1080	19 bid
Lameliere	27	do	bro or pek	2808	33 bid
	17	do	or pek	1445	29 bid
	23	do	pek	2116	28
	21	hf ch	pek fans	1512	28
Wanarajah	27	do	fans	1971	28
Mt. Vernon	32	ch	pek	2880	36
	22	do	pek sou	1870	35
Merrow	39	hf ch	bro pek	2184	27 bid
	12	ch	pek	1200	22
Theddon	34	do	bro pek	3400	out
A A	15	do	dust	1500	25
Harrisland	20	hf ch	bro or pek	1040	27 bid
	21	do	or pek	1008	30
	24	ch	pek	1920	20 bid
Craigingilt	12	do	pek	1020	28
Captains Garden	26	do	pek	2340	23
Mossend	23	hf ch	bro or pek	1265	55 bid
	53	do	or pek	2915	37 bid
	40	do	pek	2000	39
Kolapatna	18	do	bro or pek	1608	55
	16	do			
	1	box	bro or pek No.2	1000	[illegible]
	20	hf ch	or pek	1000	34
	18	do			
	1	box	pek	1017	31
Lancefield	12	ch	bro pek	1140	19
	22	ch	pek	1980	21
A N	15	do	pek sou	1500	17 bid
Glassaugh	30	hf ch	or pek	2184	16

	Pkgs.	Name.	lb.	c.
	30 do	bro or pek	1980	57
	22 ch	pek	2376	49
Brownlow	19 hf ch	bro or pek	1007	58
	18 ch	or pek	1638	36
	16 do	pek	1344	29 bid
	12 do	pek sou	1044	26 hid
Higham	53 do	hro pek	5300	32 hid
	32 do	pek	3040	27 hid
	21 do	pek sou	1890	24 hid
Nahavilla	24 ch	or pek	2160	34 bid
	43 do	hro pek	4300	34 hid
	19 do	pek	1710	30 hid
	16 do	pek sou	1280	24 bid
	16 hf ch	dust	1280	27
Craigingilt	12 do	or pek	1197	30
	16 ch	pek (B H)	1277	26 bid
Duhena	23 hf ch	bro pek	1288	31
	28 do	pek	1316	25
	23 do	pek sou	1127	22
Theresia	44 ch	hro or pek	4400	33 bid
	80 do	pek	6800	32 bid
Myraganga	22 do	or pek	1980	30
	20 do	bro or pek	2000	31
	34 do	pek	2720	28
	17 do	pek sou	1275	24
Mount Clare	20 do	yng. hyson	2000	withd'n
	33 do	hyson	2970	withd'n

SMALL LOTS

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Mapitigama	13 ch	pek sou	975	21
	3 do	fans	390	26
R C M, In est. mark	3 do	pek	285	35
	2 do	pek sou	180	34
Hornsey	9 ch	or pek	915	35
	11 hf ch	fans	770	28
	6 do	dust	510	28
Chouleigh	10 ch	bro or pek	997	withdn.
Agrakande	3 do	fans	189	33
	7 do	pek sou	714	26 bid
	11 do	dust	913	28

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Rawatte	7 ch	hyson No 2	735	out
	5 do	twanky	325	8
O B E C, in est mark, Wattawella	8 ch	pek sou	720	22
	9 do	hro pek fans	675	28
	10 do	dust	850	27
Bogahagodawatte	10 ch	pek	960	25
	6 do	pek sou	540	20
	1 do	fans	123	19 bid
Strathisla	4 ch	fans	428	27
	3 do	dust	255	27
Dolahena	13 hf ch	young hyson	650	24 bid
	4 do	siftings	280	16
Tokatiamulla	9 ch	pek	900	22
	3 do	pek sou	300	15
	1 do	unas	87	13
	1 do	bro mix	100	13
	2 do	dust	228	16
Bellongalla	11 ch	pek	990	21 bid
	6 do	pek sou	480	17
	4 do	fans No 1	480	27
	2 do	dust	320	26
St. Paul's Invoice No. 21	17 hf ch	bro pek	935	29 bid
Vincit	9 ch	pek	810	24
	6 do	pek sou	540	22
	1 do	sou	90	19
	2 do	fans	260	26
	1 do	dust	160	25
K B	5 ch	bro pek	475	27
D, in est. mark	7 ch	dust	557	11
Templehurst	5 ch	bro pek	600	28
	2 do	pek fans	260	27
Broughton	5 ch	pek sou	425	27
	6 hf ch	dust	510	27
Pusella (Venesta packages)	5 ch	bro pek fans	675	23
Kennington	11 ch	pek sou	836	20
	5 do	dust	725	26
	4 do	bro tea	360	13 bid
	2 do	bro tea	188	13 bid
Kirrimettia	1 ch	congou	90	20
	2 hf ch	fans	140	26
	2 do	dust	170	25

	Pkgs.	Name.	lb.	c.
R M, in est. mark	6 ch	or pek	540	33
	11 do	pek	990	29
Pingarawa	8 hf ch	dust	720	27
Rajawatte	8 ch	bro or pek	800	47
	8 do	pek	760	30
Moray	7 hf ch	dust	595	27
	3 do	hro fans	210	55
Erlsmere	13 do	bro or pek	715	33
	7 ch	pek	700	31
	8 hf ch	dust	600	27
Stamford Hill	8 ch	pek sou	720	28
	5 hf ch	dust	450	27
Udabage	2 ch	hyson No 2	120	26
	16 do	fans	960	13
	9 do	dust	720	10
Riversdale, Invoice No. 4	12 hf ch	bro or pek fans	840	30
	8 do	pek fans	560	27
	10 do	dust	880	27
Ardlaw and Wishford	9 ch	hro pek No 2	900	32
	4 ch			
	1 hf ch	fans	556	28
	2 ch	dust	250	27
S W	1 ch			
	1 hf ch	hro pek	168	23
	1 ch	pek	100	21
Sylvakandy	9 ch	bro or pek No 1	900	43
	9 do	bro pek	900	31
	3 do	pek sou	300	26
	2 do	dust	200	27
Fetteresso	4 hf ch	bro pek dust	380	28
	1 ch	red leaf	60	12
N	1 ch	pek	87	withdn.
Harrow	4 hf ch	dust	320	27
Mousakelle (Venesta packages)	10 do	bro pek fans	650	30
Matale	2 do	fans	140	27
	3 do	dust	225	26
Y N	1 do	dust	77	23
B A	4 hf ch	dust	320	26
Dunkeld	4 ch	pek sou	380	26
Monkswood, Invoice No. 11	10 hf ch	fans	710	34
Gonapitiya, Invoice No. 15	20 do	pek sou	960	30
Monkswood, Invoice No. 10	5 hf ch	dust	450	28
Anningkande, Inv. No. 4	11 ch	pek sou	990	20
	2 do	hro or pek fans	230	27
Tymawr, Inv. No. 14	4 hf ch	dust	360	27
	3 do	fans	210	28
Wilpita	3 ch	bro pek fans	360	out
	2 do	red leaf	220	13
Kettadolla	3 ch	hro pek	300	35
	3 do	or pek	285	25
	8 do	pek	720	20
	1 hf ch	sou	50	14
	1 do	dust	64	20
Algooltenne, Inv. No. 31	4 ch			
	1 hf ch	fans	480	26
	3 do	bro mix	159	21
J M K	6 do	dust	426	27
Tempo	6 ch	pek sou	450	23
H G M	1 ch	sou	90	19
Wewawatte	16 hf ch	pek	893	26
Marlhorough	2 ch	hro tea	184	14
Poonagalla	8 ch	pek sou	757	33
Maragalla	4 ch	pek sou	320	22
	1 do	dust	150	24
Weyungawattr	1 ch	sou	85	18
	3 hf ch	dust	255	26
D in est mark	10 hf ch	pek fans	600	26
	9 do	pek dust	765	25
B P	1 ch	bro pek	100	23
	1 hf ch	dust	80	20
Augusta	8 ch	fans	957	19 hid
N P	7 ch	hro pek	735	28
	4 do	or pek	360	28
	12 do	pek	960	24
	2 do	pek sou	150	22
	1 do	sou	76	16
Edward Hill	9 ch	pek sou	810	23
	9 hf ch	dust	720	26
Monterey	5 ch	fans	500	28
Carfax	11 ch	or pek	990	48
Moraukande	10 ch	pek sou	750	22
	4 hf ch	hro or pek fans	280	27
	2 do	dust	180	26
Seenagolla	16 hf ch	or pek	848	49
	10 do	pek sou	600	26
	3 do	dust	249	28
Talgaswella	13 hf ch	bro pek No 2	780	26
B B in est mark	4 ch	pek	330	23

	Pkgs.	Name.	lb.	c.
	3 do	bro pek	330	out
	2 hf ch	dust	180	27
	2 ch	bro pek	220	25
	3 do	pek	255	23
R M in est mark	10 ch	pek sou	830	24
	5 hf ch	dust	420	26
Walpita	10 ch	pek sou	800	21
	3 do	sou	240	16
	3 do	dust	420	25
Graceland	2 hf ch	congou	90	11
	4 do	red leaf	180	10
	7 do	dust	525	17
Tembiligalla	9 ch	bro or pek	900	27
	2 do	pek sou	160	21
	1 do	fans	88	out
	2 do	dust	348	22
K P W	13 hf ch	or pek	650	29
	3 do	pek fans	225	27
	3 do	dust	270	26
Bandara Eliya	7 hf ch	pek sou	350	27
Knavesmire	7 hf ch	bro pek fans	560	25
Opalgalla	4 ch	congou	348	18
B D W P	7 ch	bro pek fans	770	27
	2 do	sou No 1	150	20
Amblangoda	3 ch	fans	300	27
	2 do	dust	270	26
Cloyne	7 ch	pek sou	644	23
	2 do	sou	170	21
	3 do	bro tea	360	23
Kincora	6 ch	dust	900	23
Coreen	3 hf ch	pek fans	210	28
	1 do	dust	85	27
Laurawatte	2 hf ch	fans	174	25
Fairlawn	4 hf ch	dust	320	28
	3 ch	unassorted	180	20
Hanwella	1 hf ch	hyson No 2	60	26
	2 do	hyson dust	163	10
Dikoya	9 ch	pek sou	855	28
W R E	9 ch	pek sou	720	20
Woodend	4 ch	bro pek fans	408	25
	5 do	dust	700	24
Taldua	4 ch	fans	500	20 bid
	2 do	dust	160	22
Geragama	6 ch	bro or pek	630	28
	3 do	fans	180	25
	3 hf ch	dust	240	24
T B	5 hf ch	fans	300	28
	7 do	dust	525	26
	2 ch	unassorted	150	16
Broora	10 hf ch	congou	500	20

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
S in est mark	2 ch	bro pek	176	26
	2 do	pek sou	156	16
	3 hf ch	dust	237	23
Kurugalla	2 ch	dust	272	26
	2 do	fans	220	27
K in est mark	9 hf ch	dust	720	18 bid
G	4 ch	fans	392	11
Taprobana	7 hf ch	fans	453	27
Panilkande	11 ch	pek sou	990	21 bid
	5 do	sou	450	20 bid
C in est mark	12 ch	bro or pek	900	24 bid
	10 do	pek	850	21 bid
B C in est mark	10 hf ch	dust	850	18 bid

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
H G L	5 ch	souchong	500	17
Owillkande	3 hf ch	fans	210	26
	2 do	dust	160	25
Warakamure	2 hf ch	dust	180	25
Ravenoya	5 ch	pek sou	500	24
	1 do	souchong	100	20
	4 do	fans	600	27
Moratenne	19 hf ch	pekoe	950	28
	13 do	pek sou	650	23
	2 do	dust	160	25
	1 do	souchong	50	18
Laxapanagalla	4 ch	pekoe	360	24
	2 do	pekoe fans	200	27
	1 do	dust	100	26
S L A	4 ch	pekoe souchong	400	16
Ambalawa	4 hf ch	dust	260	22
	7 do	pekoe souchong	595	21
	9 do	souchong	792	19
Kosgahahena	2 ch	orange pekoe	210	31
	3 do	broken pekoe	300	24
	5 do	pekoe	500	20
	2 do	pekoe souchong	200	14
	2 do	souchong	200	12
	1 do	fans	100	14

	Pkgs.	Name.	lb.	c.
Karangalla	3 ch	pekoe souchong	255	21
	1 hf ch	souchong	65	18
	1 do	dust	80	24
Hanagama	12 hf ch	bro or pek	720	28 bid
M in estate mark	3 hf ch	unassorted	137	21
New Valley	1 hf ch	dust	95	26
Sangaly Toppoe	8 ch			
	1 hf ch	pekoe	803	22 bid
M in estate mark	2 hf ch	bro or pek	110	38 bid
F in estate mark	2 ch	pekoe souchong	206	26 bid
	2 do	dust	256	27 bid
Rayigam	7 hf ch	fans	455	27
	4 do	dust	320	26
Welidalo	6 ch	broken pekoe	660	32
	2 do	pek sou	200	15
	1 do	fans	130	17
I P	2 hf ch	bro tea	118	15
G B	12 hf ch	dust	600	27
	15 do	bro tea	750	19
B F	1 ch	bro mixed	93	18
	7 hf ch	dust	560	28
Ferriby	6 hf ch	fans	360	20
Avisawella	5 hf ch	fans	350	24
Coorcondoowatte	4 ch	dust	400	20
Hawa Ella	10 ch	pek sou	880	23 bid
D K W	11 hf ch	sou	605	11
Ingeriya	7 ch	pek sou	630	21
	2 hf ch	dust	160	24
Mora Ella	9 hf ch	bro pek	558	27
	8 do	dust	704	26
Meddegodda	5 hf ch	bro pek fans	275	20
	3 do	sou	150	16
	6 do	dust	450	23
Eilandhu	2 ch	dust	250	24
	2 do	broken tea	160	19
	2 do	red leaf	190	14
Siriniwasa	7 ch	bro pek fans	735	24
	2 do	dust	300	23
	6 do	souchong	240	16
Bodawa	9 ch	pek	810	25
	10 do	pek sou	850	22
	1 hf ch	bro mixed	51	14
	2 ch			
	1 hf ch	bro pek fans	365	26
Ferndale	8 ch	bro or pek	800	48
Weygalla	7 ch	pek sou	700	21
	3 hf ch	dust	240	28
California	8 ch	bro pek	800	25
	6 do	pek sou	600	13
	1 do	pek dust	150	22
Charlie Hill	13 hf ch	pek	650	24
	5 do	pek sou	250	21
	2 do	dust	160	24
Rambodde	4 hf ch	sou	200	22
	4 do	dust	320	26
	1 do	red leaf	42	15
Pikmukalana	14 hf ch	dust	770	24
Gangwarily	8 ch	pek sou	680	23
	4 hf ch	dust	340	26
	13 do	or pek fans	780	26
	5 ch	souchong	425	17
Glenalla	1 hf ch	hyson No 2	50	18
	3 ch	fans	330	16
	2 do	dust	232	11
Mousakande	2 ch	souchong	166	20
Kanatota	7 ch	pek sou	595	16
	2 do	dust	260	18
Agra Elbedde	9 ch	pek	810	35
	6 do	pek sou	425	31
X X	4 hf ch	fans	280	28
	2 do	dust	170	27
Ranasinghapatna	7 hf ch	dust	490	25
Kumaoegalla	15 hf ch	or pek	750	30
	10 ch	pek	850	24
	7 do	pek sou	560	22
	1 do	congou	92	16
	3 hf ch	dust	255	25
Glenalmond	12 hf ch	bro or pek	720	29
	9 ch	pek sou	810	22
	2 hf ch	dust	160	25
	3 ch	fans	300	20
Kinross	9 ch	pek sou	855	25
	5 do	souchong	400	24
	2 do	broken tea	290	22
	3 do	fans and dust	457	26

Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Salem	1 ch	dust	100	26
Ratwatte	1 do	pek sou	80	20
	4 hf ch	dust	320	26
Kahagalla	4 do	dust	336	26
M	2 do	unas	114	17
Talawakele	4 ch	sou	340	18
Midlothian	3 hf ch	fans	240	27

	Pkgs.		Name.	b.	c.
Cresta	5	ch	dust	750	24
Katawella	1	do	dust	100	23
Ashburton	10	do	pek sou	920	28
	2	do	fans	256	27
	2	do	dust	312	26
Mocha	6	do	fans	540	28
Acton	10	hf ch	bro pek	550	33
	4	ch			
	12	hf ch	bro or pek	960	31
	7	do	pek sou	3:0	27
	4	do	fans	260	26
	1	ch	dust	90	24
M P S	10	hf ch	dust	870	18 bid
O W	3	do	pek fans	210	26
	2	do	dust	148	25
N	11	do	dust	935	27
Gonavy	11	ch	pek No. 2	880	27
	2	hf ch	dust	170	26
Kandahar	12	do	dust	660	27
Wattagalla	7	do	dust	630	26
Lameliere	4	do	sou	424	22
Hiralcuvah	7	do	fans	525	25
Eladuwa	9	ch	pek sou	855	18
	4	do	unas	440	14
	2	do	dust	300	20
Lameliere	4	do	sou	424	22
Wanarajah	2	hf ch	or pek	110	38
	2	ch	pek	162	24
	1	do	bro pek	87	32
	1	do	pek sou	108	27
	9	hf ch	dust	846	27
Mt. Vernon	14	do	fans	980	29
	9	do	dust	810	27
Salem	5	ch	bro or pek	500	30
R K T	10	hf ch	pek fans	719	22 bid
	5	do	dust	465	22 bid
Merrow	1	ch	pek sou	100	18
	3	do	fans	300	25
	4	hf ch	dust	360	25
Harrislanda	11	ch	pek sou	770	16 bid
	3	hf ch	fans	231	16
	4	do	pek dust	94	23
Captains Garden	16	do	bro pek	800	30
Mossend	12	do	bro or pek fans	720	34
	4	do	dust	260	28
Devon	8	ch	pek	776	withd'n
Kolapatna	7	hf ch	fans	539	23
Lancefield	4	do	pek sou	180	17
A N	11	ch	pek	921	22 bid
Chapelton	5	hf ch	dust No. 1	525	27
	1	do	dust No. 2	105	26
	4	ch	sou	348	19

	Pkgs.		Name.	lb.	c.
M R	10	hf ch	dust	900	27
Wewelmadde	1	ch	sou	60	11
W, in estate mark	10	hf ch	dust	840	25
Higham	9	do	bro or pek	585	27 bid
	1	ch	sou	100	18
	8	hf ch	bro pek fans	640	25
S	3	do	bro or pek	165	28
Dubena	5	do	fans	295	16
	1	do	bro pek fans	57	18
	2	do	dust	140	23
Theresia	6	do	dust	480	27
	1	ch	sou	85	25
	2	hf ch	bro mix	156	27
Myraganga	4	ch	pek fans	500	27
Mount Clare	6	do	siftings	600	11
M L K	8	do	fans	872	17
	7	hf ch	dust	560	18
	5	bags	fluff	440	16
Dubena	1	hf ch	pek fans	72	20

CEYLON COCOA SALES IN LONDON.

"Bavaria."—Palli London T, 6 bags sold at 52s; Hampshire London 1, 23 bags sold at 60s.

"Clan Sutherland."—Palli London T, 5 bags sold at 54s 6d.

"Awa Maru."—Warriapolla, 27 bags sold at 64s; 1 at 45s; 4 at 42s.

"Duke of Devonshire."—North Matale Ceylon Cocoa, 1 bag, sea damaged, sold at 52s; 1 bag, sea damaged, sold at 54s.

"Shropshire."—North Matale Ceylon Cocoa B, 26 bags sold at 65s; ditto C, 22 at 59s.

"Prinzess Irene."—F T R P U, 20 bags sold at 60s; F T R P, 20 bags sold at 60s.

"Duke of Westminster."—Kumaradola A, 20 bags sold at 65s 6d; 50 at 65s; ditto B, 8 at 57s; Ingurugala A, 15 bags sold at 59s 6d; Maragala Y, 20 bags sold at 63s; ditto Y A, 19 at 63s; R A, 14 at 68s; R B, 7 at 59s; T, 1 at 45s.

"Prometheus."—K A in estate mark, 48 bags sold at 53s.

Dardanus."—M M in estate mark, 24 bags sold at 53s.

No. 29. COLOMBO, JULY 28th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[39,464 lb.]

	Pkgs.	Name.	lb.	c.
Yuillefield	31 hf ch	bro or pek	1705	40
	30 ch	pek	2700	31
Battalgalla	31 ch	pek sou	2325	withdn.
Bunyan and Ovoca	51 hf ch	bro or pek	3060	49
	53 do	or pek	2650	37
	23 ch	pek	2185	31
	29 do	pek	2755	26 bid
	16 do	pek No. 2	1520	35 bid
	22 do	pek sou	1980	28 bid
	24 hf ch	pek fans	1560	29
	13 do	dust	1105	27
Torrington	49 ch	or pek	4165	25 bid
	52 do	pek	4160	23 bid
	17 do	pek sou	1275	21 bid
Choughleigh	16 ch	bro pek	1600	29 bid
	13 do	pek	1066	27 bid

Messrs. Forbes & Walker.

[666,334 lb.]

	Pkgs.	Name.	lb.	c.
Thedden	24 ch	bro pek	2355	35 bid
New Galway	19 hf ch	pek	1045	37
St. Paul's, Invoice No. 22	25 hf ch	bro or pek	1450	withdn.
	25 do	or pek	1300	withdn.
	53 do	pek	2458	withdn.
Mansfield	62 do	bro pek	3720	46
	16 ch	pek	1600	39
	16 do	pek sou	1520	35
O B E C, in estate mark, Nillomally	24 ch	pek	2160	32
	17 do	pek sou	1428	28
	18 do	or pek	1476	40
	12 do	bro or pek	1200	45
Penrith	23 ch	bro pek	2300	28
	16 do	pek	1440	26
Tismoda	10 ch	bro pek	1000	28
Glenorchy	48 hf ch	bro pek	2880	45
	50 do	bro pek	3000	37
	35 ch	pek	3325	33
Holton	21 ch	bro pek	2100	31
	23 do	pek	1955	28
Yogama	17 ch	bro pek	1735	33
	15 do	or pek	1500	31
	29 do	pek	2610	27
Trewardene	15 ch	pek	1500	19
	12 do	pek sou	1200	16
O B E C, in est. mark Darrawella	46 hf ch	dust	4140	27
Chrystler's Farm	35 do	bro pek	1925	48
	18 do	bro or pek	1008	66
	47 do	pek	4230	33 bid
Stranraer	33 ch	bro or pek	3300	32
	26 do	pek	2080	28 bid
	20 do	pek No 2	1800	26
	15 do	bro pek sou	1425	23
	13 do	bro pek fans	1300	28
	17 do	or pek	1445	37
St. Helen's	20 hf ch	bro or pek	1100	32
	13 ch	or pek	1170	32
	17 do	pek	1530	26
	12 do	pek sou	1080	23
Madulkelle	16 ch	sou	1200	27
	13 do	pek No 1	1170	30
Deltowita	25 ch	bro pek	2500	29
	24 do	pek	2160	23 bid
Galapitakande	28 ch	or pek	2800	32
	42 do	bro pek	4200	32
	67 do	pek	6030	31
	27 do	pek sou	2430	24
Yataderia	28 ch	bro or pek	29.6	28
	23 do	or pek	2070	27
	37 do	pek	3034	23
	25 do	or pek fans	2075	27
Pusella	50 ch	pek sou	4200	20
W N	10 do	fans	1000	28
Marlborough	22 hf ch	bro or pek	1100	53
	15 ch	bro pek	1500	36
	13 do	or pek	1144	33
	22 do	pek	1848	32

	Pkgs.	Name.	lb.	c.
Dromoland	27 hf ch	bro or pek No 1	1566	39
	33 do	bro or pek No 2	1650	30 bid
	21 ch	or pek	1785	29
Tillyrie	20 ch	fans	2400	26
	23 do	dust	3450	27
Torwood	15 ch	bro or pek	1350	31
	15 do	bro pek	1350	27
	20 do	or pek	1680	25
	18 do	pek	1512	23
	13 do	pek sou	1014	22
Stafford	18 ch	or pek	1800	41
	13 do	pek	1170	37
Mausa Eliya	22 ch	bro pek	2200	36
	21 do	pek	2100	28
Vegan	21 ch	bro or pek	2100	46
	29 do	or pek	2610	33
	37 do	pek	3330	27
	19 do	pek sou	1615	24
Stamford Hill	32 hf ch	bro pek	1920	36
	24 do	or pek	1152	50
	25 ch	pek	2250	32
Penrbos	20 hf ch	bro pek	1200	33
	25 do	or pek	1250	36
	28 ch	pek	2380	31
Hentleys	27 hf ch	bro pek	1431	26
	25 ch	pek	1850	22
Sirikandura	15 do	bro pek	1350	29
Naseby	35 hf ch	bro or pek	2100	64
	25 do	or pek	1175	65
	25 do	pek	1250	52
Coldstream Group	102 hf ch	bro pek	5610	36
	40 ch	pek	3 00	30
Clarendon	40 hf ch	bro pek	2520	39
	20 ch	pek	2100	33
	14 do	pek sou	1470	27
Mawiligangawatte	44 ch	bro pek	4224	25
	27 do	pek sou	2025	22
Mahawela, Invoice No. 7	18 ch	bro pek	1800	29
	18 do	or pek	1800	29
	20 do	pek	2850	25
	30 do	pek sou	2850	22
Geragama, Invoice No. 19	17 ch	bro pek	1530	27
	28 do	pek	2240	25
	27 do	pek sou	2025	21
Kalupahana	25 ch			
	19 hf ch	bro pek	1745	31
	13 ch	pek	1156	18
	16 do	fans	1677	16
Palmerston	19 hf ch	bro or pek	1140	66
	16 ch	pek	1360	42
Queensland	30 hf ch	bro or pek	1500	65
	15 ch			
	1 hf ch	bro pek	1629	43
	19 ch	pek	1710	35
St Helier's	22 do	bro or pek	2200	34
	15 do	pek	1425	28
Munukettia, Ceylon, in est. mark	14 ch	or pek	1260	35
	34 hf ch	bro pek	2040	49
	22 ch	pek	1760	31
	11 do	pek sou	1070	26
Nakiadenia	10 ch	or pek	1000	30
	19 do	pek	1520	28
Kotagaloya	31 ch	bro pek	3255	31
	32 do	pek	2880	27
	14 hf ch	dust	1120	27
Hatton	26 ch	bro pek	2860	47
	22 do	pek	1980	33
Tunisgalla	26 hf ch	or pek	1300	35
	18 do	bro pek	1080	36
	18 do	pek	1620	33
	14 ch	pek sou	1190	26
Siriwatte	14 ch	bro or pek	1400	29
	13 do	pek	1170	29
Puspone	32 ch	or pek	3200	29
	37 do	bro pek	4144	30
	24 do	pek	2280	27
	17 do	pek sou	1445	24
Delat, Inv. No 17	27 ch	bro or pek	2700	34
	19 do	bro pek	1900	29
	18 do	pek	1512	27
	9 do	fans	1080	28
Ella Oya, Inv. No. 7	32 hf ch	young hyson	1696	35
	74 do	hyson	3700	31
	36 do	hyson No 2	1908	31
Monkswood, Inv. No. 12	20 hf ch	bro pek	1200	70
	52 do	or pek	2600	55
	48 ch	pek	4560	51
	13 do	pek sou]	1105	45

	Pkgs.	Name.	lb.	c.
Good Hope, Inv. No. 12	21 ch	bro or pek	2100	28
	33 do	bro pek	2970	27
	14 do	pek	1260	24
Middleton	20 bf cb	bro or pek	1100	62
	13 ch	bro pek	1300	out
	21 do	or pek	1785	out
	17 do	pek	1360	28 bid
Kitulgalla, Inv. No. 10	23 hf cb	bro or pek	1334	25
	14 ch	or pek	1190	26
	14 do	pek	1120	22
C R, Inv. No. 21	11 ch	dust	1100	26
Pannapitiya	11 ch	bro pek	1100	27
	13 do	pek	1235	22
Maha Uva	47 hf cb	bro or pek	3055	35
	32 ch	or pek	3200	36
	38 do	pek	3420	33
	24 do	pek sou	1920	28
	12 bf cb	dust	1020	28
Massena	52 do	bro or pek	2600	28
	40 do	bro pek	2080	29
	43 do	pek	2100	25
	25 do	bro pek fans	1375	25
Ganapalla	19 cb	bro or pek	1862	23
	21 do	or pek	1743	29
	46 do	pek	3588	26
Killarney	17 hf cb	bro or pek	1020	54
	30 do	bro pek	1800	38
	20 ch	or pek	1700	33
	25 do			
	1 hf cb	pek	2181	34
	16 ch	pek sou	1440	24
	14 hf cb	fans	1008	29
	13 do	dust	1092	27
B W D	14 hf ch	dust	1120	26
Bowlana	27 hf ch	bro or pek	1710	45
	20 cb	pek	1900	34
	18 do	or pek	1800	38
Eastland	24 bf cb	bro or pek	1560	35
	31 do	or pek	1550	29
Norton	35 bf ch	bro or pek	2170	36
	25 cb	pek	2250	29
	15 do	or pek	1350	36
Summer Hill	18 ch	bro or pek	1062	60
	16 do	or pek	1456	43 bid
	35 do	bro pek	2240	47
	39 do	fans	2808	30
	50 do	pek	4550	33
Lorne	14 cb	pek	1400	22
	21 do	dust	1785	27
Middleton	12 ch	bro pek	1200	35
	19 do	or pek	1615	31 bid
Forest Greek	16 ch	bro or pek	1648	70
	37 do	bro pek	3811	41
	16 do	or pek	1440	35
	30 do	pek	2850	32
Panawatte	13 ch	bro or pek	1495	40
	14 do	or pek	1316	34
	23 do	pek	2185	31
	15 do	pek sou	1425	27
Preston	11 cb	bro or pek	1144	58
V O A	31 hf ch	dust	2635	27
Templehurst	20 ch	bro or pek	2160	34
Tonacombe	54 ch	or pek	4860	33 bid
	57 do	bro pek	5700	36 bid
	70 do	pek	5950	31
	15 do	pek sou	1200	26
Pine Hill	24 hf ch	bro or pek	1440	38
	22 ch	or pek	2090	34
	27 do	pek	2430	31
	19 do	pek sou	1615	26
	12 hf ch	dust	1104	27
H G M	30 hf ch	floery or pek	1650	45
	24 do	bro or pek	1320	33 bid
	14 ch	bro pek	1260	32
	27 do	pek	2349	28
	14 cb	pek sou	1120	24
	22 do	pek	1867	26
	16 bf ch	fans	1037	26
Purana	19 cb	pek	1520	28
Ri?watte	23 ch	young hyson	2527	14 bid
Y N	12 ch	or pek	1128	37 bid
	16 do	pek sou	1440	19 bid
Erroiwood	71 hf ch	bro or pek	4260	36
	10 do	or pek	1000	34
	18 do	pek	1710	29
	10 do	pek sou	1000	23 bid
Monsakelle	18 ch	bro or pek	2013	37 bid
Sylvakandy	15 ch	bro or pek No 1	1500	42
	26 do	bro or pek No 2	2600	36
	13 do	bro pek	1300	34
	12 do	or pek	1200	35
	17 do	pek	1615	31
Attampettia	14 ch	bro pek	1638	45
	20 do	or pek	2000	40
	23 do	pek	2300	37

	Pkgs.	Name.	lb.	c.
Riversdale	15 ch	br pek fans	1050	28
D in est mark	21 ch	hyson	1890	24
Maba El'ya	27 hf ch	bro or pek	1620	41 bid
	24 do	bro pek	1392	34 bid
	10 ch	bro pek	1000	35 bid
	37 do	pek	3330	32 bid
	17 hf ch	pek fans	1360	27
Stratbspey	19 ch	pek	1745	30 bid
Yelverton	12 ch	bro pek	1257	31 bid
Bandara Eliya	61 hf ch	or pek	3355	36
	63 do	bro or pek	3780	36
	73 do	pek	?5?	3? bid
	77 do	or pek	4235	36
	53 do	bro or pek	3180	38
	60 do	pek	2880	32
Passara Group	29 ch	or pek	1800	32
	35 do	bro or pek	3500	36
	35 do	pek	3150	31
	14 do	pek sou	1?60	28
Glencorse	21 cb	bro pek	2097	52 bid
Gal?ande	37 hf ch	or pek	1850	34
	29 ch	pek	2610	28
Galleheria	14 cb	bro or pek	1400	56
	15 do	or pek	1200	41
	34 do	pek	3060	34
	13 do	pek sou	1170	28
Castlereagh	14 ch	bro pek	1397	28
M T P in est mark	17 ch	pek fans	1785	25
	30 do	fans	3000	27
Woodend	74 ch	pek	6512	23
	21 do	pek sou	1680	21
Laxapana	16 hf ch	bro pek fans	1120	27
	26 do	dust	2340	26
Handford	16 cb	bro or pek	1600	31
	11 do	or pek	1045	26
	13 do	pek	1170	25
P	14 hf cb	dust	1190	27
Seenagolla V.	29 hf ch	bro or pek	1769	42 bid
	23 cb	or pek	2116	40
	27 do	pek	2592	34
Oodoowerre	25 ch	bro pek No 1	2500	30
	25 do	bro pek No 2	2500	26
	25 do	pek	2125	24
Aberdeen	23 ch	bro pek	2185	30
	30 do	pek	2400	25
Carfax	21 ch	bro or pek	2100	44
	17 do	or pek	1530	38 bid
	19 do	pek	1710	35
Ruanwella	18 cb	bro or pek	1890	28
	30 do	or pek	2700	27
	30 do	pek	2700	22
Erracht	34 cb	bro or pek	3400	31
	40 do	or pek	3400	28
	44 do	pek	3740	22
Dammeria	45 ch	bro pek	4500	31
	36 do	or pek	3240	30
	50 do	pek	4500	28
	30 do	pek sou	2700	24

Messrs. Somerville & Co.

[300,410 lb.]

	Pkgs.	Name.	lb.	c.
Marigold	53 hf ch	bro pek	2915	39
	40 do	pek	2000	34
	39 do	pek sou	1911	33
Allakollawewa	28 hf ch	br pek	1540	37
	32 do	pek	1600	32
	25 do	pek sou	1225	32
Simla	23 hf ch	bro or pek	1380	46 bid
	16 ch	or pek	1440	36
Nyanza	12 ch			
	1 hf ch	pek sou	1070	25
Dryburgh	33 ch	pek	250?	26
	15 do	pek sou	1200	23
Kelani	20 cb	bro or pek	2000	28
	17 do	pek	1275	26
	25 do	or pek	2125	29 bid
	12 do	pek sou	1080	23
Theberton	19 cb	bro pek	1710	31 bid
	31 do	pek	2635	27
Nehoda	13 ch	bro or pek	1300	37
	18 do	or pek	1674	31
	21 do	pek	2100	27
	14 do	pek sou	1330	23
M D F in est mark	25 hf ch	bro or pek	1375	29
	26 cb	pek	2080	26
	16 do	pek sou	1280	22
Han?gam?	19 ch	bro or pek	1140	31
	28 do	or pek	2800	25
	26 do	pek	2600	23
New Angama	19 ch	bro or pek	1900	30
	34 do	br pek	3230	27 bid
	43 do	pek	3870	27
	22 do	pek sou	1980	23

	Box.	Pkgs.	Name.	lb.	c.
Florida	23	ch	bro pek	2392	23 bid
	25	do	pek	2500	18 bid
	13	do	pek sou	1248	17
Mahagoda	12	ch	pek	1200	15 bid
Etholuwa	17	ch	bro pek	1700	out
Mount Temple	17	ch	br pek	1615	withd'n
	13	do	pek	1118	withd'n
	25	do	bro or pek fans	2500	withd'n
Mowbray	12	ch	br pek	1200	31 bid
	17	do	pek	1445	25 bid
F F	12	ch	pek sou	1200	16 bid
Ravenscraig	19	hf ch	bro or pek	1045	46
	12	ch	pek	1080	30
Rothes	21	hf ch	bro pek	1302	38 bid
A	41	hf ch	dust	3690	out
Blinkbonnie	24	hf ch	bro or pek	1440	47
	18	ch	pek	1674	34
Neuchatel	47	ch	or pek	4230	28
	15	do	pek	1200	26
	14	do	pek sou	1120	23
Glenanore	17	ch	pek sou	1445	29
	13	do	dust	1105	27
Mahavilla	21	hf ch	pek	1155	29
	27	do	pek sou	1485	27
B D	18	hf ch	dust	1476	27
	11	ch	unassorted	1045	24
Maligatenne	13	ch	bro pek	1209	24 bid
Waganila	19	ch	bro pek	1976	37
	33	do	pek	3135	35
Jak Tree Hill	17	ch	br pek	1700	28
	12	do	pek	1080	25
Neuchatel	13	ch	bro or pek	1235	43 bid
	50	do	or pek	4500	29
	21	do	pek	1680	27
	15	do	br pek fans	1725	28
Mount Temple	17	ch	bro pek	1581	26 bid
	25	do	pek	2000	27
	18	do	pek sou	1350	23
	22	do	bro or pk fans	2200	26
Monrovia	33	ch	bro pek	3300	27
	23	do	pek	2185	25
New Valley	29	ch	bro or pek	2900	39
	19	do	or pek	1900	34
	21	do	pek	2100	32
	25	do	pek sou	2250	26 bid
D M O G in est mark	39	hf ch	br pek	2145	29
	26	do	or pek	1300	33 bid
	24	ch	pek	1920	28
	37	do	pek sou	2775	25
	21	hf ch	fans	1260	23
	12	ch	bro mixed	1020	12 bid
Scarborough	28	hf ch	bro or pek	1568	44 bid
	17	ch	or pek	1700	39
	16	do	pek	1520	33
Yarrow	32	hf ch	bro or pek	1664	29 bid
	23	do	or pek	1035	27
	55	do	pek	2530	25
Blackburn	20	ch	pek sou	1400	23
	16	hf ch	dust	1392	23 bid
	15	do	fans	1080	26
Ahamed	26	hf ch	bro pek	1300	18 bid
	21	do	pek	1050	22
Damblagolla	17	hf ch	bro pek	1020	29
	12	ch	pek	1020	27
	13	do	pek sou	1040	23
Murraythwaite	14	ch	bro pek	1400	32 bid
Yahalatenne	28	ch	br pek	2912	33 bid
	19	do	pek sou	1767	25
	12	hf ch	dust	1008	26
Elchico	27	ch	bro or pek	2700	29
	18	do	or pek	1710	24 bid
	16	do	pek	1520	23 bid
Dikmukalana	45	hf ch	pek	2250	23
Yspa	20	ch	pek sou	1700	21
Hanagama	42	ch	pek sou	3780	16 bid
Mahatenne	16	ch	bro or pek	1600	33 bid
	16	do	or pek	1600	28 bid
	15	do	pek	1425	24 bid
Annandale	19	hf ch	or pek	1026	41
Kelani	33	ch	or pek	2805	29 bid
	24	do	bro or pek	2400	27
	19	do	pek	1520	23
	14	do	pek sou	1260	21
Anandale	19	hf ch	or pek	1645	39 bid
	19	do	pek	1083	33 bid
Jak Tree Hill	12	ch	bro pek	1200	28
	13	do	pek sou	1170	20
Cooroondoowatte	10	ch	pek	1000	25
Old Maddegama	22	ch	bro or pek	1760	48
	12	do	pek	1000	37
Harrangalla	12	ch	or pek	1080	26 bid
	14	do	bro pek	1400	29
	43	do	pek	3440	27
	13	do	bro pek fans	1300	27
Ranasingbapatna	55	hf ch	or pek	2640	26 bid
	91	do	bro or pek	5187	28 bid
	27	ch	pek	2322	27
	32	do	pek sou	2132	23 bid

	Box.	Pkgs.	Name.	lb.	c.
Selvawatte	32	hf ch	bro or pek	1920	27
Laxapanagalla	18	ch	bro or pek	1800	30
	10	do	or pek	1000	25 bid

Messrs. E. John & Co.

[278,272 lb.]

	Pkgs.		Name.	lb.	c.
Mudalkelle	23	ch	bro or pek	2300	30 bid
	30	do	pek	2700	25 bid
	21	do	pek sou	1890	22 bid
Oonoogaloya	13	ch	or pek	1170	33
	13	do	bro or pek	1300	36
	12	do	pek	1080	29
Avington	21	ch	bro pek	1890	28
	52	do	pek	3900	20 bid
	45	do	pek sou	3150	20
Orwell	18	ch	or pek	1710	26 bid
	13	do	pek	1066	25
	22	hf ch	pek fans	1430	26
St John's	25	hf ch	bro or pek	1450	56
	18	ch	or pek	1620	61
	18	do	pek	1728	44
	18	hf ch	pek fans	1224	32
Glentilt	48	hf ch	bro or pek	2640	51 bid
	31	ch	or pek	2790	36
	39	do	pek	3510	33
Morton	12	ch	bro pek	1260	26
Perth	17	ch	bro or pek	1615	35
	26	do	bro pek	2340	28
	28	do	pek	2240	27
	26	do	pek	1950	25
Rookwood	48	ch	bro or pek	5140	30 bid
	31	do	or pek	2976	28
	38	do	pek	3496	21 bid
G Ceylon, in est mark	13	ch	fans	1040	27
Birnam	19	ch	pek sou	1330	28
	33	hf ch	fans	2244	32
	26	do	dust	2132	27
Elston	20	ch	pek	1600	29
	20	do	pek sou	1600	25
Westhall	27	hf ch	dust	2430	19 bid
C D	13	ch	bro pek	1365	35
	12	do	pek	1200	28 bid
Elston	30	ch	pek	2400	30
	20	do	pek sou	1500	26
Mahanilu	35	hf ch	or pek	1960	40
	18	do	bro or pek	1008	43 bid
	31	ch	pek	2976	35
Bittacy	26	ch	bro pek	2548	36
	24	do	pek	2016	34
A A	14	ch	dust	1460	24
Winwood	33	hf ch	bro or pek	1650	36 bid
	30	do	bro or pek	1497	36 bid
	15	ch	or pek	350	31
	14	do	pek	1260	29
	19	hf ch	fans	1140	27
Woodstock	13	ch	bro or pek	1300	30
North Panduloya	32	hf ch	yng. hyson	1760	34
	27	ch	hyson	2430	31
Brownlow	22	hf ch	bro or pek	1188	56
	17	ch	or pek	1649	35
	20	do	pek	1720	30
	15	hf ch	dust	1230	27
Dalhousie	18	hf ch	bro pek	1080	49
	26	do	or pek	1300	34
	35	do	pek	1575	30
Midlothian	15	hf ch	bro pek	1050	44
	23	do	ro pek	1150	43
	28	do	pek	1456	34
	21	do	pek sou	1050	30
Agra Ouvah	43	hf ch	bro or pek	2580	57
	26	do	or pek	1404	35
	11	ch	pek	1045	38
	13	do	pek sou	1248	37
	22	hf ch	bro or pek fans	1474	29
	27	do	pek fans	2241	28
Glasgow	33	hf ch	bro or pek	2690	60
	36	ch	bro pek	3600	44
	46	do	or pek	4140	38
	38	do	pek	3534	37
	35	hf ch	pek fans	2310	30
Walla Valley	16	ch	pek	1520	27 bid
Myraganga	25	ch	or pek	2250	31
	23	do	bro or pek	2300	32
	44	do	pek	3520	28
	13	do	pek sou	1040	24 bid
Natuwakelle	18	ch	bro or pek	1800	42
	20	do	bro pek	1800	30
	23	do	pek	2070	28
	14	do	pek sou	1260	24
Katawella	10	ch	bro pek	1000	22 bid
H'Ouvah	12	ch	pek sou	1080	23 bid
Cleveland	53	hf ch	flow or pek	2650	44
	55	do	pek	2750	33

	Box. Pkgs.		Name.	lb.	c.
Myraganga	17	ch	or pek	1445	28
	19	do	bro pek	1900	29
	16	do	pek	1280	26
	18	do	pek sou	1350	22 bid
	9	do	pek fans	1260	withd'n
Poilakanda	21	ch	bro or pek	1890	29
	22	do	bro pek	1980	27
	25	do	pek	2000	23
A L	35	ch	bro or pek	3468	23 bid
	23	do	bro pek	2781	23 bid
Mount Everest	26	hf ch	bro or pek	1300	54 bid
	26	do	or pek	1300	40
	23	ch	pek	3300	32
M P S	21	hf ch	pek dust	1572	out
G B	34	hf ch	pek sou	1700	16 bid
Nahavilla	32	ch	or pek	2880	37 bid
	30	do	bro pek	3000	39 bid
	13	do	pek	1170	33 bid
	17	do	pek sou	1360	26 bid
Longville	24	ch	bropek	2400	31
	12	do	pek	1200	29
Gangawatte	19	ch	bro or pek	1900	47
	17	do	bro pek	1700	34
	36	do	pek	3240	30 bid
Ormidale	36	hf ch	or pek	2160	37
	24	do	bro or pek	1440	53
	50	do	pek	2650	30 bid
	26	do	pek sou	1300	28 bid
G B	12	ch	bro pek	1260	21
	14	do	pek	1190	20
	20	hf ch	fans	1500	27
Brownlow	39	ch	pek	3351	23 bid
Hingurala	20	hf ch	dust	1800	out
Warleigh	21	hf ch	bro or pek	1155	55
	20	ch	or pek	1940	35
	31	do	pek	2635	23 bid
Harrisland	20	hf ch	bro or pek	1037	30
A N	11	ch	pek sou	1497	20 bid

Messrs. Keell and Waldock.

[38,920 lb.]

	Pkgs.		Name.	lb.	c.
Rock Cave	21	ch	bro pek	2100	26 bid
	26	do	pek	2210	21 bid
	14	do	pek sou	1120	19
G'Watte	23	ch	or pek	1955	25 bid
	16	do	bro pek	1600	26
	10	do	pek fans	1150	26
Bargany	37	hf ch	bro pek	2260	39
	33	ch	pek	2970	31
Goonambil	22	hf ch	dust	1870	25
Brecon	33	hf ch	bro or pek	2060	34
	38	do	or pek	2090	32
	20	do	pek	1000	32
X	16	hf ch	dust	1280	out

SMALL LOTS

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Yuillefield	4	ch	pek sou	360	26
	2	hf ch	dust	160	27
Lower Kananka	2	ch	bro or pek	204	27
	4	do	bro pek	420	23
	2	do	pek No 1	200	21
	4	do	pek	400	21
	2	do	pek sou No 1	200	18 bid
	3	do	pek sou	285	18 bid
	1	do	fans	100	13
E D S	3	ch	pek sou	261	10
Choughleigh	5	ch	bro or pek	520	41 bid
	2	do	pek sou	160	22
	1	do	dust	155	26
	2	do	fans	228	28

Messrs. Forbes & Walker

	Pkgs.		Name.	lb.	c.
North Matale	3	hf ch	dust	252	26
O B L	4	ch	bro or pek	400	30
	7	do	pek	630	24
	8	hf ch	fans	640	26
	1	ch	sou	75	19
Thedden	10	do	pek	950	30
	4	hf ch	pek sou	300	24
	4	ch	unas	455	26
	1	hf ch	dsut	80	26
New Galway	15	do	bro pek	900	42
Mansfield	2	hf ch	bro pek fans	160	28
	3	do	dust	285	27
O B E C, in est mark, Nillomally	4	ch	fans	400	27
	2	do	dust	200	25

	Pkgs.		Name.	lb.	c.
Penrith	3	ch	pek sou	270	20
	3	hf ch	fans	210	26
	2	do	dust	170	24
Tismoda	8	ch	pek	720	26
Glenorchy	3	hf ch	dust	255	
W F, in est. mark	14	do	congou	700	18
Holton	10	ch	pek sou	850	23
	3	do	fans	300	13
Yogama	7	ch	pek sou	595	21
	3	do	dust	420	26
Trewardene	6	ch	bro pek	600	27
	7	do	or pek	700	22
	1	do	dust	160	18
	5	do	unas	500	15
Chrystler's Farm	2	ch	pek sou	170	27
	2	hf ch	dust	160	28
Glenorchy, No. 1	10	do	bro pek	600	43
	5	do	pek	475	33
Findlater	3	hf ch	dust	240	27
Ellamulle	4	do	pek dust	360	26
Emmelina	9	do	dust	720	27
Madulkelle	1	ch	dust	110	26
	1	do	fans	110	27
Hatherleigh	2	do	dust	300	22
Debiowita	11	ch	pek sou	935	21
	10	do	or pek	900	30
	2	do	dust	300	25
Galapitakande	6	hf ch	dust	510	27
O F, in estate mark	3	ch	bro pek	297	24
	5	do	pek	440	21
	4	do	pek sou	348	20
	1	do	green tea	86	16
C R S	2	ch	pek fans	228	12
W F, in estate mark	3	hf ch	congou	150	16
	3	do	do	150	10
W N	1	ch	bro tea	95	14
	3	do	dust	300	22
	1	do	dust	100	18
Dromoland	7	hf ch	bro or pek fans	476	25
Torwood	3	ch	dust	405	24
Rajawatte	4	do	bro or pek	400	46
	6	do	or pek	600	34
	6	do	pek	570	29
	5	do	pek sou	4[illegible]0	24
	4	hf ch	dust	3[illegible]0	26
	3	do	fans	180	28
Stafford	7	ch	bro or pek	840	51
	2	do	fans	240	29
	1	hf ch	dust	90	28
Mausa Ella	11	ch	or pek	935	33
Vegan	3	do	pek fans	375	27
	5	hf ch	dust	400	26
Stamford Hill	7	ch	pek sou	630	27
	4	hf ch	dust	360	27
Penrhos	16	hf ch	bro or pek	560	48
	10	ch	pek sou	800	25
	5	hf ch	fans	375	28
	1	do	pek dust	96	25
Hentley's	10	do	or pek	450	26
	8	ch	pek sou	584	19
	6	hf ch	fans	450	26
	2	do	pek dust	184	24
Aldie	15	hf ch	bro pek fans	975	30
R	3	ch	sou	225	14
	4	do	dust	480	26
Wewawatte	6	hf ch	bro pek	366	28
	7	do	pek	392	24
Sirikandure	13	ch	pek	975	25
	12	do	pek sou	780	20
	1	do	red leaf	55	12
	2	do	fans	250	22
	9	ch	pek sou	720	25
	4	hf ch	fans	260	27
	4	do	dust	320	26
Clarendon	2	ch	sou	220	23
	2	do	pek dust	160	27
Kelvin	10	hf ch	fans	700	26
	4	do	dust	340	24
Mawiligangawatte	2	ch	bro mix	214	15
Radella	1	hf ch	pek	66	26
Mahwela, Inv. No. 7	8	do	fans	600	17 bid
	8	do	dust	720	12 bid
Geragama, Invoice No. 19	7	ch	bro or pek	735	31
Kalupahana	11	hf ch	or pek	550	22
	7	ch	pek sou	580	19
	1	do	dust	160	15
T B	2	hf ch	fans	120	28
	3	do	dust	225	26
Queensland	6	ch			
	1	hf ch	or pek	655	38
	4	ch	pek sou	340	30
	1	do	bro pek No 2	100	24
	1	do	pek No 2	100	19
	1	do	sou	103	15
	1	hf ch	dust No 1	65	20
	5	do	bro pek dust	325	28

	Pkgs.	Name.	lb.	c.
St. Helier's	7 ch	pek sou	686	26
	6 hf ch	dust	504	27
	3 ch	bro tea	300	12
Munukettia, Ceylon, in estate mark	8 hf ch	dust	640	27
Nakiadenia	3 box	flowery pek	39	out
	10 ch	pek	700	21
	2 do	bro mix	160	14
Hatton	1 do	pek sou	81	30
	5 hf ch	dust	750	27
Uma Oya	2 ch	dust	200	26
Tunisgalla	10 hf ch	bro or pek	550	56
	2 ch	sou	160	22
	2 hf ch	dust	180	27
Siriwatte	8 ch	or pek	720	33
	11 do	bro pek sou	990	25
	8 do	bro pek fans	800	28
	2 do	fans	216	27
	1 do	dust	108	18
G	1 ch	or pek	97	27
	6 do	pek	624	24
Puspone	4 hf ch	dust	344	26
	3 do	fans	195	26
Delta, Inv. No 27	9 ch	pek sou	738	25
	7 do	dust	595	27
Ella Oya, Invoice No. 7	11 hf ch	siftings	770	12
Monkswood, Invoice No. 12	5 hf ch	fans	350	34
	8 do	dust	720	29
Good Hope, Invoice No. 12	1 ch	bro pek fans	100	26
	1 do	fans	110	24
	4 hf ch	dust	360	26
K W D, in est. mark Invoice No. 18	7 hf ch	fans	525	29
	4 ch	dust	440	26
	1 do	bro tea	95	21
Kitulgalla, Invoice No 10	3 hf ch	dust	246	25
C R D, Inv. No. 21	4 ch	sou	320	16
	2 do	red leaf	160	12
	1 do	bro mix	100	19
	4 do	pek	360	23
N P, Invoice No. 18	2 ch	pek sou	134	21
	2 do	red leaf	190	13
Pannapitiya	6 do	or pek	660	20 bid
	10 do	pek sou	950	20
Katapola	1 ch	bro pek	87	25
	1 do	pek	75	15
	1 do	pek sou	77	10
Massena	15 hf ch	pek sou	750	20
	8 do	dust	560	25
Letchimey	9 ch	pek sou	720	25
	4 hf ch	bro or pek fans	260	28
	6 do	pek fans	360	26
	3 do	dust	270	26
Ganapalla	10 ch	pek sou	800	21
	7 do	bro pek fans	763	26
	7 hf ch	dust	595	26
B W D	3 ch	red leaf	265	14
Bowlana	7 ch	pek sou	630	29
	5 hf ch	fans	350	29
	2 do	dust	170	27
Norton	12 hf ch	bro or pek	696	34
Lorne	6 ch	bro pek	570	26
Carding	13 hf ch	bro pek	650	26
	8 do	pek	360	21
	3 do	pek sou	135	18
	2 do	bro pek fans	120	23
Panawatte	8 ch	fans	896	27
	4 do	dust	600	26
Paddahawela	4 ch	bro pek	374	19
	6 do	pek	600	20
	5 do	sou	500	18
	1 do	congou	100	10
Preston	9 ch	or pek	414	57
	10 do	pek	840	44
	6 do	pek sou	390	33
	2 hf ch	bro pek fans	128	32
	3 do	unassorted	150	20
V O A	1 ch	bro tea	120	10
Templehurst	10 ch	pek	900	33
	1 do	fans	120	27
H G M	12 hf ch	fans	780	27
	4 do	dust	360	25
Purana	8 ch	bro pek	800	30
	15 boxes	or pek	270	33
	11 ch	pek sou	792	23
	2 hf ch	dust	170	26
	2 do	fans	100	26
	1 do	bro mixed	34	16
Marlborough	6 ch	bro pek	600	32
Y N	4 ch	bro pek	444	38 bid
	7 do	pek	679	22 bid
	1 do	fans	100	20 bid
	2 hf ch	dust	160	21 bid

	Pkgs.	Name.	lb.	c.
Y	1 hf ch	pek	35	19
	1 ch	bro pek	81	27
Errolwood	11 hf ch	or pek fans	770	28
B F B	5 ch	unassorted	470	18
R in est mark	1 ch	bro pek	100	22
	1 do	pek	96	15
	2 do	pek fans	256	17
Sylvakandy	3 ch	dust	300	26
Attampettia	7 ch	pek sou	700	30
Riversdale	3 ch	dust	270	26
	10 hf ch	pek sou	430	24
D in est mark	2 ch	hyson No. 2	180	20
	1 do	hyson dust	120	10
Passara Group	4 ch	dust	360	26
	13 do	fans	910	28
Galkande	10 ch	pek sou	850	24
Galleheria	1 ch	dust	100	27
R	1 ch	bro pek	100	out
M T B in est mark	8 ch	sou	720	14
	8 do	pek dust	840	22
	7 do	dust	700	25
	2 do	sou	200	13
Baduluoya	7 ch	bro pek	756	28
	5 do	pek	465	24
Anningkande	3 ch	pek fans	285	20
	3 do	dust	345	24
Bedford	1 ch	bro pek	100	23
P	8 ch	fans	960	28
	2 do	unassorted No 1	160	24
	3 do	unassorted No 2	240	22
Seenagolla V.	9 ch	pek sou	900	27
	7 hf ch	dust	595	27
	1 do	bro pek	61	27
	1 do	sou	61	22
Oodoowerre	1 ch	pek sou	95	20
	2 do	dust	280	25
Aberdeen	5 hf ch	bro pek fans	350	24
Ruanwella	4 hf ch	dust	320	24
Erracht	4 ch	pek sou	400	18
	4 do	bro pek sou	560	26
	3 do	dust	480	25
Dammeria	5 ch	bro pek fans	600	27

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Simla	11 hf ch	bro or pek No. 1	660	37
	10 ch	pek	850	32
	3 hf ch	pek sou	156	28
	2 do	fans	164	27
	1 do	dust	60	26
A	2 hf ch	dust	160	26
	1 do	sou	50	16
S	5 hf ch	dust	400	26
	2 do	sou	100	16
Nyanza	10 ch			
	1 hf ch	or pek	950	33
	16 hf ch	bro or pek	880	40 bid
	10 ch	pek	900	29
	10 hf ch	dust	750	26
	4 do	fans	260	27
Dryburgh	16 hf ch	bro or pek	928	28
	7 do	fans	560	26
Theberton	1 ch	sou	85	20
	2 do	bro pek fans	200	27
	3 do	fans	300	26
Neboda	4 hf ch	dust	340	25
D M F in est mark	9 ch	or pek	783	30
Hanagama	7 ch	pek sou	630	18
New Angamana	6 ch	pekoe fans	750	25
	2 do	dust	330	24
Florida	2 ch	dust	286	18
Mahagoda	5 ch	bro pek	550	29
	3 do	souchong	300	14
	1 do	fans	135	12
Mowbray	7 ch	pek sou	595	22
F F	10 ch	fans	800	27
	2 do	dust	190	26
Ravenscraig	5 ch	dust	410	27
Oonoonagalla	8 hf ch	bro or pek fans	560	27
	3 ch	dust	270	28
Richlands	5 hf ch	bro or pek fans	350	27
	3 do	dust	270	25
Rothes	9 ch	pek	855	29
	1 hf ch	dust	95	27
Lawrence	13 hf ch	fans	858	28
	6 do	dust	480	27
Venture		hf ch fans	560	28
	10 do	dust	850	26
A	16 hf ch	bro pek fans	992	out
Columbia	15 hf ch	bro or pek	900	37
	13 do	pek	676	33
	19 do	pek No. 2	988	30
	12 do	pek sou	600	25
	3 do	fans	210	28

	Pkgs.		Name.	lb.	c.
Blinkbonnie	4	ch	pek son	344	26
H	10	hf ch	fans	600	26
	3	ch	dust	480	25
Neuchatel	6	ch	bro pek fans	690	26
	3	do	dust	435	26
Dryburgh	7	ch	pek sou	588	22
	5	hf ch	fans	400	26
Mahavilla	18	hf ch	orange pekoe	936	35
	16	do	bro or pek	855	32
	1	do	sou	56	18
	2	do	dust	160	26
B D	15	hf-ch	bro pek fans	930	29
Maligatenne	5	ch	brok or pekoe	476	30
	9	do	pekoe	792	25
	4	do	pek sou	376	20
	1	do	dust	70	22
Waganila	9	ch	pek sou	810	26 bid
	1	do	dust	95	25
Jak Tree Hill	10	ch	pek sou	900	20
	3	do	fans	300	out
	1	do	dust	100	out
Neuchatel	6	ch	pek sou	480	23
	3	do	dust	420	26
Monrovia	8	ch	pek sou	680	19
	6	do	fans	600	22
	3	do	unassorted	270	19
New Valley	2	hf ch	dust	170	27
D M O G in estate mark	11	hf ch	dust	935	26
F A in est mark	1	ch	pekoe souchong	84	28
	1	do	dust	80	27
G T	4	ch	bro mixed	360	16
	8	hf ch	fans	624	27
	6	do	dust	540	26
Scarborough	10	hf ch	dust	790	28
	9	do	fans	585	28
Ahamed	7	hf ch	pekoe souchong	350	18
	1	do	dust	90	16
	1	do	broken pekoe fans	60	16
Murraythwaite	11	ch	pekoe	880	28
	5	do	pekoe souchong	400	22
	3	do	bro pek fans	390	26
	1	do	dust	170	out
Blinkbonnie	13	hf ch	fans	910	29
	9	do	dust	628	28
Elchico	11	hf ch	pekoe souchong	990	20
Isledon	2	ch	dust	200	24
	1	do	fans	100	25
	1	do	red leaf	100	10
Denside	7	ch	souchong	595	18
	4	hf ch	fans	240	out
S W	1	ch	bro pek	82	18
	1	hf ch	pekoe	54	18
	1	do	dust	76	16
Weygalla	15	hf ch	bro or pek	750	55 bid
Yspa	4	ch	bro pek fans	500	28
	6	do	dust	840	27
Hanagama	8	hf ch	fans	760	15 bid
Mahatenne	4	ch	pekoe souchong	400	20
	3	do	dust	357	26
	1	do	fans	120	27
Hawa Ella	10	ch	pek sou	880	23 bid
Jak Tree Hill	9	ch	pek	810	25
	2	do	dust	200	25
	1	do	fans	100	14
	1	do	congou	90	15
D B R in est mark	1	ch	bro pek	106	24
	1	do	pek	102	22
	1	do	pek	95	21
Tavalamtenne	12	hf ch	bro or pek	720	37
	11	do	or pek	605	32 bid
	3	do	br or pek fans	195	27
	5	do	pek fans	300	25
	2	do	dust	170	25
Coroondoowatte	8	hf ch	pek fans	640	26
Old Maddegama	2	ch	bro pek	200	33
	3	do	pek sou	255	32
	2	do	souchong	175	22
	2	do	br or pek fans	190	29
Harangalla	11	ch	pek sou	880	20 bid
	10	hf ch	dust	850	26
Ranasinghapatna	10	hf ch	dust	700	25
Selvawatte	10	ch	pekoe	950	25
	1	do	pek sou	85	14
	3	hf ch	fans	255	25
	1	ch	dust	105	15
M in est mark	1	hf ch	unast	47	18
Laxapanagalla	4	ch	pek	360	26
	2	do	pek fans	200	27
	1	do	dust	100	26

Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
St Andrew's	9	hf ch	dust	765	27

	Pkgs.		Name.	lb.	c.
Oonoogaloya	10	hf ch	dust	850	27
	14	do	bro or pek No 2	980	29
	13	do	fans	845	28
Avington	3	hf ch	dust	240	22
M G Mahagalla	11	hf ch	fans	880	28
Orwell	5	ch	pek sou	400	22
Glentilt	8	hf ch	fans	640	29
Morton	8	ch	or pek	720	27
	9	do	pek	765	20
	4	do	pek sou	300	18
	2	hf ch	dust	160	24
Perth	7	ch	pek sou	490	22
	1	do	sou	58	19
	6	do	fans	780	27
Awliscombe	5	ch	bro pek	550	30
	6	do	pek	570	23
	5	do	pek sou	475	21
	1	do	dust	95	25
G Ceylon in est mark	7 1	ch hf ch	bro or pek (Vanesta Blkd)	828	23 bid
	2 1	ch hf ch	pek (blkd.)	217	26
	8	ch	dust	640	26
Y	3	ch	red leaf	270	14
W P	1	hf ch	bro or pek	56	34
	1	do	pek sou	58	20
	1	box	fans	37	12
	2	ch	bro mix	200	11
S G	1	hf ch	or pek	54	31
	1	ch	pek fans	89	27
	1	hf ch	fans	47	14
	1	do	sou	50	21
	3	ch	bro mix	300	14
Mahanilu	4	hf ch	fans	280	28
	3	do	dust	240	26
M N	2	ch	fans	200	10
	3	hf ch	dust	178	13
Bittacy	11	hf ch	bro or pek	550	50
	3	ch	fans (hooped)	330	28
	2	do	pek sou (hooped)	180	25
	2	hf ch	dust (hooped)	163	24
Woodstock	8	ch	pek	760	20
	2	do	pek sou	160	24
	4	hf ch	dust	340	26
Horagala	6	ch	bro pek	630	26
	6	do	pek	540	22
	1	do	bro pek dust	109	18
North Pundaloya	6	ch	hyson No 2	600	29
	7	hf ch	siftings	490	10
Dalhousie	15	hf ch	pek sou	750	28
	6	do	bro pek fans	390	28
Midlothian	3	hf ch	bro pek fans	210	28
Agra Ouvah	3	hf ch	dust	258	24
Eton	2	ch	bro or pek	195	33
	3	do	or pek	282	25
	3	do	pek sou	300	24
	2	do	sou	196	20
Myraganga	4	ch	or pek fans Venesta Acme Lined	580	27
Natuwakelle	3	ch	dust	300	25
Castle Hill	11	ch	pek	990	22 bid
Katawella	10	ch	pek	900	19 bid
	1	do	dust	100	23
H F D	8	ch	dust	800	26
Cleveland	18	hf ch	pek sou	900	29
	4	do	fans	320	28
Taunton	9	ch	pek sou	720	21 bid
	1	do	sou	85	20
	3	hf ch	fans	180	27
	2	do	dust	180	26
M	6	ch	pek sou	600	21
	4	hf ch	dust	280	26
Maryland	8	ch	bro pek	760	26
	7	do	pek	665	21
The Farm	5	ch	dust	375	26
Cairney	3	hf ch	pek sou	150	15 bid
Mount Everest	9	ch	pek sou	810	27
M P S	10	hf ch	dust	867	out
G B	13	hf ch	fans	780	18
	2	do	dust	110	withd'n
	1	bag	fluff	81	withd'n
Longville	6	ch	pek sou	570	26
Gangawatte	9	ch	pek sou	810	26
	6	hf ch	dust	510	28
	12	do	fans	780	29
Ormidale	7	ch	bro pek fans	490	28
G B	8	ch	dust	720	25
	4	hf ch	bro mix	360	12
Warleigh	10	hf ch	fans	630	29
	2	do	dust	170	27
Acton	10	hf ch	bro pek	547	34 bid
K P	2	hf ch	dust	180	19 bid
	9	do	fans	675	27
A N	11	ch	pek	918	22

	Pkgs.		Name.	lb.	c.

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Rock Cave	2	ch	dust	300	21
H A	5	ch	bro pek	495	16 bid
	8	do	fans	796	out
.	9	hf ch	dust	765	14 bid
S T	8	ch	pek No 1	800	out
	3	do	pek No 2	285	out
Morawake	3	ch	bro pek	345	27
	2	do			
	1	hf ch	pek sou	203	20
Bargany	8	ch	pek	.720	32
	7	do	pek sou	560	25
	2	hf ch	dust	150	26
O	1	ch	bro mix	82	8
M	5	bags	bro mix	280	8
Raxawa	8	hf ch	dust	640	25
Weyweltalawa	2	hf ch	dust	194	25
	5	ch	pek fans	500	27
	1	do	sou	70	21
Castlemilk	5	hf ch	pek fans	375	26
	6	do	dust	510	26
Pussetenne	7	hf ch	dust	560	26
Orion	3	hf ch	dust	255	25
	9	ch	fans	900	26
ocnambil	1	ch	bro mixed	95	18

	Pkgs.		Name.	lb.	c.
Moneragalla	4	ch	bro or pek	288	35
	8	do	or pek	560	33
	12	do	pek	816	29
	9	do	pek sou	567	22
	3	do	fans	300	28
D	8	ch	bro pek	800	29
	7	do	pek	665	21
	8	do	pek sou	720	20
	1	do	congou	85	11
O O B	1	ch	bro or pek	59	25
	1	do	bro pek	90	24
	1	do	pek	100	20
	1	do	pek	52	20
	1	do	pek sou	100	16
	1	do	pek sou	73	16

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, 4th July.

"Clan Cumming."—Mausagalla A, 1 tierce sold at 105s; ditto B, 1 cask and 1 barrel sold at 90s; ditto C, 1 barrel sold at 51s; ditto P B, 1 at 76s; ditto T, 1 at 38s.

OBSERVER PRINTING WORKS.

No. 30. COLOMBO, AUGUST 4th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[23,113 lb.]

	Pkgs.		Name.	lb.	c.
Battalgalla	32	ch	or pek	3020	33 bid
	30	do	pek	2700	32
Old Haloya	19	ch	pek sou	1710	20 bid
	12	do	fans	1344	25
Hapugastenne, Inv. No. 17	28	ch	bro or pek	2884	32 bid
	36	do	or pek	3240	28 bid
	45	do	pek	4050	27 bid
	27	do	pek sou	2160	25

Messrs. Forbes & Walker.

[707,130 lb.]

	Pkgs.		Name.	lb.	c.
F F, in est. mark Avoca	29	hf ch	bro pek	1450	22
	16	ch	bro pek fans	1952	27
Lindupatna	10	ch	pek sou	1000	28
	8	do	bro pek fans	1080	27
N	14	ch	pek fans	1820	19
Chrystler's Farm	23	hf ch	bro pek	1265	43
	17	do	pek	1445	31
Drayton	35	do	or pek	1750	49
	22	ch	pek	1980	35
	16	do	pek sou	1280	28
Rickarton	37	hf ch	bro or pek	2257	44 bid
	32	ch	or pek	2944	33
	42	do	pek	3864	25
Baddegama	14	ch	bro or pek	1400	31
	14	do	or pek	1260	31
Moray	22	hf ch	or pek	1034	38
	42	do	bro or pek	2436	49
	62	ch	pek	5394	32
Mahayaya	11	ch	bro pek	1133	29
Lindupatna	13	ch	bro or pek	1404	61
	30	do	or pek	3150	38
	23	do	pek	2185	31
F F, in est. mark	11	ch	pek sou	1164	14
El Teb	31	ch	or pek	3100	32 bid
	30	do	bro or pek	1800	45
	38	do	pek	3610	27 bid
Broughton	10	ch	bro or pek	1050	65
	35	hf ch	or pek	1890	41
	31	ch	pek	2945	32
Maldeniya	33	ch	bro or pek	3300	29
	32	do	or pek	3040	29
	41	do	pek	3690	23
	12	do	pek sou	1020	21
Bramley	35	hf ch	bro or pek	2090	36
	41	do	pek	2214	28 bid
	27	do	or pek No 1	1296	42
	67	do	or pek	3350	30 bid
Amblakande	18	ch	pek	1620	26 bid
Ingoya, Inv. No. 6	*38*	*ch*	*young hyson*	*3800*	*36 bid*
	34	*do*	*hyson*	*3060*	*32 bid*
	27	*do*	*hyson No. 2*	*2241*	*30 bid*
Yataderia, Invoice No. 26	25	hf ch	dust	2125	25
	30	ch	or pek fans	2850	25
Poonagalla	15	ch	or pek	1440	39
	47	do	bro pek	5405	50 bid
	26	do	pek	2600	36
	24	hf ch	fans	2040	27
	20	ch	or pek	1920	40
	37	do	bro pek	4255	56
	33	do	pek	3135	39
O B E C, in estate mark, Summerhill	35	ch	bro or pek	2100	61
	14	do	or pek	1274	48
	20	do	bro pek	1280	44
Meddetenne	32	ch	bro or pek	3392	28 bid
	25	do	or pek	2275	28 bid
	43	do	pek	4085	26
Glaslyn	19	hf ch	bro or pek	1045	53
	22	do	bro pek	1210	45
Waldermar	22	do	bro or pek	1408	53
	26	ch	or pek	2193	38
	24	do	bro pek	2760	37
	13	do	pek	1196	34
	20	hf ch	fans	1680	26

	Pkgs.		Name.	lb.	c.
Marlborough	20	do	bro or pek	1000	66
	12	ch	or pek	1020	36
	23	do	bro pek	2300	35
	26	do	pek	2080	31
	14	do	pek sou	1204	31
Udaveria	31	hf ch	bro or pek	1860	50
	53	do	bro or pek No 1	3180	35 bid
	23	ch	or pek	2116	36
	16	do	pek	1360	31 bid
Ireby	44	hf ch	bro pek	2640	41
	23	ch	pek	1955	32
elverton	15	do	pek	1395	29
Chais	60	hf ch	bro or pek	3300	35 bid
	25	ch	or pek	2125	31 bid
	60	do	pek	5100	28 bid
Carlabeck	11	ch	pek sou	1100	29
	12	do	bro pek fans	1584	23
Weyungawatte	24	ch	bro pek	2400	28
	25	do	pek	2125	24
	21	do	pek sou	1680	22
Mawiligangawatte	26	ch	bro pek	2496	27
	19	do	pek sou	1425	22
Tembiligalla	10	do	bro or pek	1060	28
	12	do	or pek	1080	28
	13	do	pek	1170	25
Vogan	28	ch	bro or pek	2660	42 bid
	34	do	or pek	3060	33
	39	do	pek	3510	28
	16	do	pek sou	1360	25
Woodend	32	ch	bro pek	3136	30
	49	do	pek	4312	25
	15	do	pek sou	1200	21
I K V	10	do	pek fans	1200	27
Middleton, Invoice No. 24	20	hf ch	bro or pek	1100	63
	14	ch	or pek	1190	30 bid
	11	do	bro pek	1100	31 bid
	13	do	pek	1040	28 bid
Tymawr, Inv. No. 15	20	hf ch	or pek	1100	36
	17	do	bro or pek	1020	55
	24	do	pek	1200	31
Deaculla, Invoice No. 22	49	hf ch	bro pek	2695	31 bid
	49	do	pek	3430	28 bid
Gonapitiya, Invoice No 16	35	hf ch	or pek	1820	47
	40	do	bro pek	2480	48
	45	do	pek	2295	36
Anningkande, Inv. No. 7	22	ch	bro or pek	2200	29
	23	do	bro or pek	2300	28
	13	do	or pek	1235	30
	13	do	pek	1170	28
Kirklees	50	hf ch	bro or pek	3000	46
	40	do	or pek	3300	39
	31	do	pek	2790	34
	12	do	pek fans	1440	28
Clunes	16	ch	bro pek	1600	29
	17	do	pek	1530	24
	19	do	pek sou	1710	21
	11	do	bro pek fans	1232	22
Inverness	22	ch	bro or pek	2200	39
	34	do	or pek	3060	44
	26	do	pek	2210	34
Hanwella	*17*	*ch*	*young hyson*	*1703*	*31*
	15	*do*	*hyson*	*1500*	*30*
Ganapalla	29	ch	bro or pek	2900	29
	23	do	or pek	1978	32
	42	do	pek	3150	25
Bellongalla	18	ch	bro pek	1800	27
	19	do	pek	1710	24
Elfindale	26	ch	dust	2600	26
Parsloes	55	ch	bro pek	5500	30
	46	do	pek	4140	28
	24	do	pek sou	1920	24
Parsloes	58	ch	bro pek	5797	29
	43	do	pek	3867	26
	21	do	pek sou	1677	24
Tempo	16	ch	pek	1360	26
K T P W	23	hf ch	bro or pek	1380	29
	20	do	bro pek	1000	27
	36	do	pek	1800	24
	20	do	pek sou	1000	22
Waitalawa	43	hf ch	bro pek	2150	45
	46	do	pek	2300	32
	32	do	pek sou	1600	28
Edisham	11	ch	pek	1100	29 bid
Bowlana	22	hf ch	bro or pek	1386	60
	16	ch	pek	1520	4
	16	do	or pek	1600	41
D in est mark	23	ch	sou	1235	20

	Pkgs.		Name.	lb.	c.
T C L in est mark	14	ch	sou	1330	20
Langridge	18	ch	bro or pek	1800	33 bid
B W	11	cb	dust	1058	25
Koskellie	20	ch	or pek	2000	37
	21	do	pek	1995	34
	33	do	pek No. 2	3135	29
	12	do	pek sou	1080	30
Madulkelle	11	ch	bro or pek	1100	45
	11	do	bro pek	1100	36
	14	do	or pek	1120	36
	15	do	pek	1200	30
Pungetty	27	ch	bro pek	3321	43
	20	do	pek	2050	37 bid
	12	do	pek sou	1140	35
Gampaha	64	hf cb	bro or pek	3840	33
	65	cb	or pek	6240	35
	44	do	pek	3740	32
	28	do	pek sou	2520	30
Lucky Land	40	hf cb	bro or pek	2400	34
	20	ch	or pek	1920	36
	25	do	pek	2125	33
	15	do	pek sou	1350	31
Cros Hill	27	ch	sou	2160	out
Castlereagh	47	hf cb	bro or pek	2350	50
	16	ch	or pek	1280	30 bid
	13	do	pek	1040	26 bid
	15	hf ch	fans	1125	27
P R M	24	hf ch	pek sou	1320	20
	20	do	dust	2000	22
Graston	12	ch	fans	1320	16
Freds Ruhe	25	cb	bro pek	2500	27
	22	do	pek	2090	25
W A	17	ch	pek sou	1615	19
Robgill	20	hf ch	bro or pek	1000	68
	28	ch	bro pek	2520	44
	24	do	pek	1920	37
Penrhos	18	hf ch	bro or pek	1008	49
	21	do	bro pek	1260	32
	28	do	or pek	1400	37
	32	ch	pek	2720	30
	13	do	pek sou	1040	24
W K	22	hf cb	fans	1650	22 bid
Glendon	16	ch	bro pek	1680	41 bid
	47	do	or pek	4700	29
	52	do	pek	4420	26
	12	do	pek sou	1080	24
Nahalma	28	ch	bro pek	3080	23 bid
	13	do	bro or pek	1495	22 bid
	24	do	pek	2280	23
	18	do	pek sou	1620	17 bid
Talgaswela	15	ch	bro or pek	1500	33
	20	do	or pek	1600	29
	23	do	pek	1840	25
	23	do	pek sou	1725	21
Pine Hill	26	hf cb	bro or pek	1560	40
	22	cb	or pek	2090	34 bid
	23	do	pek	2070	28 bid
Bandara Eliya	45	hf cb	or pek	2025	39
	74	do	bro or pek	4440	35 bid
	53	do	pek	2544	33
Udapolla	12	ch	bro pek	1200	26
	16	do	pek	1440	24
Swinton	20	ch	or pek	2000	27 bid
Templestowe	35	hf cb	or pek	1610	36 bid
El Teb	32	hf ch	bro or pek	1888	45
	31	ch	or pek	3100	31 bid
	28	hf cb	bro pek	2072	27 bid
	40	ch	pek	3800	29 bid
Parslocs	22	ch	bro pek	2200	31
	14	do	pek	1260	29
	14	do	pek sou	1120	24
F in est mark	11	ch	fans	1161	13
Battawatte	58	ch	bro pek	6380	30 bid
	25	hf ch	bro or pek	1625	28
	56	ch	pek	5320	32
	24	do	pek sou	2160	24
Pallagodde	20	cb	bro or pek	2000	29
	35	do	bro pek	3500	30
	28	do	or pek	2380	26
	20	do	pek	1600	24
	19	do	pek sou	1615	24
	27	do	sou	2160	17 bid
	31	hf cb	dust	2635	23
High Forest	46	hf ch	bro or pek	3330	31
	71	do	or pek No. 1	4260	46
	54	do	or pek	2970	39
	48	do	pek	2304	35 bid
Maha Uva	25	hf cb	bro or pek	1625	33
	23	cb	or pek	2300	37
	15	do	pek	1350	35
Battawatte	48	ch	bro pek	5280	28 bid
	20	hf ch	bro or pek	1300	23
	41	ch	pek	4180	28
	19	do	pek sou	1710	23
Dunkeld	27	hf ch	bro or pek	1620	47
	12	ch	or pek	1080	36
	12	do	pek	1080	33

	Pkgs.		Name.	lb.	c.
High Forest	79	hf ch	or pek No 1	4661	45 bid
	64	do	or pek	3456	39 bid
	51	do	pek	2538	34 bid
Battawatte	53	ch	bro pek	5830	30 bid
	24	hf ch	bro or pek	1560	28
	50	cb	pek	4750	30
	22	do	pek sou	1980	24
Polatagama	32	ch	bro or pek	3200	31
	33	do	bro pek	3135	30
	47	do	pek	4230	27
	31	do	pek No. 2	2790	24
Dromoland	33	hf ch	bro or pek No 2	1647	30
El Teb	20	cb	bro pek	2637	27
T	14	cb	pek fans	1694	22 bid
M G	36	hf ch	pek fans	2196	24 bid
Malvern	29	hf cb	bro pek	1595	30
	41	do	pek	2870	23 bid
	19	do	pek sou	1330	21 bid
S N	38	cb	bro pek	3797	24 bid

Messrs. Somerville & Co.

[274,508 lb.]

	Pkgs.		Name.	lb.	c.
B A	16	hf ch	pek fans	1040	23 bid
Dryburgh	16	ch	or pek	1600	30 bid
Owilikande	21	ch	bro pek	2100	26 bid
	16	do	pek	1520	24
Avisawella	25	hf ch	bro or pek	1250	33
	20	ch	or pek	1900	31
	22	do	pek	1870	26
	15	do	pek sou	1200	21
Polgahakande	15	cb	bro pek	1500	28
	21	do	pek	1575	26
	15	do	pek sou	1200	20
Nellicollaywatte	27	hf cb	bro pek	1620	29 bid
	17	do	bro or pek	1020	37
	14	ch	pek	1288	29
Pindeni Oya	15	ch	pek	1200	26
	26	do	pek sou	2080	21
	22	do	pek fans	2090	23 bid
Kurulugalla	10	ch	bro or pek	1000	23
	12	do	or pek	1080	27
	18	do	pek	1620	22 bid
St. Katherine	20	hf ch	bro or pek	1003	33
	16	ch	pek	1363	28
Bollagalla	56	ch	br pek	5600	28 bid
	52	do	pek	4160	24 bid
Warakamure	31	cb	bro pek	3100	26 bid
	23	do	pek	2070	22 bid
	14	do	pek sou	1120	19
Park Hill	19	ch	bro pek	1995	27
Carney	23	hf ch	bro pek	1150	27
	27	do	pek	1215	25
	24	do	pek sou	1200	20
Kallebokka	24	ch	bro or pek	2400	50
	39	do	bro pek	3900	32 bid
	32	ch	pek	2720	33
Hanagama	23	ch	or pek	2300	25
	18	do	pek	1800	25
	16	do	pek sou	1440	21
S L G	18	hf ch	fans	1260	
	12	do	dust	1128	withd'n
Citrus	26	ch	br pek	2600	24
	27	do	pek	2700	22
	14	do	br pek	1400	22
	15	do	pek	1380	23
Depedene	80	hf ch	bro pek	4800	26
	59	do	pek	2950	24
	75	do	pek sou	3750	18
Hatdowa	12	ch	bro or pek	1200	26
	13	do	bro pek	1300	25
	13	do	pek	1235	25
	19	do	pek sou	1615	21
Dover	30	hf ch	bro or pek	1650	33
	30	ch	or pek	2700	31
	30	do	pek	2500	27
	30	do	pek sou	2100	23
Horagalla K V	20	hf ch	br or pek	1100	33
	12	ch	or pek	1080	31
	13	do	pek	1105	27
	15	do	pek sou	1050	21
Ingeriya	18	ch	bro pek	1800	29
Agra Tenne	21	ch	bro pek	2100	45
	20	do	pek	1800	39
Oolapane	18	hf ch	dust	1440	23
R M R	25	ch	bro pek	2500	26
C G P	11	ch	bro pek	1100	27
Hopewell	25	ch	bro or pek	2750	34
	27	do	or pek	2700	32
	36	do	pek	3240	28
	25	do	pek sou	2000	25
Cooroondoowatte	17	ch	bro pek	1700	30
	11	do	pek	1100	27
	26	do	pek sou	2600	20

	Pkgs.	Name.	lb.	c.
Deniyaya	12 ch	or pek	1140	34
	18 do	bro or pek	1800	32
	20 do	pek	1800	27
	26 do	pek sou	2340	24
	17 do	sou	1520	20
Marigold	22 hf ch	bro pek faus	1364	32
	14 do	pekoe dust	1064	28
Allakollawewa	15 hf ch	dust	1140	27
Monte Christo	25 ch	bro pek	2500	42 bid
Rayigam	17 hf ch	bro or pek	1020	36
	14 ch	or pek	1330	31
	12 do	bro pek	1030	28
	25 do	pek	2000	26
	21 do	pek sou	1995	24
Laukka	25 ch	bro pek	2500	28
	25 ch	pek	2250	26
W K P	38 ch	br pek	3990	33
	27 do	or pek	2430	30
	73 do	pek	5840	26
	26 do	pek sou	1950	21
Neboda	15 ch	bro or pek	1500	39 bid
	23 do	or pek	2139	32 bid
	30 do	pek	3000	27
	13 do	pek sou	1235	24
Watumulla	31 hf ch	br pek	1860	31
	19 ch	pek	1710	29
Laxapanagalla	17 ch	bro or pek	1700	30 bid
Hobart	24 hf ch	bro pek	1248	27
	20 ch	pek	1600	24
Murraythwatte	21 ch	br pek	2100	33
	15 do	pek	1200	27
Warakamure	24 ch	br pek	2400	27 bid
	19 do	pek	1710	20 bid
Farnham	25 hf ch	bro pek	1400	30
	17 ch	or pek	1411	27 bid
Old Maddegama	15 ch	bro or pek	1125	49
Oonankande	25 hf ch	bro pek	1250	30
	36 do	pek	1980	27
New Angamana	34 ch	bro pek	3230	29 bid
Florida	23 ch	br pek	2392	23
Kurunegalla	19 hf ch	bro or pek	1140	28
	13 ch	pek	1105	25
Ahamed	26 hf ch	br pek	1300	20
Theberton	13 ch	bro pek	1170	31 bid
	18 do	pek	1530	28
St. Andrews K	29 hf ch	bro pek	1740	26 bid
S N	20 hf ch	bro mixed	1120	9 bid

Messrs. E. John & Co.

[281,997 lb.]

	Pkgs.	Name.	lb.	c.
Elston	30 ch	pek	2400	30
	36 do	pek sou	2700	25
Dickapitiya	32 hf ch	bro or pek	1760	28
	36 ch	bro pek	2600	28
	48 do	pek	4800	27
Kadienlena	37 do	bro or pek fans	2775	26 bid
Balado	24 do	pek	2250	26
	17 do	pek sou	1360	23
	14 hf ch	dust	1120	25
Elemane	36 ch	bro pek	3600	33
	34 do	pek	3060	31
Mocha	22 do	bro or pek	2200	58
	14 do	or pek	1260	44
	42 do	pek	3990	37
	20 do	pek sou	1 00	35
	14 do	fans	1190	28
	15 do	dust	1500	25
Eila	47 do	bro pek	4230	28
	17 do	pek sou	1·90	20
Templestowe	34 hf ch	bro or pek	1904	45
	18 do	bro pek	1044	37
	33 do	or pek	1518	40
	28 ch	pek	2464	34
	16 hf ch	fans	1040	30
Glentilt	37 do	bro or pek	2035	61
	22 ch	or pek	1980	42
	21 do	pek	1890	35
Eila	34 do	bro pek	3060	28
	89 do	pek No. 2	6675	24 bid
Doonbinde	23 do	bro pek	2300	33 bid
	33 do	pek	3300	31
Cabin Ella	32 hf ch	bro or pek	1920	39
	14 ch	bro pek	1330	37
	20 do	pek	1700	34
M L W	22 do	bro pek	2090	28 bid
Bowella	15 do	bro or pek	1500	27 bid
	22 do	or pek	2090	25 bid
	19 do	pek sou	1520	22
	15 hf ch	dust	1200	25
St John's	34 do	bro or pek	1972	51 bid
	23 do	bro pek	1258	33
	24 ch	pek	2180	39 bid
	12 do	pek sou	1020	29 bid
	15 hf ch	dust	1290	27 bid
Nahavilla	24 ch	or pek	2157	34
	43 do	bro pek	4297	35
	19 do	pek	1707	30
	16 do	pek sou	1277	23 bid
Ottery	18 do	flow or pek	1620	32 bid
	19 do	bro or pek	1900	36 bid
	17 do	or pek	1360	28 bid
	30 do	pek	2700	24 bid
	19 do	pek sou	1520	21 bid
Gonavy	29 hf ch	bro or pek	1595	44
	23 ch	or pek	2070	32 bid
Rondura	16 do	bro pek	1600	28
	21 do	or pek	1785	30
	20 do	pek No. 1	1700	25
Callander	20 hf ch	bro or pek	1100	43 bid
	34 do	or pek	1870	37
	30 do	pek	1500	31 bid
Glasgow	24 do	bro or pek	1320	64
	19 ch	bro pek	1900	46
	24 do	or pek	2232	34 bid
	10 do	pek	1000	36
Rondura	17 do	bro pek	1700	28
	14 do	or pek	1190	30
	25 do	pek No. 1	2150	25
Agra Ouvah	37 hf ch	bro or pek	2220	58
	26 do	or pek	1404	39
Gingranoya	11 ch	bro or pek	1100	39 bid
	14 do	or pek	1190	32 bid
Tismoda	11 do	bro pek	1100	29
Penrith	28 do	bro pek	2800	28
	25 do	pek	2250	26
Galloola	40 do	bro pek	4000	32 bid
	55 do	pek	4950	30
	44 do	pek sou	3520	27
Myraganga	22 do	or pek	1980	31
Mt. Vernon	41 do	pek	3485	34 bid
Amherst	15 hf ch	dust	1275	27
Rookwood	*61 ch*	*young hyson*	*6283*	*withd'n*
	31 do	*hyson*	*2790*	
Rookwood	37 ch	bro or pek	3996	29 bid
	31 do	or pek	2976	27 bid
	42 do	pek	3364	23 bid
Bowella	36 do	pek	3060	24
Y K	7 do	dust	1050	19 bid
Rookwood	*31 ch*	*young hyson*	*3193*	*32 bid*
	30 do	*hyson*	*2700*	*32*
Ratwatte	32 ch	bro pek	3200	30
	17 do	pek	1530	28
Glassaugh	43 hf ch	or pek	2408	64
	29 do	bro or pek	1914	62
	18 ch	pek	1854	45
Brownlow	20 hf ch	bro or pek	1040	61
	17 ch	or pek	1513	36
	18 do	pek	1638	33
M	20 hf ch	dust	1700	20
Rookwood	*49 hf-ch*	*young hyson*	*2744*	*33 bid*
	25 ch	*hyson*	*2250*	*32 bid*
Wattagalla	27 ch	bro pek	2835	31
	22 hf ch	or pek	1100	37
	25 ch	pek	2520	31
	41 do	pek sou	3280	25
Ben Nevis	31 hf ch	bro pek	1860	37
	22 do	or pek	1056	42 bid
	22 ch	pek	1980	30
Heatherly	*59 ch*	*young hyson*	*5782*	
	47 do	*hyson*	*4324*	*withd'n*
	16 do	*hyson No. 2*	*1408*	

Messrs. Keell and Waldock.

[54,645 lb.]

	Pkgs.	Name.	lb.	c.
Rock Cave	12 ch	bro pek	1200	25 bid
	27 do	pek	2295	23
Cumbawella	11 ch	bro pek	1045	26 bid
	13 do	pek	1170	23 bid
Dunnottar	17 ch	bro pek	1700	33 bid
	14 do	pek	1190	31 bid
Hangranoya	24 ch	bro pek	2250	25 bid
	20 do	pek	1700	26
Waduhena	21 ch	bro or pek	2100	32 bid
	45 hf ch	pek	2250	29 bid
	19 ch	pek sou	17 0	25 bid
Brecon	17 hf ch	bro or pek	1020	36
	32 do	or pek	1845	33
	22 do	pek	1100	28 bid
Taprobana	16 ch	pek	1260	23 bid
G	11 ch	pek fans	15 7	20 bid
D	10 ch	pek fans	1570	20 bid
Aigburth	31 ch	bro pek	3100	30
	12 do	pek	1080	28
	13 do	pek sou	1040	21
Malsa	18 ch	pek	1530	23 bid
Kinchin	12 ch	or pek	1020	28 bid
	15 do	pek	1350	24 bid

SMALL LOTS

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgal'a	11 hf ch	dust	825	27
Hapugastenne, Inv. No 17	14 hf ch	fans	840	27
	2 do	dust	160	25

Messrs. Forbes & Walker

	Pkgs.	Name.	lb.	c.
F F, in est mark,	6 hf ch	pek	300	18
	5 do	pek sou	200	18
	5 do	fans	250	18
Avoca	7 ch	pek sou	672	28
N	6 ch	sou	600	17
	3 do	bro tea	300	10
P R S	4 hf ch	dust	360	22
	1 do	pek sou	60	20
Chrystler's Farm	1 do	dust	80	26
Rickarton	8 hf ch			
	1 box	pek sou	449	24
	8 hf ch	bro pek fans	640	27
	7 do	dust	606	25
Baddegama	4 ch	bro pek	400	27
	5 do	pek	425	26
	5 do	pek sou	400	25
	4 do	fans	480	25
Moray	6 hf ch	dust	510	27
	4 do	bro fans	260	28
Mahayaya	4 ch	or pek	360	32
	9 do	pek	828	28
	3 do	pek sou	294	20
	1 do	fans	102	22
	1 do	dust	147	23
Wyamita	6 ch	bro pek	600	29
	8 do	pek	760	28
	7 do	pek sou	595	24
F F, in est. mark	2 ch	bro pek	170	23
Broughton	7 ch	pek No. 1	686	33
	7 do	pek sou	595	30
	3 do	dsut	390	27
Maldeniya	2 ch	dust	260	21
Amblakande	3 ch	bro or pek	300	28
	4 do	bro pek	400	34
	5 do	pek sou	400	23
	2 do	dust	200	24
Ingoya, Inv. No 6	*9 ch*	*fans*	*900*	*13*
Poonagalla	6 ch	pek sou	570	31
Ambanpitiya	2 ch	bro tea	178	17
	3 do	dust	390	16
Pansalatenne	6 ch	bro pek fans	750	24
Ardlaw and Wishford	8 ch	bro or pek	840	70
	6 do	bro pek No 1	630	44
	5 do	bro pek No 2	475	39
	7 do	or pek	616	39
	9 do	pek	756	38
	2 do	fans	248	30
Glenorchy	10 hf ch	bro pek	600	61
	10 ch	pek	950	42
	2 do	pek sou	180	33
Meddetenne	10 ch	bro pek fans	830	20 bid
Glaslyn	3 ch	pek	285	35
	1 do	pek sou	95	33
	3 do	fans	240	27
Udaveria	9 hf ch	bro or pek fans	630	30
	5 do	fans	400	27
Cholankande	12 ch	or pek	960	27
Moray	15 hf ch	or pek	690	37
Uva	4 do	dust	320	24
North Cove	9 do	bro pek	540	33
Nynangodde	4 hf ch	dust	360	18
	6 do	bro or pek fans	450	21
Pingarawa	8 hf ch	dust	720	24
Weyungawatte	1 ch	sou	85	17
	3 hf ch	dust	240	24
Mawiligangawatte	7 ch	dust	749	24
Digdola	15 hf ch	bro pek	750	35
	18 do	or pek	720	28
	10 ch	pek	800	25
	2 hf ch	dust	160	24
Vegan	4 ch	pek fans	500	24
	7 hf ch	dust	560	21
Digdola	3 ch	bro pek	300	28
	1 do	or pek	80	24
I K V	3 ch	sou	300	14 bid
Handford	8 ch	pek sou	720	20
	1 do	bro or pek fans	115	26
	1 do	pek fans	95	21
	2 do	dust	230	22
Deaculla, Invoice No. 22	8 hf ch	dust	640	26
Ookoowatta	1 ch	pek sou	80	18
	2 do	pek fans	240	22
B D W P, Inv. No 10	4 ch	bro pek fans	40	30

	Pkgs.	Name.	lb.	c.
Agrapatya	2 ch	bro pek	200	27
	2 hf ch	dust	190	23
	4 do	fans	300	26
	3 do	bro mix	150	23
Gonapitiya, Invoice No. 16	16 hf ch	pek sou	784	33
Clunes	10 ch	or pek	900	29
	2 do	or pek No 2	180	30
	2 do	pek No 2	180	22
	4 do	dust	600	22
Hanwella	*1 ch*	*hyson No 2*	*105*	*28*
	3 hf ch	*hyson dust*	*252*	*10*
Ganapalla	9 ch	dust	765	21
	5 do	bro pek fans	550	26
Bellongalla	12 ch	pek sou	950	18 bid
	4 do	fans No 1	480	24
	2 do	dust	320	21
Horagaskelle	8 hf ch	bro pek	512	30
	6 do	pek	324	23
	10 do	pek sou	592	21
	1 do	bro mix	68	16
Elfindale	5 ch	pek sou	475	12
	11 do	fans	990	13
	9 do	bro or fans	900	16 bid
Parsloes	3 hf ch	dust	270	20
Tempo	8 ch	bro pek	800	36
	9 do	or pek	792	32
	4 do	pek sou	300	23
	1 do	bro pek fans	90	30
	3 do	dust	360	22
A G	1 ch	bro pek	96	32
	2 do	or pek	170	31
	4 do	pek	340	26
K P W	11 hf ch	or pek	550	27
	3 do	pek fans	225	23
	2 do	dust	180	21
Bowlana	6 ch	pek sou	540	32
	5 hf ch	fans	350	28
	4 do	dust	340	27
D in est mark	1 ch	bro mixed	89	23
K H L	2 ch	fans	260	24
	2 do			
	1 hf ch	dust	376	21
K D W	7 ch	bro pek	700	30
	6 do	pek	540	24
	2 do	pek sou	160	21
	1 hf ch	dust	50	21
T C L in est mark	4 hf ch	bro pek dust	320	23
	2 do	pek dust	160	24
Koskelle	16 hf ch	bro pek	960	49
Uva	3 hf ch	dust	240	25
Madulkelle	1 ch	fans	105	27
Pungetty	2 hf ch	unassorted	156	28
	2 do	dust	156	26
S	8 hf ch	dust	760	30
Gampaha	6 hf ch	pek fans	540	24
Luckyland	4 hf ch	pek fans	360	27
Ingurugalla	7 ch	bro tea	595	27
Kirrimettia	2 ch	congou	180	19
	4 hf ch	fans	280	23
	2 do	dust	170	22
Robgill	8 ch	pek sou	720	37
	13 hf ch	bro or pek fans	910	31
	8 ch	dust	640	28
Penrhos	3 hf ch	fans	222	26
	2 do	pek dust	164	22
Glendon	13 ch	bro pek fans	884	26
	5 do	dust	425	22
Nahalma	7 hf ch	dust	560	22
Talgaswela	6 hf ch	dust	510	23
Kennington	4 ch	bro tea	357	15
	2 do	bro tea	185	14
Udapolla	5 ch	pek sou	480	28
	2 hf ch	dust	160	24
	1 ch	bro pek	100	27
	1 hf ch	pek	36	25
El Teb	10 ch	pek sou	900	24
	12 hf ch	dust	996	26
Parsloes	2 hf ch	dust	180	22
J P in est mark	6 ch	sou	600	19
	5 hf ch	dust	425	24
Wilpita	3 ch	bro pek fans	357	17
Battawatte	4 ch	dust	400	25
Maha Uva	9 hf ch	dust	765	27
Battawatte	4 ch	dust	400	26
	4 do	dust	400	25
Polatagama	5 ch	fans	500	21
	2 do	dust	300	21
R	2 ch	or pek	182	30
Malvern	12 hf ch	dust	960	25

Messrs. E. John & Co.

	Pkgs.	Name.	lb.	c.
A W D	1 ch	bro pek	118	30
	1 do	pek	112	18
	1 do	pek sou	112	14
	1 do	fans	100	10

	Pkgs.		Name.	lb.	c.
Dickapitiya	6	do	pek sou	600	20
	6	hf ch	dust	480	20
	7	do	fans	490	26
	1	ch	sou	85	14
Elemane	10	do	pek sou	900	25
	3	do	fans	300	26
Mocha	2	do	bro tea	186	28
Doonhinde	9	do	pek sou	900	24 bid
	3	do	dust	330	24
	1	do			
	1	hf ch	fans	163	23
Cabin Ella	4	do	pek fans	280	27
	2	do	pek dust	180	25
M L W	7	ch	pek	595	24
	6	do	pek sou	420	21
Bowella	1	do	fans	100	23
Ottery	12	hf ch	dust	960	25
Gonavy	12	ch	bro or pek No. 2	720	32
	10	do	pek No 2	850	26 bid
	13	hf ch	fans	845	29
	4	do	dust	340	24
Rondura	6	ch	bro or pek	690	26
	8	do	pek No. 2	720	20
	2	do	dust	330	22
Callander	9	hf ch	bro pek fans	675	28
Rondura	7	ch	bro or pek	805	26
	10	do	pek No. 2	900	19
	3	do	dust	495	22
Agra Ouvah	7	do	pek	630	38
Tismoda	7	do	pek	630	25
	1	do	pek sou	90	19
Penrith	3	do	pek sou	270	19
	2	hf ch	fans	140	22
	3	do	dust	255	21
Galloola	1	ch	dust	100	26
	1	do	fans	100	28
Amherst	5	hf ch	fans	350	29
Anamallai	2	do	dust	170	20
Cabin Ella	1	do	pek dust	90	30
M	8	do	bro pek	800	25 bid
Rookwood	*6*	*ch*	*hyson No. 1*	*510*	*withd'n*
	6	*hf-ch*	*siftings*	*450*	
Bowella	9	ch	pek sou	720	31
	8	do	sou	600	18
Y K	11	do	sou	660	15
	5	do	pek fans	500	23
Rookwood	*8*	*ch*	*hyson No. 1*	*680*	*30*
	4	*hf-ch*	*siftings*	*300*	*11*
Ratwatte	3	ch	pek sou	240	18
	3	do	dust	240	23
Glassaugh	9	do	pek sou	900	41
	8	do	fans	608	32
Brownlow	10	hf ch	bro pek fans	710	27
M	7	do	pek fans	490	27
Rookwood	*6*	*ch*	*hyson No. 1*	*510*	*30*
	4	*hf-ch*	*siftings*	*300*	*11*
Wattagalla	6	hf ch	dust	540	26
Ben Nevis	10	ch	pek sou	900	24
	4	hf ch	dust	330	25
Bambaragalla	4	do	bro or pek	232	39
	6	do	or pek	300	28
	8	do	pek	400	24
	5	do	pek sou	225	22
	1	do	dust	93	24
Heatherly	*3*	*ch*	*siftings*	*492*	*withd'n*
Yapame	4	ch	dust	380	25
	3	do	fans	285	26
Kehelwatte	3	do	fans	330	26
	6	do	dust	510	25
	1	do	fans	110	27
	5	do	dust	425	26

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Atherton	3	hf ch	fans	210	23
	3	do	dust	240	25
Ferriby	4	ch	sou	360	17
	8	hf ch	dust	600	22
B A	8	hf ch	dust	720	25
	2	ch	bro tea	190	12
Wavena	1	hf-ch	bro pek	66	26
	1	box	pekoe	29	22
	2	ch	pek sou	151	25
	5	hf ch	fans	359	26
	3	do	dust	250	24
Salawa	10	ch	pek sou	900	18
	7	do	unast	700	15
	2	do	dust	264	18
Owilikande	11	ch	pek sou	990	21
	2	hf ch	bro pek fans	140	26
	1	do	dust	80	24
Avisawella	6	hf ch	dust	450	25

	Pkgs.		Name.	lb.	c.
Nellicollaywatte	7	ch	pek sou	567	24
	1	hf ch	dust	85	26
	1	do	fans	74	26
Pindeni Oya	5	ch	or pek	450	29
Kurulugalla	5	ch	pek sou	450	18
	1	do	or pek fans	95	14
	3	do	or pek dust	390	22
St Catherine	10	hf ch	or pek	503	30
	3	ch	bro pek fans	303	25
Bollagalla	13	hf ch	fans	910	24
Warakamure	1	hf ch	dust	90	22
Park Hill	4	ch	pek	360	27
	10	do	or pek	900	32
	10	do	pek sou	840	24
	2	do	souchong	162	18
	3	hf ch	dust	240	24
Carney	3	hf ch	bro pekoe fans	150	18
	3	do	sou	150	16
	3	do	dust	150	21
	2	do	pek fans	100	16
Kerenvilla	7	ch	bro pek	700	23
	9	do	pekoe	900	19
	3	do	pek sou	300	16
	3	do	pekoe fans	300	13
Kallebokka	2	ch	pek sou	210	24
	2	hf ch	dust	160	24
H J S	15	hf ch	bro pek	900	22
	9	do	pekoe	540	22
Hanagama	14	hf ch	bro or pek	840	33
	2	do	fans	190	15
	4	do	dust	320	17
Citrus	6	ch	pek sou	586	19
	7	do	fans	692	15
	4	do	dust	591	18
	1	do	pek sou	90	19
	1	do	fans	112	15
Depedene	6	hf ch	bro pek fans	420	19
	5	do	dust	400	18
Hatdowa	1	ch	fans	100	23
	10	hf ch	dust	800	24
Augusta	8	ch	fans	960	23 bid
Donside	10	hf ch	dust	850	18
Ravana	14	hf ch	bro or pekoe	840	28
	17	do	bro pek	850	27
	20	do	pek	900	25
	6	do	pek sou	240	21
P D in est mark	2	hf ch	dust	170	20
Ingeriya	11	ch	pek	990	28
	8	do	pek sou	720	24
	2	hf ch	dust	140	26
Agra Tenne	6	ch	pek sou	540	32
	3	hf ch	dust	255	25
Oodapane	9	hf ch	fans	620	26
R M R	4	ch	pek	400	22
	3	do	pek sou	240	22
	5	hf ch	bro pek fans	475	17
C G P	3	ch	pek	285	22
Hopewell	15	hf ch	fans	975	25
M	6	ch	broken pekoe	570	28
	5	do	pek	440	25
	2	do	bro or pek	210	25
	1	do	pekoe souchong	85	16
	1	hf ch	bro pek fans	80	22
Deniyaya	7	ch	or pek fans	760	24
Allacollawewa	13	hf ch	bro pek fans	806	32
Rayigam	8	hf ch	fans	430	28
	7	do	dust	560	25
Laukka	4	ch	pek sou	360	22
	9	hf ch	dust	675	22
W K P	7	ch	souchong	532	18
	9	hf ch	dust	719	23
Neboda	3	hf ch	dust	360	21
Watumulla	4	ch	pekoe souchong	480	22
	3	hf ch	dust	240	24
Laxapanagalla	8	ch	orange pekoe	800	26 bid
	3	do	pekoe	270	24
	1	do	pek fans	100	23
	1	do	dust	100	22
Warakamure	10	ch	pekoe souchong	800	19
	1	hf ch	dust	90	21
Farnham	7	ch	pek	651	29
	10	do	pekoe souchong	820	24
Old Maddegama	10	ch	or pek	760	38
	7	do	pek	525	35
	2	do	br or pek fans	190	32
Oouankande	9	hf ch	pekoe souchong	630	21
	8	do	dust	523	26
St. Leonards-on-Sea?		*hf ch*	*hyson No. 2*	*350*	*withd'n*
	2	*do*	*siftings*	*160*	
	2	*do*	*young hyson fans*	*140*	
	1	*do*	*young hyson No 2*	*56*	
Cooroondoowatte	3	ch	congou	300	14
Kurunegalla	16	hf ch	or pek	800	28
	7	ch	pek sou	560	20
	2	hf ch	dust	170	23

	Pkgs.		Name.	lb.	c.
Theberton	1	ch	bro pek fans	100	26
	1	do	fans	100	23
S R K	7	ch	pekoe	700	28
	3	do	bro pek fans	590	25
	3	do	dust	480	24
St Andrews K	16	hf ch	pekoe	880	21 bid
	3	do	pek sou	150	20
	3	do	dust	255	22
B	10	do	or pek	600	30
	18	do	pekoe	912	23
	5	do	dust	267	20
S N	7	ch	pek sou	720	14
G P F	11	bf ch	pek fans	913	out
	8	do	souchong	400	18

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Rock Cave	8	ch	pek sou	640	20
	1	do	dust	150	22
Cumbawella	9	ch	bro or pek	900	27 bid
	8	do	pek sou	720	19 bid
	3	do	pek fans	360	24
	1	do	dust	160	18 bid
Dunnottar	14	bf ch	bro or pek	770	47
	8	ch	pek sou	700	28 bid
	4	hf ch	bro or pek fans	300	27
Hangranoya	10	ch	bro or pek	950	42 bid
	24	do	bro pek	560	29 bid
W X	5	ch	pek	476	out
	4	do	pek sou	380	out
	2	do	pek fans	240	14 bid
Brecon	7	hf ch	pek sou	350	24
	2	do	dust	150	26
Kinford	4	ch	pek fans	440	out
Cairnton	6	ch	fans	780	out
Taprobana	17	hf ch	bro pek	935	32
	8	do	or pk fans	480	28
Pitoya	3	hf ch	dust	255	25
Aigburth	11	ch	pek fans	770	26
Kitulakand	14	bf ch	bro pek	840	26
	18	do	pek	900	18
	6	do	pek sou	270	12
	1	do	dust	73	15
	1	do	fans	47	10
H A	5	ch	bro pek	491	18 b d
	8	do	fans	793	13 bid
Malsa	9	ch	bro pek	900	28
	5	do	or pek	450	27 bid
	5	do	pek sou	400	20
	2	do	dust	244	22
Kinchin	13	hf ch	bro or pek	715	37
	15	do	br pek	900	33 bid
	2	do	dust	170	26

CEYLON COCOA SALES IN LONDON.

MINCING LANE, 11th July.

"Clan Ferguson."—*)K M A in estate mark, 60 bags sold at 53s.

"Glaucus."—Glen Urquhart, 44 bags sold at 66s.

"Diomea."—Dynevor A, 4 bags sold at 64s 6d.

CEYLON COFFEE SALES IN LONDON.

"Kamakura Maru."—Winchfield Park AA, 1 case sold at 3s 2d ; ditto AA Splits, 2 at 2s 9d ; ditto AA Splits 1, 1 at 2s 9d ; ditto 2, 1 at 2s 5d; Winchfield Park A, 2 cases sold at 2s 4d ; ditto A Splits, 4 at 1s 10d ; ditto A Splits 1, 4 at 1s 7d ; ditto 2, 2 at 1s 5d ; Winchfield Park B, 2 cases sold at 1s 4d ; ditto Splits, 2 at 1s 2d ; ditto B Splits 1, 4 at 1s 2d ; ditto B Splits 2, 2 at 1s 4d ; ditto Seeds, 2 at 1 9d ; Nawanagalla 3, 1 case sold at 1s 1d ; ditto 4, 1 at 1s 4d ; Nawanagalla 2 Splits 1, 10 cases sold at 1s 5d ; ditto 4, 1 at 1s 4d ; ditto 5, 2 at 1s 1d.

"Statesman."—Dehigolla 3, 5 cases sold at 1s 2d ; ditto Seeds, 1 at 1s 9d ; ditto 3, 6 at 1s 1d ; ditto 2 N, 13 at 1s 3d ; ditto 3 N, 5 at 1s 1d ; 3 at 1s 2d ; ditto Seeds N, 1 at 1s 9d ; ditto 2 D, 8 at 1s 3d ; ditto 3 D, 3 at 1s 2d ; 4 at 1s 1d ; Waitalawa 2, 20 cases sold at 1s 2d ; ditto 3, 12 at 1s 1d.

"Candia."—AL 1 Seeds 4 cases sold at 1s 9d.

"Kamakura Maru."—Delpotonoya, 3 cases sold at 2s 1d ; 3 at 2s 2d ; 4 at 1s 7d ; 4 at 1s 4d ; 3 at 1s 6d ; 2 at 1s 1d.

"Bohemia."—KM in estate mark, 3 cases sold at 1s ; 2 at 1s 6d.

"Yeoman."—KM in estate mark 1, 4 cases sold at 1s 4d ; ditto 2, 1 at 1s ; ditto B & S, 1 at 11d ; ditto Seed, 1 at 1s 2d ; Midlands O, 3 cases sold at 1s 9d ; ditto 4, 4 at 1s 5d ; ditto 2, 3 at 1s.

"Derbyshire."—Gallaheria, 4 cases sold at 1s 7d ; 2 bags sold at 1s.

"Yeoman."—OBEC in estate mark, Naranghena AAA, 4 cases sold at 1s 6d ; ditto A, 2 at 1s 2d ; 3 at 1s 1d ; ditto BB, 1 at 1s ; OBEC Dangkande in estate mark, 11 cases sold at 1s 10d ; 9 at 1s 3d.

No. 31. COLOMBO, AUGUST 11th, 1902. PRICE :—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[72,574 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	51 bf ch	hro pek	2805	47
	25 ch	pek	2000	35
	12 hf ch	dust	1020	26
Coo doogalla	63 do	hro pek	3150	27
	33 do	pek	1650	26
Battalgalla	18 ch	or pek	1710	36 hid
	19 do	pek	1615	33
Hapugastenne, Inv. No. 18	26 ch	hro or pek	2678	37
	43 do	or pek	3870	32
	25 do	pek	2250	29
	18 do	pek sou	1440	25
	21 hf ch	fans	1260	26
Bunyan and Ovoca	40 do	bro or pek	2400	66
	37 do	or pek	1850	39
	16 do	pek	1520	34
	13 do	pek No. 2	1235	28
	15 do	pek sou	1350	23
Hapugastenne, Inv. No. 19	33 ch	bro or pek	3399	39
	28 do	hro or pek	2881	34 bid
	37 do	or pk (steel acmes)	3700	34
	36 do	or pek	3237	26 hid
	31 do	pek (steel acmes)	3100	29
	19 do	pek sou (steel acmes)	1710	25
Mapitigama	15 ch	hro or pek	1575	35 bid
	22 do	or pek	1980	32
	18 do	pek	1350	24 bid
	10 do	fans	1050	22 hid
Hapugastenne	14 ch	dust No 2	2240	18 bid
Torrington	49 ch	or pek	4162	29
	52 do	pek	4157	25
	17 do	pek sou	1272	21

Messrs. Forbes & Walker.

[597,709 lb.]

	Pkgs.	Name.	lb.	c.
Ratwatte	*19 ch*	*young hyson*	*1995*	*17 bid*
	24 do	*hyson No. 1*	*2040*	*24*
Rockside	9 ch	bro pek fans	1080	25
Haputalewella	32 hf ch	hro pek	1760	37
	24 do	pek	1200	33
Havvaland	21 do	bro pek fans	1365	out
	39 ch	dust	3515	18
O B E C, in estate mark, Darrawella	38 hf ch	bro pek fans	2090	55
	29 ch	hro pek	3348	34
	22 do	or pek	1980	36
	69 do	pek	6348	31
Tonacombe	54 ch	or pek	4860	34
	56 do	hro pek	5600	40
	72 do	pek	6120	34
	17 do	pek sou	1360	27
	21 hf ch	dust	1785	25
Glengariff	18 do	hro or pek	1080	37
	24 ch	pek	2208	30
	12 do	or pek	1080	34 hid
	22 do	pek sou	7160	26
	17 hf ch	fans	1190	27
Torwood	20 ch	hro or pek	1760	31
	18 do	hro pek	1512	27
	23 do	or pek	1840	24
	25 do	pek	1950	22
	19 do	pek sou	1410	20
Dotala	23 hf ch	or pek	1035	42
	27 do	hro or pek	1620	47
	27 do	pek	2430	32
Choisy	54 do	hro or pek	2970	38
	26 ch	or pek	2210	32 hid
	47 do	pek	4230	28 hid
G K	26 ch	pek sou	1690	21
	14 hf ch	dust	1190	20
T	22 ch	pek sou	1958	18
	16 do	bro congou	1760	11
Pussella (Venesta packages)	9 ch	bro or pek	1008	29
	11 do	or pek	1210	23
Mansfield	57 hf ch	hro pek	3420	53
	11 ch	pek	1100	41
New Peradeniya	22 hf ch	dust	1760	23
Alloowihare	22 ch	hro or pek	2200	32 bid
	14 do	or pek	1120	31
	19 do	pek	1710	28
Moray	46 hf ch	hro or pek	2530	56
	74 ch	pek	6438	32
Roeherry J	34 ch	bro or pek	3400	55
	77 do	bro pek	7700	37
	83 do	pek	7636	35
	16 do	pek sou	1440	30
Roherry K	19 ch	hro or pek	1900	52
	68 do	bro pek	6800	35
	74 do	pek	6808	31
	26 do	pek sou	2340	29
	13 do	dust	1300	24
	21 do	fans	2100	26
Palmerston	18 hf ch	bro or pek	1044	74
	13 ch	pek	1079	46
Cholankande	15 ch	or pek	1200	28 hid
Macaldeniya	30 hf ch	bro pek	1800	43
	33 do	pek	1815	35
Sylvakandy, Invoice No. 22	10 ch	bro or pek No 1	1000	49
	23 do	hro or pek No 2	2300	40
	12 do	hro pek	1200	34
	12 do	or pek	1200	34
	16 do	pek	1520	31
Monterey	13 ch	pek sou	1170	19
	17 hf ch	dust	1360	24
Halbarawa	25 ch	pek sou	1875	16 bid
Dolahena	*20 hf ch*	*hyson*	*1000*	*26*
Poonagalla	17 ch	or pek	1632	44
	37 do	hro pek	4255	57
	27 do	pek	2592	41
Nugagalla	25 hf ch	hro pek	1250	45 hid
	68 do	pek	3400	27
Temhiligalla	11 ch	hro or pek	1100	30
	14 do	or pek	1288	30
Vogan	23 ch	hro or pek	2185	44
	30 do	or pek	2700	33
	42 do	pek	3780	28
	20 do	pek sou	1700	24
Harrow	17 hf ch	bro or pek	1020	65
	14 ch	or pek	1470	45
	23 do	pek	2300	35 hid
	10 do	pek sou	1000	31
Passara Group	13 ch	hro or pek	1300	53
	56 do	bro pek	5600	37
	42 do	pek	3780	33
Drayton	47 hf ch	or pek	2350	44
	29 ch	pek	2465	35
	16 do	pek sou	1250	31
Queensland	20 hf ch	bro or pek	1000	77
	20 ch	hro pek	2000	53
	12 do	pek	1020	45
Lyegrove	17 ch	hro pek	1785	31
	11 do	pek	1045	29
A G S	21 hf ch	dust	1890	22
O B E C, est. mark Newmarket	37 do	hro or pek	2072	60
	43 ch	hro pek	4601	34
	25 do	pek	2350	3
	11 do	pek sou	1012	
Putupaula	31 ch	hro or pek	3100	45
	109 do	or pek	9265	31
	86 ch	pek	6450	25 bid
	14 do	or pek fans	1610	29
Mahawale	18 ch	hro pek	1800	29 hid
	18 do	or pek	1800	27 hid
	30 do	pek	2850	24 hid
	30 do	pek sou	2755	21
Marlohrough	17 ch	bro pek	1700	40
	20 do	pek	1720	33
Rickarton, No. 1	32 hf ch	hro or pek	1856	49
St. Helen's	31 do	bro or pek	1550	33
	13 ch	or pek	1105	31
	18 do	pek	1620	27
	12 do	pek sou	1080	21
Hentley's	29 hf ch	hro pek	1537	23
	30 ch	pek	2250	25
Gonapitiya, Invoice No 17	23 hf ch	or pek	1219	54
	21 do	bro pek	1302	67
	31 do	pek	1581	44
Devonford, Invoice No. 11	26 do	hro or pek	1430	83
	13 ch	or pek	1300	53
	19 do	pek	1729	51
	14 do	pek sou	1254	44

	Pkgs.		Name.	lb.	c.
Delta, Inv. No. 18	32	ch	bro or pek	3200	45
	23	do	bro pek	2185	33
	23	do	pek	1932	31
	19	do	pek sou	1558	26
Kitulgalla, Invoice No. 11	24	hf cb	bro or pek	1392	34
	14	cb	or pek	1190	34
	13	cb	pek	1040	27
Glencorse	29	ch	bro pek	2900	34
	29	do	or pek	2300	34
	25	do	pek	2000	27
	31	do	pek sou	2325	23
	15	hf cb	dust	1275	22
Dunbar	20	do	bro or pek	1020	69
	16	cb	or pek	1344	36
	21	do	pek	1764	35
	13	do	bro pek	1274	43
	10	do	bro pek fans	1010	36
North Cove, Invoice No. 16	21	bf cb	bro or pek	1218	65
	59	do	bro pek	3422	41 bid
	26	ch	pek	2318	40
Good Hope, Invoice No. 13	20	ch	bro pek	1800	25 bid
	11	do	bro or pek	1100	31
Agraoya	24	hf ch	bro or pek	1320	51
	22	ch	or pek	2090	33
	18	do	bro pek	1800	34
	18	do	pek	1620	30
Nabalma	18	cb	bro pek	1980	witbd'n
	31	do	pek	2945	witbd'n
	20	do	pek sou	1800	witbd'n
	24	do	sou	2160	witbd'n
Glengariffe	39	ch	bro pek	2340	39
	19	do	or pek	1672	36 bid
	18	do	pek	1656	29
	13	do	pek sou	1040	26
Broughton	40	hf ch	or pek	2160	48
	10	cb	bro or pek	1000	77
	23	do	pek No. 2	2185	29
Kirklees	40	hf cb	bro or pek	2400	49
	22	ch	or pek	2200	40
	25	do	pek sou	2375	32
	13	do	dust	1170	27
High Forest	55	bf ch	or pek No 1	3245	47
	40	do	or pek	2160	39
	32	do	pek	1504	37
Weoya	13	cb	bro or pek	1300	33
	31	do	or pek	2790	27
	19	do	pek	1615	26
Seenagolla V.	19	hf cb	bro or pek	1044	58
	12	ch	or pek	1068	41 bid
Templehurst	17	ch	bro pek	1700	48
Sindumalley	12	ch	bro or pek	1260	37
	23	do	bro pek	2070	33
	23	do	pek	1955	29
Beverley	43	hf ch	or pek	2150	32
	20	do	bro pek	1100	30
	52	do	pek	2340	24 bid
	38	do	pek sou	1710	22
G in est mark	22	ch	sou	1980	18 bid
Preston	12	ch	bro or pek	1248	69
G O in est mark	13	ch	bro pek	1235	27
Mousa Eliya	21	ch	bro pek	2100	26 bid
	17	do	pek	1530	29
Middleton	18	ch	bro pek	1800	33
	17	do	or pek	1530	30
	18	do	pek	1530	28
Errollwood	18	ch	pek sou	1000	24
Inverness	12	ch	bro or pek	1200	58
	21	do	or pek	1890	48
	21	do	pek	1785	38
Killarney	20	hf ch	bro or pek	1100	66
	20	do	bro pek	1160	48
	14	cb	or pek	1190	44
	16	do	pek	1360	36
Pallegodde	18	cb	bro or pek	1800	27
	37	do	bro pek	3700	30
	25	do	or pek	2125	27
	24	do	pek	1920	24
	21	do	pek sou	1785	22
Gampaba	47	hf ch	bro or pek	2820	38
	38	cb	or pek	3648	40
	43	do	pek	3655	36
	12	do	pek sou	1050	33
Erracht	25	ch	bro or pek	3500	32
	33	do	or pek	2805	32
	44	do	pek	3520	27
	8	do	fans	1200	26
Cranley	27	ch	pek sou	2157	22 bid
Bogahagodawatte	11	ch	bro pek	1155	27
	11	do	pek	1056	23
Massena	29	hf ch	bro pek	1450	24 bid
Torwood	13	ch	bro or pek	1170	31 bid
	12	do	bro pek	1080	26 bid
	8	do	pek	1512	23
Monterey	12	ch	pek sou	1080	21
Uvawatte	42	cb	pek	3570	22 bid
K P W	38	hf ch	bro or pek	2280	30
	33	do	bro pek	1650	28
	35	do	pek	1750	25
	20	do	pek sou	1000	21
Knavesmire	90	cb	bro pek	9000	27
	63	do	pek	5355	21
	42	cb	pek sou	3150	19
Bandara Eliya	49	bf ch	or pek	2548	42
	55	do	bro or pek	3300	44
	49	do	pek	2352	37
	43	do	or pek	2150	42
	77	do	bro or pek	4620	42
	61	do	pek	3050	37
Poonagalla	18	ch	or pek	1728	44
	42	do	bro pek	4830	61
	31	do	pek	2976	42
Woodend	18	ch	bro pek	1800	29
	34	do	pek	3060	25
D in est mark	18	ch	sou	1350	out
	21	hf ch	br or pk fans	1365	26
L B K	13	ch	pek fans	1365	22
	9	do	dust No 2	1440	out
Winbourne	62	cb	pek	5270	26 bid

Messrs. Keell and Waldock.

[35,232 lb.]

	Pkgs.		Name.	lb.	c.
Kurugama	22	hf ch	fans	1650	22
Gampai	51	hf cb	or pek	2448	25 bid
	86	do	bro or pek	4816	28 bid
	20	ch	pek	2465	26
	34	do	pek sou	2652	23
Panilkand	20	hf cb	br or pek No 1	1000	47
	24	ch	bro or pek	2400	31 bid
	17	do	pek	1530	29 bid
Aigburth	18	ch	bro pek	1800	31
	20	do	pek	1800	27
Cumbawella	11	ch	bro pek	1042	24 bid
	13	do	pek	1167	21 bid

Messrs. Somerville & Co.

[223,258 lb.]

	Pkgs.		Name.	lb.	c.
Ettie	11	cb	fans	1320	10 bid
Yarrow	17	bf ch	bro or pek fans	1088	27
Avisawella	26	hf ch	bro or pek	1300	39
	21	ch	or pek	1995	28 bid
	24	do	pek	2160	25
	15	do	pek sou	1200	23
Nyanza	12	cb	or pek	1080	33
	19	hf ch	bro or pek	1045	43
Ravenscraig	29	bf ch	or pek	1595	30 bid
	12	cb	pek	1080	29 bid
R K P	21	cb	or pek	1785	28
	18	do	bro or pek	1800	28
	14	do	pek	1120	25
	12	do	pek sou	1080	22
Kelani	18	cb	bro or pek	1800	28
	15	do	pek	1200	25 bid
	22	do	or pek	1870	29
	12	do	pek sou	1080	22
Adawatte	10	ch	bro pek	1000	30
Dikmukalana	28	bf cb	or pek	1400	28
	33	do	pek sou	1584	26
Polgahakande	15	ch	or pek	1200	30
	12	do	pek No 2	1020	24
Ossington	14	ch	bro pek	1400	26
	25	do	pek	2125	23
Carney	21	hf ch	br pek	1055	31
	25	do	pek	1125	24 bid
	22	do	pek sou	1100	21
Dartry	17	hf ch	dust	1564	22
	26	do	fans	1924	24
Narangoda	40	ch	bro pek	3800	28
	26	do	pek	2340	24
	17	do	pek sou	1530	23
Tavalamtenne	39	hf ch	pek	1950	27
	39	do	pek sou	1755	24
Meddegodde	53	hf ch	bro or pek	2915	29
	37	do	or pek	2035	32
	61	do	pek	3050	25 bid
	37	do	pek sou	2220	23
Raglan	19	ch	pek	1805	out
Harangalla	14	ch	bro pek	1400	31
	14	do	or pek	1260	27 bid
	12	do	or pek	1080	25 bid
	25	do	pek	2000	24 bid
Mary Hill	28	hf ch	br pek	1680	32
	35	do	pek	1925	25 bid
	30	do	pek sou	1500	19 bid

	Pkgs.		Name.	lb.	c.
Beausejour	21	ch	br pek	2100	28 bid
	23	do	pek	1720	23 bid
Sadamulla	11	ch	pek	1017	18 bid
Scarhorough	17	ch	pek	1697	32 bid
Dalukolawatte	31	hf ch	or pek	1705	35 bid
	19	ch	pek	1900	30 bid
	18	do	pek sou	1620	24 bid
Hopewell	25	ch	bro or pek	2750	25 bid
	26	do	or pek	2600	27 bid
	40	do	pek	3600	24 bid
	24	do	pek sou	1920	22
Gangwarily	17	ch	or pek	1360	33
	64	do	bro pek	6400	30
	36	do	pek	3060	26
Havilland	35	ch	bro or pek	3500	
	17	do	or pek	1445	31
	33	do	pek	2805	26 bid
Annandale	19	hf ch	bro or pek	1102	32
	19	do	or pek	1026	38 bid
	19	do	pek	1064	36 bid
	26	do	pek sou	1300	32 bid
Kelani	31	ch	or pek	2480	29
	20	do	bro or pek	2000	29
	20	do	pek	1700	26
	14	do	pek sou	1260	22
Badava	34	hf ch	bro pek	1700	23
Gwernet	14	ch	bro pek	1470	34
	22	do	pek	1870	30
Mount Temple	15	ch	bro pek	1440	30
	15	do	pek	1230	26
	13	do	bro or pk fans	1274	24 bid
	13	do	pek sou	1010	23
Cooroondoowatte	21	ch	pek	2100	24 bid
Salawa	14	ch	bro pek	1470	29
	11	do	pek	1043	24
	12	do	pek sou	1080	20 bid
Meeriatenne	23	hf ch	br pek	1200	50
	33	do	pek	1650	42
	20	do	pek sou	1000	38
Anandale	19	hf ch	or pek	1020	5
M N	27	hf ch	bro tea	1134	9 bid
Deville	11	ch	bro pek	1160	31 bid
Dalukoya	17	hf ch	br pek fans	1020	27
Rayigam	17	hf ch	bro or pek	1020	37
	18	ch	or pek	1620	31
	15	do	bro pek	1350	27
	31	do	pek	2480	26
	22	do	pek sou	2090	24
Ferndale	25	ch	pek	2520	27 bid
Warakamure	23	ch	pek	2070	29
	30	ch	bro pek	3090	35
	21	do	pek	1932	31

Messrs. E. John & Co.

[204,678 lb.]

	Pkgs.		Name.	lb.	c.
Melville	48	hf ch	bro pek	2400	28
	40	do	pek	2000	out
Salem	10	ch	bro or pek	1000	34
	12	do	pek	1080	29
Gingranoya	27	do	pek	2160	27
Castle Hill	13	do	bro or pek	1300	25
	15	do	or pek	1500	24
	20	do	pek	1800	21
	19	do	pek sou	1710	18 bid
Oonoogaloya	13	do	or pek	1170	35
	16	do	bro or pek	1600	45
	13	do	pek	1170	31
Katawella	17	do	bro pek	1700	23
	13	do	pek	1620	23
Ganasarapolla	13	hf ch	bro or pe No. 1	1045	29
	28	do	bro or pe No. 2	1035	27 bid
Elston	16	ch	pek	1360	32
	18	do	pek sou	1530	27
	23	hf ch	bro mix	1495	23 bid
St John's	20	ch	or pek	1800	64
	20	do	pek	1900	46
	20	hf ch	pek fans	1360	33
Eila	95	ch	pek No 1	7600	23 bid
Elbedde	19	hf ch	dust	1805	24
Eastland	40	do	bro or pek	2560	30 bid
Myraganga	12	ch	or pek	1080	33
	11	do	bro or pek	1100	33 bid
	20	do	pek	1700	30
	14	do	pek sou	1120	25
Myraganga	10	do	bro or pek	1000	34
	14	do	pek	1190	30
Perth	22	do	bro or pek	2090	38
	30	do	bro pek	2700	31
	35	do	or pek	2800	30
	25	do	pek	1875	25 bid
Winwood	30	hf ch	bro or pek	1497	33 bid

	Pkgs.		Name.	lb.	c.
Cocoawatte	20	ch	bro pek	2000	32
	26	do	pek	2600	27
	20	do	pek sou	2000	24
Agra Ouvah	42	hf ch	bro or pek	2520	67
	30	do	or pek	1620	40
Rondura	23	ch	bro pek	2300	29
	23	do	or pek	1955	32
	38	do	pek	3268	25
	12	do	pek sou	1030	21
Midlothian	18	hf ch	bro pek	1080	51
	30	do	pek	1560	36
Hunugalla	22	do	dust	1870	20
Galloola	40	ch	bro pek	4000	30 bid
Koslanda	51	hf ch	bro pek	2805	24 bid
	54	ch	pek	4590	20 bid
Mocha	23	do	bro or pek	2300	66
	22	do	pek	2090	43
Lilliawatte	18	do	bro or pek	1800	41
Craigingilt	19	hf ch	bro or pek	1045	withd'n
Penrith	17	ch	bro pek	1700	29
	16	do	pek	1440	24
Coslanda	51	hf ch	bro pek	2805	24 bid
	54	ch	pek	4590	20 bid
Kahagalla	17	hf ch	bro pek	1054	55
Gangawatte	15	ch	bro or pek	1500	64
	13	do	bro pek	1300	37
	25	do	pek	2250	31 bid
Alpakande	14	hf ch	pek dust	1190	23
	12	ch	sou	1032	17
Elston	15	do	pek	1275	33
	20	hf ch	dust	1700	23
	15	ch	pek sou	1275	27
Rookwood	75	hf ch	bro or pek	4500	28 bid
	56	ch	or pek	5376	28 bid
	26	do	pek	2340	24 bid
Cairnsmuir	55	do	pek	4475	27 bid
Kitulgalla	14	do	or pek	1190	withd'n
Mahanilu	20	hf ch	or pek	1100	43
	20	do	bro or pek	1120	55
	13	ch	pek	1248	36
Holbrook	14	do	pek	1257	37
G T	13	do	pek	1170	out
Doonhinde	23	do	bro pek	2997	34
Bowella	22	do	or pek	2037	24 bid
Bowhill	10	do	bro or pek	1000	29 bid
	17	do	or pek	1700	29
	14	do	pek	1400	27
Ottery	30	do	pek	2697	23 bid
	19	do	pek sou	1517	21 bid
Mutu Eliya	41	hf ch	pek	2050	32 bid
	16	ch	pek sou	1440	28 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Mawanella	4	hf ch	bro pek	188	56
	6	do	pek	306	24 bid
	5	do	pek sou	254	20 bid
Coodoogalla	5	do	pek sou	250	21
	6	do	dust	480	23
H D, in est. mark	5	hf ch	dust	500	25
Hapugastenne, Inv. No 18	2	do	dust	160	24
Hapugastenne, Inv. No. 19	11	do	fans	660	27
	2	do	dust	160	25

Messrs. Forbes & Walker.

	Pkgs.		Name.	lb.	c.
Ratwatte	*10*	*ch*	*hyson No. 2*	*750*	16
	5	*do*	*twanky*	*550*	10
Rockside	9	ch	pek sou	720	22
	4	do	dust	540	24
Haputelewelle	13	hf ch	pek sou	585	26
Allagalla	9	ch	bro mix	675	16
Torwood	2	ch	bro pek fans	210	24
Botala	3	hf ch	fans	225	26
H B L	11	do	bro pek	605	37
	6	do	bro or pek	336	38
	5	ch	pek	430	29
	2	do	pek sou	150	20
	1	do	fans	72	25
G K	3	ch	sou	195	15
	4	do	fans	360	16
Mahayaya, Inv. No 2	3	ch	bro pek	300	29
	6	do	pek	510	24
	4	do	pek sou	340	20
	1	hf ch	dust	50	22
Pussella (Venesta packages)	8	ch	pek	880	24

	Pkgs.	Name.	lb.	c.
	3 do	dust	501	18
Asgeria (Venesta packages)	2 ch	bro tea	210	14
	2 do	dust	330	27
Veloya (Venesta packages)	7 hf ch	bro or pek fans	490	27
V ● A	3 ch	dust	360	24
Mansfield	7 ch	pek sou	665	36
	2 hf ch	bro pek fans	160	30
	3 do	dust	285	26
Mahayaya	2 ch	pek sou	170	18
Alloowihare	2 ch	fans	220	23
	1 do	dust	85	22
Moray	19 hf ch	or pek	855	40
	8 do	dust	680	27
	3 do	bro fans	195	29
Macaldenia	3 do	pek sou	165	27
	4 do	fans	300	26
Sylvakandy, Invoice No. 25	4 ch	dust	400	24
I N G, in est mark	1 cb	bro pek dust	120	24
	1 do	red leaf	100	10
	6 do	sou	480	12
Halbarawa	8 ch	or pek	608	out
	3 do	dust	492	out
Dolahena	*12 hf ch*	*young hyson*	*600*	*30*
	2 do	*siftings*	*140*	*12*
Poonagalla	11 ch	fans	957	29
Nugagalla	2 hf ch	dust	180	24
Tembiligalla	11 ch	pek	990	24
	2 do	pek sou	163	19
	1 do	dust	155	21
Yogan	4 ch	pek fans	480	26
	8 hf ch	dust	640	22
Passara group	11 ch	pek sou	990	30
Queensland	5 do	bro pek dust	325	32
Lyegrove	5 ch	bro pek	525	31
	6 do	pek sou	540	26
	5 do	dust	425	25
A G S	3 hf ch	dust No. 2	330	17
	6 ch	red leaf	330	9
Putupaula	10 ch	pek sou	800	18 bid
Mahawale	10 hf ch	fans	750	22 bid
	10 do	dust	900	18 bid
Marlborough	14 do	bro or pek	700	69
	10 ch	or pek	900	42
Nynangodde	4 hf ch	bro or pek fans	300	24
	3 do	dust	270	20
Rickarton No 1	do	bro pek fans	385	27
Uva	3 do	dust	240	24
Hentleys	15 hf ch	or pek	675	28
	10 ch	pek sou	700	18
	3 hf ch	fans	225	25
	1 do	pek dust	74	22
Labukellie	do	bro pek fans	370	28
Gonapitiya, Invoice No. 17	14 hf ch	pek fans	994	34
Devonford, Invoice No. 11	4 hf ch	dust	340	27
Kitulgalla, Invoice No. 11	3 hf ch	dust	240	withdn.
Riverside, Inv. No 6	17 do	pek sou	782	26
	11 do	bro pek fans	770	30
	5 do	dust	450	27
Dunbar	2 ch	pek sou	188	30
N B	1 ch	dust	151	24
North Cove, Invoice No. 16	3 ch	pek sou	252	34
	9 hf ch	dust	720	26
	4 ch	sou	360	22
	4 do	bro mix	400	18
Nahalma	6 ch	bro or pek	690	withd'n
	8 hf ch	dust	640	withd'n
Broughton	8 ch	pek No 1	784	40
	5 do	pek sou	425	32
	6 hf ch	dust	510	27
Weoya	7 ch	pek sou	595	out
	9 do	bro pek fans	900	23
	1 do	dust	160	20
Seenagolla V.	3 ch	pek sou	291	29
Beverley	10 hf ch	bro or pek	500	38
Mahawale	1 ch	pek sou	95	18
Uva	3 hf ch	dust	240	25
Ellamulle	1 hf ch	pek dust	90	27
G in est mark	9 ch	congou	810	16
Kadienlena	3 ch	sou	240	12
Preston	7 hf ch	or pek	322	60
	9 ch	pek	720	42
	8 do	pek sou	560	35
	3 hf ch	fans	204	32
St. Margaret's	5 ch	bro pek	500	31
	2 do	pek	168	26
	3 do	pek sou	210	28
	3 hf ch	fans	204	26
Marlborough	6 ch	pek sou	509	30
G ● in est mark	5 ch	pek	375	out

	Pkgs.	Name.	lb.	c.
	4 do	pek sou	280	16
	1 hf ch	dust	90	21
Mousa Eliya	7 ch	or pek	595	34
	4 do	bro pek fans	400	27
W L K	13 ch	pek sou	975	out
Middleton	14 hf ch	bro or pek	840	34
B E B	7 hf ch	unassorted	465	14
Gampaha	4 ch	pek fans	360	26
Erracht	8 ch	pek sou	640	22
Rogahagodawatte	6 ch	pek sou	540	20
	1 do	fans	125	22
Digdola	12 hf ch	bro pek	600	withd'n
	10 do	or pek	400	withd'n
	3 ch	pek	240	withd'n
	4 hf ch	dust	320	withd'n
K P W	12 hf ch	or pek	540	26
	2 do	pek fans	150	24
	2 do	dust	180	23
Woodend	9 ch	pek sou	720	20
	3 do	br pek fans	309	22
	5 do	dust	445	21
D in est mark	11 ch	pek fans	667	22
	8 do	pek dust	660	21
Augusta	4 ch	fans	480	23
	5 do	dust	725	25
Poengalla	7 ch	pek fans	700	30
	5 do	dust	450	26
L B K	7 ch	bro pek fans	770	26
	7 do	dust No 1	980	21
Bullugolla	8 ch	fans	800	24
	7 do	dust	770	23
	4 do	dust	440	20
R B	10 hf ch	bro pek	602	29
	6 do	pek	330	24
	5 do	pek sou	275	22
	2 do	fans	120	26
	1 do	dust	70	20
Bullugolla	4 ch	fans	400	24
G	1 hf ch	pek sou	49	17
	1 do	or pek	53	23
	2 ch	pek	200	18
Bullugolla	4 ch	dust	440	21
	3 do	fans	300	24

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
K in est mark	9 hf ch	dust	720	16 bid
S	3 ch			
	1 hf ch	bro pek	354	19
C	*3 ch*	*green tea fans*	*330*	*12*
	2 do	*green tea bro mix*	*251*	*12*
Gampai	7 hf ch	dust	560	23
Tillington	6 hf ch	bro or pek	330	35
	6 do	or pek	300	30
	6 do	bro pek	300	30
	16 do	pek	800	28
	3 do	pek sou	150	23
	4 do	fans	280	20
	1 do	dust	90	18
Panilkande	5 cb	pek sou	450	24 bid
	4 do	sou	360	22
D in est mark	10 ch	bro pek	997	26
Aigburth	10 ch	pekoe	850	27
	8 do	pek sou	600	24
	8 do	bro mixed	560	18
	4 do	bro pek fans	280	27
Cumbawella	9 ch	bro or pek	897	28

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Mincing Lane	2 ch	sou	200	10 bid
	5 hf ch	pek fans	375	27
	6 do	dust	540	22
Yarrow	5 hf ch	pek fans	310	23
	9 do	bro pek dust	783	23
Avisawella	4 hf ch	fans	280	22
Ravenscraig	3 ch	sou	300	21
Adawatte	10 ch	pekoe	900	32
Hapugasmulle	9 ch	bro pek	990	27
	9 do	pekoe	864	25
	2 do	dust	310	17
Handrokande	5 ch	bro pek	550	22 bid
	1 do	pek sou	100	14
Ossington	7 ch	pek sou	595	18
Patupaula	7 ch	bro pek	700	28
	6 do	pek	600	19
	6 do	pek sou	540	out
	3 do	unast	270	13
	1 do	congou	84	10
	1 hf ch	dust	86	18
St. Leonards-on-Sea	*7 hf ch*	*hyson No. 2 B*	*350*	*out*
	2 do	*siftings*	*160*	*8*
	2 do	*young hyson fans*	*140*	*12*
	1 do	*young hyson No 2 A A*	*56*	*24*
Blackheath	3 hf ch	fans	225	withd'n

	Pkgs.		Name.	lb.	c.
Oaklands	2	hf ch	dust	166	20
Yspa	11	ch	pek sou	825	23
	4	do	bro pek fans	480	28
Carney	5	hf ch	bro pek fans	250	24
	5	do	souchong	250	15
	2	do	dust	100	23
	1	do	pekoe fans	50	15
Dartry	6	ch	pekoe souchong	426	14 bid
Meddegodde	10	hf ch	dust	750	22
	5	do	sou	250	12 bid
	6	do	bro pek fans	330	25
Raglan	9	ch	bro pek	894	out
	1	do	dust	149	out
	1	do	fans	109	10
Mary Hill	5	hf ch	dust	375	24
	2	do	red leaf	90	8
C W M	8	hf ch	bro or pek	400	41
	9	do	or pek	450	36
	7	do	br pek	420	33
	2	do	pek fans	110	27
	9	ch	pekoe	765	32
	3	do	pekoe sonchong	240	27
Labaduwa	4	ch	br pek	400	30
	4	do	pek	400	23
	8	do	sou	800	20
	3	do	fans	300	14
Batgoda A	3	hf ch	bro or pekoe	189	41
	3	ch	or pek	336	37
	4	do	pekoe	408	33
	1	do	pek No 2	93	28
	1	hf ch	dust	97	19
R in est mark	1	ch	broken pekoe	110	24
	1	do	pek	103	18
	1	hf ch	dust	62	17
Beausejour	7	ch	or pek	560	25 bid
	4	do	pekoe souchong	300	15 bid
	3	do	bro pek faus	300	22
	2	hf ch	dust	160	23
G B	12	hf ch	dust	600	23
Paragahakande	6	ch	bro pek	600	24
	7	do	pek	665	19
	2	do	pek sou	185	14 bid
	3	do	fans	285	out
	1	do	congou	105	9
	2	do	bro mixed	180	9
Sadamulla	8	ch	bro pek	776	out
	1	do	unassorted	93	8
	2	do	pek sou	190	10
	1	hf ch	dust	60	18
Hopewell	14	hf ch	pek fans	910	24
Gangwarily	6	ch	pekoe souchong	510	23
	4	hf ch	dust	340	24
	11	hf ch	fans	671	25
	3	ch	sou	256	15
Havilland	1	hf ch	bro pek	56	out
	2	ch	pek	174	out
	1	hf-ch	fans	30	22
	3	hf ch	pek fans	234	out
	9	ch	pek sou	720	23
	2	do	dust	268	23
	5	do	fans	585	23
	2	do	souchong	149	16
P K W	5	ch	bro or pek	432	29
	3	do	or pek	245	30
	9	do	pekoe	775	27
	2	do	pek sou	134	24
	1	hf ch	dust	48	21
	1	do	faus	68	out
	1	box	bro mixed	26	12
	1	do	souchong	28	12
Woodcroft	4	ch	dust	452	15 bid
M in est mark	1	hf ch	unast	47	17
Kelani	8	ch	dust	800	20 bid
Kahatagalla	6	ch	orange pekoe	510	28
	4	do	bro or pek	400	25
	4	do	pekoe	320	24
	2	do	pek sou	180	20
Badawa	8	ch	pek	720	24
	8	do	pekoe souchong	680	20
	1	do	bro mixed	92	8
	1	ch			
	1	hf ch	bro pek fans	220	24
Gwernet	6	ch	pek sou	480	25
	2	do	dust	230	23
L	3	ch	bro mixed	300	11
	11	hf ch	dust	935	16 bid
Cooroondoowatte	9	ch	bro pek	900	31
	5	hf ch	pek fans	125	23
	1	ch	congou	100	11
Uggala	16	hf ch	bro pek	896	22
	8	do	pek sou	448	12 bid
	3	do	pek dust	270	out
Salawa	2	ch	unassorted	220	16
	3	do	pek fans	324	22
	1	do	pek dust	165	22
Allakolla	5	hf ch	dust	475	22

	Pkgs.		Name.	lb.	c.
H J M W	6	ch	bro pekoe	490	20
	6	do	pekoe	485	15
	2	do	pek sou	170	12
	1	do	fans	95	12
D ville	10	ch	pek	900	27
	6	do	pek sou	540	22
	2	hf ch	dust	160	23
Galata	11	hf ch	dust	825	24
Dalukoya	4	hf ch	pek fans	240	22
	6	do	dust	360	25
Rayigam	6	ch	fans	600	28
	9	hf ch	dust	720	23
St Andrews	16	hf ch	pekoe	889	25

Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
W R P	1	ch	bro pek	112	23
	1	do	pek	118	20
	1	do	pek sou	101	17
	1	do	sou	60	10
Melvilla	11	hf ch	pek sou	550	18
	1	do	bro pek dust	84	18
Salem	1	ch	dust	125	25
Castle Hill	8	do	dust	800	23
Katawella	1	do	dust	130	23
Ganksarapolla	11	hf ch	bro pek	495	22 bid
	12	do	pek	480	23
E K, in estate mark	5	ch	bro mix	475	9
Myraganga	4	do	bro mix	360	15
	2	do	dust	360	20
	1	do	pek fans	140	25
G Ceylon, in estate mark	7	do	bro or pek (Vanesta bkd.)	767	31
L F	7	do	pek	707	20
Myraganga	7	do	or pek	6 0	30
Perth	13	do	pek sou	940	22
	6	do	fans	750	25
L F	3	hf ch	pek dust	240	20
Cocoawatte	4	ch	fans	400	25
Agra Ouvah	10	hf ch	pek	9 0	41
Rondura	4	ch	bro or pek	460	28
	4	do	dust	160	20
	2	do	pek fans	234	22
Midlothian	3	hf ch	pek fans	234	28
Wellington	1	ch	pek sou	100	28
	3	do	bro mix	270	10
Hunugalla	10	do	pek sou	850	16 bid
	1	do	sou	100	15
Belton	4	hf ch	fans	200	22
	5	do	dust	300	22
	4	do	bro pek	116	17
	3	do	bro tea	135	9
Koslanda	8	ch	pek sou	720	16
	5	do	fans	550	18
	5	hf ch	dust	400	23
Mocha	10	ch	or pek	900	52
	8	do	pek sou	720	40
Lilliawatte	5	do	bro pek	500	25 bid
Craigingilt	7	do	pek sou	595	} withd'n
	5	hf ch	dust	400	}
Penrith	5	ch	pek sou	450	17
	1	hf ch	fans	65	22
	1	do	dust	85	20
Coslanda	8	ch	pek sou	720	16
	5	do	fans	550	out
	5	hf ch	dust	400	20
Kahagalla	7	ch	pek	656	43
	8	do	pek sou	720	37
	2	hf ch	dust	168	27
Gangawatte	6	ch	pek sou	510	24
	6	hf ch	dust	510	24
	15	do	fans	975	30
Rookwood	5	do	bro pek	350	26
	7	do	pek dust	616	27
Taunton	9	ch	pek sou	717	27
N S	6	do	pek	600	23
G T	9	do	bro pek	945	28
	9	hf ch	dust	855	19
Doonhinde	9	ch	pek sou	897	24
Reading	2	do	bro pek	168	23
	2	do			
	1	hf ch	pek	134	20
	1	ch			
	1	hf ch	pek sou	147	14
	1	ch			
	1	box	bro or pek fans	137	16 bid
	2	hf ch	pek fans	150	17 bid
	1	ch	dust	110	18
R B R	5	hf ch	bro or pek fans	290	26
B.whill	2	ch	dust	200	24
Elston	8	do	pek sou	650	26
Horagla	9	do	bro pek	900	26
	9	do	pek	765	22
	1	do	bro pek fans	108	out
	1	do	bro pek fans No. 2	77	16 bid
	1	do	bro pek dust	59	out

No. 32. COLOMBO, AUGUST 18th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[8,417 lb.]

	Pkgs.	Name.	lb.	c.
Haputalewella	25 hf ch	bro pek	1500	39
Choibleigh	17 ch	bro pek	1700	35 bid
	13 do	pek	1092	30 bid
Battalgalla	21 cb	pek sou	1470	32

Messrs. Forbes & Walker.

[486,583 lb.]

	Pkgs.	Name.	lb.	c.
K C E	21 ch	bro pek	2100	out
	14 do	pek	1400	out
	16 do	pek sou	1440	out
Rawatte	*19 ch*	*young hyson*	*1995*	*25*
	28 do	*hyson No. 1*	*2800*	*23*
	16 do	*hyson No. 2*	*1420*	*22*
	11 do	*twankey*	*1320*	*10*
Ingoya	*20 ch*	*young hyson*	*2000*	*37*
	16 do	*hyson*	*1600*	*33*
	14 do	*hyson No 2*	*1120*	*32*
Yataderia	18 ch	bro or pek	1944	29
	28 do	or pek	2520	27
	10 do	pek	1588	24
Mawiligangawatte	21 ch	bro pek	2016	28
	34 do	pek sou	2550	23
	(15 hf cb 4 oz. lead)			
Beverley	21 hf cb	dust	1680	22
Laurawatte	18 hf ch	fans	1458	14
Bramley	58 do	bro or pek	3248	46
	25 do	or pek No 1	1150	49
	76 do	or pek	3800	38
	73 do	pek	3650	35
Velana	16 cb	bro pek	1520	29
Ingrogalla	13 cb	bro or pek	1300	38
	13 do	pek	1170	30
O B E C, est. mark Forest Creek	12 cb	bro or pek	1236	80
	31 do	bro pek	3193	withdn.
	16 do	or pek	1408	38
	32 do	pek	2880	35
R M, in est. mark Bopitiya	23 ch	bro or pek	2300	37
	12 do	pek	1080	31
Yogama	14 ch	bro pek	1470	38
	26 do	or pek	1300	34
	26 do	pek	2340	23
Puspone	30 ch	bro pek	3300	31 bid
	12 do	pek	1140	27
	13 do	pek sou	1105	23 bid
Udabage, D in estate mark	*84 hf ch*	*young hyson*	*5040*	*34*
	22 do	*hyson No. 1 A*	*1210*	*32*
	60 do	*hyson No. 1 B*	*3300*	*31*
	28 do	*fans*	*1680*	*12*
Yelverton	14 ch	bro pek	1484	56
	14 do	or pek	1204	33
	13 do	pek	1079	29
N W D	14 hf ch	dust	1204	24
Dromoland	35 do	bro or pek	1925	42
	32 do	pek	2784	30
Maha Eliya	21 hf ch	bro or pek	1260	61
	19 do	bro pek	1140	42
	10 cb	or pek	1000	29 bid
	27 do	pek	2538	35 bid
Penrhos	22 hf ch	bro or pek	1100	58
	17 do	bro pek	1020	37
	35 do	or pek	1680	39
	38 ch	pek	3154	30
	13 do	pek sou	1040	29
Tempo	13 ch	or pek	1144	30 bid
	13 do	pek	1118	26
Udabage. D in estate mark	*36 hf ch*	*young hyson*	*2160*	*36*
	30 do	*hyson No. 1 b*	*1500*	*32*
Irex	20 ch	bro or pek	2000	35
	13 do	or pek	1040	33
	16 do	pek	1440	32
Choisy	34 hf ch	bro or pek	1870	51
	16 cb	or pek	1360	34
	35 do	pek	3150	30
Marie Land	38 hf cb	bro or pek	2052	37
	25 cb	bro pek	2500	30
	23 do	pok	1932	30

	Pkgs.	Name.	lb.	c.
Gonapitiya, Invoice No 17	20 hf ch	or pek	1040	54
	20 do	bro pek	1220	72
	22 do	pek	1100	46
Monkswood, Invoice No. 31	17 hf ch	bro pek	1020	79
	36 do	or pek	1800	63
	34 ch	pek	3060	53
J W M S, Inv. No. 3	14 do	pek	1400	28
Deaculla, Inv. No. 1	70 hf ch	bro pek	3850	36
	59 do	pek	4130	26
Nabalma	13 ch	bro or pek	1405	19 bid
	28 do	bro pek	3080	22
	18 do	pek sou	1620	16
Deaculla, No. 22	49 hf ch	pek	3430	26 bid
Forest Creek	39 ch	bro pek	4017	34 bid
Florence	39 hf ch	bro or pek	1980	80
	29 ch	or pek	2639	62
	51 do	pek	4488	43
Havvaland	21 hf ch	bro pek fans	1365	out
Beverley, Inv. No 8	40 hf cb	pek	2000	26
	30 do	pek sou	1250	21
	45 do	or pek	2250	31
Tunacombe	51 cb	or pek	4590	40
	45 do	bro pek	4500	43
	70 do	pek	5950	36
	18 do	pek sou	1440	34
Dea Ella	29 hf cb	bro or pek	1595	38
	36 do	or pek	1930	31
	30 do	pek	1500	27
Maha Uva	37 hf cb	bro or pek	2105	37
	30 ch	or pek	3000	39
	32 do	pek	2880	37
	17 do	pek sou	1360	34
Ruanwella	21 cb	bro or pek	2205	31
	35 do	or pek	3150	28
	35 do	pek	3150	26
Clunes	13 ch	bro pek	1300	31
	15 do	pek	1350	26
	28 do	pek sou	2520	22
Kirklees	25 hf cb	bro or pek	1500	52
	21 do	or pek	1995	41
	34 do	pek	3230	36
Weiya	28 ch	bro or pek	2800	30
	30 do	bro pek	3000	28
	34 do	pek	2890	27
Dammeria	35 ch	bro pek	3500	37 bid
	28 do	or pek	2520	32 bid
	34 do	pek sou	3060	37
Battawatte	41 cb	bro pek	4510	34
	41 do	pek	3895	34
	17 do	pek sou	1530	29
Morankande	24 hf cb	bro or pek	1440	32
	37 do	or pek	1850	34
	24 ch	pek	2160	24
Hanwella	*27 ch*	*young hyson*	*2700*	*33*
	21 do	*hyson No. 1*	*2205*	*30*
B P C	18 hf cb	dust	1350	22
Ganapalla	30 ch	or pek	2520	31
	34 do	bro or pek	3230	31
	50 do	pek	3750	27
	10 do	bro pek fans	1080	26
	9 hf cb	dust	1026	21
W V R A	21 hf ch	bro or pek	1050	withd'n
	14 do	fans	1120	16
Pine Hill	23 hf cb	bro or pek	1380	45
	20 ch	or pek	1900	34
	24 do	pek	2160	31
H G M	22 hf cb	bro or pek	1210	39
	11 cb	bro pek	1001	33
	31 do	pek	2635	29
Tembiligalla	14 ch	bro or pek	1470	28
	19 cb	or pek	1748	30
	13 do	pek	1196	29
Geragama	22 cb	bro pek	1980	29
	30 do	pek	2400	26
	30 do	pek sou	2250	24
High Forest	59 hf ch	or pek No 1	3481	54
	45 do	or pek	2430	44
	30 do	pek	1880	39
Wallaha	45 hf ch	br or pk fans	3510	26 bid
	29 do	bro tea	2900	22 bid
Good Hope	30 cb	bro pek	2700	26
	11 do	bro or pek	1100	35
	12 do	pek	1080	25
Hanford	20 ch	bro or pek	2000	31
	11 do	or pek	1045	30
Ismalle	16 ch	bro pek fans	2320	21
Maldeniya	31 ch	bro or pek	3100	30 bid
	30 do	pek	2700	27
	23 do	or pek	2300	32
	12 do	pek sou	1020	23

	Pkgs.		Name.	lb.	c.
Sylvakandy	11	ch	bro pek	1100	36
	11	do	or pek	1100	36
	22	do	pek	2090	33
	11	do	bro or pk No 1	1100	48
	25	do	bro or pk No 2	2500	41
Great Valley, Ceylon	56	ch	hro or pek	3248	50
	26	do	bro pek	2470	39
	94	do	pek	8460	32
	36	do	pek sou	2880	30
	18	do	fans	1170	29
	15	do	dust	1275	25
	25	do	or pek	2375	38
Panawatte	17	ch	bro or pek	1955	44
	15	do	or pek	1575	35
	28	do	pek	2208	32
	19	do	pek sou	1710	30
Freds Ruhe	20	ch	bro pek	2000	30
	10	do	pek	1000	27
Marlborough	20	hf ch	bro or pek	1040	66
	14	ch	or pek	1260	42
	21	do	bro pek	2100	38
	26	do	pek	2132	34
	12	do	pek sou	1044	33
	16	hf ch	hro pek fans	1040	32
Castlereagh	37	hf ch	bro or pek	1850	59
	10	ch	bro pek	1000	32
	16	do	or pek	1280	35
	13	do	pek	1040	34
Woodend	23	ch	bro pek	2254	31
	38	do	pek	3344	25
U S A	12	ch	dust	1200	23
Ugieside	13	ch	fans	1300	18
	12	do	hro tea	1080	19 bid
Weyungawatte	26	ch	bro pek	2730	31
	29	do	pek	2465	24
	24	do	pek sou	1920	22
Udaveria	17	hf ch	hro or pek	1020	83
	30	do	hro or pek No 1	1800	58
	12	ch	or pek	1104	50
Bellongalla	11	ch	bro pek	1100	26
	19	do	pek	1710	24
Holton	19	ch	hro pek	1900	34
	19	do	pek	1615	29
Templehurst	12	ch	hro pek	1200	76
	16	do	pek	1440	53
Mousa Eliya	21	ch	bro pek	2100	34
Monkswood	14	ch	pek sou	1190	33

Messrs. Keell and Waldock.

[31,991 lb.]

	Pkgs.		Name.	lb.	c.
P in est mark	12	ch	hro or pek	1200	22
	14	do	pek	1260	17 bid
	23	hf ch	bro pek fans	1495	out
	34	do	bro pek dust	3060	15 bid
Aigburth	15	ch	hro pek	1500	31
	17	do	pek	1530	27
	19	do	pek sou	1520	22 bid
A B	15	ch	hro or pek	1476	27 hid
Morahela	12	ch	bro or pek	1404	30
	36	do	bro pek	3600	31 hid
	49	do	or pek	4459	28 bid
	47	do	pek	4089	27
D W E	34	ch	bro or pek	3570	out

Messrs. Somerville & Co.

[226,896 lb.]

	Pkgs.		Name.	lb.	c.
R K P	27	ch	or pek	2160	28
	17	do	hro or pek	1700	28
	18	do	pek	1440	25
	14	do	pek sou	1190	22
	10	do	dust	1000	22
Blinkbonnie	24	hf ch	hro or pek	1440	57
	18	ch	or pek	1800	38
	18	do	pek	1692	35
Lonach	27	hf ch	hro or pek	1485	49
	16	ch	or pek	1360	38
	27	do	pek	2160	26 bid
Donside	18	ch	pek sou	1440	21 bid
Glenamore	33	hf ch	bro mixed	1815	20
Kudaganga	16	ch	bro pek	1600	26
	15	do	pek	1425	23
Lyndhurst	40	hf ch	bro pek	2200	29
	39	do	pek	1755	26
	34	do	pek sou	1530	20
Ambalawe	17	ch	hr pek	1700	28
	13	do	pek	1079	23 hid
Damhlagolla	13	ch	or pek	1170	33
	29	hf ch	bro pek	1740	30
	24	ch	pek	2040	28
	16	do	pek sou	1280	22

	Pkgs.		Name.	lb.	c.
Rahatungoda	23	hf ch	bro or pek	1242	57
	27	ch	or pek	1458	40
	40	do	pek	2040	37
W K P	33	ch	hro pek	3465	32 bid
	28	do	or pek	2520	30
	80	do	pek	6400	27
	28	do	pek sou	2100	22
Grange Gardens	14	ch	bro or pek	1400	47
	12	do	or pek	1200	37
	16	do	pek	1600	32
Lahugama	28	hf ch	hro pek	1400	29
	27	ch	pek	2295	25
Neboda	22	ch	hr or pek	2200	41
	20	do	or pek	1840	30
	33	do	pek	3300	27
	19	do	pek sou	1805	22
Glenalmond	30	hf ch	or pek	1498	33
	21	ch	pek	1890	33
New Valley	24	ch	bro or pek	2400	42
	12	do	or pek	1200	36
	16	do	pek	1600	32
	21	do	pek sou	1890	26 bid
D M O G in est mark	30	hf ch	hro pek	1650	31
	21	hf ch	or pek	1050	34
	15	ch	pek	1200	29
	33	do	pek sou	2475	24
	13	hf ch	dust	1105	25
California	10	ch	pek	1000	23
Columbia	20	hf ch	hro pek	1200	42
	23	do	pek	1196	35
	25	do	pek sou	1050	30
Hopewell	26	ch	bro or pek	2860	26 bid
	27	do	or pek	2700	28
	40	do	pek	3600	25
	31	do	pek sou	2400	22
	16	hf ch	pek fans	1040	24
Deniyaya	11	ch	or pek	1045	34
	14	ch	hro or pek	1400	39
	18	do	pek	1710	27
	21	do	pek sou	1890	21
	14	do	sou	1260	24
Nenchatel	10	ch	bro or pek	1000	50
	64	ch	or pek	5440	29 bid
	25	do	pek	2000	27
	13	do	br pek fans	1430	26
Siriniwasa	21	ch	hro pek	2100	34
	38	do	pek	3610	26
	26	do	pek sou	2340	21
Charlie Hill	20	hf ch	br pek	1100	29
Mount Temple	18	ch	bro pek	1728	withd'n
	14	do	pek	1190	withd'n
	14	do	hro or pk fans	1400	withd'n
Scarborough	22	hf ch	bro or pek	1166	59
	16	ch	or pek	1520	40
	20	do	pek	1900	35
Kanatota	17	ch	pek	1360	20 hid
X L N T in est mark	20	hf ch	dust	1800	19 hid
Galphele	10	ch	hro or pek	1000	51
	14	do	or pek	1400	37
	10	do	bro pek	1000	34
	25	do	pek	2250	35
Ravenoya	12	ch	bro pek No. 2	1200	26
Weygalla	21	ch	pek	1890	27 bid
Laxapanagalla	24	ch	hro or pek	2400	withd'n
	10	do	or pek	1000	withd'n
Rambodde	30	hf ch	bro pek	1680	withd'n
	35	do	pek	1575	withd'n
	27	do	pek sou	1350	withd'n
Warakamure	33	ch	bro pek	3300	26 hid
	27	do	pek	2430	23
	14	do	pek sou	1120	18
Kurulugalla	14	ch	bro or pek	1400	32
	12	do	or pek	1080	30
	27	do	pek	2430	26
Isledon	14	ch	bro or pek	1382	38
	13	do	pek	1152	28
	19	do	pek sou	1785	22 hid
Ranasinghapatna	91	hf ch	hro or pek	5184	29 bid
Depedene	31	hf ch	hro pek	1860	22 bid
	39	do	pek	1950	20 hid
	23	do	pek sou	1150	16 bid
Havilland	33	ch	pek	2805	27

Messrs. E. John & Co.

[224,001 lb.]

	Pkgs.		Name.	lb.	c.
Craigingilt	19	hf ch	hro or pek	1045	35 bid
Eila	54	ch	or pek	4320	30
	40	do	pek No. 2	3000	23
Glentilt	37	hf ch	hro or pek	2035	65
	23	ch	or pek	2070	40 bid
	29	do	pek	2610	37
Kosgalla	27	hf ch	bro pek	1350	30

	Pkgs.		Name.	lb.	c.
Orwell	21	do	bro or pek	1260	23 bid
	16	ch	or pek	1696	30
	29	do	pek	2465	27
Eila	41	do	bro pek	4100	30
	54	do	pek sou	3780	21
Rondura	30	do	bro pek	3000	27
	20	do	or pek	1700	31
	84	do	pek	2924	24
Glasgow	30	bf cb	bro or pek	1650	66
	25	cb	bro pek	2500	60
	35	do	or pek	3255	43
	10	do	pek	1000	44
Agra Ouvah	41	hf ch	bro or pek	2460	72
	26	do	or pek	1404	47
Eladuwa	20	ch	pek	1900	18 bid
A L	28	do	bro pek	2781	out
Gonavy	34	do	pek	3400	33
Adisbam	11	do	pek	1100	27
Brownlow	22	hf cb	bro or pek	1166	66
	19	ch	or pek	1786	39
	28	do	pek	2156	33
Holbrook	31	hf ch	flow or pek	1860	49 bid
	16	ch	or pek	1520	40
	13	do	pek	1170	36
Balado	14	do	pek	1330	28
	23	do	pek sou	1840	25
Cooroondoowatte	10	do	pek	1000	26
Rookwood	100	bf ch	bro or pek	6000	32 bid
	74	ch	or pek	7104	34
	79	do	pek	7110	26 bid
Walla Valley	16	do	pek	1520	29
Waragalande	10	do	bro or pek	1000	51
	15	do	bro pek	1350	34
	15	do	pek	1350	32
Citrus	26	do	bro pek	2600	out
L F	20	do	bro pek dust	2600	22 bid
Bowella	16	do	pek	1360	26
L H O	10	do	fans	1120	27
Natuwakelle	15	do	bro or pek	1500	49
	24	do	bro pek	2160	32
	28	do	pek	2520	31
Citrus	14	do	bro pek	1400	19 bid
Winwood	33	hf cb	bro or pek	1650	51
	33	do	bro or pek	1647	witbd'n
	18	cb	or pek	1620	31
	21	do	pek	1890	29
	17	do	pek sou	1530	22 bid
	16	do	sou	1440	20
Gingranoya	11	do	bro or pek	1097	48
	14	do	or pek	1187	35
A T	16	do	pek sou	1440	19
	9	do	pek dust	1080	20
Poilakande	39	do	bro or pek	3510	28
	44	do	bro pek	3960	26
	47	do	pek	3760	23
	12	do			
	1	hf cb	dust	1000	24
Tismoda	10	ch	bro pek	1000	30
Penritb	16	do	bro pek	1600	30
	15	do	pek	1350	25
Ratwatte	30	do	bro pek	3000	31
	14	do	pek	1260	27
Glassaugh	27	hf ch	or pek	1512	69
	22	do	bro or pek	1474	67
	13	ch	pek	1365	51
Higham	40	do	bro pek	4000	34 bid
	27	do	pek	2565	29 bid
	16	do	pek sou	1520	28
Templestowe	33	hf ch	bro or pek	1848	58
	23	do	bro pek	1288	46
	22	do	or pek	1012	42
	26	ch	pek	2080	37
	14	do	pek sou	1190	34
	12	do	dust	1045	27
Kandahar	20	hf cb	bro or pek	1120	47
	20	do	or pek	1060	41
	19	do	pek	1045	36
Captains Garden	23	ch	pek	2070	21
Cabin Ella	15	do	bro pek	1500	50
	13	do	pek	1105	37
Kandaloya	26	hf ch	bro or pek	1170	42
	44	do	bro pek	1980	31 bid
	50	do	or pek	2000	35
	97	do	pek	3880	28
Brownlow	18	ch	pek	1635	32 bid
Gangawatte	25	do	pek	2250	34 bid
Ouvah	33	do	pek	2970	36 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Haputalewella	16	hf ch	pek	800	28
	11	do	pek sou	495	26
	3	do	fans	240	24

	Pkgs.		Name.	lb.	c.
Cbouhleigh	5	ch	bro or pek	520	23
	1	do	pek sou	91	52
	2	do	dust	270	23
	2	do	fans	236	26

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Aigburth	4	hf ch	dust	330	18
	10	do	br pk fans	700	23
A B	3	ch	pek fans	282	out
Morahela	2	cb	souchong	196	18
	3	hf ch	dust	270	21

Messrs. Forbes & Walker

	Pkgs.		Name.	lb.	c.
K C E	3	ch	fans	330	12
	2	do	congou	190	withdn.
	2	do	dust	300	
	1	do	pek No. 4	100	
K B	6	ch	bro pek	540	27
	5	do	pek dust	400	22
Ingoya	*5*	*ch*	*fans*	*500*	*13*
Dewalakanda	1	cb	bro pek	100	20
	1	do	or pek	90	26
	4	do	pek	260	19
	1	do	pek sou	75	15
Yataderia	11	ch	pek sou	858	16 bid
Mawiligangawatte	3	cb	bro or pek	300	33
	3	do	or pek	240	28
	2	do	dust	130	23
K C E	1	cb	fans	110	withdn
	1	do	fans	110	
Beverley (2 oz. lead line)	8	hf cb	fans	520	29
Aden	5	ch	bro mix	450	10
Velana	3	ch	bro or pek	300	36
	12	do	pek	960	26
	6	do	pek sou	510	20
	2	do	bro pek fans	210	27
Udabage	3	hf cb	bro or pek	138	24
	5	do	bro pek	250	22
	4	do	pek	168	18
	3	do	pek sou	105	14
	1	do	fans	52	13
B B B, in est mark	4	hf cb	dust	312	24
R.M, in est. mark Bopitiya	6	ch	or pek	510	33
	6	do	pek sou	540	27
	3	bf ch	dust	225	25
	2	do	bro or pek No 2	120	37
Kelburne	8	do	dust	680	24
Kslvin	2	ch	pek sou	200	25
	3	hf cb	dust	255	22
	1	ch	bro mix	80	14
Yogama	6	ch	pek sou	480	24
	2	do	dust	280	24
Kokarakande	*7*	*ch*	*young hyson*	*728*	*30*
	9	*do*	*hyson*	*765*	*28*
Udabage, D in estate mark	*2*	*hf ch*	*hyson No. 2*	*100*	*30*
	5	*do*	*dust*	*400*	*10*
W W	1	ch	pek	90	20
Yelverton	10	cb	pek sou	740	28
N W D	3	cb	bro pek	300	34
	8	do	pek	720	22
	1	do	pek sou	94	19
	6	do	fans	732	26
Dromoland	9	hf cb	or pek	450	32
	6	cb	pek sou	528	24
	6	hf cb	fans	402	28
	3	do	dust	282	22
Kabragalla	3	do	dust	255	24
	1	do	pek sou	55	18
Uva	7	hfch	dust	560	28
Maba Eliya	11	do	bro pek fans	770	30
	11	do	pek fans	880	28
Penrhos	2	bf ch	pek dust	156	24
	3	do	fans	210	30
Tempo	8	ch	bro pek	800	39
	7	do	pek sou	560	22
	1	do	bro pek fans	100	29
	3	do	dust	330	23
Udabage, D in estate mark	*15*	*hf ch*	*hyson No. 1 A*	*825*	*32*
	2	*do*	*hyson No. 2*	*110*	*31*
	7	*do*	*fans*	*420*	*13*
	4	*do*	*dust*	*320*	*10*
E D P	13	hf ch	dust	975	20
	7	ch	sou	560	15
Irex	4	cb	pek sou	320	28
	2	do	fans	220	24
	1	do	dust	85	22

Box.	Pkgs.	Name.	lb.	c.
Marie Land	7 ch	pek sou	661	22
	3 hf ch	dust	252	22
Mount Pleasant	8 do	bro or pek	480	29
	7 do	or pek	350	20 bid
	9 do	pek	450	18
	8 do	pek sou	150	15
	2 do	s. u	100	13
	2 do	congou	60	12
	1 do	fans	50	11
	1 box	*young hyson*	*10*	*30*
Gonapitiya, Invoice No. 18	15 hf ch	pek sou	705	41
B D W, Invoice No. 11	6 ch	bro pek fans	660	28
	8 do	dust	800	21
J W M S, Inv. No. 3	5 ch	bro pek	550	45
	7 do	or pek	679	37
	2 do	pek sou	210	27
	4 do	sou	380	16
	1 do	fans	51	20
	2 do	dust	162	23
Mount Pleasant	1 hf ch	congou	60	10
Kalupahana	10 do	bro pek	500	32
	4 ch	pek	380	18 bid
	4 do	pek sou	352	17
	5 do	fans	520	11 bid
	2 do	dust	290	17
North Matale	6 hf ch	dust	480	20
Belgodda	7 do	bro pek	350	24
	5 do	pek	250	15
	4 do	pek sou	180	12
Glasiyn	16 hf ch	bro or pek	880	57
Beverley Inv. No. 8	12 do	bro or pek	600	37
Halbarawe	3 ch	dust	492	14
Wilpita, Inv. No. 22	3 ch	bro or pek	270	22
	6 do	bro pek	600	26
	6 do	pek	570	16
	5 do	pek sou	475	14
	1 do	red leaf	83	10
Kettadolla	2 ch	bro pek	183	28
	2 do	or pek	185	20
	4 do	pek	360	16
	1 do	sou	73	14
	2 do	mixed	180	10
Wilpita, Inv. No. 22	6 ch	bro pek	600	28
	6 ch	pek	570	18
	6 do	pek sou	540	15
	3 do	pek fans	324	12
	1 do	red leaf	90	10
Mahawale	10 hf ch	fans	750	20
	10 do	dust	900	20
Maha Uva	3 ch	pek fans	225	32
Ruanwella	6 ch	bro pek fans	600	21
	6 hf ch	dust	480	22
Clunes	11 ch	or pek	990	out
	7 do	fans	700	21
	2 do	dust	280	22
Weoya	10 ch	pek sou	800	21
	4 do	bro pek fans	460	21
	3 do	dust	450	20
Battawatte	15 hf ch	bro or pek	975	32
	4 ch	dust	400	24
Morankande	7 ch	pek sou	490	21
	3 hf ch	br or pk fans	210	24
	2 do	dust	180	23
Hanwella	*1 ch*	*hyson No. 2*	*105*	*29*
	3 hf ch	*hyson siftings*	*255*	*10*
B P C	6 hf ch	fans	438	12 bid
Ganapalla	10 ch	pek sou	780	20
W V R A	11 hf ch	mixed tea	550	11
Tembiligalla	7 ch	pek sou	658	20
	1 do	bro pek fans	110	26
	3 do	dust	414	18
R in est mark	2 ch	bro mixed	180	12
	5 do	sou	360	12
Geragama	8 ch	bro or pek	840	37
	2 do	bro mixed	200	12
	4 hf ch	bro or pek fan	240	22
	6 do	dust	480	23
Hatherleigh	2 ch	dust	300	20
Anningkande	10 ch	pek sou	900	21
	3 do	bro or pek	345	25
	2 do	pek fans	190	16
	3 do	dust	330	23
Good Hope	1 ch	fans	100	22
	4 hf ch	dust	360	21
Sylvakandy	4 ch	pek sou	400	31
	3 do	dust	300	27
Great Valley Ceylon	6 ch	sou	510	14
Panwatte	9 ch	fans	990	23
	3 do	dust	450	22
Kotua	12 hf ch	or pek	600	24
	3 do	bro pek	150	19
	12 do	pek	540	16
	1 do	dust	60	19

	Pkgs.	Name.	lb.	c.
Freds Ruhe	7 ch	pek sou	665	22
W A	2 ch	dust	300	20
Woodend	9 ch	pek sou	720	21
	2 do	bro pek fans	204	21
	4 hf ch	dust	328	23
U S A	3 ch	sou	240	16
	10 do	fans	900	10
D in est mark	8 ch	sou	580	14
Ugieside	7 hf ch	dust	595	20
Weyungawatte	1 ch	sou	85	14
	3 hf ch	dust	255	22
Udaveria	6 ch	pek	510	50
	4 hf ch	bro or pek fans	280	34
	2 do	fans	160	31
Trewardena	7 ch	bro pek	700	withd'n
	8 do	pek	800	withd'n
	5 do	pek sou	485	withd'n
	2 do	bro pek fans	200	withd'n
	1 do	unassorted	90	withd'n
Bellongalla	9 ch	pek sou	720	16
	2 hf ch	fans	210	20
	1 do	dust	100	18
Holton	6 ch	pek sou	510	24
	6 hf ch	bro pek fans	330	15
	3 do	dust	340	15
Templehurst	11 ch	pek sou	880	43
	1 ch	dust	180	26
	1 hf ch	fans	70	30

Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
H L	2 hf ch			
	1 box	bro pek	123	18
	10 hf ch	pek	506	16
H L	*1 hf-ch*			
	1 box	*hyson*	*76*	*10*
Craigingilt	7 ch	pek sou	595	26
	5 do	dust	400	25
Eila	7 do	bro or pek	700	26
Kosgalla	19 hf ch	pek	855	21
	5 do	pek No. 2	225	16
	8 do	pek sou	400	16
	7 do	unas	340	15
	2 do	bro dust fans	120	15
E	4 ch	bro pek	369	34
Z Z Z	2 hf ch	sou	116	14
	8 do	pek dust	752	18
	3 do	unas	156	24
Rondura	8 ch	bro or pek	920	22
	8 do	pek sou	720	22
	3 do	bro pek fans	345	19
	4 do	dust	660	23
Agra Ouvah	10 hf ch	pek	900	45
Eladuwa	8 ch	or pek	760	24
	8 do	bro pek	840	20 bid
	10 do	pek sou	900	14
	3 do	dust	450	20
	2 do	unas	220	12
Holbrook	9 hf ch	bro or pek	540	69
Waragalande	8 ch	pek sou	720	28
	2 do	dust	200	26
Bowella	6 do	or pek	570	24
L H O	7 hf ch	dust	560	20
Natuwakelle	10 ch	pek sou	900	27
	3 do	dust	300	25
Castle Hill	11 do	pek	990	22 hid
A T	8 do	pek fans	880	13 hid
	3 do	dust	360	10
	1 do	fans	110	12
	2 do	bro pek fans	220	20
M	8 do	bro pek	800	out
Kalkande	3 do	flow or pek	300	26
	4 do	bro pek	400	24
	6 do	pek	540	18 bid
	1 do	dust	120	18
Gonavy	10 do	pek No. 2	847	28
O F E	11 do	bro pek	990	30
	9 do	or pek	810	18 bid
	9 do	pek	855	16 bid
	4 do	pek sou	380	15
	1 do	bro pek fans	105	12
Tismoda	10 do	pek	900	25
Penrith	3 do	pek sou	270	20
K W	4 do	bro pek	440	28
	3 hf ch	pek	150	20
	1 do	pek sou	50	16
	1 do	fans	80	25
	1 do	dust	85	24
Kehelwatte	1 ch	fans	110	27
	4 hf ch	dust	340	25
Yapame	2 do	dust	190	23
	2 do	fans	190	26
Ratwatte	5 ch	pek sou	400	19

Box.	Pkgs.		Name.	lb.	c.
	2	hf ch	dust	160	22
Glassaugh	3	ch	bro mix	351	17
Higham	12	hf ch	bro or pek	780	32
	1	do	dust	95	20
	1	ch	sou	100	17
	4	hf cb	bro pek fans	280	26
Captains Garden	16	do	bro pek	800	27
	2	ch	pek sou	180	12
cabin Ella	1	ch	pek fans	70	26

[Messers. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Blinkbennie	4	ch	pek sou	344	30
Lonach	12	ch	pek sou	960	24
H J S	10	hf ch	dust	750	16
Dambagalla	2	hf ch	br pek	94	28
	10	do	pek	490	24
Kudaganga	7	ch	pek sou	630	19 bid
	6	do	bro pek fans	510	12 bid
	6	do	bro pek dust	720	22
Lyndhurst	4	hf ch	dust	340	20
G	6	ch	bro tea	540	12
D B G	2	ch	bro mixed	200	10
	9	hf ch	dust	720	23
	9	ch			
	1	bf ch	fans	955	16 bid
Augusta	8	cb	fans	960	18 bid
M G	8	bf ch	pek	400	15
	15	do	pek sou	750	10
W K P	7	ch	souchong	532	16 bid
	3	ch			
	1	bf ch	dust	330	24
Labugama	4	cb	pek sou	320	18
	3	hf ch	dust	225	23
	4	do	fans	240	25
Neboda	4	bf ch	dust	310	21
Glenalmond	9	hf ch	bro or pek	527	39
	3	ch			
	1	hf ch	pek sou	320	21
	1	ch			
	1	hf ch	fans	179	25
	2	do			
	1	box	dust	208	20
Weygalla	15	hf ch	bro or pekoe	750	witbd'n
New Valley	1	hf ch	dust	95	20
D M O G in estate mark	10	hf ch	fans	600	23
	2	ch	bro mixed	170	12
W P M	4	ch	or pek	372	35 bid
California	6	ch	br pek	600	30
	7	do	pekoe souchong	700	12
Columbia	5	hf ch	fans	375	30
Neuchatel	8	ch	pek sou	640	23
	3	do	dust	420	20
Siriniwasa	7	cb	bro pek fans	700	23
	2	do	dust	300	22
	2	do	sou	160	10
Charlie Hill	10	hf ch	pekoe	500	25
	4	do	pek sou	200	18 bid
	2	do	dust	160	22
Scarborough	4	hf ch	dust	320	24
	4	ch	fans	268	31
Kanatota	3	ch	or fans	315	23
	10	do	br pek	900	24 bid
	7	do	pekoe souchong	630	16 bid
Ravenoya	5	ch	pekoe souchong	500	28
	3	do	fans	450	26
Laxapanagalla	1	ch	pek	90	
	2	do	pekoe fans	200	
	1	do	dust	100	
Rambode	3	hf ch	souchong	150	withd'n
	2	do	dust	160	
	3	do	red leaf	135	
Warakamure	1	bf ch	dust	90	19
Kurulugalla	6	cb	pekoe souchong	540	20
	2	ch	or pek fans	200	15 bid
	2	do	or pek dust	280	22
Isledon	7	ch	bro pek	660	29 bid
	1	do	fans	100	26
	1	do	dust	100	20
Y in est mark	2	hf ch	bro pek	110	20
	2	do	pekoe	110	22
	2	ch	pek sou	200	15
	1	do	dust	150	16
	1	box	hyson	10	8

	Pkgs.		Name.	lb.	c.
R G in est mark	3	ch	or pek	270	25 bid
	2	do	br pek	180	28
	5	do	pek	375	23
	6	do	pek sou	570	18 bid
	6	do	bro mix	600	17
Kurunegalla	12	hf ch	bro or pek	720	31
	15	do	or pek	750	28 bid
	10	ch	pekoe	850	24 bid
	5	do	pek sou	400	21
	1	hf ch	congou	90	16
	3	do	dust	255	24
Depedene	4	hf ch	bro pek fans	300	10
	2	do	bro pek dust	160	10
	2	do	dust	320	10
Sadamulla	8	ch	bro pek	776	22
Woodcroft	4	ch	dust	452	10 bid

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, 18th July.

"Bohemia."—Gowerakelli F, 1 cask sold at 119s; ditto 1, 1 cask and 1 tierce sold at 113s; ditto 2, 4 caske solk at 97s.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, July 24th.

"Lancashire."—Hylton No. 1, 44 bags sold at 79s 6d.

"Hitachi Maru."—T in estate mark, 26 bags sold at 52s; B in estate mark, 4 bags sold at 52s; I in estate mark, 20 bags sold at 52s.

"Machaon."—O MM in estate mark, 20 bags sold at 56s.

"Clan MacLaren."—Kaduwella No. 1, 2 bags sold at 50s.

"Glaucus."—MM in estate mark, 119 bags sold at 54s.

"Lancashire."—No. 1 Ross, 28 bags sold at 65s; D No. 1, 3 bags sold at 58s; D No. 2, 3 bags sold at 48s; Broken, 1 bag sold at 41s.

"Clan MacLaren."—Katugastota, 7 bags sold at 63s 6d.

"Ulysses."—Alloowihare Ceylon Cocoa O, 56 bags sold at 72s; ditto O, 19 at 56s; 4 at 47s; ditto B, 2 at 41s; 1 at 35s; ditto C, 3 at 57s; ditto D, 3 at 22s; New Peradeniya 1, 8 bags sold at 58s 6d; Owella Ceylon Cocoa A, 5 bags sold at 60s.

CEYLON CARDAMOMS SALES IN LONDON.

MINCING LANE, 25th July.

"Somali."—Duckwari Ceylon Cardamoms C Splits, 4 oases sold at 1s 4d; 2 at 1s 3d.

"Inaba Maru."—Yellangowry No. 1, 1 case sold at 1s 7d; ditto No. 3, 1 at 1s.

"Lancashire."—Kirklees PR in estate mark O, 2 cases sold at 1s 11d; ditto S, 1 at 1s; ditto SP, 1 at 11d; ditto Seeds, 1 packet sold at 1s 8d; ditto 1, 6 cases sold at 1s 6d; ditto B, 2 at 1s 1d; ditto S, 4 at 1s.

"Glauous."—Knuckles Group, 6 cases sold at 1s 6d; 3 at 1s 7d; 1 at 1s 8d.

"Yeoman."—Knuckles Group, 3 cases sold at 1s 3d.

"Duke of Sutherland."—Cardamoms Oonoonagalla Ceylon Estate No. 3, 2 cases sold at 1s; ditto Seed, 1 at 1s 7d.

"Hyson."—Eton OO, 2 cases sold at 2s 8d; 1 at 2s 7d; ditto O, 2 at 2s 4d; 1 at 2s 3d; ditto I, 7 at 1s 8d; ditto II, 3 at 2s 2d; ditto III, 2 at 1s 4d.

"China."—Wattakelly No. 1, 2 cases sold at 1s 7d; ditto 2, 4 at 1s 4d; ditto 3, 5 at 1s 1d; ditto 4, 2 at 1s· ditto 5, 1 at 11d; 1 at 1s 7d.

No. 33. COLOMBO, AUGUST 25th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[27,315 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	23 ch	or pek	2300	38 bid
	18 do	pek	1530	32 bid
Yuillefield	35 hf ch	bro or pek	1925	58
	53 ch	pek	2970	33 bid
Hornsey	27 hf ch	bro pek	1620	52
	20 ch	pek	1700	35
	15 do	pek sou	1050	31
Coodoogalla	62 hf ch	bro pek	3100	32
	28 do	pek	1400	27 bid
Torrington	15 ch	or pek	1350	33 bid
	25 do	or pek No 2	2000	27 bid
	30 do	bro or pek	3000	40 bid
	19 do	pek	1615	23 bid

Messrs. Forbes & Walker.

[464,689 lb.]

	Pkgs.	Name.	lb.	c.
Ninfield	18 ch	pek	1530	28
Walton	37 ch	bro pek	3885	39 bid
	37 do	or pek	3145	32 bid
	27 do	pek	2565	29 bid
New Peacock	29 hf ch	bro pek	1495	44
	21 do	pek fans	1575	28
Coldstream Group	82 do	bro pek	4510	39
	27 ch	pek	2160	31
Yatiyana	16 ch	or pek	1648	28
Malvern	32 ch	bro pek fans	2400	24
Riverside	13 ch	bro pek	1365	36 bid
	12 do	or pek	1080	33
	25 do	pek	2000	27 bid
Aldie	28 do	bro pek	2800	56 bid
	20 do	pek	1700	41 bid
Thedden	14 do	bro pek	1400	38
Glenorchy	12 ch	pek	1140	52
Vincit	20 ch	bro pek	2000	33
	23 do	pek	2070	27
Cholankande	18 hf-ch	duts	1440	21
Laurawatte	19 ch	bro pek	2020	32
	25 do	or pek	2350	29
	19 do	pek	1596	26
	11 do	pek sou	1100	23
Poonagalla	22 ch	or pek	2090	47
	56 do	bro pek	6272	64
	48 do	pek	4560	46
	20 do	fans	1700	31
Torwood	17 ch	bro or pek	1530	31
	30 do	bro pek	2580	26 bid
	44 do	pek	3520	21
Ardlaw and Wishford	10 ch	bro or pek	1080	81
	9 do	bro pek No 1	1005	66
	12 do	or pek	1080	41
	15 do	pek	1260	39
Clarendon	19 hf ch	bro pek	1175	66
Adisham	32 do	bro or pek	1760	56 bid
	17 ch	bro pek	1700	36 bid
	11 do	pek	1045	32 bid
El Teb	26 do	or pek	2600	37 bid
	30 hf ch	bro or pek	1800	56
	30 ch	pek	3000	35
Passara Group	24 do	bro pek	2400	51
	23 do	pek	2185	40
Monkswood, Invoice No. 11	25 hf ch	or pek	1250	73
	22 ch	pek	1980	58
Middleton, Invoice No. 26	16 ch	bro pek	1600	36
	16 do	pek	1440	34
Aberdeen	23 ch	bro pek	2093	33
	29 do	pek	2175	25
Dunkeld	43 hf ch	bro or pek	2580	53
	16 ch	or pek	1440	39
	19 do	pek	1710	34
Polatagama	23 do	bro or pek	2300	37
	30 do	bro pek	2880	33 bid
	13 do	or pek	1170	29 bid
	52 do	pek	4680	26 bid
High Forest	42 hf ch	or pek	2436	61
	28 do	or pek	1512	49
	25 do	pek	1175	44
High Forest	34 do	bro or pek	2516	33
	34 do	pek sou	1530	33
	16 do	pek dust	1440	28
Kincora	12 ch	bro or pek	1200	66
	21 do	or pek	1890	38
	27 do	pek	2295	34 bid
Coreen	39 hf ch	bro pek	2340	51
	17 ch	or pek	1615	36 bid
Vogan	24 do	bro or pek	2280	48
	32 do	or pek	2880	36
	39 do	pek	3510	32
	18 do	pek sou	1530	24
K P W	31 hf ch	bro or pek	1800	33
	30 do	bro pek	1500	29
	37 do	pek	1850	26
O B E C, est. mark Summerhill	19 ch	bro or pek	1102	80
	11 do	or pek	1001	52
	33 do	pek	2970	45
	50 do	pek sou	3900	40
Inverness	16 ch	bro or pek	1600	57
	18 do	or pek	1620	46 bid
	25 do	pek	2125	38 bid
Gampha	52 hf ch	bro or pek	3120	47
	30 ch	or pek	2880	45
	25 do	pek	2125	41
	12 do	pek sou	1080	33
Galapitakande	22 do	or pek	2200	44
	35 do	bro pek	3500	50
	46 do	pek	4140	33
	15 do	pek sou	1425	33
Pine Hill	22 hf ch	bro or pek	1320	52
	19 do	or pek	1805	35
	23 do	pek	2070	30
	12 do	pek sou	1020	25
St. Martins	39 hf ch	pek	1560	27
Ugieside	12 ch	bro mix	1080	withdn.
L B K	9 do	dust No 2	1440	13
Kitulgalla, Invoice No. 11	24 hf ch	bro or pek	1392	28
	14 ch	or pek	1190	26
	13 do	pek	1040	24
Edward Hill	40 hf ch	bro pek	2240	31
	14 ch	or pek	1148	27
	19 do	pek	1482	25
Talgaswella	15 ch	bro or pek	1500	42
	13 do	or pek	1040	32
	21 do	pek	1680	28
	26 do	pek sou	1800	25
Stafford	18 ch	or pek	1800	47
	12 do	pek	1080	45
Meath	20 hf ch	bro or pek	1120	33
	22 do	or pek	1163	30 bid
Sirikandure	30 ch	bro pek	2850	31
	27 do	pek	2025	25
Darrawella	29 hf ch	bro or pek	1595	68
	12 ch	bro pek	1260	43
	14 do	or pek	1260	39
	42 do	pek	3570	31 bid
Strathisla	21 ch	bro or pek	2100	36
	16 do	or pek	1280	29
	23 do	pek	2070	31
Ninfield	12 ch	bro pek	1200	withd'n
	19 do	pek	1615	withd'n
Purana	17 ch	pek	1360	23
Swinton	18 ch	bro or pek	1800	35 bid
	22 do	or pek	2200	30 bid
	21 do	pek	1890	28 bid
	12 do	pek sou	1020	24 bid
Amblangoda	19 ch	bro or pek	1900	35 bid
	24 do	or pek	2400	30 bid
	21 do	pek	1890	28 bid
	12 do	pek sou	1020	24 bid
Woodend	31 ch	bro pek	3100	32
	63 do	pek	5544	24
	19 do	pek sou	1520	22
Polatagama	25 ch	bro or pek	2500	36 bid
	36 do	bro pek	3420	32 bid
	18 do	or pek	1710	28 bid
	48 do	pek	4080	26 bid
	21 do	pek sou	1890	24
	12 do	fans	1200	23
Dammeria	14 ch	bro or pek	1400	33
	29 do	bro pek	2900	43
	12 do	or pek	1080	31
	21 do	or pek	1890	37
	31 do	pek	2790	34
	33 do	pek	2970	35
	33 do	pek sou	2970	33
	13 hf ch	bro pek fans	1040	32
	12 ch	dust	1200	27

Box.	Pkgs.		Name.	lb.	c.
Gonapitiya	25	hf ch	pek	2292	40 bid
Tunisgalla	30	hf ch	or pek	1500	37
	16	ch	pek	1440	29
Bandara Eliya	71	hf ch	pek	3408	27 bid
	61	do	or pek	3405	32 bid
	54	do	or pek	2970	36
	68	ch	pek	3264	31 bid
Nillomally	36	ch	pek	3168	34
	34	do	pek sou	2720	29
	24	do	bro or pek	2400	49
	18	do	or pek	1476	40
	10	do	fans	1000	30
Carolina	*19*	*hf ch*	*young hyson*	*1425*	*36*
	22	*do*	*hyson*	*1650*	*33*
Walpita	43	ch	bro pek	4300	28
	35	do	pek	3150	26
	13	do	pek sou	1040	23
Avoca	13	ch	bro or pek	1352	68 bid
	16	do	or pek	1632	40
	13	do	pek	1248	38
Knavesmire	37	ch	or pek	3330	27 bid
	74	do	bro pek	7400	29
	39	do	pek	3315	23
	24	do	pek sou	1800	21
	25	hf ch	bro pek fans	2000	21
Moray	29	hf ch	or pek	1305	42
	58	do	bro or pek	3190	57
	44	ch	pek	3528	36
	21	do	pek No. 2	1680	32
Bulugolla	30	ch	bro or pek	3000	38 bid
	35	do	or pek	3500	32 bid
	32	do	pek	2880	31
	15	do	pek sou	1275	24 bid
	12	do	bro or pek	1200	36 bid
	15	do	or pek	1500	30 bid
	12	do	pek	1080	28 bid
Amblakande	13	ch	bro pek	1300	withd'n
	25	do	pek	2250	withd'n
Memorakande	13	ch	pek fans	1040	25
Dambagastalawe	11	ch	bro or pek	1166	71
	16	do	or pek	1648	40
	12	do	pek	1152	38

Messrs. Keell and Waldock.

[36,210 lb.]

	Pkgs.		Name.	lb.	c.
Mapitigama	17	ch	bro or pek	1785	30 bid
Roscrea	10	ch	pek	1000	24 bid
Kottagodde	11	ch	bro or pek	1144	32
	12	do	bro pek	1200	28
	13	do	pek	1209	23 bid
Hyde	14	ch	or pek	1176	37
	26	hf ch	bro or pek	1456	53
	22	ch	pek	2024	31
Morahela	14	ch	bro or pek	1596	33
	25	do	br pek	2500	38
	27	do	or pek	2430	28 bid
	25	do	pek	2175	28
Panilkande	24	hf ch	br or pek No 1	1200	53 bid
	20	ch	bro or pek	2000	35
	24	do	pek	2160	23 bid
	13	do	pek & souchong	1170	16
W H F in est mark	27	hf ch	br pek	1350	13 bid

Messrs. Somerville & Co.

[261,085 lb.]

	Pkgs.		Name.	lb.	c.
Ettie	7	ch	dust	1050	15
Yspa	20	ch	pek sou	1600	23
Welgampola	21	hf ch	pek sou	1155	21
Avisawella	30	hf ch	bro or pek	1500	43
	29	ch	or pek	2755	31
	36	do	pek	3240	25
	25	do	pek sou	1920	23
Ferriby	26	ch	or pek	2210	26 bid
	17	do	pek	1360	24
	21	hf ch	pek sou	1575	22
	25	ch	pek	2000	24
Marigold	35	hf ch	br pek	1820	44
	30	do	pek	1470	36
	25	do	pek sou	1250	36
Allakollawewa	23	hf ch	bro pek	1196	43
	23	do	pek	1127	36
	21	do	pek sou	1029	26
Rambodde	30	hf ch	br pek	1650	43
	35	do	pek	1575	26 bid
	27	do	pek sou	1350	22
Pindenioya	18	ch	pek	1440	26
	44	ch	pek sou	3740	20
	18	do	or pek fans	1170	19 bid
Nyanza	18	ch	pek	1620	29

	Pkgs.		Name.	lb.	c.
Dover	25	hf ch	bro or pek	1375	withd'n
	22	ch	or pek	1870	30
	30	do	pek	2700	27 bid
	30	do	pek sou	2250	23
Auburn	11	ch	bro pek	1078	29
Laxapanagalla	24	ch	bro or pek	2400	37
	10	do	or pek	1000	29
Glenalla	*14*	*ch*	*young hyson*	*1330*	*37*
	19	*do*	*hyson No. 1*	*1805*	*33*
Manangoda	10	ch	bro pek	1003	22
	13	do	pek	1235	16 bid
Mount Temple	18	ch	bro pek	1728	30
	14	do	pek	1190	29
	14	do	bro or pek fans	1400	26
Donside	27	hf ch	bro or pk fans	1620	24
Invery	42	hf ch	bro or pek	2562	62
	30	do	or pek	1560	40
	54	ch	pek	5022	35
	13	do	pek sou	1118	27 bid
Ceylon	55	hf ch	bro or pek	2915	32 bid
	39	do	or pek	1833	28 bid
	77	do	pek	3542	26
Hawa Ella	32	hf ch	bro or pek	1760	42
	19	ch	pek	1805	35
Cooroondoowatte	22	ch	pek	2100	16
Anningkande	14	ch	or pek	1330	28 bid
Agra Elbedde	31	hf ch	bro or pek	1736	60
	29	do	or pek	1595	40
Ambalawa	15	ch	or pek	1275	26 bid
	13	do	pek sou	1105	23
Highfields	44	hf ch	pek	2288	35
Ravenscraig	21	hf ch	bro or pek	1176	50
	21	do	pek	1050	30 bid
Rayigam	15	ch	bro pek	1425	28
Ellerslie	28	hf ch	bro or pek	1400	48
	19	ch	or pek	1520	35 bid
	26	do	pek	2080	29 bid
Coteshurst	23	ch	bro or pek	2300	37 bid
	16	do	pek	1520	29 bid
	18	do	pek sou	1620	27
Cotswold	14	ch	pek	1120	35
W	9	ch	pek fans	1080	22
Walahanduwa	41	ch	bro or pek	3955	33 bid
	32	do	or pek	2745	28 bid
	46	do	pek	4190	29
Laukka	31	ch	bro pek	3100	29
	34	do	pek	2720	25
Waganila	15	ch	br pek	1500	66
	23	do	pek	2254	51
Beausejour	30	hf ch	bro pek	1500	33
	40	ch	pek	2800	24 bid
	14	do	pek sou	1120	22
Yahalatenne	26	ch	bro pek	2704	37
	17	do	pek sou	1547	30
Ferndale	27	ch	pek	2565	25 bid
Murraythwaite	17	ch	br pek	1700	34
	13	do	pek	1040	26
Bodava	25	hf ch	bro pek	1250	32
Mora Ella	20	hf ch	bro or pek	1060	53
	22	ch	pek No 1	1760	30
Mahatenne	14	ch	bro or pek	1400	44
	11	do	or pek	1100	30
	21	do	pek	1995	29
Moragalla	13	ch	bro pek	1300	28
	13	do	pek	1300	22
X L N T in est mark	20	hf ch	dust	1800	18 bid
Rayigam	16	ch	or pek	1520	withd'n
	11	ch	bro pek	1045	withd'n
	21	do	pek	1680	withd'n
	17	do	pek sou	1615	withd'n
Havilland	26	ch	bro or pek	2600	32
	14	do	or pek	1190	31
	39	do	pek	3315	26
Mousakande	12	ch	bro or pek	1200	33
	17	do	pek	1394	26
	26	do	pek sou	2028	23
	18	hf ch	fans	1260	24
Forest Hill	15	ch	pek	1230	28
	13	do	pek sou	1105	23
	15	hf ch	fans	1095	24
Oonankande	22	hf ch	bro pek	1100	39
	34	do	pek	1870	29
Warakamure	33	ch	bro pek	3300	28
Oononagalla	19	ch	bro or pek	1995	54
	14	do	or pek	1190	40
	17	do	pek No 1	1615	34
	20	do	pek No 2	1700	30
	14	do	pek sou	1260	26
Roseneath	28	ch	bro pek	2800	31
	19	do	pek	1710	28
	15	do	pek sou	1275	22 bid
Ranasinghapatna	21	hf ch	or pek	1003	28 bid
	31	do	bro or pek	1736	35
Glenalmond	20	hf ch	or pek	1000	33
	13	ch	pek	1170	29
M D F in est mark	20	hf ch	bro or pek	1120	29 bid
	18	ch	pek	1040	24 bid

Messrs. E. John & Co.

[175,764 lb.]

	Pkgs.	Name.	lb.	c.
Elston	27 ch	pek	2295	34
	27 do	pek sou	2295	29
OW	13 do	bro pek	1274	25 bid
	15 do	pek	1200	23 bid
	19 do	bro pek	1767	25 bid
Nahavilla	26 do	or pek	2340	55
	26 do	bro pek	2600	73
	18 do	pek	1620	45
Kelaneiya and Braemar	10 do	bro or pek	1000	55
	10 do	or pek	1090	36
	22 do	pek	2090	31
Cleveland	32 hf ch	or pek	1600	56
	34 do	pek	1700	43
G W	38 ch	dust	3420	25
Ashburton	10 do	bro or pek	1030	56
	21 do	bro pek	2205	40
	12 do	pek	1180	30 bid
Lameliere	30 hf ch	bro or pek	1800	40 bid
	15 ch	pek	1305	26 bid
Kelaneiya and Braemar	21 do	bro or pek	2100	57 bid
	14 do	or pek	1400	53 bid
	25 do	pek	2375	23 bid
Midlothian	21 hf ch	or pek	1050	48
	27 do	pek	1404	39
Glasgow	18 do	pek fans	1224	32
Agra Ouvah	37 do	bro or pek	2220	73
	25 do	or pek	1350	45
	19 do	pek fans	1520	32
Myraganga	14 ch	or pek	1260	33 bid
	28 do	or pek No. 2	2240	31 bid
	25 do	bro or pek	2500	41 bid
	21 do	pek	1785	27 bid
	23 do	pek sou	1725	23
Myraganga	12 do	or pek	1080	33 bid
	19 do	or pek No. 2	1520	30 bid
	15 do	bro or pek	1425	45
	14 do	pek	1190	27 bid
Theresia	21 do	bro pek	2100	40
	34 do	pek	2890	36
Glentilt	33 hf ch	bro or pek	1815	64
	19 ch	or pek	1710	38 bid
	20 do	pek	1800	36
	18 hf ch	fans	1040	28
Rookwood	37 ch	bro or pek	3996	30 bid
Kolapatna	18 hf ch	bro or pek	1008	75
	16 do	bro pek	1019	41 bid
	20 do	or pek	1000	37 bid
	20 do	pek	1100	30 bid
Galloola	33 ch	bro pek	3300	43
	45 do	pek	4050	36
	36 do	pek sou	2880	23 bid
Mocha	45 hf ch	bro or pek	2700	70
	12 ch	or pek	1080	55
	24 do	pek No. 1	2400	49
	11 do	pek No. 2	1045	46
Mt. Vernon	28 do	pek	2520	44
	27 do	pek sou	2214	40
	16 hf ch	dust	1280	27
Lameliere	30 do	bro or pek	1800	41
	15 ch	pek	1305	20
Merrow	44 hf ch	bro pek	2464	26 bid
	13 ch	pek	1300	24
Rookwood	100 hf ch	bro or pek	6000	withd'n
	79 ch	pek	7110	25 bid
Bittacy	16 do	bro pek	1568	40 bid
	14 do	pek	1176	37
Katawella	11 do	pek	1100	28
Mount Everest	21 hf ch	bro or pek	1050	67 bid
	34 do	or pek	1700	53
	27 ch	pek	2700	38 bid
Glentilt	23 do	or pek	2070	39 bid
Gangawatte	12 do	bro or pek	1200	63
	10 do	bro pek	1000	42
	20 do	pek	1800	35
Mahanilu	19 hf ch	or pek	1064	41
	15 ch	pek	1410	37
Troup	26 do	pek sou	2470	31
Balado	14 hf ch	dust	1050	24 bid
Eila	17 ch	bro pek	1615	30
	60 do	pek sou	4200	22
Bowhill	13 do	bro or pek	1300	50
	26 do	or pek	2600	29 bid
	20 do	pek	2000	28

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	3 ch	pek sou	270	27
	2 hf ch	dust	160	26
Coodoogalla	4 do	pek sou	200	22 bid
	5 do	dust	400	24
Torrington	5 ch	pek fans	725	25

Messrs. Forbes & Walker

	Pkgs.	Name.	lb.	c.
Ninfield	9 ch	bro pek	900	32
	5 do	or pek	450	29
	5 do	pek sou	425	22
	2 do	dust	242	22
Walton	6 ch	pek sou	480	25
	1 do	dust	150	23
Amblapitiya	14 hf ch	bro pek	742	25
	12 do	pek	600	21
	3 do	pek sou	135	16
	2 do	dust	134	18
Coldstream Group	7 ch	pek sou	560	26
	5 hf ch	fans	325	27
	3 do	dust	240	25
Yatiyana	7 ch	bro pek	679	22
	3 do	pek No. 1	300	21
	3 do	pek	291	20
	1 do	dust	77	18
Rawatte	*3 ch*	*young hyson*	*315*	*31*
	4 do	*hyson No. 1*	*400*	*27*
	5 do	*hyson No. 2*	*475*	*27*
	2 do	*twankey*	*240*	*13*
Riverside	12 ch	pek sou	900	25
	3 do	sou	228	21
	2 do	dust	138	22
B G	4 do	dust	344	22
Thedden	5 ch	pek	450	30
	2 do	pek sou	160	25
	1 do	bro pek fans	130	27
Glenorchy	12 hf ch	bro pek	720	77
	1 ch	pek sou	90	41
	1 hf ch	dust	85	29
Vincit	11 ch	pek sou	990	23
	3 do	bro pek fans	375	25
	2 do	fans	240	23
	1 do	dust	140	20
Trewardene	7 ch	bro pek	700	29
	8 do	pek	800	23
	5 do	pek sou	485	21
	2 do	bro pek fans	200	out
	1 do	unas	90	13
Cholankande	8 ch	or pek	720	28
New Galway	6 hf ch	bro pek	360	77
	10 do	pek	550	53
	1 do	pek sou	50	41
Dehiowita	3 ch	dust	450	23
Pansalatenne	4 do	bro pek fans	560	25
Kerrimettia	1 ch	congou	90	14
	2 hf ch	dust	170	21
Laurawatte	5 hf ch	fans (venesta)	405	23
Poonagalla	4 ch	pek sou	360	43
Torwood	3 do	sou	240	20
Pingarawe	5 hf ch	dust	450	26
Welkandala	7 hfch	dust	560	26
Ardlaw and Wishford	7 ch	bro pek No 2	700	48
	3 do	fans	300	30
Clarendon	7 do	pek	630	44
	6 do	pek sou	510	40
	1 do	sou	85	37
	1 hf ch	pek dust	85	29
Passara Group	6 ch	bro or pek	600	71
Monkswood, Invoice No. 11	8 hf ch	bro pek	480	86
	10 ch	pek sou	850	52
	11 hf ch	fans	770	39
	5 do	dust	450	29
C R D, Inv. No. 7	4 ch	sou	320	16
	1 do	red leaf	75	10
	3 do	dust	300	27
	1 do	pek	90	21
Middleton, Invoice No. 26	8 ch	pek sou	680	26
M, Invoice No. 27	1 hf ch	bro or pek	50	53
	4 do	bro pek	220	32
	5 do	or pek	250	32
	2 ch	pek	100	32
Wella, Inv. No. 8	3 hf ch	dust	270	24
Midlands, Invoice No. 16	1 hf ch	pek	45	23
Aberdeen	10 ch	sou	750	23
Seenagolla	15 hf ch	bro or pek	900	70
	10 do	or pek	520	54
	11 do	pek	638	44
	6 do	pek sou	336	31
	1 do	dust	85	28
Polatagama	9 ch	pek sou	810	22
	6 do	fans	600	20
	2 do	dust	300	20
Coreen	9 ch	pek	810	34 bid
	4 do	pek fans	280	29
	2 do	dust	172	27
Vogan	4 do	pek fans	480	26
	8 hf ch	dust	640	24
K P W	9 do	or pek	405	27
	18 do	pek sou	900	23
	2 do	pek fans	150	26
	2 do	dust	180	23

	Pkgs.		Name.	lb.	c.
Cardig	13	hf ch	bro pek	715	29
	9	do	pek	450	22
	4	do	pek sou	180	17
	1	do	bro pek fans	70	18
Gampaha	3	ch	pek fans	270	27
Galapitakande	5	hf ch	dust	400	27
St. Martin	17	do	hro pek	680	34
	12	do	pek sou	480	24
	11	do	fans	660	23
Galphele	1	hf ch	hro pek	56	27
Relugas	3	ch	sou	270	10
U S A	10	ch	pek fans	900	withdn.
Kitulgalla, Invoice No. 11	3	hf ch	dust	240	23
Edward Hill	10	ch	pek sou	880	22
	2	hf ch	dust	172	20
Talgaswella	13	hf ch	hro pek No 2	780	27
Stafford	8	ch	hro or pek	960	72
	2	do	fans	270	29
Meath	2	hf ch	hro pek	140	28
	1	do	dust	88	25
Sirikandure	14	ch	pek sou	910	22
	2	do	red leaf	150	12
	3	do	dust	390	23
Strathisla	3	ch	fans	330	23
	2	do	dust	170	22
Nintfield	4	ch	or pek	360	
	8	do	pek sou	640	withd'n
	2	do	dust	228	
Purana	8	ch	bro pek	800	36
	17	boxes	or pek	306	37
	9	ch	pek sou	648	24
	1	hf ch	dust	80	23
	1	do	fans	90	26
Swinton	3	ch	fans	300	26
	3	do	dust	330	25
Ambalangoda	3	ch	tans	300	23
	3	do	dust	330	25
Woodend	2	ch	bro pek fans	202	24
	4	do	dust	560	22
Hanwella	*9*	*ch*	*young hyson*	*900*	*33*
	8	*do*	*hyson No. 1*	*800*	*30*
	1	*do*	*hyson No. 2*	*103*	*30*
	2	*hf ch*	*hyson siftings*	*170*	*13*
Polatagama	2	ch	dust	300	21
Tunisgalla	14	hf ch	bro pek	810	44
	5	ch	pek sou	425	24
	14	hf ch	hro or pek	770	64
	5	do	dust	475	20
K C E	1	ch	fans	107	10 bid
Nillomaliy	2	ch	dust	200	21
Carolina	*7*	*ch*	*hyson No. 2*	*644*	*30*
	4	*hf ch*	*siftings*	*312*	*12*
Walpita	2	ch	dust	280	23
Avcca	3	ch	pek sou	300	35
	3	do	hro pek fans	408	32
Moray	10	hf ch	pek dust	800	26
Bulugolla	4	ch	fans	400	25
	4	do	dust	440	23
	2	do	pek sou	170	24 bid
	3	do	fans	300	25
	3	do	dust	830	23
C R S	2	hf ch	pek	88	18
	1	ch	pek sou	85	19
	1	hf ch	dust	59	17
Memorakande	4	ch	dust	400	22
Richmond	7	ch	or pek	700	46 bid
	13	hf ch	hro pek	832	65
	5	ch	pek	450	43
	3	do	pek sou	255	37
	1	hf ch	fans	84	28
Dambagastalawe	6	ch	pek sou	600	35
	5	do	bro pek fans	680	33

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Welgampola	16	hf ch	bro pekoe	880	28 bid
	16	do	pekoe	880	24 bid
	13	do	sou	715	16 bid
	4	do	fans	220	18
Avisawella	8	hf ch	dust	600	24
Ferriby	16	hf ch	hro or pek	800	34
	5	do	fans	300	18
	5	do	dust	375	20
Marigold	13	hf ch	bro pek dust	832	33
	9	do	pekoe dust	702	30
Allakollawewa	8	hf ch	hro pek fans	512	31
Ramhodde	3	hf ch	souchong	150	17
	2	do	dust	160	23
	3	do	red leaf	135	11
Auburn	4	ch	pek	304	22
	2	hf ch	pek sou	76	17
	1	do	dust	87	28
	1	do	fans	70	24

	Pkgs.		Name.	lb.	c.
Laxapanagalla	1	ch	pek	90	25
	2	do	pek fans	200	21
	1	do	dust	100	23
Glenalla	*5*	*ch*	*hyson No 2*	*500*	*31*
	4	ch	fans	400	14
	2	hf ch	dust	160	12
Grange Gardens	8	ch	bro or pek	880	60.
	6	do	or pek	600	36
	7	do	pekoe	700	30
	4	do	pek sou	400	29
	2	do	fans	200	29
	3	hf ch	dust	255	26
Manangoda	5	ch	pek sou	475	16
	1	do	dust	128	16
	3	do	red leaf	287	11
Donside	7	ch	souchong	595	19
Ceylon	21	hf ch	pek sou	945	23
	9	do	bro or pek fans	558	27
	3	do	pek dust	256	24
Cooroondoowatte	6	ch	pek sou	600	20
Metiyagoda	4	ch	bro pek	428	24
	3	do	pekoe	306	20
	2	do	pek sou	180	16
	1	do	fans	114	10
Agra Elbedde	20	hf ch	pekoe	960	40
	8	do	pek sou	360	36
X X	5	hf ch	hr or pek fans	350	29
	1	do	dust	85	24
Welidale	4	ch	hro pek	400	24
	5	do	pekoe	500	21
	2	do	pek sou	1[illegible]5	20
	1	do	fans	110	11
St. Leys	6	ch	sou	570	25
	5	do	fans	425	28
	4	do	red leaf	345	14
Bavaria	3	ch	bro pek	285	28
	4	do	pek	400	25
Ravenscraig	1	hf ch	bro pek fans	60	27
	4	do	dust	320	24
Handrokande	2	ch	hro pek	220	23 bid
	1	do	pekoe	100	out
	1	do	pek sou	95	15
	1	do	dust	117	17
Ellerslie	6	ch	pek sou	480	27
	3	hf ch	dust	225	24
	11	do	hro pek	550	32
	13	do	fans	780	27
Cotswold	6	ch	hro or pek	480	50
	9	do	orange pekoe	630	38
	7	do	pekoe souchong	595	33
O L W	3	ch	hro or pek fans	300	28
	1	do	dust	110	18
Cotswold	5	ch	bro or pek	375	56
	4	do	or pek	280	41
	10	do	pek	800	36
	4	do	pek sou	320	33
O L W	1	ch	bro or pek fans	105	28
	1	do	dust	100	21
B and D	7	hf ch	dust	574	26
	13	do	hro pek fans	802	30
M	6	ch	br pek	570	31
	5	do	pek	450	27
	1	do	bro or pek	112	31
	2	do	pek sou	170	22
	2	do	bro pek fans	154	28
W	6	ch	dust	480	18
	6	do	souchong	570	19
	2	do	congou	170	16
Mahawela	8	ch	hr pek	800	33
	7	do	pek	630	28
	5	do	pek sou	450	22
	1	hf ch	dust	80	22
Laukka	1	ch	pek sou	78	20
	9	hf ch	dust	648	24
Waganila	3	ch	pek sou	270	43
	2	hf ch	dust	190	28
Atherton	3	hf ch	fans	210	20
	2	do	dust	160	20
Beausejour	11	hf ch	or pek	440	29
	4	do	dust	320	22
	8	ch	hro pek fans	760	20 bid
Ferndale	11	ch	bro or pekoe	990	52
	6	do	pek sou	558	21
H R	1	ch			
	1	hf ch	br pek	120	23
	1	ch			
	1	hf ch	pekoe	125	14 bid
	1	ch	dust	120	19
	1	*hf ch*	*hyson*	*25*	*out*
H F	19	box	or pek	95	withd'n.
Murraythwaite	5	ch	pek sou	400	21
	1	do	dust	175	17
	3	do	hr pek fans	390	25
Bodawa	8	ch	pekoe	720	26
	9	do	pek sou	765	22
	1	do	hro mixed	81	15
	2	hf ch	bro pek fans	150	25

	Pkgs.		Name.	lb.	c.
M in est mark	1	hf ch	unassorted	46	18
Mahatenne	2	ch	fans	280	24
A B C	4	ch	bro pek	400	15 bid
Rayigam	9	hf ch	bro or pek	510	withd'n
	5	ch	fans	500	withd'n
	5	hf ch	dust	400	withd'n
Havilland	11	ch	pek sou	880	23
	2	do	sou	139	18
	2	do	dust	247	21
	4	do	fans	420	24
	2	do	bro mixed	171	16
Onankande	9	ch	pek sou	630	23
	6	hf ch	dust	396	27
Roseneath	2	ch	dust	200	23
	2	do	bro mix	140	14
Ranasinghapatna	11	ch	pekoe	924	26 bid
	13	do	pek sou	962	23
	2	do	dust	244	23
Glenalmond	3	hf ch	bro or pek	180	60
	1	ch	fans	100	24
	1	hf ch	dust	80	22
M D F in est mark	6	ch	or pek	510	30
	6	do	pek sou	480	22

Messrs. E. John & Co.

	Pkgs.		Name.	lb.	c.
G Ceylon, in est mark	7	ch	bro or pek	700	37
	3	do	pek	243	28
N	9	hf ch	dust	765	27
O W	4	do	dust	300	22
	8	do	pek fans	496	22
Kelaneiya and Braemar	6	ch	pek sou	570	28
	6	do	bro pek fans	600	29
	4	hf ch	dust	320	27
Cleveland	12	do	pek sou	600	37
	2	do	fans	160	30
G W	3	ch	pek sou	246	33
Ashburton	6	do	pek sou	540	26
	2	do	fans	256	29
	2	do	dust	312	26
Lameliere	19	hf ch	or pek No 1	950	39 bid
	10	ch	or pek	850	33
	7	hf ch	pek fans	504	28
Midlothian	3	do	bro pek fans	210	30
Agra Ouvah	9	ch	pek	810	47
	9	do	pek sou	810	42
	1	hf ch	dust	100	27
Myraganga	4	ch	bro mix	440	15
	1	do	dust	185	18
	5	do	bro or pek fans	750	27
Alpiakande	11	do	pek dust	935	25
Coslanda	5	do	fans	550	17
Kolapatna	7	hf ch	fans	5[illegible]9	29
M L K	4	ch	fans	400	14
	9	hf ch	dust	720	16
Galloola	5	ch	dust	500	26
	3	do	fans	300	31
Mt. Vernon	8	hf ch	fans	544	32
The Farm	4	ch	dust	300	25
Lameliere	10	do	or pek	840	31 bid
	19	hf ch	or pek	950	29 bid
	7	do	pek fans	504	27
E and H	6	do	fans	420	withd'n
	6	do	dust	540	withd'n
Cresta	6	do	bro or pek	330	40 bid
	11	do	bro pek	550	31 bid
	10	ch	pek	860	28
	8	do	pek sou	688	23
	3	hf ch	dust	240	19
Wadhurst	12	do	bro pek	720	31 bid
	5	ch	pek	450	30
	2	do	pek sou	1[illegible]0	22
	1	hf ch	dust	80	21
WK	6	ch			
	1	hf ch	pek	600	21
	1	ch	bro pek	112	23

	Pkgs.		Name.	lb.	c.
P E	9	hf ch	bro pek fans	567	20
Bittacy	7	do	bro or pek	350	63
	3	ch	fans	330	30
	1	do	pek sou	90	30
	2	hf ch	dust	168	23
Katawella	8	ch	bro pek	800	20
Gangawatte	4	do	pek sou	360	32
	6	hf ch	fans	[illegible]00	30
A T	8	ch	pek fans	880	15
Eladuwa	8	do	bro pek	840	23
Eila	4	do	dust	560	21
Bowhill	4	hf ch	dust	440	24
A F	6	ch	bro pek	600	withd'n
	6	do	pek	480	withd'n
	7	do	pek sou	560	withd'n
	1	do	dust	115	withd'n
	1	hf ch	pek fans	60	withd'n

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Kottagodda	5	ch	pekoe souchong	450	16 bid
	12	hf ch	fans	876	22
H A	1	ch	bro pek	95	out
	2	do	pekoe souchong	177	20 bid
	1	ch			
	4	hf ch	pek fans	362	11 bid
	4	ch	fans	4[illegible]4	10
	6	hf ch	dust	500	15
Hyde	6	ch	pekoe souchong	576	23
	6	hf ch	fans	396	27
	4	do	dust	328	25
Morahela	1	ch	sou	80	20
	3	hf ch	dust	252	22
Panilkande	5	ch	sou	450	2[illegible]
	1	do	bro mixed	95	9
K G	7	ch	sou	630	16
W H F in est mark	9	ch	pek	864	12 bid
	4	do	pek fans	400	10 bid
	4	hf ch	dust	300	14
W S in est mark	3	ch	pek sou	285	10 bid
	2	do	souchong	160	10
D	6	ch	broken pekoe	600	29
	5	do	pek	475	17 bid
	8	do	pek sou	720	16 bid
	1	do	bro pek dust	130	13

CEYLON COCOA SALES IN LONDON.

MINCING LANE, August 1st.

"China."—Glenalpin A, 34 bags sold at 60s to 60s 6d; 2 bags, sea damaged, at 45s; B, 4 at 38s.

"Hyson."—Beredewelle, C O C Ex No. 1, 28 bags sold at 71s; T, 4 at 43s 6d; B, 4 at 30s; Monarakelle 2, 2 at 30s; Broken, 1 at 41s.

"Socotra."—Warriapolla, 4 bags sold at 66s; 2 at 60s; 28 at 63s 6d; 2 at 51s; 2 at 41s; 6 at 42s 6d; 8 at 32s; Suduganga, 7 at 70s; 3 at 58s 6d; 19 at 65s; 4 at 40s; 5 at 43s; 5 at 30s.

"Glaucus."—North Matale, 96 bags sold at 71s.

"Duke of Sutherland."—North Matale, 2 bags S D at 52s 6d.

"Yeoman."—North Matale, 61 bags sold at 65s.

"Jumna."—North Matale, 2 bags S D at 52s 6d.

"Peleus."—North Matale, 3 bags S D at 52s 6d.

"Banca."—North Matale, 13 bags sold at 50s 6d.

"Machaon."—North Matale A, 14 bags sold at 60s.

"City of Corinth."—Dickeria A, 5 bags sold at 53s 6d.

"Historian."—Kotua, 19 bags bags at 57s 6d; 2, 2 at 46s; 3, 5 at 25s; Belgodde No. 1, 3 at 50s 6d; 2, 2 at 47s; 3, 2 at 22s.

"Soudan."—Kotua, 5 bags sold at 13s.

"Hyson."—Rockhill AA, 30 bags sold at 61s; Yattawatte, 25 bags sold at 65; 2, 3 at 43s 6d; B, 1 at 46s

No. 34. COLOMBO, SEPTEMBER 1st, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[21,125 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	33 hf ch	bro pek	1980	50
	19 ch	pek	1520	34
Battalgalla	21 do	or pek	2100	40 bid
	18 do	pek	1530	34
Weemalle	17 ch	pek	1445	26 bid
Bunyan and Ovoca	35 hf ch	bro or pek	2100	64 bid
	38 do	or pek	1900	39
	16 ch	pek	1520	35
	11 do	pek No 2	1045	43
	16 do	pek sou	1440	34
	16 hf ch	pek fans	1040	31

Messrs. Forbes & Walker.

[565,854 lb.]

	Pkgs.	Name.	lb.	c.
Elangapitiya	20 ch	bro pek	2000	32
	18 do	or pek	1620	29
	25 do	pek	2250	25
Munukettiya, Ceylon, in est. mark	17 ch	or pek	1530	41
	43 hf ch	bro pek	2580	62
	34 do	pek	2890	36
Eastland	17 hf ch	bro or pek	1054	49
	64 do	or pek	3072	38
Pannapitiya	10 ch	bro pek	1000	29
	12 do	pek	1140	23
	12 do	pek sou	1140	21
Choisy	40 hf ch	bro or pek	2200	58
	20 ch	or pek	1700	36
	34 do	pek	3060	32
Strathspey	13 ch	bro or pek	1300	65
	22 do	or pek	2134	43
	25 do	pek	2300	41
Chrystler's Farm	20 hf ch	bro or pek	1000	81
	33 do	bro pek	1815	50
	33 do	pek	2970	34
Naseby	30 do	bro or pek	1800	80
	25 do	or pek	1175	69
	21 do	pek sou	1050	50
Udapolla	12 ch	bro pek	1200	29
	15 do	pek	1350	29
Matale	44 hf ch	bro pek	2640	43
	20 ch	pek	1800	34
	13 do	pek sou	1170	28
Ireby	41 hf ch	bro pek	2460	56
	21 ch	pek	1785	40
	14 do	pek sou	1190	35
El Teb	25 ch	or pek	2500	45 bid
	30 hf ch	bro or pek	1500	64
	25 ch	pek	2500	47
Adisham	14 do	bro or pek	1400	62
	13 do	or pek	1300	39
	11 do	pek	1045	37
Erlsmere	12 ch	bro or pek	1200	62
	14 do	bro pek	1400	38
	12 do	pek	1140	57
Mausakelle	10 ch	bro or pek	1000	5[illegible]
	16 do	pek	1440	31
Wella, Inv. No. 8	46 hf ch	bro pek	2300	42
	25 do	pek	1250	28 bid
Algooltenne, Invoice No. 1	10 ch	bro or pek	1000	58
	40 do	bro pek	3800	60
	15 do	or pek	1200	45 bid
	43 do	pek	3440	33 bid
	12 do	pek sou	1080	20
St. Hellers	28 ch	bro or pek	1456	35
	12 do	or pek	1020	32
	15 do	pek	1350	28
	17 hf ch	fans	1105	24
J W M S	12 ch	or pek	1128	29
	16 do	pek sou	1440	21
Mousakellie	13 ch	pek	1170	32
Mahawale, Invoice No. 9	16 ch	bro pek	1600	52 bid
	13 ch	or pek	1300	30
	29 do	pek	2755	27
	18 do	pek sou	1710	24
	25 hf ch	fans	2100	25 bid
Nakiadenia	12 ch	or pek	1200	33
	40 do	pek	3200	28
	18 do	pek sou	1224	24
Rajawatte	11 ch	or pek	1045	35
	11 do	pek	1045	31
M T P, in est. mark	15 ch	fans	1500	26
Sylvakandy	12 do	bro or pek No 1	1200	56
	26 do	bro or pek No 2	2600	47
	12 do	bro pek	1020	37
	13 do	or pek	1380	38
	26 do	pek	2600	33
Broughton	40 hf ch	or pek	2100	55
	10 ch	bro or pek	1050	80
	28 do	pek	2660	54
Stinsford, S F D	7 ch	dust	1050	out
Laurawatte	14 hf ch	fans	1120	23
Marlborough	20 do	bro or pek	1040	66
	15 ch	or pek	1305	43
	23 do	bro pek	2300	49
	26 do	pek	2132	38
D W K	*29 hf ch*	*siftings*	*1595*	*15*
Mudamana	*18 ch*	*young hyson*	*1800*	*36*
	18 ch	*hyson*	*1530*	*34*
Palmerston	17 hf ch	bro or pek	1020	78
	20 do	bro pek	1140	49
	13 ch	pek	1105	48
Lindoola	13 hf ch	dust	1040	25
Dolahena	*32 hf ch*	*hyson*	*1600*	*32*
Meddetenne	28 ch	bro pek	2912	34
	20 do	or pek	1820	28 bid
	22 do	pek	2112	[illegible]0
Florence	22 hf ch	bro or pek	1210	84
	16 ch	or pek	1456	62
	38 do	pek	3344	43
Baddegama	10 do	bro or pek	1000	39
	14 do	or pek	1260	33
Attampettia	12 do	bro pek	1380	60
	13 do	or pek	1300	60
	18 do	pek	1800	51
E D P	13 hf ch	dust	1040	14 bid
Ingrogalla	15 ch	bro or pek	1500	39
	15 do	pek	1350	31
Drayton	37 hf ch	or pek	1850	40 bid
	26 ch	pek	2210	36
K P .W	23 hf ch	pek	1150	27
Tempo	14 ch	or pek	1232	32
	14 do	pek	1190	28
Maha Eliya	24 hf ch	bro or pek	1392	66
	24 do	bro pek	1344	47
	18 ch	pek	1620	38
Tymawr, Inv.. No 16	19 hf ch	or pek	1045	57 bid
	18 do	bro or pek	1080	60
	33 do	pek	1650	35
	26 do	pek	1300	33 bid
	24 do	pek sou	1080	29
Errollwood, Invoice No. 8	29 hf ch	bro or pek	1740	55
Nahalma, Invoice No. 18	12 ch	bro pek	1200	35
	16 do	pek	1632	29
	12 do	pek sou	1152	23
Delta, Inv. No. 19	23 do	bro or pek	2300	54
	25 do	bro pek	2375	35
	27 do	pek	2160	31
	22 do	pek sou	1782	28
Middleton, Invoice No 23	31 hf ch	bro or pek	1705	64 bid
	23 ch	bro pek	2300	42
	15 do	or pek	2250	33
	17 hf ch	dust	1360	25
North Cove	18 do	bro or pek	1044	75
	57 do	bro pek	3305	52
	20 ch	pek	1600	43
Agra Oya	12 do	bro or pek	1200	42
	15 do	or pek	1425	33
	13 do	pek	1170	30
M A	13 ch	sou	1235	16 bid
	7 do	dust	2030	out
Dickbena	24 ch	bro or pek	2568	31 bid
	27 do	or pek	2457	32
	28 do	pek No. 1	2380	25 bid
	20 do	pek No. 2	1640	24
	23 do	pek sou	1817	23
Cholankande	12 ch	or pek	1080	32
St. Heliers	50 hf ch	bro or pek	2800	46
	13 do	pek	1222	30
Glaslyn	21 hf ch	bro or pek	1155	54 bid
	15 ch	bro pek	1350	withd'n
Maha Uva	28 hf ch	bro pek No 2	1629	36
	28 do	or pek	2800	47
	32 do	pek	2880	43
Pallagodde	13 ch	bro or pek	1300	31
	29 do	bro pek	2900	33
	20 do	or pek	1800	32
	22 do	pek	1870	29
	17 do	pek sou	1445	25

	Pkgs.		Name.	lb.	c.
High Forest	49	hf ch	or pek No. 1	2744	58
	45	do	or pek	2385	46
	36	do	pek	1692	44
Erracht	17	ch	br or pek	1700	36
	29	do	pek	2465	29
Puspone	27	ch	or pek	2592	33
	18	do	bro pek	2016	34
	12	do	pek sou	1080	25
A N G in est mark	41	hf ch	bro pek	2050	34
Amblakande	13	ch	bro pek	1300	36
	25	do	pek	2250	26
Castlereagh	37	hf ch	bro or pek	1850	60
	11	ch	bro pek	1100	38
	13	do	or pek	1040	37
	13	do	pek	1040	34
	14	hf ch	fans	1060	26
Poonagalla	13	ch	or pek	1235	53
	25	do	bro pek	2875	66
	20	do	pek	1920	48
Finlater	48	hf ch	bro pek	2880	50
	31	ch	pek	2883	41
Aldie	27	ch	bro pek	2700	55 bid
	26	do	pek	2340	43 bid
	27	do	pek sou	2025	34 bid
Digdola	23	hf ch	bro pek	1300	36
	36	ch	pek	2550	25
	14	do	pek sou	1120	22
Logie	24	ch	bro or pek	1320	66 bid
	27	do	bro pek	2700	41 bid
	19	do	pek	1615	35 bid
Torwood	12	ch	bro pek	1080	27
Ambragalla	56	hf ch	or pek	2688	40
	90	do	bro or pek	5040	48
	42	ch	pek	3360	36
	33	do	pek sou	2964	32
Pussella	9	ch	bro or pek	1008	29
New Peradeniya	16	hf ch	dust	1280	23
Mattakella	25	ch	bro or pek	1750	28
Dotale	20	hf ch	bro or pek	1200	61
	20	ch	pek	1800	35
Lorne	13	ch	dust	1105	26
P	10	ch	bro pek	1050	29
Riverside	25	ch	pek	1997	25 bid
Cloyne	12	ch	bro pek	1200	47
	22	do	or pek	2200	45
	22	do	pek	2090	33
	11	do	pek sou	1023	32
Swinton	14	ch	bro or pek	1400	43
	17	do	or pek	1700	37
	16	do	pek	1440	33
Amblangoda	13	ch	bro or pek	1300	44
	15	ch	or pek	1500	40
	15	do	pek	1350	34
Bullugolla	15	ch	bro or pek	1500	44
	19	do	or pek	1900	40
	18	do	pek	1620	34
	15	do	pek sou	1275	28
Montery	12	ch	pek sou	1080	23 bid
	11	do	pek fans	1100	29
	13	hf ch	dust	1040	22
Roeberry L.	45	ch	pek	4140	41
	43	do	bro pek	4300	44
	20	do	bro or pek	2000	63
Rohbery M.	39	ch	pek	3588	44
	26	do	bro pek	2600	51
P R M	41	hf ch	pek sou	1968	24 bid
Mariawatte	26	hf ch	dust	2210	23
Preston	21	ch	bro or pek	2184	62
	17	do	pek	1360	43
L.	10	ch	bro pek	1000	21
	13	do	pek	1180	18
Tonacombe	39	ch	or pek	3510	45
	40	do	bro pek	4000	63
	64	do	pek	5440	40
	18	do	pek sou	1440	38
	17	hf ch	dust	1445	26
Kirklees	30	hf ch	bro or pek	1800	57
	20	ch	or pek	2000	43
	32	do	pek	3040	37
	19	do	pek sou	1805	32
	10	do	pek fans	1200	30
Carfax	17	ch	bro or pek	1700	55
	17	do	or pek	1530	45
	16	do	pek	1440	40
Seenagolle V.	17	hf ch	bro or pek	1037	66
	13	ch	or pek	1157	51
	15	do	pek	1350	41
Dunkeld	34	hf ch	bro or pek	2040	56
	12	ch	or pek	1080	39 bid
	15	do	pek	1350	35
Trafalgar	24	ch	bro or pek	2496	48
	21	do	or pek	1764	38
	54	do	pek	4968	31 bid
	16	do	bro pek sou	1440	28 bid
	15	hf ch	dust	1650	23
Gonapatia	23	hf ch	or pek	1242	59
	22	do	bro pek	1408	68
	28	do	pek	1456	55

	Pkgs.		Name.	lb.	c.
Good Hope	30	ch	pek sou	2700	26
I. V. S.	58	hf ch	or pek	3132	42 bid
	48	do	pek	2397	36 bid
	37	do	or pek	1944	44 bid
Swinton	22	ch	or pek	2197	28 bid
	21	do	pek	1887	27 bid
Amblangoda	24	ch	or pek	2397	withd'n
	20	do	pek	1797	28 bid
Bulugolla	15	ch	pek sou	1272	withd'n
Battawatte	36	ch	bro pek	3960	45
	36	do	pek	3420	38
	20	do	pek sou	1800	33

Messrs. Keell and Waldock.

[46,746 lb.]

	Pkgs.		Name.	lb.	c.
P in est mark	14	ch	pek	1257	out
	23	hf ch	bro pek fans	1492	out
	34	do	bro pek dust	3057	out
Hangranoya	19	ch	bro pek	1805	33
	17	do	pek	1360	28
	10	do	fans	1200	25
Tillington	24	hf ch	br pek	1320	41 bid
	28	do	pek	1400	31
Aigburth	32	hf ch	bro or pek	1856	46
	13	ch	br pek	1235	39
G	52	hf ch	pek	3380	18 bid
Taprobana	31	hf ch	bro or pek	1550	38
	21	ch	pek	1680	29
Pasmalie	30	ch	br pek	2850	33 bid
	36	do	pek	3240	28 bid
	22	do	pekoe souchong	1760	24 bid
E D W	15	ch	pek	1600	14 bid
Waduhena	11	ch	br pek	1100	37
	17	do	pek	1530	26 bid
	20	do	pek sou	1700	25

Messrs. Somerville & Co.

[316,152 lb.]

	Pkgs.		Name.	lb.	c.
Paradise	23	ch	bro pek	2415	33
	11	do	pek	1045	27
	14	do	pek sou	1260	23
Richlands	13	ch	br or pek	1365	56
	12	do	or pek	1020	39 bid
	12	do	pek No. 1	1140	35
Dryburgh	16	ch	pek	1344	28
Elchico	19	ch	bro or pek	1900	32
	19	hf ch	bro or pk fans	1235	26
Theberton	14	ch	bro pek	1260	35
	24	do	pek	2040	29
Owilikande	14	ch	bro or pek	1400	33
Warakamure	28	ch	bro pek	2800	31
	20	do	pek	1800	24
Kelani	29	ch	or pek	2465	23 bid
	21	do	bro or pek	2100	30
	20	do	pek	1600	25 bid
	14	do	pek sou	1190	23
Hobart	15	ch	bro pek	1470	28
	26	do	pek	1950	24 bid
Harangalla	36	ch	bro or pek	3420	32 bid
	50	do	pek	4000	27 bid
Avisawella	22	hf ch	bro or pek	1100	47
	19	ch	or pek	1805	32
	20	do	pek	1800	26
	16	do	pek sou	1280	23
Rayigam	16	ch	or pek	1520	32
	11	do	bro pek	1045	28
	21	do	pek	1680	26
	17	do	pek sou	1615	23
Ingeriya	20	ch	bro pek	2000	34
	14	do	pek	1260	27
Mahavilla	27	hf ch	or pek	1404	36
	20	do	pek	1100	30
	28	do	pek sou	1540	25
Glenanore	14	ch	pek sou	1260	34
Cooroondoowatte	20	ch	pek sou	1850	24
Bellagalla	40	ch	bro pek	4000	31 bid
	23	do	pek	1840	26 bid
	16	do	pek sou	1360	23 bid
Damblagolla	23	hf ch	bro pek	1380	32
	23	ch	pek	1955	29
	16	do	pek sou	1280	24
I P	12	hf ch	dust	1056	25
New Angamana	28	ch	bro or pek	2800	36
	22	do	or pek	1980	32
	35	do	pek	3150	28
	25	do	pek sou	2250	24
Mahagoda	11	ch	pek	1100	18
Mount Temple	16	ch	bro pek	1568	31
	21	do	pek	1680	27
	15	do	pek sou	1140	24
	15	do	br or pek fans	1500	26

	Box.	Pkgs.	Name.	lb.	c.
Kallebokka	18	ch	bro or pek	1800	62
	23	do	or pek	2185	35
	20	do	pek	1600	32
Dikmukalana	51	hf cb	br pek	2305	34
	42	do	pek	2100	25 bid
D M O G in est mark	26	hf ch	bro pek	1430	38
	20	do	or pek	1000	36
	16	ch	pek	1280	28
	25	do	pek sou	1875	24 bid
Monte Christo	24	ch	bro pek	2400	52
	12	do	pek sou	1080	28
Hopewell	29	ch	bro or pek	3190	34
	27	do	or pek	2700	27
	42	do	pek	3780	25
	27	do	pek sou	2160	24
	28	ch	bro or pek	3080	35
	24	do	or pek	2400	34
	46	do	pek	4140	28
	23	do	pek sou	1840	25
A A	20	ch	bro pek	2000	25 bid
Gangwarily	55	ch	bro pek	5500	32
	33	do	pek	2805	27
Glenalla	*13*	*ch*	*young hyson*	*1235*	*38*
	24	*do*	*hyson No. 1*	*2280*	*35*
Medegodda	44	hf ch	bro pek	2640	35
	29	do	pek	1450	26
	34	do	pek sou	1700	22
Highfields	27	hf cb	bro or pek	1566	60
	25	do	or pek	1300	46
	21	do	pek	1092	38
Laxapanagalla	13	ch	bro or pek	1300	36
Grange Gardens	12	ch	bro or pek	1200	55
Karangalla	15	ch	br pek	1575	33
	15	do	pek	1275	27
Hobart	19	ch	pek sou	1425	20
Annandale	22	hf ch	or pek	1210	45
	20	do	pek	1140	42
Deniyaya	13	ch	bro or pek	1300	37
	19	do	pek	1805	29
	18	do	pek sou	1620	24
Jak Tree Hill	23	ch	bro pek	2300	33
	13	do	pek	1170	27
	23	ch	pek sou	2070	24
Kande	20	hf cb	dust	1794	out
Monrovia	27	ch	br pek	2700	29
	22	do	pek	2090	23 bid
Rambodde	35	hf ch	pek	1575	26 bid
Laxapanagalla	10	ch	bro or pek	1000	40
	12	ch	or pek	1140	31
Ellerslie	26	ch	pek	2080	30
A	30	hf ch	dust	2700	16 bid
R T in est mark	33	hf ch	fans	2244	25
	12	do	dust	1080	23
Harangalla	24	cb	bro or pek	2400	37
	20	do	pek	1600	27 bid
Hopewell	28	cb	bro or pek	3080	29 bid
	25	do	or pek	2500	30
	44	do	pek	3960	26
	24	do	pek sou	1920	24
S R K	30	cb	br pek	3300	46
	26	do	or pek	2392	33 bid
Ferndale	27	ch	pek	2562	withd'n
Ranasinghapatna	41	bf ch	or pek	1968	35
	65	do	bro or pek	3340	41
	30	cb	pek	2400	33
	23	do	pek sou	1794	28
Neboda	23	ch	bro pek	2300	57
	13	do	or pek	1170	32
	35	do	pek	3500	26
Neuchatel	10	cb	bro or pek	1000	50
	26	do	or pek	2210	33
	35	do	or pek	2975	32
	36	do	pek	2880	28
K L G	18	hf ch	dust	1530	21 bid

Messrs. E. John & Co.

[239,045 lb.]

	Pkgs.	Name.	lb.	c.
O W	13 cb	bro pek	1209	28
Elston	21 do	pek	1785	35
	13 hf ch	dust	1105	25
	27 ch	pek sou	2295	33
	15 hf ch	bro mix	1050	21
Birnam	25 do	pek sou	1750	40
Ormidale	24 do	bro pek	1440	51
	52 do	pek	2600	39 bid
Pambagama	32 ch	pek sou	28-0	20
Elemane	35 do	bro pek	3500	42
	38 do	pek	3420	39
Eila	14 do	bro pek	1260	31
	36 do	pek sou	2620	23
	11 do	dust	1540	18
Gonavy	33 bf ch	or pek	1650	37 bid
	49 do	bro or pek	2695	66
	24 cb	pek	2400	34

	Pkgs.	Name.	lb.	c.
Kandaloya	26 hf ch	bro or pek	1170	45
	30 do	bro pek	1350	32
	31 do	or pek	1240	36
	56 do	pek	2240	35 bid
Rookwood	*92 hf-ch*	*young hyson*	*5336*	*36*
	58 ch	*hyson*	*5220*	*34*
Kelaneiya and Braemar	16 ch	bro or pek	1600	57 bid
	10 do	or pek	1000	37
	19 do	pek	1805	32
Poilakande	26 do	bro or pek	2340	30
	32 do	bro pek	2880	27
	24 do	pek	2160	25
Devon	28 hf cb	bro or pek	1680	66
	28 cb	or pek	2912	41
	10 do	pek	1010	40
Salem	11 do	bro or pek	1100	40
	10 do	pek	1000	29
Harrisland	22 bf ch	bro or pek	1210	37 bid
	16 ch	pek	1280	26
Dickapitiya	38 do	bro pek	3800	37 bid
	48 do	pek	4560	29 bid
Orwell	33 do	pek	2970	28
	14 do	pek sou	1246	23 bid
Brownlow	21 bf ch	bro or pek	1071	65
	17 ch	or pek	1598	40
	26 do	pek	2392	39
Stonyhurst	23 hf ch	pek fans	1564	27 bid
	12 ch	pek	1056	30
Eila	50 do	pek No. 1	4000	26
	32 do	pek No. 2	2560	24
	62 do	pek sou	4340	23
Wattagalla	35 hf ch	bro pek	2100	32
	37 ch	pek	3330	32
	46 do	pek sou	3680	25 bid
Rookwood	33 hf ch	bro or pek	1980	25 bid
	25 ch	or pek	2400	28 bid
	27 do	pek	2430	25
Agra Ouvah	49 hf ch	bro or pek	2940	66 bid
	19 ch	or pek	1805	47
	12 do	pek	1080	46
Glasgow	32 hf ch	bro or pek	1856	68
	26 cb	bro pek	2600	60
	32 do	or pek	2976	40 bid
	13 do	pek	1274	45
Galloola	33 do	bro pek	3300	47
	46 do	pek	4140	40
	34 do	pek sou	2720	30 bid
Cocoawatte	23 do	bro pek	2300	35 bid
	26 do	pek	2600	27
	22 do	pek sou	2200	24
Maryl nd	10 do	bro pek	1000	30
	10 do	pek	1000	24
Wanarajah	19 hf ch	fans	1254	32
	15 do	dust	1215	25
St John's	26 do	bro or pek	1508	76
	18 ch	or pek	1620	69
	22 do	pek	2090	53
Rondura	19 do	bro pek	1900	32
	19 do	or pek	1615	34
	36 do	pek	2916	26
Ganasarapolla	20 hf ch	bro or pek No.1	1100	34
	24 do	bro or pek No.2	1248	33
	25 do	bro pek	1300	28
	31 do	or pek	1364	27
H	13 ch	bro mix	1170	10
Citrus	26 do	bro pek	2600	withd'n
Glassaugh	27 hf cb	or pek	1485	67
	20 do	bro or pek	1340	71
	13 ch	pek	1365	53
Mt. Vernon	40 do	pek	3520	withd'n
Kolapatna	20 hf cb	or pek	1000	37
	20 do	pek	1100	30
Citrus	14 ch	bro pek	1397	24
Koslande	12 do	pek	1140	31
Warleigh	20 hf ch	bro or pek	1120	75
	19 ch	or pek	1843	39
	30 do	pek	2550	36
Theresia	12 do	bro pek	1200	43
	20 do	pek	1700	36
	17 do	pek sou	1530	36
Bowhill	26 do	or pek	2600	29
Lancefield	11 do	pek	1045	23
L F C	8 do	bro pek dust	1240	19
Ashburton	12 do	pek	1080	31
Coslande	12 do	pek	1140	31

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	11 ch	pek sou	770	32
	4 hf cb	dust	320	26
Weemalle	8 cb	bro pek	800	34
	9 do	or pek	765	31
Bunyan and Ovoca	10 hf ch	dust	850	25

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Fetteresso	3 ch	bro pek dust	270	27
Elangapitiya	2 ch	pek sou	180	21
	8 do	dust	640	20
	1 do	bro unas	60	30
	2 do	do	140	14
North Matale	9 hf ch	dust	720	23
Eastland	5 do	pek sou	275	31
	4 do	pek dust	352	25
Pannapitiya	5 ch	or pek	550	23
	2 do	pek	200	14
I K V	2 ch	sou	200	17
	7 do	pek fans	910	22
Rockside	5 ch	pek sou	400	26
	6 do	bro pek fans	720	30
	2 do	dust	270	26
	1 do	dust No 2	170	21
Strathspey	9 ch	bro pek	900	51
	3 d	dust	345	26
Rawatte	*1 hf ch*	*young hyson*	*35*	27
	1 do	*hyson No. 1*	*44*	25
	1 do	*twankey*	*90*	10
	4 do	*gun powder*	*440*	31
Chrystlers' Farm	3 hf ch	pek sou	270	34
	3 do	dust	240	25
C F, in est. mark	4 ch	bro pek	400	39
	1 do	bro pek	50	54
	7 do	pek	630	28
Kitulkande	2 hf ch	bro pek	110	25
Wyamita	6 ch	bro pek	630	34
	9 do	pek	810	26
	6 do	pek sou	510	24
	1 hf ch	dust	85	17
	2 do	bro pek fans	164	27
Udapola	5 ch	or pek	450	30
	6 do	pek sou	480	23
	2 hf ch	dust	160	21
Matale	5 ch	sou	450	25
	2 hf ch	fans	140	26
	3 do	dust	240	25
Ireby	4 do	fans	280	34
	6 do	dust	510	27
Adisham	8 do	bro pek	440	45
	5 ch	pek sou	475	33
Erlsmere	4 do	pek sou	380	32
	4 hf ch	dust	320	25
	4 ch	unas	400	29
Mausakellie	10 ch	or pek	950	38
	10 hf ch	bro pek fans	600	32 bid
	7 do	dust	525	26
Wella, Inv. No. 8	12 do	or pek	600	29 bid
Algooltenne, Invoice No. 1	10 hf ch	fans	600	30
J M K	6 do	dust	420	25
J W M S	4 ch	bro pek	444	34
	7 do	pek	679	24
	1 do	fans	100	24
	2 hf ch	dust	160	23
	1 do	bro pek	81	withdn
	1 do	pek	35	withdn
Mousakellie	9 ch	bro or pek	900	52
	6 do	or pek	570	38
	5 hf ch	bro pek fans	300	32
	5 do	dust	375	26
Mabawale, Invoice No. 9	4 do	dust	360	21
Nakiadenia	4 box	flowery pek	66	out
	2 ch	bro or pek	210	43
	4 hf ch	bro pek fans	320	23
	7 do	dust	560	23
Nynangodde	7 do	bro or pek fans	525	25
	5 do	dust	450	16
Kelvin	2 do	dust	170	18
Ragalla	9 do	dust	810	29
	1 ch	bro mix	90	withdn.
M T P, in est. mark	4 ch	dust	400	24
	1 do	sou	100	20
Kalupahana	10 hf ch	bro pek	550	33
	5 ch	pek	459	22
	3 do	pek sou	270	21
	3 do	fans	330	14
	1 do	dust	141	16
Ellamulle	1 hf ch	pek dust	90	19
Ardlaw and Wishford	7 ch	bro or pek	770	73
	8 do	bro pek	864	53
	7 do	or pek	630	42
	11 do	pek	924	39
Sylvakandy	4 ch	dust	400	24
Broughton	8 ch	pek No 1	784	58
	6 do	pek sou	510	47
	4 hf ch	dust	340	28
Dewalakande	*6 hf ch*	*green dust*	*450*	12
Mudamana	*8 ch*	*hyson No. 2*	*640*	31
	4 do	*fans*	*380*	13
Palmerston	8 ch	pek sou	600	45
Lindoola	8 hf ch	pek fans	560	35

	Box. Pkgs.	Name.	lb.	c.
Dolahena	*12 hf ch*	*young hyson*	*600*	*35*
	3 do	*siftings*	*210*	*13*
St. H	4 ch	pek	368	18
Meddetenne	6 ch	bro pek fans	486	24
Kokarakande	*2 ch*	*hyson No 2*	*180*	*33*
	1 do	*hyson dust*	*120*	*10*
Baddegama	5 ch	bro pek	500	32
	7 do	pek	595	30
	7 do	pek sou	560	24
	2 hf ch	dust	180	22
	2 ch	fans	240	27
	2 box	No. 1 tea	12	75
Attampettia	5 ch	pek sou	500	45
	4 do	fans	560	27
Mahawela	5 do	pek	475	26
Drayton	11 ch	pek sou	880	33
K P W	14 hf ch	bro or pek	840	35
	9 do	bro pek	450	31
	6 do	or pek	270	30
	9 do	pek sou	450	21
	1 do	pek fans	75	23
	1 do	dust	90	21
Tempo	5 ch	bro pek	500	40
	8 do	pek sou	624	24
	2 do	bro pek fans	200	31
	1 do	dust	117	22
A G	4 ch	bro pek	384	37
	6 do	or pek	528	32
	7 do	pek	595	27
	3 do	pek sou	225	24
	1 do	dust	110	23
Errollwood, Invoice No. 16	7 hf ch	or pek	665	37
	10 do	pek	900	31
Nahalma Inv. No. 18	9 ch	bro or pek	972	35
	9 do	bro pek fans	900	28
	4 hf ch	dust	320	25
Delta, Inv No. 11	5 ch	fans	600	27
	3 hf ch	dust	255	24
Middleton, Invoice No. 28	10 ch	pek	800	32
V. O. A	2 hf ch	bro or pek	144	31
	2 ch	dust	240	23
	1 do	bro tea	120	12
Erracht	11 ch	or pek	935	34
	2 do	dust	306	25
Siriwatte	6 ch	bro or pek	600	34
	5 do	or pek	450	35
	7 do	pek	560	28
	5 do	bro pek sou	475	24
	3 hf ch	bro pek fans	210	26
Glenorchy	16 hf ch	bro pek	960	82
	10 ch	pek	950	53
	1 do	pek sou	90	40
	1 hf ch	dust	85	28
Findlater	8 ch	pek sou	688	34
	3 hf ch	dust	210	27
Digdola	13 hf ch	or pek	520	30
	8 ch	bro pek fans	760	28
	4 hf ch	dust	320	20
Logie	13 ch	pek No 1	975	36
	6 do	dust	480	26
Torwood	9 ch	bro pek	765	33
Ambragalla	5 ch	dust	510	25
Dotale	3 ch	pek fans	225	27
S. G.	10 ch	pek	930	23
	2 do	pek sou	160	21
P.	7 ch	pek	700	30
	2 do	pek sou	200	24
	11 hf ch	fans	770	26
	5 do	dust	425	24
Cloyne	9 hf ch	bro or pek	540	58
	2 ch	bro tea	212	26
	6 hf ch	fans	390	29
	1 ch	dust	158	20
Swinton	9 ch	pek sou	765	29
	2 do	fans	200	27
	2 do	dust	220	23
Amblangoda	8 ch	pek sou	680	29
	2 do	fans	200	26
	2 do	dust	220	24
Bullugolla	1 ch	fans	100	26
	2 do	dust	220	24
Passara Group	6 ch	pek sou	570	41
	3 do	dust	270	26
	11 do	fans	770	25
Roeberry L.	7 ch	pek sou	630	36
Mariawatte	8 ch	sou	760	19 bid
Poengalla	7 do	fans	700	32
	4 ch	dust	360	25
Preston	15 hf ch	or pek	660	55
	4 do	bro or pek fans	264	42
	3 do	unassorted	165	26
D. in est mark	5 ch	sou	415	21
	11 hf ch	bro or pek fans	704	28
	4 do	pek fans	244	25
	6 do	pek dust	504	22

	Pkgs.	Name.	lb.	c.
Augusta	4 ch	pek fans	480	18
	2 do	dust No. 2	250	14
	1 do	bro mixed	120	13
L.	3 ch	dust	480	17
Trafalgar	10 ch	bro pek	960	34
B G	4 ch	dust	341	16
T B	6 hf ch	bro or pek	372	34
Gonapatia	12 hf ch	pek sou	576	45
	13 do	pek fans	910	40
Good Hope	8 ch	bro or pek	800	36
	1 do	bro pek fans	120	27
Bulugolla	2 ch	pek sou	167	withd'n
Battawatte	12 hf ch	bro or pek	780	36
	3 ch	dust	300	25

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Blackheath	3 ch	fans	285	22
F F	2 ch	bro tea	220	22
Oononagalla	2 hf ch	fans	140	27
	2 do	dust	160	25
Paradise	2 ch	dust	304	24
B G	6 ch	br pek	654	29
	7 do	pek	644	25
	3 do	pek sou	261	23
Richlands	10 ch	pek No. 2	850	31
	10 do	pek sou	900	30
	1 hf ch	dust	80	25
Dryburgh	12 hf ch	bro or pekoe	708	38
	10 ch	or pek	940	34
	3 ch	pek sou	243	24
	4 hf ch	fans	284	22
Elchico	10 ch	or pek	950	27
	10 do	pek	950	26
	6 do	pek sou	640	22
	10 hf ch	dust	800	19 bid
Theberton	1 ch	sou	85	22
	1 do	bro pek fans	100	26
	2 do	fans	200	24
Maligatenne	9 ch	or pek	900	31
	11 do	pek	880	26
	4 do	pek sou	300	22
	2 do	sou	152	21
	2 hf ch	dust	117	20
Owilikande	8 ch	bro pek	800	28
	10 do	pek No. 1	950	26
	9 do	pek sou	810	23
	9 do	pek No 2	855	25
	3 hf ch	dust	270	22
Warakamure	9 ch	pek sou	720	22
Kelani	8 ch	dust	800	20
Hobart	14 hf ch	flowery or pek	700	35 bid
Harangalla	11 ch	pek sou	880	22
	7 hf ch	dust	595	21
	7 ch	br pek fans	700	28
Mowbray	8 ch	bro pek	800	37
	12 do	pekoe	960	28
	4 do	pek sou	340	24
A A	5 ch	sou	400	19
Rayigam	9 hf ch	bro or pek	540	37
	5 ch	fans	500	28
	5 hf ch	dust	400	23
Ingeriya	9 ch	pek sou	810	25
Mahavilla	13 hf ch	bro or pek	741	32
	2 do	dust	170	21
Glenamore	8 hf ch	dust	640	24
Cooroondoowatte	4 ch	congou	360	15
	2 hf ch	dust	200	15
	5 do	pek fans	425	21 bid
S	3 hf ch	dust	240	64
	2 do	souchong	100	16
A	2 hf ch	dust	160	23
	2 do	sou	100	16
Dambagalla	12 hf ch	bro or pek	768	31
	11 do	br pek	583	32
	1 do	or pek	47	32
	7 do	pekoe	313	25
	5 ch	pek sou	400	24
	1 hf ch	dust	85	21
	1 ch	bro mixed	85	14
Bollagalla	8 hf ch	dust	720	17 bid
	4 do	fans	280	24
	3 ch	red leaf	270	12
N P	5 ch	bro pek	500	28
	5 do	pek	425	22
O	6 ch	bro or pek	600	31
	9 do	or pek	810	28 bid
	5 do	pekoe	425	25
	3 do	pek sou	240	23
	1 hf ch	dust	80	19
Oaklands	1 ch	dust	160	18
G B	18 hf ch	dust	900	24

	Pkgs.	Name.	lb.	c.
New Angamana	5 box	golden tips	10	R1 bid
	8 ch	pek fans	960	26
	2 do	dust	310	20
Mahagoda	5 ch	bro pek	550	27
Kallebokka	2 ch	pek fans	250	25
	1 do	pek sou	105	22
D M O G in est mark	4 hf ch	dust	340	22
	5 do	fans	300	24
	1 ch	bro mixed	85	13
Monte Christo	3 ch	sou	300	26
	3 ch			
	1 hf ch	fans	360	28
	5 hf ch	dust	425	25
	4 ch	broken tea	380	19
F A in est mark	1 hf ch	pek sou	40	30
	1 do	dust	50	22
Hopewell	14 hf ch	fans	910	24
	2 do	dust	160	18
	14 do	fans	910	25
St Leonards-on-Sea	6 hf ch	fans No 1	390	14
	2 do	fans No 2	110	15
	2 hf ch	*siftings*	*180*	*10*
Gangwarily	12 ch	or pek	960	33
	4 ch	pek sou	340	23
	2 hf ch	dust	170	20
	9 do	pek fans	540	25
	2 ch	souchong	160	18
Glenalla	3 ch	fans	348	15
	1 do	dust	150	14
Meddegodda	1 hf ch	souchong	50	21
	4 do	bro pek fans	220	24
Tor Bay	5 hf ch	pek sou	215	23
	6 do	bro pek fans	420	29
	2 do	dust	150	25
Grange Gardens	9 ch	orange pekoe	900	38 bid
	9 do	pekoe	900	35
	1 do	pekoe souchong	100	28
	1 do	fans	100	27
	1 hf ch	dust	85	25
Karangalla	5 ch	pek sou	450	24
	1 hf ch	souchong	55	19
	2 do	dust	160	22
Hobart	3 ch	sou	210	19
D B R in est mark	1 hf ch	pekoe	45	20
	1 ch	dust	116	17
Deniyaya	7 ch	or pekoe	665	34
	11 do	sou	990	22
	4 hf ch	dust	360	18
	8 ch	pek fans	800	25
Jak Tree Hill	2 ch	dust	200	22
	1 do	congou	100	17
Monrovia	8 ch	pek sou	680	22
	3 ch	unassorted	285	21
	7 do	fans	665	13
Laxapanagalla	2 ch	pekoe	180	27
	2 do	pek fans	186	26
N	11 hf ch	dust	990	17
Hopewell	12 hf ch	pek fans	780	23 bid
	3 do	dust	240	17
S R K	14 hf ch	bro or pek	840	64 bid
	8 ch	pek	800	31 bid
	3 do	bro or pek fans	390	28
	3 do	dust	480	20
Ranasinghapatna	5 hf ch	dust	375	24
Neboda	9 ch	pek fans	900	23
	3 do	pekoe souchong	285	25
	3 hf ch	dust	255	23
Neuchatel	9 ch	pek sou	720	23
	8 do	bro pek fans	920	28
	2 do	dust	290	23
Galatota	3 ch	bro pekoe	300	25
	1 do	pekoe	100	17
	1 do	pek sou	95	14
Jattawalle	7 ch	broken pekoe	770	29
	3 do	pek	300	23 bid
	2 do	pek sou	196	21
K L G	3 ch	bro mix	270	15
Buona Vista	1 ch	unast	72	23
Selhurst	7 ch			
	1 hf ch	bro pek	751	30
	1 ch	dust	93	13

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Tillington	5 hf ch	bro or pek	275	55
	9 do	bro pek	450	37
	20 do	pek	960	31
	3 do	pekoe souchong	150	25
	2 do	fans	140	26
Hangranoya	5 do	dust	400	25
	11 ch	bro tea	935	15
Tillington	4 hf ch	pek sou	200	25
	3 do	fans	210	26
	1 do	dust	70	23

	Pkgs.		Name.	lb.	c.
Lower Kananka	4	ch	bro pek	400	31
	4	do	pekoe	400	21
	2	do	pekoe souchong	200	16
Aigburth	2	hf ch	bro pek fans	140	24
Eladuwa	8	cb	or pek	760	25 bid
Kitulkanda	9	hf ch	bro pekoe	510	33
	16	do	pek	800	23
	5	do	pek sou	225	19
	3	do	fans	159	13
	2	do	dust	152	14
B L	7	ch	fans	770	16
Taprobana	3	hf ch	or pek fans	180	25
Pasmalie	8	hf ch	fans	500	25
S T	3	ch	pek No 1	297	19
	3	do	pek No 2	267	16
	2	do	souchong	210	21
	3	do	red leaf	290	11
W X	2	ch	pek fans	2.4	14

[Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
E & H	6	hf ch	fans	420	28
	6	do	dust	540	25
P P P	3	cb	bro or pek	330	26
	8	do	or pek	760	23
	2	do	pek sou	170	22
	1	do	fans	120	20
	1	hf ch	dust	50	18
O W	18	cb	pek	656	25
	3	do	pek sou	252	21
	3	hf cb	dust	225	22
	5	do	pek fans	300	25
Ormidale	14	do	bro or pek	700	93 bid
	16	do	or pek	800	48 bid
	5	do	pek fans	360	32
M G	9	do	fans	720	25
Elemane	10	ch	pek sou	900	30
	3	do	fans	300	28
Katawella	1	do	dust	140	20
M	10	hf cb	fans	500	12
	5	*ch*	*twanky*	*500*	*10*
Eila	8	do	bro or pek	800	31
Gonavy	6	do	pek sou	600	32
O	*9*	*hf-ch*	*twanky*	*648*	*10*
Rookwood	*4*	*ch*	*hyson No. 1*	*340*	*32*
	6	*hf-ch*	*siftings*	*450*	*12 bid*
Kelaneiya and Braemar	3	ch	pek sou	285	29
	4	do	bro pek fans	400	32
	2	hf ch	dust	160	25
	5	ch	congou	475	23
Devon	5	bf ch	dust	400	25
Salem	1	ch	dust	140	25
Harrisland	11	hf ch	or pek	523	33
	8	ch	pek sou	640	22
	2	bf ch	fans	154	23
	1	do	dust	80	18
Shawlands	1	ch	dust	100	out
	3	do	fans	300	out
Kehelwatte	1	do	fans	110	27
	3	hf ch	dust	255	26
Orwell	12	do	bro or pek	696	51 bid
	14	do	pek fans	952	26
Brownlow	8	do	bro pek fans	624	28
Eila	1	ch	bro pek fans	85	22
Wattagalla	8	bf ch	dust	720	24
Rookwood	6	cb	bro pek	420	26
	9	do	pek dust	792	25
Gallo la	3	do	dust	300	26
	2	do	fans	200	28
Cocoawatte	6	do	fans	600	26
Maryland	1	hf ch	dust	80	17
Annamallai	1	do	dust	85	17
Wanarajah	1	do	pek sou	54	32
Rundura	5	ch	bro or pek	575	32
	7	do	pek sou	630	22
	4	do	bro psk fans	460	24
	3	do	dust	495	20

	Pkgs.		Name.	lb.	c.
Castle Hill	11	do	pek	937	23
Koslande	13	bf ch	bro pek	780	38
	1	ch	pek sou	95	27
	1	do	fans	110	22
	1	hf cb	dust	80	23
	2	do			
	1	ch	pek No. 2	202	22
Warleigh	9	hf ch	fans	567	30
Theresia	15	do	bro or pek	825	64
	5	do	dust	400	27
Lancefield	9	ch	bro pek	900	24
Lemeliere	10	do	or pek	830	30 bid
Coslande	13	hf cb	bro pek	780	38
	1	cb	pek sou	95	27.
	1	do	fans	110	26
	1	hf cb	dust	80	23
	1	cb	pek No. 2	85	23
Godakelle	6	do	bro pek	600	26
	6	do	pek	480	22
	7	do	pek sou	560	19
	1	do	dust	115	15
	1	hf ch	pek fans	60	out

CEYLON COCOA SALES IN LONDON.

Coronation Week.

Mincing Lane, 8th August.

"Scindia."—C T P & Co., Pita Ratmalie, Ceylon A London, 1 tierce sold at 112s; ditto B, 5 casks sold at 99s; ditto C, 1 cask and 1 barrel sold at 65s 6d; ditto P B, 1 barrel sold at 71s; ditto T, 1 barrel sold at 43s.

CEYLON CARDAMOMS SALES IN LONDON.

Mincing Lane, 9th August.

"Duke of Sutherland."—Yella Mullai Seed 1, 1 case sold at 1s 9d; ditto 2, 1 at 1s 7d; ditto 3, 1 at 1s 3d.

"Japan."—Wariagalla Mysore 1, 3 cases sold at 1s 7d; ditto C, 1 at 1s.

"Lancashire."—A Kirklees, PR O in estate mark, 2 cases sold at 1s 11d; ditto S, 1 at 1s; ditto SP, 1 at 11d; ditto Seeds, 1 packet sold at 1s 8d; ditto 1, 6 cases sold at 1s 6d; ditto S, 4 at 1s.

"Duke of Sutherland."—Cardamoms Oononagalla Ceylon Estate No. 3, 2 cases sold at 1s; ditto Seed, 1 at 1s 7d.

"Hyson."—Eton OO, 2 cases sold at 2s 8d; 1 at 2s 7d; ditto O, 2 at 2s 4d; 1 at 2s 3d; ditto I, 7 at 1s 8d; ditto II, 3 at 1s 2d; ditto III, 2 at 1s 4d.

"China."—Wattakelly No. 1, 2 cases sold at 1s 7d; ditto 2, 4 at 1s 4d; ditto 3, 5 at 1s 1d; ditto 4, 2 at 1s; ditto 5, 1 at 1s; ditto, 1 bag sold at 1s 7d.

"Glaucus."—Knuckles Group, 6 cases sold at 1s 6d; 3 at 1s 7d; 2 at 1s 2d; 1 at 1s 8d.

"Agamemnon."—Delpotonoya, 1 case sold at 2s 8d; 3 at 2s; 4 at 1s 7d; 4 at 1s 3d; 2 at 1s 2d; 2 at 1s 5d; 1 at 1s.

"Shropshire."—North Punduloya, 1 case sold at 2s 2d.

"Agamemnon."—1 Hooloo Group, 4 cases sold at 1s 8d; 2 ditto, 1 at 1s 2d; 3 ditto Seed, 2 at 1s 7d

No. 35. COLOMBO, SEPTEMBER 8th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[13,947 lb.]

	Pkgs.		Name.	lb.	c.
Mapitigama	14	ch	bro or pek	1372	40
	12	do	or pek	1080	29 bid
Hornsey	28	hf cb	bro pek	1680	51
	14	ch	pek	1190	36
Torrington	15	ch	or pek	1347	33 bid
	25	do	or pek No 2	1997	28 bid
	19	do	pek	1612	26 bid
Bunyan and Ovoca	12	ch	pek No 2	1140	37
	12	do	pek	1140	27 bid

Messrs. Forbes & Walker.

[544,920 lb.]

	Pkgs.		Name.	lb.	c.
G K	16	ch	pek sou	1120	23
	22	hf ch	dust	1760	22
Glencorse	39	do	bro pek	3900	38
	24	do	or pek	1920	35
	23	do	pek	1840	31
	32	do	pek No 2	2560	27
	38	do	pek sou	2850	24
Galleheria, Invoice No. 1	11	ch	bro or pek	1045	67
	19	do	pek	1615	37 bid
Kokrakande	*13*	*ch*	*hyson*	*1105*	*35*
Yogama	14	ch	bro pek	1470	44
	12	do	or pek	1200	34
	17	do	pek No 1	1630	31
	19	do	pek No 2	1615	30
Mousa Ella	17	ch	bro pek	1700	41
	19	do	pek	1710	32
Lindupatna	14	ch	bro or pek	1484	68
	16	do	or pek	1648	42
	13	do	pek	1248	37
O B E C, in est. mark New market	34	hf ch	bro or pek	1904	66
	38	ch	bro pek	3990	46 bid
	21	do	pek	1890	38
	12	do	pek sou	1080	37
Bowlana	21	hf ch	bro or pek	1323	57
	12	ch	or pek	1200	45
	14	do	pek	1330	38
Knavesmire	34	hf cb	bro or pek	2040	31 bid
	44	ch	or pek	3960	29
	78	do	bro pek	7800	29
	42	do	pek	3360	24 bid
	17	do	pek sou	1275	21
Adisham	36	hf ch	bro or pek	1980	65
	15	ch	pek	1425	39
Chrystler's Farm	35	hf ch	bro pek	1995	62
	28	ch	pek	2660	34
Lyegrove	14	do	bro pek	1470	47
Waldemar	16	hf ch	bro or pek	1024	71
	13	ch	bro pek	1495	52
	17	do	or pek	1666	52
	12	do	pek	1080	48
Penrhos	22	hf-ch	bro or pek	1276	57
	24	do	or pek	1200	39
	25	cb	pek	2200	32
Nugagalla	29	hf ch	pek	1450	31
Waitalawa	62	do	bro pek	3100	52
	64	do	pek	3200	29 bid
Hatton	31	ch	bro pek	3100	63
	27	do	pek	2430	44
Great Valley Ceylon in estate mark	62	hf ch	bro or pek	3596	57
	42	do	or pek	2100	38 bid
	48	do	pek	4320	34
Beverley, Invoice No. 9	20	hf ch	bro or pek	1000	44 bid
	50	do	bro pek	2500	33
	49	do	pek	2450	28
	23	do	pek sou	1035	23
Beverley, Invoice No. 10	33	do	bro pek	1650	32 bid
	31	do	pek	1550	28 bid
	23	do	pek sou	1035	24
Harrow	21	ch	bro or pek	1218	60 bid
	13	do	or pek	1300	45
	25	do	pek	2500	35 bid
Passara Group	22	ch	bro pek	2200	44 bid
	15	do	pek	1350	36 bid
O B E C, in est. mark Summerhill	22	ch	bro or pek	1320	81
	33	do	bro pek	2145	59
	31	do	pek	2883	48
	23	do	dust	2116	28
Bramley	41	hf ch	bro or pek	2296	59
	40	do	pek	2000	46
	26	do	or pek No 1	1196	55
	66	do	or pek	3300	49
Middleton, Invoice No 29	16	ch	bro pek	1600	39
	23	do	or pek	2070	33
C N N	13	ch	pek sou	1235	28
Kittulgalla, Invoice No. 13	21	hf ch	bro or pek	1218	31
	12	ch	or pek	1032	30
	13	do	pek	1040	26
Handford, Invoice No. 6	13	ch	pek	1170	29
Anningkande, Inv. No 8	36	ch	bro pek	3600	25
	12	do	pek	1140	27 bid
	11	do	pek sou	1045	24 bid
Deaculla, Invoice No. 2	63	hf ch	bro pek	3462	45
	68	do	pek	4760	32
Yellatenne, Invoice No. 4	13	ch	pek	1365	34
B D W, Inv. No. 12	13	do	bro pek fans	1430	31
Galkande	26	hf cb	or pek	1300	38
	29	ch	pek	2610	33
O B E C, in est. mark Forest Creek	11	ch	bro or pek	1133	76
	27	do	bro pek	2781	54
	16	do	or pek	1408	42
	31	do	pek	2790	35
Robgill	20	hf ch	bro or pek	1000	68
	33	ch	bro pek	2970	47
	24	do	pek	1920	41
Tambiligalla	13	do	bro or pek	1326	37
	12	do	or pek	1080	32
Vogan	21	ch	bro or pek	2100	52
	33	do	or pek	2970	36
	38	do	pek	3420	33
	18	do	pek sou	1530	26
Monterey	12	ch	pek sou	1080	23
Madulkelle	14	ch	sou	1050	27
	12	do	pek No 1	1080	32
Poonagalla, Invoice No. 33	15	ch	or pek	1425	48 bid
	36	do	bro pek	4032	64
	25	do	pek	2250	45
Mawiligangawatte	25	do	bro pek	2400	29
	25	do	pek sou	1900	22
Marlborough	20	hf ch	bro or pek	1000	68
	12	ch	or pek	1044	48
	18	do	bro pek	1800	45
	19	do	pek	1615	36
Weyungawatte	23	do	bro pek	2415	31
	24	do	pek	2040	24
	17	do	pek sou	1360	22
Glendon	18	ch	bro pek	1800	54
	55	do	or pek	5500	34
	50	do	pek	4250	29 bid
	13	do	pek sou	1170	24 bid
Pine Hill	17	hf ch	bro or pek	1020	56
	13	do	or pek	1235	37
	14	do	pek	1260	33
H G M	19	hf ch	bro or pek	1045	47
	31	ch	pek	2480	28 bid
Oodoowerre	9	do	bro pek	1008	36
Carfax	42	ch	bro pek	4620	33 bid
	19	do	sou	1710	19
Killarney	18	hf ch	bro or pek	1044	67 bid
	20	do	bro pek	1200	51
	13	ch	or pek	1105	50 bid
	17	do	pek	1445	43
Hanwella	*39*	*ch*	*young hyson*	*3900*	*37*
	28	*do*	*hyson No. 1*	*2800*	*34*
High Forest	37	hf cb	or pek No 1	2072	62
	44	do	or pek	2288	49
	24	do	pek	1125	47
	24	do	bro or pek	1560	45
W V R A, Invoice No. 9	21	hf ch	bro or pek	1050	55
B P O	16	do	pek dust	1200	22
Nahalma	18	ch	bro pek	1980	23
	31	do	pek	2947	24
	20	do	pek sou	1800	[illegible]
	24	do	sou	2160	21
Kotagaloya	19	ch	bro pek	1995	39
	27	do	pek	2430	29

	Pkgs.		Name.	lb.	c.
Dunbar	13	ch	or pek	1079	47
	16	do	pek	1392	39
	13	do	bro pek	1274	45
	11	do	bro pek fans	1067	35
Kincora	11	ch	bro pek	1375	33 bid
T C L	14	ch	sou	1330	22
S R	19	ch	pek fans	1900	27
	16	do	congou	1520	21
M A	7	ch	dust	1007	18 bid
Bandarapolla	32	hf ch	bro or pek	1600	35 bid
	24	do	bro pek	1200	30 bid
	24	do	pek	1200	29
Delta	25	ch	bro pek	2375	36
	26	do	pek	2080	30 bid
	19	do	bro or pek	1900	35
	19	do	pek sou	1539	28
Talgaswella	15	ch	bro or pek	1500	39
	13	do	or pek	1040	35
	19	do	pek	1520	29
	17	do	pek sou	1275	25
Freds Ruhe	26	ch	bro pek	2600	34
	19	do	pek	1805	29
	11	do	pek sou	1045	23
Pannawatte	14	ch	bro or pek	1610	47
	11	do	bro pek	1100	37
	13	do	pek	1300	33
	13	do	pek sou	1170	29
Haputelewele	30	hf ch	bro pek	1650	45
	30	do	pek	1350	33
Choisy	33	hf ch	bro or pek	1815	57
	16	ch	or pek	1360	36
	33	do	pek	2970	32
Torwood	12	ch	bro or pek	1080	34 bid
	20	do	bro pek	1720	28 bid
	35	do	pek	2835	24 bid
Moray	51	hf ch	bro or pek	2805	58
	37	ch	pek	3219	34 bid
	18	do	pek No. 2	1530	34
Rickarton	22	hf ch	bro or pek	1320	58
	38	ch	or pek	3800	34 bid
	47	do	pek	4700	29 bid
Silbrcok	14	ch	sou	1120	16
Bulugolla	16	ch	bro or pek	1600	50
	19	do	or pek	1900	41
	17	do	pek	1530	32 bid
	12	do	pek sou	1020	29
Stranraer	24	ch	bro or pek	2400	47 bid
	13	do	or pek	1170	40 bid
	16	do	pek	1280	34 bid
	12	do	pek No. 2	1200	31
Carolina	*14*	*hf ch*	*yonag hysan*	*1050*	*withd'n*
	18	*do*	*hyson*	*1350*	
Stamford Hill	18	hf ch	bro or pek	1080	74
	32	do	bro pek	2050	49 bid
	43	do	or pek	2150	50 bid
	30	ch	pek	2700	36 bid
	13	do	pek sou	1170	32 bid
Hentleys	24	hf ch	bro pek	1248	37
	18	ch	pek	1404	26
Bandara Eliya	30	hf ch	or pek	1500	48 bid
	54	do	bro or pk No 2	3024	withd'n
	74	do	pek	3552	39 bid
Wella	25	hf ch	pek	1247	26 bid
Strathisla	15	ch	bro or pek	1500	42
	13	do	or pek	1040	31
	16	do	pek	1440	29
	13	do	pek sou	1040	24
A N G in est mark	42	hf ch	bro pek	2100	34 bid
	43	do	bro pek	2150	34 bid
Kirrimittia	17	hf ch	bro or pk fans	1105	27
S F D	7	ch	dust	1047	out
Moraokande	21	hf ch	bro or pek	1176	33
	32	do	or pek	1600	33
	19	ch	pek	1710	26
Inverness	17	ch	bro or pek	1700	63 bid
	12	do	or pek	1080	51 bid
	21	do	pek	1785	42 bid
Battawatte	25	ch	bro pek	2750	53
	23	do	pek	2185	48
High Forest	41	hf ch	or pek No. 1	2255	63
	34	do	or pek	1768	50
	27	do	pek	1269	49
	23	do	bro pek	1330	53
Maha Uva	22	hf ch	bro or pek	1386	43
	17	ch	or pek	1700	46
	17	do	pek	1530	41
	15	do	pek sou	1200	34
	13	do	dust	1040	25
Maldeniya	37	ch	bro or pek	3700	34
	28	do	pek	2520	29
	32	do	or pek	3200	32 bid
	14	do	pek sou	1190	24
Udabage	*71*	*hf ch*	*young hyson*	*3905*	*38*
	22	*do*	*hyson No. 1 A*	*1210*	*34*
	58	*do*	*hyson No. 1 B*	*2900*	*33*

	Box.	Pkgs.	Name.	lb.	c.
Queensland	20	hf ch	bro or pek	1000	68 bid
	20	ch	bro pek	2000	53 bid
	10	do			
	1	hf ch	or pek	1000	46
	12	ch	pek	1020	44
Glengariffe	33	hf ch	bro or pek	1980	46
	18	ch	or pek	1548	35 bid
	16	do	pek	1472	31 bid
	13	do	pek sou	1040	27 bid
	19	hf ch	pek fans	1330	28
P R M	41	hf ch	pek sou	1965	24
Ruanwella	15	ch	bro or pek	1575	33 bid
	44	do	or pek	3960	29 bid
	38	do	pek	3420	25 bid
	12	do	pek sou	1080	22 bid
	10	do	bro pek fans	1000	25

Messrs. Somerville & Co.

[208,413 lb.]

	Pkgs.		Name.	lb.	c.
Meeriatenne	24	hf ch	pek	1200	42
	23	do	pek sou	1104	38
Marigold	47	hf ch	bro pek	2491	44 bid
	27	do	pek	1350	40
	24	do	pek sou	1152	38
Allacollewewa	28	hf ch	bro pek	1484	45
Blinkbonnie	24	hf ch	bro or pek	1440	58
	17	ch	pek	1530	38
Nyanza	15	ch	or pek	1350	35
	23	hf ch	bro or pek	1265	49
Yspa	13	ch	pek sou	1105	25
Dover	30	hf ch	bro or pek	1650	37
	30	ch	or pek	2700	31
	30	do	pek	2700	27 bid
	30	do	pek sou	2250	24
Moragalla	15	ch	pek sou	1350	19
St. Catherine	12	ch	pek	1023	27
Citrus	20	ch	bro pek	1878	30
	24	do	pek	2040	25
Cooroondoowatte	11	ch	bro pek	1045	44
	16	do	pek	1570	25
Theberton	12	ch	bro pek	1050	39
	14	do	pek	1190	29
Rahatungoda	21	hf ch	bro or pek	1134	53
	25	do	or pek	1350	40
	39	do	pek	1989	37
Lonach	33	hf ch	bro or pek	1815	50
	12	ch	or pek	1020	37
	25	do	pek	2000	29
Raglan	16	ch	br pek	1600	25
	21	do	pek	1991	22
Farnham	29	hf ch	bro pek	1740	34
	24	ch	or pek	2064	32
	19	do	pek	1862	29
	17	do	pek sou	1496	24
Walla Valley	24	hf ch	bro or pek	1200	67 bid
	18	ch	or pek	1710	44
	22	do	pek	1870	37
Polgahakande	13	ch	or pek	1010	31
	22	do	bro pek	2200	31
	23	do	pek	1840	26
	13	do	dust	1820	17
Highfields	19	hf ch	or pek	1007	45
	32	do	pek	1664	39
Damblagolla	17	hf ch	bro pek	1020	31
Avisawella	21	hf ch	bro or pek	1050	48
	18	ch	or pek	1710	33
	19	do	pek	1710	27
	13	do	pek sou	1040	24
Hatdowa	14	ch	bro pek	1400	29
	12	do	pek	1140	23 bid
	17	do	pek sou	1445	22
R K P	10	ch	bro or pek	1000	30
	21	ch	or pek	1785	30
	16	do	pek	1280	25 bid
	13	do	pek sou	1105	22 bid
Walla Valley	25	hf ch	bro or pek	1325	66 bid
	12	ch	or pek	1140	45
	20	do	pek	1700	38
Mora Ella	18	hf ch	bro pek	1008	36
	23	do	or pek	1150	37
	12	ch	pek	1020	28
	14	do	pek sou	1190	26
New Valley	23	ch	bro or pek	2300	53
	26	ch	or pek	2340	37
	17	do	pek	1615	33
	14	do	pek sou	1260	26 bid
Gwernet	11	ch	br pek	1100	44
	13	do	pek	1105	31
Yahalatenne	29	ch	br pek	3016	39
	19	do	pek	1748	33
Old Madegama	21	ch	bro or pek	1575	55
	14	do	or pek	1050	38 bid
	25	do	pek	2125	37

	Pkgs.		Name.	lb.	c.
Kinross	13	ch	bro or pek	1365	49
	11	do	or pek	1155	39
	28	do	pek	2744	34
Highfields	25	hf ch	bro or pek	1500	57
	20	do	or pek	1000	44
	36	do	pek	1872	41
Mary Hill	38	hf ch	bro pek	1815	38
	39	do	pek	1950	26
Florida	14	ch	bro pek	1400	28
	20	do	pek	1940	22
Kurunegalla	22	hf ch	or pek	1100	33
C H in est mark	13	ch	souchong	1040	14
Murraythwaite	19	ch	bro pek	1900	35
	13	do	pek	1040	26 bid
Rayigam	*31*	*ch*	*young hyson*	*3100*	*38*
	26	*do*	*hyson No. 1*	*2210*	*35*
	21	*do*	*hyson No. 2*	*1890*	*33*
Cotesland	53	hf ch	bro or pek	2912	37
	23	ch	pek	1929	28 bid
Narangoda	35	ch	bro pek	3325	31
	21	do	pek	1890	24 bid
	15	do	pek sou	1350	22 bid
G A	29	hf ch	bro or pek	1595	28
Osborne	10	ch	br pek	1070	24 bid
Scarborough	21	hf ch	bro or pek	1176	59 bid
	16	ch	or pek	1520	43
	24	do	pek	2280	37
Addiscombe	17	ch	or pek	1700	36 bid
Norbury	22	ch	pek sou	1958	21
	16	do	congou	1760	18
	12	do	souchong	1032	20

Messrs. Keell and Waldock.

[69,939 lb.]

	Pkgs.		Name.	lb.	c.
Moneragalla	21	ch	br or pek	1533	44
	14	do	or pek	1008	35
	21	do	pek	1449	29
Fairlawn	29	hf ch	bro or pek	1740	63
	27	do	or pek	1350	42
	32	ch	pek	2880	37
Bargany	27	hf ch	bro or pek	1566	55
	18	ch	pek	1620	34
Alpha	15	ch	bro pek	1500	34
	16	do	pek	1280	27
Morahela	12	ch	bro or pek	1368	38
	27	do	br pek	2700	38 bid
	25	do	or pek	2400	31 bid
	22	do	pek	2068	25 bid
Dunnottar	19	hf ch	bro or pek	1045	66
	18	ch	pek	1530	36
Gampai	37	hf ch	or pek	1776	33
	62	do	bro or pek	3472	39
	32	ch	pek	2560	30
	29	do	pek sou	2262	27
Hyde	16	ch	or pek	1344	40 bid
	39	hf ch	bro or pek	2184	53
	26	ch	pek	2418	34 bid
G	13	ch	pek	1167	out
Hangranoya	13	ch	bro or pek	1235	50 bid
	13	do	or pek	1040	35
	12	do	bro pek	1140	34
E	18	ch	pek	1707	23 bid
Cottes Brooke	13	ch	pek	1170	26 bid
	14	do	pekoe souchong	1260	23 bid
B O W	32	ch	bro pek	3041	28 bid
	15	do	pek	1200	24 bid
Shepperton	10	ch	bro pek	1000	31 bid
	20	do	pekoe	1800	24 bid
	18	do	pek sou	1620	23 bid

Messrs. E. John & Co.

[252,901 lb.]

	Pkgs.		Name.	lb.	c.
Karawkettia	11	ch	pek	1178	21
Castle Hill	12	do	or pek	1200	23 bid
	16	do	pek	1440	22 bid
	18	do	pek sou	1620	18
Oonoogaloya	14	do	or pek	1260	35
	17	do	bro or pek	1700	51
	21	do	pek	1890	31
Tismoda	41	do	bro pek	4100	32
	41	do	pek	3485	25
Winwood	32	hf ch	bro or pek	1600	50 bid
	21	ch	or pek	1890	30
	17	do	pek	1530	34 bid
Gingranoya	14	do	pek	1120	27 bid
Glentilt	34	hf ch	bro or pek	1870	60 bid
	21	ch	or pek	1890	40
	24	do	pek	2160	36
Eila	20	do	bro or pek	2000	32
	15	do	or pek	1200	30
	40	do	pek sou	2800	23

	Pkgs.		Name.	lb.	
Mocha	25	hf ch	bro or pek	1500	71
	12	ch	or pek	1080	54
	16	do	pek No. 1	1440	49
Perth	24	do	bro or pek	2280	40 bid
	38	do	bro pek	3420	32
	48	do	or pek	3840	30 bid
	11	do	pek	1050	27 bid
Balado	14	do	pek sou	1120	24 bid
North Punduloya	*29*	*hf-ch*	*young hyson*	*1595*	*withd'n*
	17	*ch*	*hyson*	*1615*	
Ohiya	20	ch	pek	1680	44 bid
	12	do	pek sou	1080	39 bid
Ratwatte	33	do	bro pek	3300	30 bid
	14	do	pek	1260	29
Kandahar	20	hf ch	bro or pek	1120	67
	20	do	or pek	1030	43
	40	do	pek	2200	38
R H S	10	ch	unas	1000	27
Ottery	18	do	bro or pek	1800	47 bid
	26	do	fly or pek	2210	36 bid
	50	do	pek	4500	25 bid
Templestowe	39	hf ch	bro or pek	2184	60
	19	do	bro pek	1045	52
	38	do	or pek	1710	42
	20	ch	pek	1700	37
	25	hf ch	pek	1150	withd'n
	14	do	fans	1050	31
Woodstock	11	ch	bro or pek	1100	36
Elston	25	do	pek	2125	36
	23	do	pek sou	1955	33
Brownlow	20	hf ch	bro or pek	1040	65
	17	ch	or pek	1615	45
	20	do	pek	1760	36
Gangawatte	13	do	bro or pek	1300	64
	11	do	bro pek	1100	46
	19	do	pek	1710	35
Rondura	14	do	bro pek	1400	35
	14	do	or pek	1190	34
	21	do	pek	1701	29
Glasgow	25	hf ch	bro or pek	1450	69
	20	ch	bro pek	2000	57
	22	do	or pek	2046	48
	11	do	pek	1078	47
Agra Ouvah	40	hf ch	bro or pek	2400	65
	26	do	or pek	1404	50
Callander	17	do	bro or pek	1020	61
	30	do	or pek	1680	47
	25	do	pek	1400	43
Dalhousie	22	do	or pek	1100	36 bid
	32	do	pek	1280	32 bid
Natuwakelle	12	ch	bro or pek	1200	45 bid
	33	do	bro pek	2970	33
	25	do	pek	2250	30
	16	do	pek sou	1440	24
Ouvah	12	do	pek sou	1104	30 bid
Wattagalla	22	hf ch	or pek	1097	39
Tismoda	24	ch	bro pek	2400	31
	22	do	pek	1980	26
Mount Everest	27	do	pek	2697	37 bid
Rookwood	59	hf ch	bro or pek	3540	36
	33	ch	or pek	3168	28 bid
	20	do	pek	1800	26
Mt. Vernon	30	do	pek	2700	42
Eladuwa	11	do	pek	1045	20 bid
Mt. Vernon	40	do	pek	3520	38 bid
Bowella	14	do	bro or pek	1400	31
	29	do	pek	2465	26
Galloola	27	do	bro pek	2700	57
	35	do	pek	3150	51
	28	do	pek sou	2240	41
	36	do	pek sou	2877	withd'n
Myraganga	14	do	or pek	1260	36
	28	do	or pek No. 2	2240	32
	25	do	bro or pek	2500	45
	21	do	pek	1785	29
Ottery	30	do	pek	2697	27
Myraganga	22	do	or pek	1980	36 bid
	10	do	bro or pek No. 1	1000	57 bid
	21	do	bro or pek No. 2	2100	50
	37	do	pek No. 1	2960	29 bid
	23	do	pek No. 2	2070	28 bid
Templestowe	25	hf ch	or pek	1147	40
Kolapatna	18	do	bro or pek	1008	73
	17	do	bro pek	1054	45
	20	do	or pek	1000	41
	12	ch	pek	1080	32
Theddon	34	do	bro pek	3394	31
Orwell	33	do	or pek	3300	33
	17	do	pek	1530	30
H B K	10	do	bro pek	1100	19
	12	do	pek	1030	18
Birnam	26	hf ch	fans	1820	32
Cabin Ella	16	ch	bro pek	1600	43
	13	do	pek	1105	39
Kandaloya	56	hf ch	pek	2237	26

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	11 ch	pek sou	770	32
	3 hf ch	fans	240	26
S, in estate mark	2 ch	pek	157	22
	2 do	dust	222	17

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
G K	2 ch	sou	130	21
	3 do	fans	300	20
	3 hf ch	bro pek fans	210	22
Gaalehria, Invoice No. 1	11 ch	or pek	880	45 bid
	7 do	pek sou	630	32 bid
F F, in est. mark	12 hf ch	bro pek	672	27
	7 do	pek sou	336	22
	6 do	pek	300	23
	7 do	fans	420	20
Kokarakande	*8 ch*	*young hyson*	*840*	*32*
	3 do	*hyson No 2*	*240*	*30*
Yogama	2 ch	dust	300	22
Mousa Ella	6 ch	or pek	510	36
	5 do	bro pek fans	500	25
	3 do	pek sou	300	22
	1 do	unas	100	19
	7 do	dust	700	21
Lindupatna	6 ch	pek sou	600	34
	5 do	bro pek fans	670	28
C B L	2 ch	bro or pek	200	35
	3 do	pek	270	25
	8 hf ch	fans	600	20
	1 ch	sou	75	21
Bowlana	5 do	pek sou	450	34
	3 hf ch	fans	210	30
	3 do	dust	255	26
Ambanpitiya	2 ch	bro tea	180	20
	2 do	dust	320	20
Ardlaw and Wishford	ch	bro or pek	660	70
	6 do	bro pek No 1	660	52
	7 do	bro pek No 2	700	45
	8 do	or pek	720	44
	10 do	pek	840	39
	3 do	fans	300	28
Emelina	3 hf ch	dust	300	21 bid
Chrystlers' Farm	2 do	dust	160	22
Lyegrove	6 ch	pek	570	37
	2 do	pek sou	180	34
Penrhos	9 ch	pek sou	720	26
	3 hf ch	fans	225	24
	2 do	pek dust	200	16
Nugagalla	13 hf ch	bro pek	650	54
	2 do	dust	180	21
Waitalawa	15 hf ch	pek sou	750	26
	6 do	dust	540	24
Kelburne	11 do	dust	935	26
Great Valley Ceylon, in est. mark	12 hf ch	pek sou	900	32
	8 do	dust	640	22
Beverley, Invoice No. 9	5 hf ch	bro or pek fans	325	47
Beverley, Invoice No 10	12 hf ch	bro or pek	600	51
Harrow	6 do	dust	510	26
Passara Group	4 ch	bro or pek	400	54
	4 do	pek sou	360	34
G	3 ch	or pek	321	27
	2 do			
	1 hf ch	pek	263	26
T C	2 ch	pek	190	24
Kitulgalla, Invoice No. 13	3 hf ch	dust	240	20
Handford, Invoice No. 6	5 ch	pek sou	450	23
	1 do	bro or pek fans	115	25
	1 do	pek fans	95	18
	2 do	dust	230	20
Anningkande, Inv No. 8	5 ch	bro pek fans	575	25
	1 hf ch	sou	50	21
	4 ch	dust	460	20
Bedford, Inv. No. 8	1 do	pek	90	24
Yellatenne Invoice No. 4	6 ch	bro pek	660	54
	5 do	or pek	480	39
	4 do	pek sou	412	30
	1 hf ch	dust	91	23
B D W, Inv. No 12	2 ch	pek fans	200	24
	3 hf ch	do No 1	165	25
Tembiligalla	9 ch	pek	828	28
	4 do	pek sou	368	22
	3 do	pek fans	336	29

	Pkgs.	Name.	lb.	c.
Vogan	3 ch	pek fans	375	25
	7 hf ch	dust	560	22
Monterey	6 ch	sou	540	23
Madulkelle	1 ch	dust	110	20
Poonagalla, Invoice No. 33	8 ch	fans	680	33
Mawiligaugawatte	4 do	bro or pek	412	32
	4 do	dust	400	22
Weyungawatte	1 ch	sou	75	22
	2 hf ch	dust	170	20
Glendon	7 hf ch	dust	616	22
Oodoowerre	5 ch	bro or pek	475	33
	10 do	pek	850	29
	2 do	pek sou	160	25
	1 do	pek sou No 2	95	22
	1 hf ch	dust	90	17
Hanwella	*3 hf ch*	*hyson No. 2*	*180*	*34*
	6 do	*hyson siftings*	*510*	*11*
Nahalma	6 ch	bro or pek	690	29
	8 hf ch	dust	640	14
Kotagaloya	10 ch	pek sou	900	23
	9 hf ch	fans	540	27
	12 do	dust	960	25
	10 do	bro mixed	450	16
Horagaskelle	8 hf ch	bro pek	538	28
	4 do	pek	232	23
	10 do	pek sou	580	23
	1 do	bro mixed	72	20
Glenorchy	12 hf ch	bro pek	720	80
	8 ch	pek	760	51
	2 do	pek sou	180	43
Dunbar	14 hf ch	bro or pek	644	72
	5 ch	pek sou	450	30
N B	2 ch	dust	266	22
Kincora	1 ch	dust	165	22
T C L	5 ch	pek fans	500	18 bid
	3 hf ch	dust	240	22 bid
	2 ch	pek dust	160	18
S R in est mark	4 ch	dust	600	24
Wallaba	1 ch	pek	98	25
Talgaswella	4 hf ch	dust	340	18
I	3 ch	sou	285	21
	1 do	unassorted	90	22
	1 do	dust	120	17
	1 do	fans	90	17
Pannawatte	3 ch	fans	330	26
	4 do	dust	600	22
Haputelewele	15 hf ch	pek sou	600	25 bid
	3 do	fans	240	25
Ellamulla	1 hf ch	pek dust	90	18
Torwood	5 ch	bro or pek A	450	39
	2 ch	bro pek fans	230	26
	2 do	dust	280	19
Moray	22 hf ch	or pek	990	43
	7 do	dust	560	25
Rickarton	6 hf ch	fans	504	25
Bullugolla	2 ch	fans	200	25
	2 do	dust	220	22
Carolina	*6 hf ch*	*hyson No. 2*	*450*	*withd'n*
	3 do	*siftings*	*261*	
Stamford Hill	6 hf ch	dust	540	23
Hentleys	11 hf ch	or pek	495	32
	7 ch	pek sou	511	23
	3 hf ch	fans	225	24
	1 do	pek dust	90	20
Bandara Eliya	17 hf ch	bro or pk No 1	935	65 bid
Strathisla	2 ch	fans	220	28
	1 hf ch	dust	85	17
Kirrimittia	3 hf ch	bro or pek	180	41
	6 do	pek	360	26
	2 ch	congou	180	23
	4 hf ch	dust	340	22
Morankande	8 ch	pek sou	560	23
	2 hf ch	bro or pek fans	140	25
Battawatte	11 hf ch	bro or pek	715	40
	11 ch	pek sou	990	34
	2 do	dust	200	25
Maldeniya	5 ch	dust	750	19
Udabage	*4 hf ch*	*yson No. 2*	*220*	*33*
	11 do	fans	605	13
	4 do	dust	320	10
Queensland	5 hf ch	bro pek dust	375	27
Marlawatte	8 ch	sou	757	23
Swinton	3 ch	pek sou	237	25

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Meeriatenne	17 hf ch	bro or pek	986	61
	5 do	bro pek fans	360	29
	2 do	tea dust	176	24
Blinkbonnie	5 ch	pekoe souchong	430	33
Nyanza	4 ch	pek sou.	340	25
	7 hf ch	dust	525	20
	8 do	fans	520	29

	Pkgs.		Name.	lb.	c.
Yspa	3	ch	sou	225	22
	4	do	bro pek fans	450	23
	5	do	pek dust	700	22
	4	do	bro pek fans	500	27
Moragalla	2	ch	bro pekoe	200	31
	3	do	pekoe	300	22
	4	do	fans	400	20
St. Catherine	18	hf ch	bro or pek	903	36
	3	ch	fans	318	16
D	7	ch	pekoe	630	29
Citrus	4	ch	pekoe souchong	333	21
	2	do	fans	191	15
	1	do	dust	150	15
S W	1	ch	bro pek	90	24
	1	ch	pekoe	80	23
	1	hf ch	dust	64	16
Cooroondoowatte	11	ch	pek sou	990	24
Theberton	1	ch	br pek fans	100	26
	1	do	fans	100	21
G A	5	ch	pek	485	22
	9	do	pek sou	702	21
	6	do	sou	432	20
	10	hf ch	dust	800	18
Galata	3	ch	souchong	240	16
L nach	12	ch	pek sou	960	25
Blackheath	4	hf ch	fans	300	20
Raglan	2	ch	dust	279	15
	2	do	fans	211	16
Farnham	4	ch	sou	320	21
	3	hf ch	dust	238	17
	11	do	fans	792	23
Kerenvilla	4	ch	bro pek	400	26
	4	do	pek	400	23
	1	do	pek sou	100	20
	1	do	pek fans	100	15
Avisawella	5	hf ch	fans	350	20
Hatdowa	6	ch	bro or pek	600	30
	1	do	fans	100	21
	10	hf ch	dust	800	23
M A R	13	hf ch	bro pek	990	34
	7	do	pekoe	371	26
	15	do	pek sou	780	22
Ferriby	3	ch	sou	255	18
	6	hf ch	dust	450	18
Roondoowatte	9	ch	pekoe	900	out
	8	do	pek sou	800	22
Tallegallakande	4	ch	br pekoe	405	27
	5	do	pek	495	21
	2	do	pek sou	185	18
Old Maddegama	5	ch	pek sou	425	35
	3	do	bro or pek fans	300	29
	2	do	dust	200	25
Kinross	5	ch	pek sou	440	29
	2	hf ch	bro or fans	108	27
	6	ch	bro tea	840	23
A	8	hf ch	dust	720	17
N	7	hf ch	dust	630	16 bid
M	6	hf ch	dust	540	17
Mary Hill	3	hf ch	dust	225	21
Florida	10	ch	pek sou	960	21
	2	do	fans	193	20
Kurunegalla	14	hf ch	bro or pek	840	33
	8	ch	pekoe	680	29
	7	do	pek sou	560	25
	2	do	congou	170	18
	3	do	dust	240	22
G in est mark	*6*	*ch*	*young hyson*	*600*	*20 bid*
	5	*do*	*hyson No 1*	*425*	*31*
	4	*do*	*hyson No 2*	*380*	*29*
Rajigam	*8*	*hf ch*	*G T D*	*600*	*10 bid*
L	5	hf ch	dust	450	17
F	4	hf ch	dust	360	16 bid
Cotesland	7	ch	pek sou	575	22 bid
Blinkbonnie	11	hf ch	fans	825	31
	8	do	dust	736	23
Agra Elbedde	6	hf ch	bro or pek	360	40
Rondura	7	ch	bro or pek	805	23
Scarborough	7	hf ch	fans	462	29

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
W H F in est mark	4	ch	fans	397	15
R P W	1	ch	pek	91	21
Palm Garden	7	ch	pek	700	16 bid
Moneragalla	9	ch	pek sou	567	24
	9	do	fans	873	27
	1	do	dust	107	22
D	9	ch	pek	855	20
G K	5	ch	pek sou	500	18
Alpha	1	ch	pek sou	100	22
	3	hf ch	fans	195	24
Morahela	1	ch	sou	100	22
	3	hf ch	dust	270	20

	Pkgs.		Name.	lb.	c.
Dunnottar	11	ch	or pek	990	28
	14	hf ch	broken pekoe	840	37
	8	ch	pek sou	720	30
	3	hf ch	bro or pk fans	225	18
	2	ch	bro pek No 2	220	31
	2	do	pek No. 2	180	25
	3	do	bro mixed	360	14
Gampai	6	hf ch	dust	480	19 bid
Captain Garden	3	ch	pek sou	270	12 bid
A	10	hf ch	pekoe	957	28 bid
Cottes Brooke	5	ch	broken pekoe	500	30 bid

[Messrs. E. John & Co.

	Pkgs.		Name.	lb.	c.
Hiragalla	7	ch	bro pek	756	29
	8	do	pek	704	25
Karawkettia	9	do	bro pek	932	29
Castle Hill	7	do	bro or pek	700	30
	6	do	dust	600	18 bid
Winwood	8	do	pek sou	720	23 bid
Gingranoya	7	do	fans	840	26
Perth	8	do	pek sou	560	24
	6	do	pek fans	700	24
North Punduloya	*3*	*ch*	*hyson No. 2*	*300*	*withdn*
	5	*hf ch*	*siftings*	*930*	*withdn*
Ratwatte	4	ch	pek sou	320	22
	3	hf ch	dust	240	23
Kalkande	5	ch	bro or pek	475	28
	4	do	pek	360	23
	2	do	pek dust	200	14
A T	2	do	pek sou	120	18
	4	do	pek dust	480	14
	1	do	pek fans	110	20
	1	do	fans	110	20
Kandahar	5	hf ch	dust	275	25
R H S	1	do	dust	93	18
Ottery	10	do	dust	800	22
Temp est we	6	ch	unas	630	20
Woodstock	7	do	pek	630	28
Gangawatte	5	do	pek sou	450	30
	6	hf ch	fans	390	30
	8	ch	sou	720	25
Chapelton	12	hf ch	dust	876	24
	7	ch	sou	560	19
Rondura	3	do	bro or pek	345	31
	5	do	pek sou	450	22
	2	do	bro pek fans	230	17
	2	do	dust	330	20
Agra Ouvah	9	do	pek	810	46
Callander	7	hf ch	pek sou	336	37
Dalhousie	17	do	bro pek	935	64
	14	do	pek sou	630	28
	6	do	bro pek fans	390	25
Ullandapitiya	2	ch	bro or pek	100	41
	2	do	bro pek	100	33
	3	do	pek	150	30
	2	do	sou	100	22
Penrith	8	do	pek sou	720	24
	8	hf ch	fans	560	24
	5	do	dust	450	13
Natuwakelle	2	ch	dust	200	22
Annamallai	1	hf ch	dust	85	18
Taunton	7	ch	pek sou	560	30
	1	do	sou	80	21
	1	hf ch	fans	60	24
	1	do	dust	90	22
Eladuwa	3	ch	or pek	285	25
	3	do	bro pek	315	25
	7	do	pek sou	595	20
	2	do	unas	220	13
Bowella	10	do	or pek	900	30
	10	do	pek sou	800	23
	8	do	sou	576	20
	9	hf ch	dust	710	21
Gallolla	2	ch	dust	200	25
	3	do	fans	300	27
Myraganga	4	do	pek fans	600	26
H B K	1	do	dust	160	17
Cabin Ella	1	do	bro pek fans	70	27
	1	do	pek dust	90	23
W	5	hf ch	dust	420	23
Koslande	6	ch	pek sou	540	21
Hunugalla	1	do	sou	97	21
P N P	5	do	bro pek	500	30 bid
Awliscombe	5	do	bro pek	550	34
	7	do	pek	665	29
	4	do	pek sou	380	24
	1	hf ch	dust	90	22
Shawlands	1	ch	dust	97	17
	3	do	fans	297	18

CEYLON COCOA SALES IN LONDON.

MINCING LANE, August 15th.

"Shropshire."—Batagolla B, 22 bags sold at 60s 6d; C, 6 at 45s 6d; D, 2 at 34s 6d.

"Kanagawa Maru."—Meegama A, 1 case sold at 51s

No. 36. COLOMBO, SEPTEMBER 15th, 1902. Price:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[21,764 lb.]

	Pkgs.		Name.	lb.	c.
Battalgalla	26	ch	or pek	2600	41 bid
	18	do	pek	1 30	36
Coodoogalla	30	hf ch	bro pek	1500	35
Chimleigh	14	ch	bro or pek	1456	50 bid
	22	do	bro pek	2200	33 bid
	17	do	pek	1530	28 bid
Bunyan and Ovoca	35	hf ch	bro or pek	2100	61 bid
	34	do	or pek	1700	41
	15	ch	pek	1425	36
	11	do	pek No 2	1045	41 bid
	16	do	pek sou	1440	35 bid

Messrs. Forbes & Walker.

[503,885 lb.]

	Pkgs.		Name.	lb.	c.
Bellongalla	10	ch	bro pek	1020	30
	17	do	pek	1530	28
Great Valley Ceylon in estate mark	42	hf ch	bro or pek	2478	56
	32	do	or pek	1792	44
	30	ch	pek	2820	35
Holton	13	ch	bro pek	1300	34
	12	do	pek	1020	29
Yatiana	18	ch	or pek	1890	29
E P	20	hf ch	pek	1000	14 bid
Drayton	42	do	or pek	2100	46
	30	ch	pek	2550	38
Ninfield	12	ch	bro pek	1197	33
	19	do	pek	1612	27
Drumoland	24	hf ch	bro or pek No 1	1272	55 bid
	20	do	bro pek	1080	38 bid
	24	do	pek	1152	33
M A, in estate mark	7	ch	dust	1012	16
Yataderia	24	hf ch	bro or pek	2544	33 bid
	33	ch	or pek	3069	30
	58	do	pek	4814	25 bid
	14	do	pek sou	1092	20 bid
B B, in est. mark	27	ch	pek sou	2160	26
Putupaula	16	ch	bro or pek	1600	55
	46	do	or pek	3910	33
	42	do	pek	3150	27 bid
	10	do	bro pek fans	1250	29
B W	17	hf ch	bro pek fans	1387	27
Florence	19	do	bro or pek	1045	78
	17	ch	or pek	1547	63
	32	do	pek	2316	46
	19	do	pek sou	1615	41
Mansfield	53	hf ch	bro pek	3180	63
	15	ch	pek	1500	51
Udabage	*111*	*hf ch*	*young hyson*	*5550*	*39*
	20	*do*	*hyson No. 1 A*	*1100*	*35*
	82	*do*	*hyson No. 1 B*	*4100*	*34*
Poonagalla, Invoice No. 34	31	ch	bro pek	3472	65
	20	do	pek	1800	46
Tillyrie	10	do	fans	1200	27
Amoragalla	34	hf ch	or pek	1632	40
	57	do	bro or pek	3306	48
	27	ch	pek	2295	35 bid
	16	do	pek sou	1280	30
Ingrogalla	18	ch	bro pek	1800	39
	17	do	pek	5130	29
Sylvakandy	15	ch	bro or pek No 1	1500	53 bid
	27	do	bro or pek No 2	2700	40 bid
	15	do	bro pek	1500	36 bid
	12	do	or pek	1140	38
	25	do	pek	2500	33
N	16	ch	pek fans	2 80	23
Irex	16	do	bro or pek	1600	41
	14	do	pek	1260	32
O B E C, in est. mark Sindumally	10	ch	bro or pek	1050	48
	32	do	bro pek	3040	37 bid
	26	do	pek	2210	31
	18	do	pek sou	1260	25
	14	do	fans	1680	28
	8	do	do No 2	1200	22
	11	do	dust	1650	25

	Pkgs.		Name.	lb.	c.
Weoya	19	ch	bro or pek	1900	39
	44	do	bro pek	4180	31
	31	do	pek	2790	26
	17	do	pek sou	1445	22
Dammeria	30	ch	bro pek	3000	56
	25	do	pek	2250	49
Pallagodde	24	ch	bro or pek	2400	30
	31	do	bro pek	3100	34 bid
	23	do	or pek	2070	32
	25	do	pek	2000	29
	26	do	pek sou	2210	22
High Forest	43	hf ch	or pek No 1	2365	65
	36	do	or pek	1872	52
	26	do	bro pek	1560	63
	26	do	pek	1222	47
Polatagama	24	ch	bro or pek	2400	39 bid
	26	do	bro pek	2470	34 bid
	13	do	or pek	1235	31
	47	do	pek	3995	28
	11	do	fans	1100	24
Ganapalla	24	ch	or pek	2016	33
	21	do	bro or pek	2016	34
	42	do	pek	3150	29
Lucky Land	38	hf ch	bro or pek	2280	52
	30	ch	bro pek	2880	55
	20	do	pek	1700	49
Marlborough	20	hf ch	bro or pek	1040	67
	18	ch	or pek	1620	43
	19	do	bro pek	1900	41
	19	do	pek	1558	38
	12	do	pek sou	1080	36
Castlereagh	36	hf ch	bro or pek	1800	64
	10	do	bro pek	1000	41
R M, in est. mark	49	ch	bro or pek	5390	41
	19	do	or pek	1805	35 bid
	25	do	pek	2250	32
	19	do	pek sou	1710	26 bid
Perawatte	50	ch	bro or pek	5500	40
	26	do	or pek	2340	35 bid
	28	do	pek	2520	32
	31	do	pek sou	2790	27 bid
Middleton, Invoice No 30	26	hf ch	bro or pek	1430	60
	18	ch	bro pek	1800	39
	24	do	or pek	2160	35
	21	do	pek	1680	29
Tymawr Inv. No. 17	17	hf ch	bro or pek	1020	60 bid
	20	do	pek	1000	41 bid
Monkswood	29	hf ch	or pek	1450	67
	27	do	pek	2430	69
Parsloes	41	ch	bro pek	4100	39
	34	do	pek	3060	31
	20	do	pek sou	1600	26
O B E C, in est. mark Darrawella	49	hf ch	bro or pek	2695	61 bid
	25	ch	bro pek	2625	44
	18	do	or pek	1566	44
	46	do	pek	4140	33
	38	hf ch	fans	2964	27
Naseby	40	hf ch	bro or pek	2400	66 bid
	25	do	pek	1250	50
	14	do	fans	1078	40
Pine Hill	21	hf ch	bro or pek	1260	54
	22	ch	or pek	2030	40
	22	do	pek	1980	33
Tymawr	33	hf ch	pek	1650	33 bid
Harrow	20	hf ch	bro or pek	1200	66
	12	ch	or pek	1200	45
	25	do	pek	2500	35
El Teb	25	hf ch	bro pek	1350	45
Roeberry	23	ch	pek	2116	48
	19	do	bro pek	1900	60
	13	do	fans	1300	29
St. Heliers	25	hf ch	bro or pek	1400	50
	11	ch	pek	1034	30
Palmerston	16	hf ch	bro or pk fans	1152	33
Brownlow	28	ch	pek	2408	out
Ireby	40	hf ch	bro pek	2400	56
	19	ch	pek	1515	40
Bandarapolla	21	hf ch	bro or pk No 1	1155	35
	36	do	bro or pek	2052	34
	28	do	bro pek	1344	29
	31	do	or pek	1302	28
Bandara Eliya	35	hf ch	or pek	1750	45 bid
	53	do	bro or pek	3074	52 bid
	73	do	pek	3504	39 bid
Kanatota	17	ch	pek	1275	21
Tempo	13	ch	or pek	1111	34
	12	do	or pek	1068	32
	14	do	pek	1190	28
Lentenna	11	ch	bro or pek	1100	32
Torwood	20	ch	bro pek	1717	32
	35	do	pek	2832	25

	Pkgs.		Name.	lb.	c.
Kincora	11	ch	bro or pek	1165	57 bid
	18	do	or pek	1620	38
	15	do	pek	1350	34
Ruanwella	44	cb	or pek	3957	30
	38	do	pek	3417	24 bid
	12	do	pek sou	1077	21 bid
Marie Land	29	hf cb	bro or pek	1566	41
	35	ch	bro pek	3500	33
	18	do	pek	1512	29
Bellongalla	10	ch	bro pek	1000	30
	13	do	pek	1105	24
Tonacombe	33	ch	or pek	2970	51
	32	do	bro pek	3200	66
	47	do	pek	3995	50
	18	do	pek sou	1440	43
Kirklees	15	ch	bro or pek	1575	56
	15	do	or pek	1350	46
	20	do	pek	1900	41
Clunes	11	ch	bro pek	1100	34
	13	do	or pek	1170	33
	27	do	pek	2430	26
Dea Ella	34	hf ch	bro or pek	1870	45
	39	do	or pek	2145	35
	33	do	pek	1650	32
Erracht	13	cb	bro or pek	1300	38
	15	do	or pek	1275	35
	43	do	pek	3440	30
Rajawatta	12	ch	bro or pek	1200	59
	11	do	or pek	1045	41
	11	do	pek	1045	31
Alver	20	cb	sou	1600	18
	27	hf cb	dust	2565	21
	50	do	bro pek fans	3500	28
Macaldeniya	40	hf ch	bro pek	2400	51
	44	do	pek	2420	40
Templehurst	24	ch	bro pek	2400	60 bid
K. P. W.	26	hf cb	bro or pek	1560	38
	27	do	bro pek	1350	33
	47	do	pek	2350	29
	25	do	pek sou	1250	21 bid
Tembiligalla	13	ch	bro or pek	1300	36
Adisham	19	ch	bro or pek	1900	64
	22	do	bro pek	2290	47
	16	do	pek	1520	39
Devonford	22	hf ch	bro or pek	1210	78
	11	cb	or pek	1001	54
	11	do	pek	1034	56
	11	do	pek sou	1034	45
Delta	20	cb	or pek	1600	32
	20	do	pek	1360	28
Woodend	28	ch	bro pek	2744	34
	51	do	pek	4480	27
	13	do	pek sou	1040	21 bid
Glengariffe	13	ch	pek sou	1087	26 bid
Arklow	20	hf cb	bro pek	1000	29 bid
	36	do	pek	3060	out
Choisy	40	hf cb	bro or pek	2200	35
O. O. in est mark	13	ch	pek sou	1352	15
Bogahagodawatte	13	ch	bro pek	1300	34
	13	do	pek	1300	27
Massena	34	hf ch	bro or pek	1700	36 bid
	35	do	bro pek	1575	34
	35	do	pek	1750	27
	20	do	pek sou	1000	20 bid
	20	do	bro pek fans	1100	25
Dunkeld	21	cb	bro or pek	2310	52 bid
	14	do	or pek	1260	45
	15	do	pek	1350	38
Coreen	41	hf ch	bro pek	2460	48 bid
	15	ch	or pek	1350	39

Messrs. Keell and Waldock.

[44,037 lb.]

	Pkgs.		Name.	lb.	c.
W in est mark	14	cb	pek dust	1120	12 bid
Kinchin	10	ch	bro or pek	1000	51
	14	do	or pek	1190	32 bid
	12	do	pek	1020	29
G	16	ch	br pek	1585	out
Brecon	17	hf ch	bro or pek	1020	49
	18	do	or pek	1045	37
	20	do	pek	1000	34
Ovitta	12	cb	bro or pek	1200	32 bid
	13	do	pek	1040	25 bid
Dickwarden	11	cb	bro pek	1100	18 bid
Waduhena	10	ch	bro pek	1000	32 bid
	22	do	pekoe	1980	24 bid
	21	do	pek sou	1890	21 bid
Oakley	25	bf ch	bro or pek	1250	48 bid
	13	ch	or pek	1157	38 bid
	25	do	pek	2125	33 bid
	15	do	pek sou	1200	28 bid
Gadawella	18	ch	bro pek	1530	27 bid
	11	do	pek	1014	out
Roeberry	42	ch	pek	3834	26 bid

Messrs. Somerville & Co.

[186,362 lb.]

	Pkgs.		Name.	lb.	c.
Kurulugalla	11	ch	bro or pek	1100	34
	16	do	pek	1440	28
Dartry	26	hf ch	fans	1950	26
Warakamure	14	ch	or pek	1330	28
	12	do	bro or pek	1200	32
	15	do	pek No 1	1350	23 bid
Dalveen	20	ch	br pek	1900	33
	20	do	pek	1600	29
Simla	20	ch	bro pek	2200	49
	16	do	pek	1536	41
Torbay	17	hf ch	bro pek fans	1190	30
Coteshurst	26	hf ch	bro or pek	1430	withd'n
	16	cb	pek sou	1360	
Marigold	24	bf ch	pek sou No. 2	1248	30
Columbia	20	hf ch	bro pek	1200	46
	38	do	pek	1900	34 bid
	22	bf ch	pek sou	1100	30 bid
Ravenscraig	21	bf ch	bro or pek	1176	48
	18	ch	bro pek	1008	34 bid
	20	hf ch	or pek	1000	34
	12	do	pek	1080	29 bid
Hobart	22	ch	pek	1650	25
Forest Hill	19	hf ch	bro or pek	1007	40
	11	ch	bro pek	1012	32
	13	do	pek	1105	28
Oonankande	23	bf ch	bro pek	1150	withd'n
	33	do	pek	1815	
Bodawa	32	bf cb	bro pek	1600	35
Annandale	20	hf ch	bro or pek	1160	63 bid
	27	do	pek sou	1350	35
Pinkandi	27	hf cb	bro or pek	1458	37
	15	ch	pek	1310	27 bid
Cooroondoowatte	16	ch	pek	1600	27
	11	do	pek	1100	27
Wellgoda	13	ch	pek sou	1120	15
I P in est mark	19	ch	pek	1900	21 bid
Selvawatte	24	hf ch	bro or pek	1440	32
	13	cb	pek	1235	25
Mount Temple	18	ch	bro pek	1800	34
	25	do	pek	2050	30
	16	do	pek sou	1216	23 bid
	28	do	br or pek fans	2800	28
A in est mark	16	ch	bro or pek	1760	20 bid
	22	do	pek	2200	22 bid
Ambalawa	15	ch	or pek	1275	29
	17	do	pek	1445	27
	15	do	br pek	1500	30
Ferriby	28	hf cb	bro or pek	1400	35
	25	ch	pekoe	2000	30
Owilikande	18	ch	bro or pek	1800	36
	13	do	or pek	1040	33
	17	do	pek No. 1	1530	29
	12	do	pek No 2	1080	26
	12	do	pek sou	1080	21
Carlsrube	18	bf ch	dust	1620	withd'n
Ferndale	11	ch	bro or pek	1067	43
	22	do	pek	2090	28
Weygalla	22	hf ch	bro or pek	1100	70
	26	ch	pek	2340	27 bid
Welgampola	30	bf ch	pek	1440	26
	21	do	pek sou	1008	23
Lyndhurst	39	bf ch	br pek	1950	33
	39	do	pek	1755	26
	33	do	pek sou	1485	21
Beausejour	23	ch	br pek	2125	36
	29	do	pek	2260	29
Carney	20	hf cb	bro pek	1000	35
	24	do	pek	1080	23
	21	do	pek sou	1050	22
Charlie Hill	19	hf ch	bro pek	1045	34
Pollagalla	28	cb	bro pek	2800	34
	17	do	pek	1360	29
	13	do	pek sou	1105	24 bid
Dover	32	hf ch	bro or pek	1760	40
	19	ch	or pek	1615	32 bid
	50	do	pek	4500	30
	50	do	pek sou	3750	23 bid
Neboda	19	ch	bro or pek	1900	42
	24	do	or pek	2160	33
	23	do	pek	2300	30
Depedene	29	hf ch	bro pek	1740	28
	29	do	pek	1450	22 bid
L	13	cb	pek	1183	22
Montery	12	ch	pek sou	1080	19 bid
Addiscombe	42	ch	pek sou	3150	19 bid
Wewalakanda	23	hf ch	bro pek	1196	25

Messrs. E. John & Co.

[205,560 lb.]

	Pkgs.		Name.	lb.	c.
Eila	21	cb	pek No. 1	1680	23 bid
	40	do	pek No. 2	3200	22 bid

	Pkgs.	Name.	lb.	c.
Wattagalla	33 hf ch	bro pek	1980	35
	35 ch	pek	3150	32
	37 do	pek sou	2960	34
Midlothian	20 hf ch	bro pek	1200	55
	33 do	pek	1716	41
Glasgow	22 do	bro or pek	1276	70
	16 ch	bro pek	1600	53
	16 do	or pek	1488	52
	11 do	pek	1045	47
Agra Ouvah	44 hf ch	bro or pek	2634	62 bid
	15 ch	or pek	1425	48
Etholuwa	17 do	bro pek	1870	21 bid
Osborne	24 hf ch	bro or pek	1488	55
	18 ch	or pek	1656	39
Natuwakelle	17 do	bro or pek	1700	42 bid
	27 do	bro pek	2430	33 bid
	14 do	pek	1260	32
	14 do	pek sou	1260	23 bid
M L W	19 do	bro pek	1900	34
Birnam	25 hf ch	dust	2100	27
Ohiya	13 do	dust	1040	26
Brownlow	22 do	bro or pek	1166	62
	19 do	bro pek	1026	40 bid
	21 ch	pek	1701	36
	15 do	pek sou	1215	29
Cabin Ella	16 do	bro pek	1600	48
	13 do	pek	1105	40
Longville	23 do	bro pek	2300	40
	13 do	pek	1300	34
Mahanilu	19 hf ch	or pek	1064	52 bid
	23 do	bro or pek	1288	62
	16 ch	pek	1536	40
Myraganga	12 do	or pek	1080	36
	19 do	or pek No. 2	1520	30
	14 do	pek	1190	31
A A	11 do	dust	1100	24
Rookwood	45 hf ch	bro or pek	2700	35
	34 ch	or pek	3264	31
	21 do	pek	1890	28
	24 do	bro or pek	2592	41 bid
	24 do	or pek	2304	33 bid
	24 do	pek	2160	27 bid
D E V	20 do	pek	1960	29
Hiralouvah	19 do	pek	1672	26
Y K	10 do	dust	1500	18
Dubena	13 do	bro pek	1300	30 bid
	10 do	pek	1000	23 bid
	12 do	pek sou	1140	22
Mossend	18 hf ch	bro or pek	1080	60 bid
	22 do	or pek	1210	45 bid
	20 do	pek	1000	39 bid
L H O	35 ch	pek sou	3150	18 bid
Glentilt	44 hf ch	bro or pek	2420	64
	25 ch	or pek	2250	41
	25 do	pek	2250	38
Glenavy	11 hf ch	pek	1067	34 bid
Bowella	11 ch	bro or pek	1100	35
	19 do	pek	1615	27
Oonoogaloya	22 do	or pek	1980	35
	25 do	bro or pek	2500	46 bid
	21 do	pek	1890	29
Poilakande	46 do	bro or pek	4140	30 bid
	62 do	bro pek	5580	25 bid
	50 do	pek	4000	23 bid
P K T	15 hf ch	dust	1200	22
Elston	26 ch	pek	2080	34
	26 do	pek sou	2210	32
Higham	30 do	bro pek	3000	35 bid
	25 do	pek	2250	36
	18 do	pek sou	1620	29
O W	13 hf ch	bro pek	1222	30
Kahagalla	18 ch	bro pek	1116	59 bid
Glassaugh	30 hf ch	or pek	1650	66
	25 do	bro or pek	1650	69
	14 ch	pek	1470	53
Ottery	12 do	bro or pek	1200	57
	17 do	fly or pek	1615	46
	47 do	pek	4230	39
Arncliff	42 do	bro or pek	4410	42 bid
	40 do	or pek	3800	35 bid
	22 do	pek	2046	35 bid
	21 do	pek sou	1890	28 bid
Melville	24 hf ch	pek	1200	20 bid
F L, in estate mark	8 ch	dust	1168	15 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Chouhleigh	1 ch	pek sou	83	23
	2 do	dust	300	23
	3 do	fans	345	27
R E S	9 ch	or pek	810	21 bid
	8 do	pek	800	19
F D E	20 hf ch	pek	900	18 bid

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
North Matale	8 hf ch	dust	640	22
Bellongalla	3 ch	or pek	270	30
	7 do	pek sou	595	20
	3 do	fans No 1	375	24
	2 do	dust	310	22
Holton	2 ch	pek sou	170	23
	4 do	fans	220	22
	1 do	dust	85	20
Yatiyana	6 ch	bro pek	570	25
	5 do	pek	475	19
E P	19 hf ch	or pek	950	29
	11 do	pek sou	550	18
	6 do	bro tea	300	18
	8 do	fans	400	23
	4 do	dust	200	20
	3 do	congou	150	14
Drayton	10 ch	pek sou	800	37
Ninfield	4 ch	or pek	357	31
	8 do	pek sou	637	21
	2 do	dust	225	22
Asgeria	1 ch	bro tea	105	23
	1 do	dust	165	26
Kabragalla	3 ch	dust	255	24
Dromoland	6 hf ch	fans	420	30
	2 do	pek sou	90	25
Putupaula	3 ch	pek sou	240	22
	3 do	dust	480	20
Mansfield	5 ch	pek sou	475	47
Paiawatte	12 hf ch	bro pek	624	35
	10 do	pek	500	26
	5 do	pek sou	200	23
	1 do	dust	67	23
Carlabeck	9 ch	pek sou	900	35
	7 do	bro pek fans	945	31
C B	2 ch	bro pek	220	37
	4 do	pek	424	30
Nynangodde	7 hf ch	bro or pek fans	525	27
Pingarawa	4 do	dust	360	26
Udabage	*5 hf ch*	*hyson No. 2*	*275*	*34*
	4 do	*dust*	*320*	*10*
	14 do	*fans*	*770*	*12*
Poonagalla, Invoice No. 34	11 ch	or pek	990	58
Ambragalla	4 hf ch	dust	292	26
Sylvakandy	3 ch	dust	300	26
N	7 ch	sou	700	16
	6 do	bro tea	600	14
Irex	11 ch	or pek	880	34
	4 do	pek sou	320	26
	2 do	fans	220	27
	1 hf ch	dust	85	20
Weoya	6 ch	bro pek fans	630	23
	2 do	dust	300	22
Dammeria	11 ch	or pek	990	53
Polatagama	8 ch	pek sou	760	23
	2 do	dust	300	20
Ganapalla	10 ch	pek sou	800	22
	7 do	bro pek fans	770	26
	5 hf ch	dust	425	22
Lucky Land	10 ch	pek sou	900	46
	4 hf ch	pek fans	360	30
S	4 hf ch	dust	392	25
Castlereagh	9 ch	or pek	720	39
	8 do	pek	640	33
	8 do	pek sou	640	27 bid
S V, in est. mark	8 hf ch	pek fans	520	27
	9 do	dust	720	25
	5 ch	pek sou	500	22
R M, in est. mark	5 do	sou	450	22
	3 hf ch	dust	225	24
Perawatte	6 ch	sou	510	22 bid
	4 hf ch	dust	320	25
M	2 hf ch	bro pek	110	32
Monkswood	13 do	bro pek	780	R1·02
Ookoowatte	1 ch	pek fans	120	24
	2 do	pek sou	160	22
	2 hf ch	dust	200	17
Parsloes	1 do	dust	90	20
Nugagalla	5 hf ch	bro pek	250	53
	7 do	pek	350	31
Blarneywatte	7 ch	bro pek	700	50 bid
	8 do	pek	720	40
	2 do	pek sou	160	35
	1 hf ch	dust	85	26
K C B	3 ch	bro pek	300	25
	3 do	pek	270	21
	4 do	pek sou	320	20
	3 do	fans	330	16 bid
	1 do	dust	140	14
	1 do	bro mix	100	14
N	1 ch	bro tea	100	13
	1 ch	bro tea	100	13
Harrow	2 hf ch	dust	170	25
	2 do	fans	150	30
El Teb	10 hf ch	dust	880	27
St. Heliers	5 hf ch	dust	425	25

	Pkgs.		Name.	lb.	c.
Palmerston	5	hf ch	dust	425	26
Dehiowita	3	ch	dust	450	20
Ireby	10	ch	pek sou	850	36
Lentenna	4	ch	pek	368	29
	2	do	pek sou	170	23
	2	do	pek fans	224	26
	1	do	dust	134	21
Marie Land	6	ch	pek sou	498	24
	1	do	dust	150	23
Bellongalla	5	ch	pek sou	425	18
	2	do	fans No. 1	240	23
	1	do	dust	140	20
Hunugalla	3	ch	pek sou	240	21
	6	hf ch	dust	480	22
Clunes	5	ch	pek sou	450	22
	4	do	fans	448	24
	2	do	dust	300	20
Dea Ella	17	hf ch	pek sou	850	25
	13	do	fans	910	29
Strathspey	4	ch	bro or pek	400	70 bid
	4	do	bro pek	400	52
	9	do	or pek	855	48
	9	do	pek	837	43
	1	do	dust	110	23
Gonapitiya	16	hf ch	pek sou	781	34 bid
Macaldeniya	4	hf ch	pek sou	220	30
	2	do	fans	150	26
Templehurst	10	ch	pek	900	54
	5	do	pek sou	400	45
	1	hf ch	dust	90	26
K. P. W.	21	hf ch	or pek	045	33
	3	do	pek fans	225	24
	2	do	dust	180	22
Tembiligalla	6	ch	or pek	540	33
	8	do	pek	768	28
	5	ch	pek sou	480	23
	4	do	fans	472	26
	1	do	dust	158	24
Adisham	7	ch	pek sou	665	33
Ookoowatte	3	ch	pek sou	240	21 bid
	1	do	pek fans	120	24
	2	hf ch	dust	100	16
Devonford	2	hf ch	dust	172	27
Delta	6	ch	bro or pek	600	57
	8	do	bro pek	760	41
C. R. D.	3	ch	sou	340	18
	1	do	red leaf	80	13
	4	do	dust	440	22
	1	do	pek	90	18 out
Ugieside	6	ch	fans	570	18
S. R. in est mark	8	ch	congou	760	17
	6	do	or pek fans	600	26
	2	do	dust	300	23
Augusta	3	ch	fans	360	20
	3	do	dust No. 1	435	20
Galleheria	7	ch	pek sou	637	28 bid
O. O. in est mark	*2*	*ch*	*hyson*	*218*	33
	1	hf ch	dust	58	12
Glaslyn	11	ch	bro pek	930	42 bid
	7	do	pek	665	41
	2	do	pek sou	180	34
	3	hf ch	fans	210	27
Bogahagodawatte	6	ch	pek sou	600	21
	2	do	bro or pek	200	26
Masrena	16	hf ch	pek fans	800	25
	4	do	dust	280	23
Coreen	7	ch	pek	650	33
	5	hf ch	fans	210	30
	2	do	dust	140	25

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Kitulakanda	4	hf ch	bro pek	227	23
	12	do	pek	600	21
	10	do	pek sou	442	18
	1	do	fans	48	14
G	4	ch	pek	328	out
	8	do	sou	800	14 bid
	11	hf ch	bro pk fans	710	10 bid
R D A	4	hf ch	pek fans	268	10 bid
G N		*ch*	*green tea dust*	*150*	*11 bid*
Ovitta	11	ch	or pek	924	31 bid
	11	do	pek sou	935	21 bid
	2	hf ch	dust	164	23
J W D	3	ch	bro pek	270	21 bid
	8	ch			
	1	hf ch	pek	853	17
	6	ch			
	1	hf ch	pek sou	625	15
P in est mark	13	hf ch	bro pek fan	845	20
H	4	ch	fans	397	out
Dickwarden	7	ch	or pek	700	21 bid
	5	do	pek	500	15 bid

	Pkgs.		Name.	lb.	c.
Lower Kananka	2	ch	bro pek	210	29
	2	do	pekoe	200	20
	2	do	pek sou	200	18
W in est mark	10	hf ch	pek dust	800	10

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
G	5	ch	bro tea	450	15
Kurulugalla	6	ch	or pek	540	30
	6	do	pek sou	570	19 bid
	1	do	or pek fans	100	27
	2	do	or pek dust	260	20
K in est mark	2	ch	bro tea	190	15
Auburn A	6	ch	pek	480	27
	2	do	pekoe souchong	140	19 bid
Dartry	5	hf ch	dust	475	20
Warakamure	8	ch	pek No 2	680	22 bid
	9	do	pek sou	720	21
	2	hf ch	fans	140	25
	1	do	dust	90	19
Dalvern	5	ch	fans	500	28
	6	do	congou	570	22
	1	do	dust	150	24
Simla	6	ch	pek No 2	522	35
	1	hf ch	pek dust	97	21
N P in est mark	9	ch	br pek	900	31 bid
	6	do	pek	540	24
Torbay	7	hf ch	pek sou	301	26
	3	hf ch	dust	270	25
Allacollawewa	15	hf ch	pek sou No 2	780	29
Ravenscraig	3	hf ch	dust	240	24
Kosgahahena	2	ch	or pek	220	29
	2	do	bro pek	200	24
	4	do	pek	400	22
	1	do	pek sou	100	16
	2	do	souchong	192	14
Oonankande	8	ch	pek sou	560	withd'n
	6	hf ch	dust	396	withd'n
B F	9	hf ch	dust	729	23
Bodawa	8	ch	pek	720	31
	10	do	pek sou	850	28
	1	hf ch	bro mix	54	12
	2	do	br pek fans	150	24
F F	3	ch	pek sou	300	26
	10	hf ch	dust	900	26
W in est mark	1	ch	bro pekoe	100	27
	1	do	pek	100	22
	2	do	pek sou	160	18
	1	do	dust	120	18
Pinkandi	6	ch	pek sou	525	24
	4	hf ch	bro or pek fans	258	26
	2	do	dust	88	24
M A R	5	hf ch	bro pek	275	33
	4	do	pek	212	24 bid
	8	do	pek sou	416	22
	2	do	souchong	92	20
	2	do	dust	166	22
Wellgoda	8	ch	bro pek	790	18
	2	do	pek	180	16
	2	do	dust	320	12 bid
	2	do	red leaf	160	13
Selvawatte	1	hf ch	pek sou	55	20
	3	do	fans	240	22
	1	do	dust	85	16
D R in est mark	5	ch	bro pek	489	24
California	4	ch	bro pek	400	30
	8	do	pek	800	23 bid
	3	do	pek sou	300	22
D in est mark	8	ch	pekoe souchong	717	19 bid
A in est mark	9	hf ch	bro mixed	468	17
	8	do	pek dust	720	20
Ambalawa	10	ch	pek sou	850	21 bid
Kannattota	8	ch	bro or pekoe	800	30
	6	do	bro pek	480	26
	9	do	pek	720	23
	5	do	pek sou	475	20
	1	do	dust	119	16
Ferriby	11	ch	or pek	880	32
	12	do	pek sou	960	23
	6	hf ch	fans	330	24
	5	do	dust	350	23
Owilikande	3	do	dust	255	21
Carlsruhe	1	ch	fans	100	withd'n
Weygalla	8	ch	bro pek	880	42
Welgampola	15	hf ch	bro pek	825	34
	6	do	fans	330	24
Beausejour	7	ch	pek sou	510	21 bid
Carney	5	hf ch	bro pek fans	250	20
	5	do	sou	250	18
	2	do	dust	100	21
	1	do	pek fans	50	14
Charlie Hill	9	do	pek	450	27
	5	do	pek sou	250	21
	1	do	bro pek dust	80	21
	1	do	broken tea	55	15

	Pkgs.		Name.	lb.	c.
L R V	9	ch	pek	792	out
	1	ch			
	1	hf ch	fans	202	10
	2	do	dust	162	15
Neboda	6	ch	pek fans	600	28
	2	do	pek sou	170	22
	3	hf ch	dust	255	23
Depedene	18	do	pek sou	900	16
	2	do	bro pek fans	150	21
	3	do	dust	225	18
Ahamed	17	do	bro pek	850	28
	11	do	pek	5 0	24
	6	do	pek sou	300	22
	4	do	bro pek fans	240	21
	1	do	bro mixed	50	16
	1	do	dust	88	16
Wewalakande	13	do	pek	650	20 bid
	7	do	pekoe souchong	336	17

[Messrs. E. John & Co.

	Pkgs.		Name.	lb.	c.
Kehelwatte	2	hf ch	fans	220	26
	5	do	dust	425	24
H F D	7	ch	dust	700	26
Haluratiana	11	hf ch	or pek	550	23 bid
Keslanda	15	do	bro pek	9 0	50
	5	do	pek No. 1	300	37
	5	ch	pek	500	37
	1	do	pek sou	95	30
	1	hf ch	fans	65	27
	1	do	dust	90	24
Wattagalla	18	do	or pek	900	39
	8	do	dust	720	25
Midlothian	17	do	pek sou	850	29
	2	do	bro pek fans	140	30
Eton	5	ch	sou	500	27
	3	hf ch	dust	270	24
Agra Ouvah	10	ch	pek	900	48
Osborne	10	do	pek	900	32
Natuwakelle	3	do	dust	300	24
M L W	8	do	pek	640	27
	10	do	pek sou	7 0	22
Ohiya	14	hf ch	fans	9 0	31
Yapame	4	ch	dust	580	22
	3	do	fans	285	25
Cabin Ella	1	hf ch	pek fans	70	27
	1	do	pek dust	90	24
Longville	5	ch	pek sou	500	30
	3	do	sou	300	20
	4	hf ch	dust	480	23
	12	do	fans	900	26
Mahanilu	5	do	dust	400	25
	7	do	fans	490	32
Roolwood	7	ch	bro pek	490	28
	5	hf ch	pek dust	440	22
	7	do	bro pek	490	29 bid
	3	do	pek dust	264	26
Hiralcuvah	5	do	bro or pek	280	43 bid
	10	do	bro pek	500	34 bid
	10	do	or pek	440	out
	11	ch	pek sou	935	21 bid
	1	hf ch	dust	82	20
Y K	9	ch	pek fans	9 0	22
	14	do	sou	980	17
	11	do	bro mix	715	16
Dulena	1	do	dust No. 1	111	18
	1	do	dust No. 2	138	14 bid
	6	do	bro pek	600	32 bid
	3	do	pek sou	285	20
	1	do	congou	94	16
G B	3	hf ch	pek sou	150	23
	1	do	fans	60	23
Mossend	9	do	bro or pek fans	5 0	32 bid
	3	do	dust	195	25
L H O	8	ch	fans	896	28
Coslanda	15	hf ch	bro pek	900	50
	5	do	pek No. 1	300	37
	5	ch	pek	500	37
	1	hf ch	pek sou	95	30
	1	do	fans	65	26
	1	do	dust	90	23
Bowella	8	ch	or pek	720	31
	9	do	pek sou	720	21
	4	do	sou	320	19
	2	hf ch	dust	160	21
Ormidale	16	do	or pek	796	43 bid

	Pkgs.		Name.	lb.	c.
Bigham	11	do	bro or pek	650	41
	1	do	dust	95	23
	5	do	bro pek fans	350	26
O W	10	ch	pek	850	24
	2	do	pek sou	154	21
	2	do	dust	152	20
	4	hf ch	pek fans	240	26
Kahagalla	8	ch	pek	784	67
	9	do	pek sou	810	50
	2	do	dust	168	26
K K K	3	do	uns s	185	2 bid
Gonavy	8	hf ch	fans	4 0	27
	4	do	dust	240	24
Melville	17	do	bro pek	8 0	31
	9	do	pek sou	450	20
Alad	1	ch	bro tea	48	14
V A	10	hf ch	dust	900	16
A, in estate mark	5	do	dust	475	19
D, in estate mark	2	do	dust	194	11
P, in estate mark	3	do	fans	1 0	17 bid
	3	do	dust	240	16
	4	ch	bro tea	400	14
	1	do	red leaf	78	13
H	8	hf ch	dust	720	19
M A	8	do	dust	600	15
A A	2	bags	fluff	170	7

CEYLON COCOA SALES IN LONDON.

MINCING LANE, 20th August.

"Clan Robertson."—Kaduwela No. 1, 25 bags sold at 62s; ditto No. 2, 1 at 53s; ditto No. 3, 2 at 44s.

"Agamemnon."—P K Y London 1, 22 bags sold at 55s; ditto 2, 2 at 45s 6d; Pathiegalla London 2, 2 bags sold at 45s; Keenakelle London 1, 33 bags sold at 58s; ditto 2, 3 at 45s.

"Wakasa Maru."—Hylton No. 1, 55 bags sold at 77s 6d; 3 at 54s 6d.

"Scindia."—F 1 Yattawatte, 10 bags sold at 66s; R 1, 40 bags sold at 67s; F 2, 4 bags sold at 46s 6d; R 2, 4 bags sold at 46s 6d; F Broken, 1 bag sold at 50s; R Broken, 1 bag sold at 50s; R 1, 1 bag sold at 54s.

"Hyson."—Rockhill B, 3 bags sold at 35s; Bandarapola 1, 18 bags sold at 56s.

CEYLON CARDAMOMS SALES IN LONDON.

MINCING LANE, 22nd August.

"Agamemnon."—Gallantenne Cardamoms A A, 1 case sold at 2s 11d; ditto A, 4 at 1s 9d; ditto B, 2 at 1s 3d; ditto C, 2 at 1s 3d; ditto D, 2 at 1s 2d; ditto E, 2 at 1s 8d; Altwood Ceylon Cardamoms, 5 cases sold at 1s 8d; 4 at 1s 5d; 3 at 1s 2d.

"Glaucus."—Gallantenne Cardamoms A, 4 cases sold at 1s 9d; ditto B, 3 at 1s 4d; ditto C, 2 at 1s 4d; ditto E, 1 at 1s 8d.

"Hyson."—Katooloya Cardamoms Ex, 1 case sold at 2s 6d; ditto A A, 5 at 1s 8d; ditto A, 4 at 1s 3d; ditto B, 4 at 1s 3d; ditto C, 2 at 1s 2d; 2 at 1s 3d; ditto D, 2 at 1s 8d.

"Craftsman."—Kandaloya Cardamoms A, 2 cases sold at 1s 6d; ditto A 1, 2 at 1s 5d; ditto A 2, 2 at 1s 1d; ditto Brown, 1 at 1s 4d; ditto Splits, 2 at 1s 2d.

"City of Athens."—Gavatenne Mysore O, 6 cases sold at 1s 7d; ditto 1, 11 at 1s 4d; ditto 2, 5 at 1s 1d; ditto B, 2 at 1s 1d; 2 at 1s 3d; 4 at 1s 2d; ditto S, 1 at 1s; ditto Seed, 2 at 1s 2d.

"Coromandel."—G S B in estate mark, 1 case sold at 1s 8d; 2 at 1s 7d; 3 at 1s 7d.

No 37. COLOMBO, SEPTEMBER 22nd, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[20,567 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	37 hf ch	bro pek	2035	52
	22 ch	pek	1760	38
Coodoogalla	28 hf ch	bro pek	1400	39
	24 do	pek	1200	29
Battalgalla	20 ch	or pek	2000	40 bid
	18 do	pek	1530	33 bid
Yuillefield	35 hf ch	bro or pek	1925	57
	35 do	pek	3150	35

Messrs. Forbes & Walker.

[549,845 lb.]

	Pkgs.	Name.	lb.	c.
Walton	12 ch	bro pek	1260	41
O B E C, in est. mark Forest Creek	11 ch	fans	1133	29
	27 do	pek dust	2160	27
O B E C, in est. mark Nillomally	24 ch	pek	2112	32 bid
	28 do	pek sou	2296	27 bid
	22 do	bro or pek	2200	49
	16 do	or pek	1312	43
Curzon	32 ch	sou	2464	24 bid
Matale	39 hf ch	bro pek	2340	44 bid
	17 ch	pek	1530	34
	12 do	pek sou	1020	28
Sylvakandy	18 ch	bro pek	1800	37
	14 do	or pek	1330	33
	31 do	pek	3100	34
	14 ch	bro or pek No 1	1400	49 bid
	34 do	bro or pek No 2	3400	41
Madulkelle	14 ch	pek	1120	29
Welkandala	40 do	bro pek	4000	37 bid
	21 do	or pek	1785	36
	44 do	pek	3960	30 bid
	28 do	pek sou	2210	20 bid
	15 hf ch	dust	1200	26
Vincit	16 ch	bro pek	1600	31
	17 do	pek	1615	23
Coldstream Group	65 hf ch	bro pek	3775	45 bid
	28 ch	pek	2240	35
O B E C, in est. mark Summerhill	20 ch	bro or pek	1160	68
	23 do	or pek	2093	56
	13 do	pek	1183	47
Udaveria	18 hf ch	bro or pek	1080	56 bid
	27 do	bro or pek No 1	1620	48
	15 ch	or pek	1380	46
Glendon	16 ch	bro pek	1600	53
	49 do	or pek	4655	34
	48 do	pek	4080	29
	18 do	pek sou	1530	21
Nakiadeniya	28 ch	pek	2210	29
Clarendon	25 hf ch	bro pek	1550	63
	14 ch	pek	1260	47
	12 do	pek sou	1020	42
Great Valley Ceylon in estate mark	41 hf ch	bro or pek	2460	51
	25 ch	or pek	1400	38 bid
	27 do	pek	2565	35
	12 do	dust	1008	26
Dickhena	17 ch	bro or pek	1819	31 bid
	34 do	or pek	3162	28
	49 do	pek	3822	21 bid
	13 do	pek sou	1014	18 bid
Maragalla	12 ch	bro pek	1200	40
Laurawatte	39 ch	bro pek	4095	35
	23 do	pek	1978	28
	13 do	pek sou	1235	21
Maragalla	15 ch	bro pek	1575	39 bid
	16 do	or pek	1360	29 bid
	11 do	pek	1045	27 bid
Kennington	51 do	pek sou	3570	19 bid
	7 do	dust	1015	22 bid
Ardlaw and Wishford	13 ch	bro or pek	1404	65
	14 do	bro pek No 1	1512	51
	10 do	do No 2	1000	45
	12 do	or pek	1080	45
	24 do	pek	1968	38
Vogan	18 ch	bro or pek	1800	51
	28 do	or pek	2520	34
	33 do	pek	2970	30
	20 do	pek sou	1700	21
Penrhos	32 hf ch	bro or pek	1760	54
	39 do	or pek	1872	37
	41 ch	pek	3485	33
Tempo	10 do	bro pek	1000	45
	12 do	or pek	1080	32
	13 do	pek	1105	25
Maha Eliya	27 hf ch	bro or pek	1620	60 bid
	27 do	bro pek	1620	47
	18 ch	or pek	1710	45
	40 do	pek	3680	37
Palmerston	17 hf ch	bro or pek	1020	69
	12 ch	pek	1020	46
O B E C, in est. mark Forest Creek	27 ch	bro pek	2781	47 bid
Marlborough	19 do	pek	1615	35 bid
Stamford Hill	43 hf ch	or pek	2150	withdn.
	30 ch	pek	2700	withdn.
	13 do	pek sou	1170	withdn.
Marlborough	12 do	or pek	1080	44 bid
	12 do	bro pek	1200	40
	15 do	pek	1230	38
Broughton	18 ch	bro or pek	1890	85
	52 hf ch	or pek	2508	61
	28 ch	pek	2660	47 bid
Agra Oya	17 do	pek	1530	30 bid
	20 hf ch	bro or pek No 1	1100	60
	36 do	or pek	1800	37
Agra Oya	21 do	bro or pek	1260	43
Nahalma, Invoice No. 19	14 ch	bro pek	1400	35
	11 do	pek sou	1012	21
Good Hope, Invoice No 16	34 ch	bro pek	2788	27
	12 do	bro or pek	1080	37
	27 do	pek	2430	23
Middleton, Invoice No. 31	20 hf ch	bro or pek	1100	59 bid
	17 do	bro pek	1700	42
	22 do	or pek	1980	35
	17 do	pek	1445	33
Gonapitiya, Invoice No. 20	30 hf ch	or pek	1650	57
	25 do	bro pek	1550	61
	48 do	pek	2496	49
Kitulgalla, Invoice No. 12	22 do	bro or pek	1320	29
	15 ch	or pek	1275	27 bid
O B E C, in est. mark New Market	10 ch	fans	1278	30
	8 do	dust	1248	26
St. Vigeans	22 hf ch	bro or pek	1342	56 bid
	15 ch	pek	1350	41 bid
Polatagama	29 ch	bro or pek	2900	37
	37 do	bro pek	3515	34
	16 do	or pek	1520	29
	55 do	pek	4675	26
	15 do	pek sou	1425	23
	13 do	fans	1300	22
Maha Uva	28 hf ch	bro or pek	1764	44
	29 ch	or pek	2900	47
	31 do	pek	2790	39
Erlsmere	17 do	bro pek	1564	44
	14 do	pek	1176	36 bid
Middleton	17 ch	bro pek	1700	41 bid
	15 do	or pek	1350	36 bid
Algooltenne	11 ch	bro pek	1100	37
	16 do	or pek	1280	47
	39 do	pek	2730	33
	21 do	pek	1680	30 bid
S H	33 ch	pek	3135	22 bid
Purana	11 ch	bro pek	1100	36
	18 do	pek	1440	29
Glencorse	24 ch	bro pek	2400	37
	15 do	or pek	1200	36
	14 do	pek	1050	31
	44 do	pek sou	3300	23
Hanwella	*35 ch*	*young hyson*	*3500*	*35 bid*
	17 do	*hyson No. 1*	*1700*	*34*
Inverness	26 ch	bro or pek	2600	59
	19 do	or pek	1710	50 bid
	12 do	or pek	1077	49 bid
	23 do	pek	2380	46
	12 hf ch	dust	1020	27
B P C	16 do	dust	1200	23

	Pkgs.	Name.	lb.	c.
Bandarapola	24 do	bro or pek No. 1	1272	34
	38 do	bro or pek No. 2	2052	32
	35 do	bro pek	1716	27
	30 do	pek	1600	23
Poonagalla	13 ch	or pek	1170	49
	38 do	bro pek	4256	60 bid
	26 do	pek	2470	46
	13 do	fans	1105	29
Glaslyn	32 hf ch	bro or pek	1760	49 bid
	25 do	bro pek	1375	40 bid
St. Helens	27 hf ch	bro or pek	1404	37
	12 ch	or pek	1020	31
	19 do	pek	1710	28
	15 do	pek sou	1350	21 bid
Halbarawe	13 ch	bro pek	1300	28
Munukettia, Ceylon in est mark	17 ch	or pek	1530	43
	46 hf ch	bro pek	2760	60
	36 do	pek	3060	36
New Peacock	30 hf ch	bro pek	1500	42
	21 do	bro mixed	1050	out
	33 do	pek fans	2310	28
Halwatura	19 ch	pek	1710	23
	22 do	pek sou	1760	21
	50 hf ch	dust	4000	24
Mahawale	17 ch	bro pek	1700	38
	21 do	pek	1890	32
	21 do	pek sou	1890	24
	15 do	or pek	1500	33
Bowlana	40 hf ch	bro or pek	2400	53 bid
	25 ch	or pek	2500	48
	26 do	pek	2470	41
Eastlands	42 hf ch	bro or pek	2520	47
	49 do	or pek	2352	37
Edward Hill	22 ch	bro pek	2238	34
	14 do	or pek	1204	32
	17 do	pek	1360	27
	13 do	pek sou	1170	21
Dromoland	20 hf ch	bro pek	1077	34 bid
Badullu Oya	10 ch	bro pek	1040	46
	11 do	or pek	1012	36
	12 do	pek	1080	34
Koskellie	23 hf ch	bro or pek	1380	57
	34 ch	bro pek	3672	47
	35 do	pek	3325	37
	18 do	pek sou	1620	32
Great Valley, Ceylon	29 hf ch	bro or pek	1740	
	11 ch	or pek	1034	withd'n
	19 do	pek	1710	
Putupaula	42 ch	pek	3147	25 bid
J P in est mark	20 hf ch	dust	1700	21
Glenorchy	22 hf ch	bro pek	1320	66
	13 ch	pek	1235	53
Walpita	27 ch	bro pek	2700	33
	23 do	pek	2070	27
Bellongalla	12 ch	bro pek	1200	28
	13 do	pek sou	1040	19
Templehurst	24 ch	bro pek	2397	56 bid
High Forest	51 hf ch	or pek No. 1	2805	58 bid
	50 do	or pek	2600	55
	40 do	bro pek	2400	61
	42 do	pek	1974	47
Penrhos	25 ch	pek	2200	31 bid
Panawatte	17 ch	bro pek	1530	34
	17 do	bro or pek	1870	44
	17 do	pek	1615	32
	12 do	pek sou	1020	25
J. P. in est mark	36 hf ch	bro or pek	1980	46 bid
	62 ch	bro pek	6200	38
	64 do	pek	5120	28 bid
	30 do	pek sou	2550	24 bid
Condia	24 hf ch	dust	1800	27
Passara Group	23 ch	bro pek	2300	40 bid
	15 do	pek	1350	35
Ruanwella	14 ch	bro or pek	1470	35
	25 do	or pek	2250	31
	30 do	pek	2700	27
Killarney	13 hf ch	bro or pek	1044	70
	23 do	bro pek	1380	54
	12 ch	or pek	1020	48
	20 do	pek	1700	44
Ganapalla	23 ch	or pek	1932	32
	23 do	bro or pek	2688	33
	38 do	pek	2850	28
Kitulgalla	18 hf ch	bro or pek	1003	34
	13 ch	or pek	1105	32
North Cove	52 hf ch	bro pek	3016	54
	21 ch	pek	1890	42
Delta	18 ch	bro or pek	1530	56
	20 do	bro pek	1960	39
	20 do	pek	1600	30
	13 do	pek sou	1066	29
C. N. N.	12 ch	pek sou	1140	29

	Pkgs.	Name.	lb.	c.
Weyungawatte	23 ch	bro pek	2415	32
	25 do	pek	2125	25
	18 do	pek sou	1440	20
Talgaswela	15 ch	bro or pek	1500	43
	16 do	or pek	1280	35
	21 do	pek	1680	29
	19 do	pek sou	1425	24
Mousakelle	16 ch	bro or pek	1600	57
	14 do	or pek	1330	39
	21 do	pek	1890	36
St. Heliers	23 hf ch	bro or pek	1265	48
	11 ch	pek	1023	30
Gonapatiya	23 hf ch	or pek	1219	57
	20 do	bro pek	1240	63
	25 do	pek	1300	50
Handford	23 ch	bro pek	2300	38
	12 do	pek	1140	30
	11 do	pek sou	1045	23
Bandara Eliya	37 hf ch	or pek	1850	45
	56 do	bro or pek	3248	45 bid
	73 do	pek	3358	36 bid

Messrs. Somerville & Co.

[298,672 lb.]

	Pkgs.	Name.	lb.	c.
Oonankande	23 hf ch	bro pek	1150	39
	33 do	pek	1815	28
Agra Elbedde	34 hf ch	bro or pek	1904	58
	33 do	or pek	1815	40
Galphele	11 ch	bro or pek	1100	55
	17 do	or pek	1700	39
	13 do	bro pek No 2	1300	31
	24 do	pek	2160	32
Nellicollaywatte	27 hf ch	bro pek	1566	35
	18 do	bro or pek	1008	51
	16 ch	pek	1440	29
Theberton	17 ch	bro pek	1530	37
	17 do	pek	1445	27
Glenamore	34 ch	bro mixed	2040	24
Kelani	13 ch	bro or pek	1300	32
	14 do	pek	1120	26
	22 do	or pek	1870	31
	14 do	pek sou	1120	22 bid
W K P	41 ch	br pek	4305	35 bid
	28 do	or pek	2520	31
	85 do	pek	6800	26 bid
	23 do	pek sou	1725	23
Hanagama	22 ch	or pek	2200	29
	27 do	pek	2700	25
	22 do	pek sou	1980	19
Kudaganga	11 ch	pek	1045	23 bid
Grange Gardens	12 ch	bro or pek	1200	52
Auburn	16 ch	bro pek	1520	27 bid
Narangoda	36 ch	bro pek	3420	31
	21 do	pek	1890	23 bid
	13 do	pek sou	1170	20
Meeriatenne	24 hf ch	pek	1200	42
	22 do	pek sou	1100	37
Marigold	41 hf ch	bro pek	2132	42
Allacollewewa	23 hf ch	bro pek	1219	43
Cooroondoowatte	10 ch	bro pek	1000	43
	15 do	pek sou	1500	21
Walla Valley	37 hf ch	bro or pek	2035	60 bid
	22 do	or pek	2090	48
	34 do	pek	2890	40
Monre Christo	23 ch	bro pek	2300	51
Annandale	18 hf ch	or pek	1026	42
	19 do	pek	1064	36 bid
Siriniwasa	29 ch	bro pek	2900	33
	52 do	pek	4940	25
	34 do	pek sou	3060	20
Harangalla	48 ch	bro or pek	4800	34
	43 do	pek	3655	27 bid
	13 do	pek sou	1105	19 bid
Mary Hill	20 hf ch	bro pek	1100	41
	20 do	pek	1000	26
	28 do	pek sou	1260	20
Oolapane	20 ch	bro pek	2000	33
	23 do	or pek	2070	30
	12 do	pek	1140	27
Mount Temple	24 ch	bro pek	2352	33
	30 do	pek	2460	30
	38 do	bro or pek fans	3800	29
Citrus	23 ch	br pek	2185	32
	30 do	pek	2550	25
Yarrow	35 hf ch	bro or pek	2450	44
	23 do	or pek	1472	34
	40 do	pek	1880	29
	16 do	br or pek fans	1024	31
Pindeniova	15 ch	pek	1200	23 bid
	16 do	pek sou	1360	19
Oononagalla	20 ch	bro or pek	2100	60 bid
	15 do	or pek	1200	39 bid
	18 do	pek No. 1	1710	34 bid
	16 do	pek No. 2	1360	32

	Pkgs.		Name.	lb.	c.
Mahatenne	14	ch	bro or pek	1400	41
	13	do	or pek	1300	30
	22	do	pek	2090	28
St Andrews K	21	hf ch	bro pek	1260	34
Rothes	28	hf ch	br pek	1680	47
	12	ch	pek	1080	29
St. Leys	19	ch	br pek	1178	52
	22	do	pek	2178	36
Meddegodda	47	hf ch	br pek	2820	35
	39	do	pek	2145	27
Yahalatenne	33	ch	bro pek	3432	38
	15	do	pek sou	1365	28
Ferndale	21	ch	pek	1890	27
Murraythwaite	19	ch	br pek	1900	35
Mousakande	16	ch	bro pek	1344	35
	15	do	pek	1200	29
Costwold	14	ch	pek	1190	34
A	12	hf ch	dust	1140	out
Yspa	16	ch	pek sou	1360	20 bid
Laxapanagalla	30	ch	bro or pek	3000	37
	13	do	or pek	1235	28
Deniyaya	12	ch	or pek	1140	34 bid
	10	do	br pek	1000	36
	10	do	bro or pek	1000	43
	30	do	pek	2850	30
	25	do	pek sou	2250	24
	14	do	souchong	1260	20
Warakamure	15	ch	pek No. 1	1250	21 bid
Laukka	21	ch	bro pek	2058	28
	25	do	pek	2000	26
Atherton	17	hf ch	bro or pek	1020	33
	55	do	br pek	3300	29
K K	19	ch	pek	1897	out
Combe	42	ch	pek sou	3150	17 bid
V L	17	ch	sou	1445	12
Uggala	18	hf ch	br pek	1008	23 bid
St. Catherine	20	hf ch	bro or pek	1003	39
S R K	10	ch	pek	1000	32
Highfields	31	hf ch	bro or pek	1705	52 bid
	33	do	or pek	1683	48
	77	do	pek	4004	36 bid
Mahavilla	30	hf ch	or pek	1530	35
	26	do	pek	1430	29
	28	do	pek sou	1512	22 bid
Rahatungoda	26	hf ch	bro or pek	1456	51
	40	do	or pek	2240	36 bid
	60	do	pek	3120	31 bid
	18	do	bro pek	1260	30
Neuchatel	10	ch	bro or pek	1000	52
	25	do	or pek	2250	30 bid
	24	do	or pek	2160	31
	32	do	pek	2720	29
	11	do	bro pek fans	1265	27
Neboda	28	ch	bro or pek	2800	42
	20	do	or pek	1800	33
	30	do	pek	3000	29

Messrs. E. John & Co.

[214,984 lb.]

	Pkgs.		Name.	b.	c.
Captains Garden	26	ch	pek	2310	out
Kelaneiya and Braemar	14	do	bro or pek	1400	57 bid
	10	do	or pek	1000	38
	19	do	pek	1805	34
Orwell	12	do	or pek	1200	38
	23	do	pek	2070	33
Elston	14	do	pek	1190	34
	24	do	pek sou	2040	26 bid
Birnam	21	do	pek sou	1680	41
N	12	hf ch	dust	1020	25
Nahavilla	29	ch	or pek	2610	51
	23	do			
	13	hf ch	bro pek	3080	65
	19	ch	pek	1710	48
	16	do	pek sou	1280	38
Ormidale	35	hf ch	bro pek	2100	54
	23	ch	pek	2185	40
Katawella	14	do	bro pek	1400	34
	13	do	pek	1170	27
Fordyce	24	hf ch	fans	1680	26
Lameliere	25	do	bro or pek	1500	47
	12	ch	pek	1080	34
Cleveland	33	hf ch	fly or pek	1650	55 bid
	37	do	pek	1850	40
Ottery	18	ch	bro or pek	1800	48
	26	do	fly or pek	2210	36
	50	do	pek	4500	out
Bittacy	18	do	bro pek	1764	44
	14	do	pek	1176	40
Devon	27	hf ch	bro or pek	1647	57 bid
	22	ch	or pek	2310	40 bid
	11	do	pek	1133	35 bid

	Pkgs.		Name.	lb.	c.
Avington	23	do	bro pek	2300	32
	59	do	pek	4720	24
	53	do	pek sou	3710	19
St John's	20	hf ch	bro or pek	1160	60 bid
	16	ch	or pek	1440	66
	20	do	pek	1900	43 bid
	12	do	pek sou	1080	48
Kandaloya	28	hf ch	bro or pek	1260	45
	40	do	bro pek	1800	32
	43	do	or pek	1720	34 bid
	56	do	pek	2240	26
St. Andrew's	12	do	dust	1020	25
Brownlow	23	ch	pek	2021	29 bid
Glasgow	24	hf ch	bro or pek	1392	67
	19	ch	bro pek	1900	50
	20	do	or pek	1860	46
	17	hf ch	pek fans	1156	34
Agra Ouvah	52	do	bro or pek	3120	61 bid
	31	do	or pek	1674	47
	12	ch	pek	1140	45
	24	hf ch	pek fans	1968	29
Brownlow	21	do	bro or pek	1176	60 bid
	14	ch	or pek	1358	43
	15	do	pek	1305	37
Doonhinde	26	do	or pek	2600	47
	20	do	bro pek	2000	57
Ohiya	20	do	or pek	1960	44 bid
	29	hf ch	bro pek	1653	51 bid
Mount Everest	27	ch	pek	2694	34 bid
Craigingilt	12	do	or pek	1200	38
	12	do	pek	1020	35
Eila	21	do	pek No. 1	1677	24
	40	do	pek No. 2	3197	22 bid
K L	13	do	pek	1235	20 bid
	8	do	dust	1165	17
Bowhill	11	do	bro or pek	1100	45 bid
	16	do	or pek	1520	33
	14	do	pek	1400	30
Winwood	17	do	pek	1527	32
Gingranoya	17	do	pek	1445	36
	10	do	bro or pek	1000	47
	13	do	bro pek	1300	35
Salem	10	do	bro or pek	1000	40
Lameliere	39	hf ch	bro or pek	2340	47
	14	ch	or pek	1288	38
	18	do	pek	1620	33 bid
Galloola	26	do	bro pek	2600	46
	34	do	pek	3060	43
	24	do	pek sou	1920	32 bid
Perth	48	do	or pek	3837	31
	14	do	pek	1047	27
Mt. Vernon	27	do	pek	2430	41
	22	do	pek sou	1936	39
	15	hf ch	dust	1200	27
	40	ch	pek	3517	39
Elston	23	do	pek sou	1955	29 bid
Rookwood	24	do	bro or pek	2589	41
	21	do	pek	2157	28 bid
Norbury	16	do	congou	1760	16 bid
Theresia	15	do	or pek	1500	47
	26	do	pek	2210	36
Natuwakelle	12	do	bro or pek	1200	45 bid
Rookwood	33	hf ch	bro or pek	1977	53
Myraganga	23	ch	or pek	2070	37 bid
	12	do	bro or pek	1200	62 bid
	28	do	bro or pek	2800	42 bid
	31	do	pek No. 1	2635	34
	30	do	pek No. 2	2700	30
	26	do	sou	1950	26

Messrs. Keell and Waldock.

[45,146 lb.]

	Pkgs.		Name.	lb.	c.
G K	17	ch			
	1	hf ch	pek sou	1750	18 bid
Tillington	43	hf ch	bro pek	2365	47
	36	ch	pekoe	3060	29 bid
Pasmalie	32	ch	bro pek	3040	37 bid
	38	do	pek	3420	27 bid
	25	do	pek sou	2000	24
	13	hf ch	dust	1040	23
Mudalkelle	26	hf ch	bro or pek	1430	31 bid
	16	ch	pek	1360	25 bid
	18	do	pek sou	1620	out
Mutu Eliya	11	ch	bro or pek	1100	49 bid
	20	do	pek	1800	30 bid
	17	do	pek sou	1530	23 bid
Dunnottar	18	ch	pek	1530	31 bid
A	14	hf ch	dust	1330	14 bid
G	16	ch	bro pek	1582	out
	12	do	pek	1056	18 bid
Aigburth	18	ch	or pek	1800	35
	20	do	pek	1800	28 bid
W R N in est mark	11	ch	bro pek	1097	out

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Hornsey	9 bf ch	bro pek fans	630	29
Coodoogalla	6 do	dust	480	25
Battalgalla	11 ch	pek sou	825	28 bid
	4 bf ch	dust	320	26
Yuillefield	5 ch	pek sou	450	26
	1 hf ch	sou	50	20 bid
	3 do	dust	240	26
Mawanella	3 do	bro pek	168	48
	6 do	pek	330	25
	6 do	pek sou	320	21
	1 do	dust	50	22
B, in estate mark	9 ch	or pek	807	withdn.
	20 bf ch	pek	897	12 bid

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Walton	10 ch	or pek	850	31
	6 do	pek	570	30
	2 do	pek sou	160	26
Gabhela	3 hf ch	bro pek	165	30
	3 do	pek	150	22
	2 do	pek sou	105	18
Wyamita	7 ch	bro pek	735	37
	9 do	pek	810	28
	6 do	pek sou	510	23
	1 hf cn	dust	90	21
	1 do	bro pek fans	71	27
Tokatiyamulla	8 ch	bro pek	800	28
	5 do	pek No 1	525	19
	7 do	pek	700	16
	1 do	pek sou	100	15
	1 do	dust	115	19
O B E C, in est. mark Forrest Creek	7 ch	sou	630	28
Matale	2 hf ch	dust	160	24
	2 do	sou	110	22
Ambanpitiya	2 ch	dust	320	20
Sylvakandy	4 ch	pek sou	400	27
	5 do	dust	500	26
Madulkelle	1 ch	dust	110	22
C	9 ch	sou	855	13
Vincit	10 ch	pek sou	950	19
	2 do	bro pek fans	250	25
	1 do	fans	120	24
	1 do	dust	135	22
Coldstream Group	6 ch	pek sou	480	29
	4 hf ch	fans	260	27
	2 do	dust	160	26
Udaveria	9 ch	pek	765	45
	5 hf ch	bro or pek fans	350	37
	3 do	fans	240	29
Glendon	5 do	dust	460	23
Nakiadeniya	6 ch	bro or pek	630	48
	13 do	pek sou	910	26
Mousaeliya	6 ch	or pek	507	33 bid
Clarendon	2 ch	sou	160	39
	1 hf ch	pek dust	85	26
Great Valley Ceylon in est. mark	11 ch	pek sou	902	28
Maragalla	11 do	or pek	935	31
	7 do	pek	665	28 bid
	2 do	pek sou	160	23
Laurawatte	9 hf ch	fans	720	24
Maragalla	3 ch	pek sou	219	23
	1 do	dust	150	22
Kennington	10 ch	bro tea	800	18
Ardlaw and Wishford	3 ch			
	1 bf ch	fans	350	29
Vogan	3 ch	pek fans	375	26
	6 bf ch	dust	480	24
Penrhos	9 ch	pek sou	720	25
	5 hf ch	fans	375	27
	2 do	pek dust	150	21
Tempo	3 ch	dust	300	24
T B	3 hf ch	dust	225	23
	2 do	fans	120	26
V O A	3 do	bro or pek fans	210	30
	2 ch	dust	240	25
	1 do	bro tea	120	13
Ingurugalla	3 hf ch	bro tea	255	22
Marlborough	11 do	bro or pek	572	63 bid
	3 ch	pek sou	270	34
	9 do	bro pek fans	510	31
Broughton	7 ch	pek No 1	686	55
	9 do	pek sou	765	43
	11 bf ch	dust	935	29
Nahalma, Invoice No. 19	9 do	bro or pek	522	29
	10 ch	pek	988	27
	4 do	bro pek fans	400	27
	5 hf ch	dust	400	23

	Pkgs.	Name.	lb.	c.
Good Hope Invoice No. 16	2 h	fans	200	26
	5 hf ch	dust	450	23
Gonapitiya, Invoice No 31	13 do	pek sou	611	42
Kitulgalla, No. 12	10 ch	pek	800	23
	3 hf ch	dust	240	24
	3 do	bro or pek fans	180	25
O B E C, in est. mark New Market	1 ch	unas	92	29
	1 do	bro tea	80	24
St. Vigeans	3 hf ch	dust	270	26
Polatagama	3 ch	dust	450	20
Erlsmere	18 hf ch	bro or pek	972	61 bid
	6 ch	pek sou	480	25
	2 hf ch	dust	152	27
N P	1 ch	red leaf	95	10
Purana	10 do	pek sou	720	24
	2 hf ch	dust	160	24
	2 do	fans	180	33
Glencorse	10 do	dust	850	23
C R S	2 do	pek	112	23
	1 do	pek fans	56	25
	1 do	dust	61	16
Hanwella	*4 hf ch*	*hyson No. 2*	*240*	32
	5 do	*siftings*	*425*	9
Inverness	14 hf ch	bro or pek fans	910	34
Poonagalla	3 ch	pek sou	270	41
Ha rawe	4 ch	fans	496	26
	2 hf ch	fans	138	24
A.	2 ch	pek	180	32
Kahagalla	2 ch	bro or pek	220	33
	4 do	bro pek	420	31
	2 do	or pek	190	27
Mahawale	2 hf ch	bro pek fans	120	25
Bowlana	9 ch	pek sou	810	29
	7 hf ch	fans	490	31
	4 do	dust	340	28
Edward Hill	3 hf ch	dust	252	25
Badullu Oya	5 ch	pek sou	400	28
	1 hf ch	dust	85	27
J. P. in est mark	3 hf ch	dust	255	23
	1 ch	sou	100	18
Glenorchy	2 ch	pek sou	190	43
	1 hf ch	dust	85	27
Walpita	6 ch	pek sou	480	20
	9 do	sou	720	18
Bellongalla	4 ch	pek	380	24
	2 hf ch	fans No. 1	250	25
K. H. L.	3 ch	fans	390	26
	4 do	dust	640	25
L. B. K.	1 ch			
	1 hf ch	fans	165	18
	3 ch	dust No 1	450	24
	6 do	dust No 2	900	17
Kotuagoda	3 hf ch	bro pek	150	19
	7 do	or pek	350	25
	5 do	pek	250	18
New Galway	11 hf ch	bro pek	660	65
	10 do	pek	550	49
	2 do	pek sou	100	43
R. in est mark	1 ch	bro pek	76	31
	1 do	pek	71	23
Panawatte	5 ch	fans	550	26
	2 do	dust	300	23
S. in est mark	1 hf ch	or pek	54	32
	1 do	pek	48	23
Marlborough	20 hf ch	bro or pek	716	63 bid
X.	12 hf ch	bro pek	660	out
	6 do	pek	270	21
	2 do	pek sou	100	15
Passara Group	6 ch	bro or pek	600	54
	6 do	pek sou	540	29
	2 do	dust	180	25
	7 do	fans	490	23
Ruanwella	5 ch	pek fans	450	20
	7 do	pek dust	560	22
Ganapalla	7 ch	bro pek fans	770	25
	7 hf ch	dust	595	23
Battawatte	36 hf ch	bro or pek	715	41
Kitulgalla	8 ch	pek	640	26
	3 do	fans	330	27
	2 bf ch	dust	168	23
Delta	10 hf ch	fans	680	28
	4 do	dust	340	26
C. N. N.	7 hf ch	dust	560	25
Weyungawatte	1 ch	sou	85	18
	3 hf ch	dust	255	22
Talgaswela	14 bf ch	bro pek No 2	840	28
Mousakelle	10 ch	bro pek fans	650	31
	4 do	dust	300	26
Ouvahkellie	1 ch	pek sou	90	34
	9 do	fans	720	27
Handford	ch	bro or pek fans	230	25
	do	dust	230	23

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Palm Garden	7	ch	pek	697	16 bid
G K	4	ch			
	1	hf ch	bro mixed	438	12
	2	do	dust	200	15 bid
Tillingt n	5	hf ch	pek sou	425	25
	1	do	dust	85	23
	6	do	fans	420	26
Pasmalie	2	ch	bro mixed	200	14
Dunnottar	2	ch	bro or pek fans	170	27
Woodend	3	ch	bro pek fan	306	25
	3	do	dust	420	23
G A	5	ch	bro or pek	450	30
	9	do	pek	753	20
K G	3	ch	souchong	300	18
G	11	hf ch	bro pek fans	707	14
Halupatiana	7	ch	pek sou	590	16 bid
Aigburth	12	ch	pek sou	900	24 bid
S in est mark	8	ch	pek	711	20 bid
	5	do	souchong	430	15
W R in est mark	7	ch	or pek	697	20 bid
	5	do	pek	497	out

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Oonankande	8	ch	pek sou	560	21
	6	hf ch	dust	390	25
Agra Elbedde	19	hf ch	pekoe	[illegible]	38
	9	do	pek sou	405	37
X X	4	hf ch	br or pek fans	260	27
	2	do	pek dust	150	26
Galphele	6	ch	bro pek No. 1	600	37
Ravenoya	6	ch	pek sou	508	23
	2	do	fans	300	25
Nellicollaywatte	6	ch	pek sou	480	24
	1	hf ch	dust	88	22
	2	do	fans	150	26
Theberton	1	ch	souchong	85	21
	2	do	bro pek fans	200	27
	1	do	fans	100	25
W K P	7	ch	sou	532	19
	7	hf ch	dust	560	24
Hanagama	14	hf ch	bro or pek	840	35 bid
	3	ch	sou	255	17
	3	do	fans	360	24
	3	hf ch	dust	204	15
Kudaganga	8	ch	bro pek	800	35
	6	do	pek sou	540	20
	6	do	br pek fans	540	25
	5	do	bro pek dust	575	22
	2	do	bro mixed	170	17
Oaklands	3	hf ch	dust	240	22
	1	do	bro pek fans	100	25
Grange Gardens	7	ch	or pek	700	37
	8	do	pekoe	760	35
	2	do	pek sou	190	27
	1	hf ch		85	25
Auburn	4	ch	pek	304	22
	2	do	pek sou	130	20
	3	do	fans	222	23
Narangoda	7	hf ch	dust	560	20
Meeriatenne	16	hf ch	br pekoe	928	59
	11	do	or pek	506	49
	3	hf ch	bro pekoe fans	210	28
Cooroondoowatte	3	ch	congou	300	16
	5	hf ch	pek fans	425	25
	3	ch	dust	300	18
B and D	14	hf ch	bro pk fans	868	27
	10	do	dust	820	26
Siriniwasa	7	ch	bro pek fans	735	27
	3	do	dust	450	22
Roendeowatte	8	ch	pek sou	800	19 bid
Harrangalla	6	ch	bro pek fans	600	27
	7	hf ch	dust	595	25
Mary Hill	2	hf ch	dust	160	25
Oolapane	10	ch	pek sou	900	23
Citrus	6	ch	pek sou	480	20
	5	do	bro pek fans	500	25
	1	do	dust	135	17
Yarrow	16	hf ch	pek sou	736	23
	4	do	pek fans	272	26
	4	do	dust	348	24
Pindeni Oya	10	ch	or pek	900	29
	9	do	or pek faus	810	24
Oononagalla	2	hf ch	fans	140	25
	1	do	dust	85	23
Mahatenne	2	ch	fans	290	22
St Andrews K	13	hf ch	pekoe	650	26
	3	do	pekoe souchong	150	21
Rothes	1	hf ch	pek sou	60	20
	1	do	dust	90	22
	1	do	bro mixed	55	10
St. Leys	1	ch	pek sou	93	29
	2	do	fans	170	26
	1	do	red leaf	95	18

	Pkgs.		Name.	lb.	c.
Yahalatenne	11	hf ch	dust	880	27
Ferndale	10	ch	bro or pek	950	42
Murraythwaite	11	ch	pekoe	880	26
	4	do	pek sou	320	22
	1	do	dust	185	15
	2	do	bro pek fans	200	24
Costwold	8	ch	bro or pek	600	48 bid
	8	do	or pek	600	34 bid
	5	do	pek sou	425	30
	3	do	bro or pk fans	300	26
Augusta	8	ch	fans	951	21
Yspa	4	hf ch	sou	292	21
	8	ch	dust	936	26
	2	do	fans	200	27
Laxapanagalla	4	ch	pek	360	24
	3	do	pek fans	285	25
	1	do	dust	100	20
Deniyaya	2	ch	dust	190	23
	5	do	pek fans	500	25
Warakamure	5	ch	pekoe No. 2	680	24
Laukka	4	ch	pek sou	320	19
	8	hf ch	dust	560	23
R	9	ch	pek	789	out
Isledon	7	ch	bro or pek	700	38
	3	do	bro pek	287	31
	6	do	pek	548	30
	10	do	pek sou	965	22
	1	do	fans	93	28
	1	do	dust	110	21
Homelea	*4*	*hf ch*	*young hyson*	*255*	*withd'n*
	2	*do*	*hyson*	*104*	
	4	*do*	*hyson No 2*	*208*	
	10	*do*	*bold leaf hyson*	*500*	
Atherton	13	hf ch	pek	650	21
R in est mark	1	ch	bro or pek	112	27
	2	do	pek	163	18
	1	hf ch	fans	88	20
V L	7	hf ch	fans	567	20
	1	do	dust	110	15
G	*1*	*ch*	*green tea dust*	*150*	*10*
K	*2*	*hf ch*	*green tea fans*	*154*	*12*
V G N	3	ch	or pek	270	31
Uggala	12	hf ch	pekoe souchong	672	18
St. Catherine	7	hf ch	pek	633	30
	2	do	bro pek fans	233	27
S R K	3	ch	bro or pk fans	390	29
	5	do	dust	800	26
D	8	ch	pek sou	717	17
Donside	5	hf ch	sou	425	19
	6	do	dust	480	20
	3	do	fans	165	22
Torbay	4	hf ch	pek sou	176	27
	4	do	bro pek fans	260	31
	11	do	fans	748	30
	2	do	dust	180	26
Mahawilla	12	hf ch	bro or pek	684	33
	3	do	sou	168	19
	1	do	or pek dust	70	28
	3	do	dust	240	23
Rahatungoda	6	hf ch	dust	510	26
Neuchatel	3	ch	pek sou	240	22
	3	do	dust	450	23
Neboda	4	ch	pek fans	400	26
	5	do	pek sou	425	24
	2	hf ch	dust	180	23

[Messrs. E. John & Co.

	Pkgs.		Name.	lb.	c.
Bavaria	2	ch	bro pek	200	32
	5	do	pek	500	out
	2	do	pek sou	210	16
Captains Garden	13	hf ch	bro pek	650	28
	4	ch	pek sou	360	15
Kelaneiya and Braemar	3	do	pek sou	285	30
	4	do	bro pek fans	400	30
	2	hf ch	dust	160	25
Orwell	8	do	bro or pek	480	47
	3	ch	pek sou	270	24
	4	do	dust	340	23
	11	hf ch	pek fans	715	25
Shawlands	2	ch	dust	200	21
	3	do	fans	300	24
Ormidale	12	hf ch	bro or pek	600	98 bid
	8	ch	pek fans	640	29
Katawella	2	do	dust	200	20
Fordyce	9	hf ch	dust	855	25
Lameliere	6	ch	or pek	552	35 bid
	8	hf ch	bro pek fans	560	28
	3	ch	pek sou	255	25
Cleveland	2	hf ch	pek sou	100	38
	3	do	fans	240	27
Bittacy	6	do	bro or pek	300	64
	3	ch	fans	330	28
	1	do	pek sou	90	35
	1	hf ch	dust	84	21

	Pkgs.		Name.	lb.	c.
Avington	4	cb	dust	440	20
C D		do	bro pek	315	41
	3	do	pek	255	33
N D L	7	do	bro or pek	700	38 bid
Agra Ouvah	10	do	pek sou	900	41
	5	bf cb	bro or pek fans	335	28 bid
	2	do	dust	194	27
Doonbinde	6	cb	pek	600	39
	3	do	dust	330	25
Craigingilt	5	do	bro or pek	275	46
	5	ch	pek sou	400	23
	6	hf ch	or pek fans	360	29
	9	do	dust	210	27
G B	2	ch	pek sou	177	18
K L	2	do	bro pek	190	30
	8	do	pek sou	800	19
	3	bf ch	fans	177	23
Bowbill	2	cb	dust	200	25
Winwood	8	do	pek sou	717	22 bid
Horagalla	6	do	bro pek	612	30
	5	do	pek	425	24
	2	do	pek sou	176	19
	1	do	bro pek fans	115	21
	1	do	bro pek dust	130	18
Salem	9	do	pek	900	28
	1	do	dust	100	22
Lameliere	3	do	pek sou	255	24
	8	bf cb	bro pek fans	560	27
Eladuwa	3	ch	or pek	245	28
	2	do	bro pek	210	25
	8	do	pek	760	out
	4	do	pek sou	360	18
	2	do	dust	235	16
	1	do	unas	105	13
Galloola	4	do	dust	400	26
	2	do	fans	200	28
Mt. Vernon	8	bf ch	fans	544	29
Clarendon	9	cb	bro pek	900	24 bid
	7	do	pek	700	20 bid
	4	do	pek sou	400	18 bid
K K	3	do	unas	282	25
Stonyhurst	6	do	pek	558	26 bid
	11	do	pek fans	770	27 bid
Myraganga	7	do	bro mix	560	19
	2	do	dust	350	22
	3	do	pek fans	450	26

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, 22nd August.

"Stentor."—C T P & Co., Pita Ratmalie Ceylon A London, 1 barrel sold at 114s; ditto B, 5 casks sold at 109s; ditto C, 1 cask and 1 barrel sold at 67s; ditto P B, 1 barrel sold at 105s; ditto T, 1 at 43s; O Roehampton, 2 casks sold at 110s; 1 ditto, 5 at 99s 6d; 2 ditto, 1 barrel sold at 49s P B ditto, 1 at 87s; T ditto, 1 at 43s.

CEYLON COCOA SALES IN LONDON.

"Kanagawa Maru."—OBEC F in estate mark, Kondesalle Ceylon O, 20 bags sold at 65s 6d; 128 at 68s; ditto 1, 41 at 57s; ditto O, 53 at 79s ditto 1, 8 at 58s; G ditto, 2 at 25s.

"Wakasa Maru."—New Peradeniya Alloovibarie Ceylon Cocoa A A, 30 bags sold at 80s; ditto A, 121 at 76s.

"Scindia."—Monarakelle 1, 20 bags sold at 64s; 13 at 63s 6d; 2, 1 at 30s; Broken, 1 at 40s.

"Java."—Meegama 1, 21 bags sold at 54s 6d; B, 6 at 45s; B 1, 1 at 41s.

"Clan Fraser."—Marakona I, 99 bags sold at 63s; II, 22 at 54s; Nibs, 5 at 46s 6d; Glenury 2, 2 bags sold at 41s 6d; 3, 2 at 34s 6d.

"Wakasa Maru."—North Matale Ceylon Cocoa; 86 bags sold at 66s 6d; 5 at 60s 6d.

"City of Athens."—North Matale Ceylon Cocoa A, 31 bags sold at 71s 6d; ditto B, 20 at 73s 6d; 52 at 73s.

"Stentor."—Goonambil, 2 bags sold at 47s; 8 at 57s 6d; Bandarapola 1, 23 bags sold at 56s; ditto T, 2 at 36s.

OBSERVER PRINTING WORKS.

No 38. COLOMBO, SEPTEMBER 29th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[35,582 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	20 ch	or pek	2000	40 bid
	20 do	or pek	1997	39 bid
	18 do	pek	1530	31 bid
Hornsey	36 hf ch	bro pek	2160	49
	18 ch	pek	1530	37
	14 do	pek sou	1050	35
Yuillefield	18 hf ch	bro or pek	1045	52 bid
	18 ch	pek	1620	33
Bunyan and Ovoca	29 hf ch	bro or pek	17g0	62
	32 do	or pek	1600	43
	13 ch	pek	1235	36
	14 do	pek sou	1260	38
	17 hf ch	pek fans	1105	29
Mapitigama	13 ch	bro or pek	1300	35 bid
	22 do	bro pek	2530	28 bid
	35 do	or pek	3150	28 bid
	10 do	fans	1300	22 bid
Chouleigh	17 do	bro pek	1700	28 bid

Messrs. Forbes & Walker.

[848,740 lb.]

	Pkgs.	Name.	lb.	c.
Yatiyana	10 ch	or pek	1050	26
Drayton	45 hf-ch	or pek	2250	44
	30 ch	pek	2550	38
O B E C, in est. mark Forest Creek	13 do	bro or pek	1300	out
	34 do	bro pek	3100	50
	18 do	or pek	1584	37 bid
	34 do	pek	3060	33
Mahayaya	15 ch	bro or pek	1500	36
	10 do	or pek	1000	30
	12 do	pek	1080	27
Choisy	49 hf ch	bro or pek	2695	44
	22 ch	or pek	1870	32 bid
	40 do	pek	3600	29
Chrystler's Farm	21 hf ch	bro or pek	1155	70
	33 do	bro pek	1914	45 bid
	34 ch	pek	3230	35
Yogama	13 do	bro pek	1365	37
	13 do	or pek	1300	33
	21 do	pek No 1	1890	28
	12 do	pek No 2	1020	27
New Peradeniya	15 hf ch	dust	1200	25
Allocwihare	22 ch	bro or pek	2:00	36
	13 do	or pek	1040	30
	20 do	pek	1800	26
Penmure	30 hf ch	bro or pek	1500	51 bid
	50 do	or pek	2500	37 bid
	25 ch	pek	2250	32 bid
	19 hf ch	bro or pek fan	1235	29 bid
Holton	12 ch	bro pek	1200	36
Dotala	17 ch	bro or pek	1020	55
	20 do	pek	1800	35
Ingrogalla	14 ch	bro pek	1400	36
	12 do	pek	1080	29
Wilpita	12 ch	pek	1140	20
Moray	33 hf ch	or pek	1485	40
	55 do	bro pek	3025	49
	42 ch	pek	3654	32
	15 do	pek No 2	1275	29
Avoca	14 do	bro or pek	1456	65
	15 do	bro pek	1500	40
	12 do	pek	1104	38
Mousa Eliya	31 ch	bro pek	3100	35
	20 do	pek	2000	28
Florence	24 hf ch	bro or pek	1320	70
	19 ch	bro or pek	1729	48
	33 do	pek	2901	40
	24 hf ch	bro or pek fan	1560	40
Glencorse	10 ch	bro pek	1000	37
	14 do	or pek	1120	34
	14 do	pek No 2	1050	26
	21 do	pek sou	1575	2
Pana Watte	15 ch	bro or pek	1575	4
	19 do	pek	1805	29
Sirikandure	39 ch	bro pek	3510	23
	36 do	pek	2700	23
	20 do	pek sou	1300	19
O B E C, in est. mark Newmarket	34 hf ch	bro or pek	1904	50 bid
	35 ch	bro pek	3675	37 bid
	13 do	or pek	1105	38
	25 do	pek	2250	35
	12 do	pek sou	1080	30 bid
Freds Ruhe	22 ch	bro pek	2200	32
	11 do	pek	1045	28
O B E C, in est. mark Darrawella	68 ch	pek	5916	31
Stranraer	21 hf ch	bro or pek	1050	40 bid
	15 ch	bro pek	1500	35
	12 do	or pek	1080	39
	15 do	pek	1200	33
	18 hf ch	bro pek fans	1260	27
Court Lodge	9 ch	bro or pek	1035	65
Deaculla, Inv. No 3	62 hf ch	bro pek	3410	44
	68 ch	pek	4760	30
Tymawr, Inv. No 18	23 hf ch	or pek	1265	38
	24 do	pek	1200	35
	36 do	pek sou	1620	23
Monkswood, Invoice No. 12	19 do	bro pek	1140	90
	35 do	or pek	1750	71
	26 ch	pek	2600	59
Knavesmire	30 ch	or pek	2700	30
	50 do	bro pek	5000	28 bid
	44 do	pek	3520	21 bid
Puspane	23 ch	or pek	2185	28 bid
	32 do	bro pek	3520	31 bid
Sylvakandy	13 ch	bro or pek No 1	1300	43
	25 do	bro or pek No 2	2500	38
	14 do	bro pek	1400	36
	21 do	pek	2100	33
Tunisgalla	40 hf ch	bro pek	2400	40
	46 do	or pek	2300	36
	27 ch	pek	2430	32
	20 hf ch	bro or pek	1100	54 bid
Madulkelle	11 ch	bro or pek	1100	55
	14 do	or pek	1120	39
Campion	38 hf ch	dust	3040	27
Stafford	11 ch	or pek	1100	51
Welkandala	54 do	bro pek	2472	37
	29 do	pek	2610	29
	15 do	pek sou	1275	21
Torwood	12 ch	bro or pek	1080	35 bid
	26 do	bro pek	2210	24 bid
	38 do	pek	3040	22 bid
G	40 ch	bro mix	3600	13
Tymawr	33 hf ch	pek	1650	34
Queensland	20 do	bro or pek	1000	69
	20 ch	bro pek	2000	49
	12 do	pek	1020	42
Tenton	16 ch	bro pek	1760	out
Marlborough	19 do	pek	1615	33 bid
M T P, in est. mark	15 do	fans	1500	26
Putupaula	13 ch	bro or pek	1300	54
	56 do	or pek	4760	31
	55 do	pek	4125	27
	9 do	bro pek fans	1089	26
Laura Watte (Venesta Packages)	21 hf ch	fans	1680	:4
Mawiligangawatte	24 ch	bro pek	2280	28 bid
	24 do	pek sou	1920	21
Poonagalla	18 ch	or pek	1656	45
	41 do	bro pek	4928	59 bid
	33 do	pek	3036	47
H	20 hf ch	dust	1920	23
Lochiel	23 do	dust	1955	25
Harrow	20 hf ch	bro or pek	1200	59
	10 ch	or pek	1000	40
	22 do	pek	2200	35
	10 do	pek sou	1100	25 bid
Seruhs Hill	48 do	bro pek	53·6	36 bid
	29 do	pek	3219	30 bid
Bramley	61 hf ch	pek	3050	40
	21 do	or pek No 1	1008	52
	51 do	or pek	2550	42
	18 do	bro or pek fan	1116	39
Galapitakande	18 ch	or pek	1800	36 bid
	27 do	bro pek	2700	46 bid
	33 do	pek	2970	35
	11 do	pek sou	1045	31
Amblangoda	10 ch	or pek	1000	33 bid
Bullugolla	20 do	bro or pek	2000	37 bid
	24 do	or pek	2400	37
	23 do	pek	2070	34
	14 do	pek sou	1190	24 bid
D G T	11 ch	pek	1155	27

	Pkgs.	Name.	lb.	c.
Kincora	10 ch	bro or pek	1100	49 bid
	13 do	or pek	1235	39
	13 do	pek	1105	36
Ambragalla	50 hf ch	or pek	2400	34 bid
	56 do	bro or pek	3248	36 bid
	21 ch	pek	1785	27 bid
	15 do	pek sou	1170	23 bid
Bandara Eliya	31 hf ch	cr pek	1550	42 bid
	19 do	bro or pek No 1	1045	54 bid
	38 do	bro or pek No. 2	2280	45 bid
	50 do	pek	2400	36 bid
	19 do	dust	1520	27
	33 do	pek fans	2145	23
Kennington	51 ch	pek sou	3567	20
	7 do	dust	1012	23
Lyegrove	10 do	bro pek	1050	39
Florence	21 hf ch	dust	1701	28
Waldemar	20 do	bro or pek	1300	61 bid
	10 do	bro pek	1160	46
	25 do	or pek	2500	48
	20 do	pek	1800	43
	20 hf ch	fans	1640	28
Thedden	18 ch	bro pek	1800	36
Ninfield	13 do	bro or pek	1300	33
	16 do	pek	1280	25
Penrhcs	18 hf ch	bro or pek	1008	54
	19 ch	pek	1615	30
Vogan	17 do	bro or pek	1700	51
	25 do	or pek	2250	32
	29 do	pek	2610	29
	15 do	pek sou	1275	21
Tempo	12 ch	or pek	1080	33
	16 do	pek	1360	26
	13 do	pek sou	1010	22
Tembiligalla	14 cb	bro or pek	1400	33
	11 do	or pek	1001	32
	11 do	pek	1045	28
Weoya	22 ch	bro or pek	2200	34
	30 do	bro pek	3000	30
	23 do	pek	1955	28
	16 do	pek sou	1440	23
Tonacombe	30 ch	or pek	2850	46
	32 do	bro pek	3200	51 bid
	53 do	pek	4770	41
Dromoland	32 hf ch	bro or pek	1696	45 bid
	14 ch	pek	1204	33
Marlborough	27 hf ch	bro or pek	1404	57 bid
	20 ch	or pek	1800	38 bid
	25 do	bro pek	2500	36 bid
	26 do	pek	2132	38
Battawatte	16 hf ch	bro or pek	1040	33
	40 ch	bro pek	4400	35 bid
	38 do	pek	3610	31 bid
	14 do	pek sou	1260	27 bid
Gampaba	40 hf ch	bro or pek	2400	40 bid
	29 ch	or pek	2784	46
	32 do	pek	2720	40
	14 ch	pek sou	1260	36
Higb Forest	46 bf ch	pek sou	2070	42
	40 do	pek dust	3400	30
Gampaha	40 hf ch	bro or pek	2400	40 bid
	29 ch	or pek	2784	44
	32 do	pek	2720	42
	15 do	pek sou	1350	38
High Forest	37 hf ch	or pek No. 1	1961	60
	32 ch	or pek	1664	54
	23 do	pek	1081	46
	30 do	bro pek	1800	59
Pallagoda	18 ch	bro or pek	1800	30 bid
	28 do	bro pek	2800	34 bid
	24 do	or pek	2040	30
	21 do	pek	1680	27
	23 do	pek sou	1955	23
	23 hf ch	dust	1955	22
Dammeria	39 ch	pek sou	3510	31 bid
	18 do	bro pek	1800	46 bid
	17 do	or pek	1530	40 bid
	15 do	pek	1350	35 bid
	14 do	bro or pek	1400	36 bid
Kirklees	20 ch	bro or pek	2100	50
	15 do	or pek	1425	43
	15 do	pek	1350	38
Maha Uva	34 hf ch	bro or pek	2210	40
	24 do	or pek	1344	43
	19 ch	or pek	1900	43
	35 do	pek	3150	39
	23 do	pek sou	1955	33
Polatagama	51 ch	bro pek	5100	35 bid
	14 do	or pek	1330	28 bid
	43 do	pek	3870	26
	12 do	fans	1200	25
Erracht	18 cb	bro or pek	1800	36
	15 do	or pek	1275	35
	41 do	pek	3485	30
	7 do	pek fans	1015	25

	Pkgs.	Name.	lb.	c.
Morankande	20 hf ch	bro or pek	1120	33
	30 do	or pek	1500	32
	19 ch	pek	1710	26
Aberdeen	24 ch	bro pek	2160	35
	23 do	pek	1725	26
Bandarapolla	38 hf ch	bro or pk No 1	2090	31 bid
	57 do	bro or pk No 2	2850	30 bid
	40 do	bro pek	2000	29
	33 do	pek	1518	25
Seenagolla	22 hf ch	bro or pek	1320	62 bid
	17 do	pek	1020	45
C	16 ch	dust	2080	24
Nonpariel	46 hf ch	bro or pek	2576	44
	19 do	pek	1064	34
Ardlaw and Wishford	12 ch	bro or pek	1296	62
	13 do	bro pek No. 1	1430	45
	12 do	or pek	1080	43
	12 do	pek	1008	38
Naseby	30 hf ch	bro or pek	1800	70
	25 do	or pek	1175	62
Halbarawa	14 ch	bro pek	1802	26
	23 do	pek	2080	26
	12 do	pek sou	1082	19
Great Valley	25 hf ch	or pek	1397	36 bid
	11 ch	or pek	1034	38
Baddegame	10 ch	bro or pek	1000	39
	13 do	or pek	1170	32
Lindupatna	14 cb	bro or pek	1470	61 bid
	16 do	or pek	1600	42
	13 do	pek	1235	38
Middleton	37 hf ch	bro or pek	2035	57 bid
	25 cb	bro pek	2500	38 bid
	33 do	or pek	2970	35 bid
	25 do	pek	2125	32 bid
	20 hf ch	dust	1600	25
Good Hope	51 ch	bro pek	4182	27
	17 do	bro or pek	1615	34
Yellatenne	10 ch	bro pek	1060	43
	12 do	pek	1200	38
	10 do	pek sou	1010	28
Delta	13 ch	bro or pek	1339	52
	38 do	bro pek	3610	35
	33 do	pek	2541	33
	22 do	pek sou	1760	27
Gonapatiya	18 hf ch	pek fans	1260	40
	16 do	dust	1440	29
Middleton	20 hf ch	bro or pek	1100	59
	17 ch	bro pek	1700	36 bid
A N G in est mark	42 hf ch	bro pek	2100	33 bid
	43 do	bro pek	2150	32 bid
Inverness	23 ch	bro or pk	2300	51 bid
	15 do	or pek	1350	50
	26 do	pek	2210	42
Poonagalla	13 ch	or pek	1209	48
	41 do	bro pek	4715	57 bid
	30 do	pek	2850	45
	13 do	fans	1105	28
Knavesmire	21 ch	or pek	1890	28 bid
	46 do	bro pek	4600	27 bid
	25 do	pek	2000	20 bid
Nillomally	30 ch	pek	2640	31
	18 do	pek sou	1476	27
	12 do	fans	1200	28
	16 do	bro or pek	1600	46
	14 do	or pek	1148	41
Beverley	61 hf ch	or pek	3050	34
	47 do	pek	2350	27
	30 do	pek sou	1350	21
Bellongalla	23 ch	bro pek	2300	27
	16 do	pek sou	1360	19
K P W	20 hf ch	bro or pek	1200	37
	24 do	bro pek	1200	31
	30 do	pek	1500	28
Nawalapitiya	24 ch	sou	2160	17
Hatton	24 ch	bro pek	2400	55
	19 do	pek	1710	40
Fieds Rhue	22 ch	bro pek	2200	32
	11 do	pek	1045	29
Udapolla	12 ch	pek	1080	24
Preston	15 ch	bro or pek	1560	57
	14 do	pek	1120	45
Palmerston	17 hf ch	bro or pek	1020	66
	20 do	bro pek	1140	46
	14 ch	pek	1190	42
Clunes	11 ch	bro pek	1100	37 bid
	31 do	pek	2790	27
Hanwella	*32 ch*	*young hyson*	*3200*	*36*
	19 do	*hyson No. 1*	*1900*	*34*
Crafax	17 ch	bro or pek	1700	48
	19 do	or pek	1710	42
	18 do	pek	1620	37
Amblakande	22 cb	pek	1980	out
Ireby	50 hf cb	bro pek	3000	47
	25 cb	pek	2125	38
G K	19 hf ch	dust	1520	20

	Pkgs.	Name.	lb.	c.
Summerhill	30 hf ch	bro or pek	1740	67
	35 do	bro pek	2170	53
	20 ch	or pek	1820	53
	15 do	pek	1365	47
Marie Land	24 hf ch	bro or pek	1296	37 bid
	23 ch	bro pek	2300	28 bid
	18 do	pek	1512	29
Hentleys	25 hf ch	bro pek	1325	34
	13 ch	pek	1001	24
Digdola	25 do	pek	2000	24
T C L	14 ch	sou	1260	20
Uragalla	11 ch	bro pek	1133	27 bid
	16 do	pek	1392	22
L in est mark	13 ch	pek	1040	20 bid
Ugieside	11 ch	pek fans	1045	21
	14 do	bro mixed	1120	18
Rickarton	24 ch	bro or pek	2400	50
	34 do	or pek	3060	37
	26 do	pek	2470	32
North Cove	22 hf ch	bro or pek	1210	64 bid
	25 do	bro pek	1450	44 bid
St. Helens	41 hf ch	bro or pek	2132	35 bid
	12 ch	pek	1080	25 bid
	12 do	pek sou	1030	21 bid
Dunkeld	43 hf ch	bro or pek	2580	46
	15 ch	or pek	1350	42
	17 do	pek	1530	36
St. Vigeans	22 hf ch	bro or pek	1342	55
	15 do	or pek	1350	43
	15 do	pek	1290	37 bid
Ismalle	14 ch	dust	1960	20
Passara Group	10 do	bro or pek	1000	41 bid
	45 do	bro pek	4500	32 bid
	29 do	pek	2610	32 bid
Udaveria	17 hf ch	bro or pek	1020	60
	27 do	bro or pek No 1	1620	48
	12 do	or pek	1104	45
El Teb	25 ch	bro pek	1850	31 bid
Castlereagh	53 hf ch	bro or pek	2650	50 bid
	15 ch	bro pek	1425	37 bid
	13 do	or pek	1040	56
S F D	10 ch	dust	1540	out
Melston	35 hf ch	pek sou	1750	27 bid
Pine Hill	26 hf ch	bro or pek	1560	48
	17 ch	or pek	1615	37
	22 do	pek	1980	33
Detenagalla	30 hf ch	or pek	1740	47
	20 ch	pek	2000	40

Messrs. E. John & Co.

[424,542 lb.]

	Pkgs.	Name.	b.	c.
M P S	17 ch	bro or pek	1700	21 bid
	26 hf ch	bro pek fans	1690	withd'n
	39 do	bro pek dust	3510	withd'n
Oonoogaloya	15 do	dust	1275	24
	17 do	fans	1105	26 bid
Winwood	37 do	bro or pek	1850	49 bid
	18 ch	or pek	1710	35
	16 do	pek	1440	31
	17 hf ch	fans	1020	27
Perth	22 ch	bro or pek	2090	36
	25 do	bro pek	2250	30
	37 do	or pek	2960	27
Kandaloya	45 hf ch	or pek	1800	35
	45 do	fans	2250	25
	29 do	dust	1450	22
Dotella	28 do	bro or pek	1540	40 bid
	62 do	bro pek	3410	29 bid
	97 do	pek	4850	27
	20 do	pek sou	1000	21
Glassaugh	26 do	or pek	1456	63
	19 do	bro or pek	1273	60
	13 ch	pek	1365	54
St. Clair	10 do	fans	1160	28 bid
Kadienlena	25 hf ch	bro or pek fans	1875	27 bid
Ratwatte	82 ch	bro pek	3200	31
	16 do	pek	1440	25 bid
Gangawatte	12 do	bro or pek	1200	54 bid
	10 do	bro pek	1000	45
	19 do	pek	1710	37
G B	12 do	bro pek	1260	28
	17 do	pek	1445	21
Troup	13 do	pek sou	1300	25 bid
Rookwood	25 do	bro or pek	2700	40 bid
	29 do	or pek	2704	34
	53 do	pek	4770	28 bid
E emane	36 do	bro pek	3600	56
	38 do	pek	3420	49
	14 do	pek sou	1260	39
Mocha	58 hf ch	bro or pek	3364	59 bid
	ch	or pek	1440	48 bid
	34 do	pek	3230	43 bid
	14 hf ch	fans	1050	29 bid

	Pkgs.	Name.	lb.	c.
Glentilt	40 do	bro or pek	2200	60
	26 ch	or pek	2340	42
	25 do	pek	2250	37
Gingranoya	17 do	pek	1360	28
Oonoogaloya	16 do	or pek	1440	26
	18 do	bro or pek	1800	47
	19 do	pek	1710	32
Tismoda	38 do	bro pek	3800	withd'n
	46 do	pek	3910	withd'n
Indsay	8 do	dust	1102	23
Sagamatta	16 do	pek	1520	20
	13 do	pek	1235	19
Elbedde	17 hf ch	dust	1530	26
Templestowe	48 do	bro or pek	2640	55 bid
	18 do	bro pek	1080	42 bid
	48 do	or pek	2112	43
	18 do	pek	1530	35
	14 do	pek sou	1400	33
Warleigh	16 do	or pek	1552	43
	21 do	pek	1785	out
Eila	15 do	bro or pek	1500	31
	27 do	or pek	2160	32
	17 do	bro pek	1530	33 bid
	66 do	pek No. 1	5280	23 bid
Elston	23 do	pek sou	1955	26 bid
Holbrook	34 hf ch	br or pek No.2	2040	46 bid
	17 ch	or pek	1615	43
	12 do	pek	1080	37 bid
	10 do	pek fans	1200	32
Elston	28 do	pek	2380	31 bid
	22 do	pek sou	1870	26
M	17 hf ch	pek fans	1156	26
Mahanilu	23 do	or pek	1219	50
	15 ch	pek	1455	42
M L W	12 do	bro pek	1140	30
Dickapitiya	16 do	bro pek	1600	32 bid
	18 do	pek	1710	31
	21 do	pek sou	1995	24 bid
Kolapatna	12 do	pek	1080	32 bid
	13 hf ch	fans	1001	27 bid
M L K	10 ch	fans	1270	13
K L	13 do	pek	1232	withd'n
Waragalande	16 do	bro or pek	1600	38 bid
	21 do	bro pek	1890	29 bid
	22 do	pek	1980	29
	13 do	pek sou	1170	23
Glasgow	27 hf ch	bro or pek	1566	66
	22 ch	bro pek	2200	50
	23 do	or pek	2139	48
	11 do	pek	1045	44
Agra Ouvah	46 hf ch	bro or pek	2760	63
	29 do	or pek	1566	46
	12 ch	pek	1140	43
Rondura	17 do	bro or pek	1632	30 bid
	25 do	bro pek	2250	33 bid
	28 do	or pek	2380	33
	30 do	pek	2430	27
	13 do	pek sou	1053	22
Glasgow	30 hf ch	bro or pek	1680	65
	23 ch	bro pek	2300	50
	23 do	or pek	2139	46
	12 do	pek	1140	44
Agra Ouvah	40 hf ch	bro or pek	2400	63
	25 do	or pek	1350	46
Wattagalla	21 do	bro pek	1260	33 bid
	21 ch	pek	1890	33
	19 do	pek sou	1520	24
Ben Nevis	24 hf ch	bro pek	1560	41
	30 do	or pek	1500	43 bid
	26 ch	pek	2340	31
	13 do	pek sou	1170	28
Midlothian	19 hf ch	bro pek	1140	51 bid
	22 do	or pek	1100	46
	30 do	pek	1560	40
Callander	20 do	or pek	1100	50
Wattagalla	32 do	bro pek	1920	33 bid
	25 ch	pek	2250	32
	24 do	pek sou	1920	23
Morton	26 do	bro or pek	2600	27 bid
	17 do	r pek	1445	31
	30 do	pek	2400	25
Lameliere	18 hf ch	bro or pek	1080	46
St John's	20 do	bro or pek	1157	69
	20 ch	pek	1897	47
Castle Hill	11 do	bro or pek	1100	38
	15 do	or pek	1500	24 bid
	20 do	pek	1800	22
	22 do	pek sou	1980	17
D K P	33 do	bro or pek	2970	33 bid
	41 do	bro pek	3690	26 bid
	39 do	pek	3120	25
Mt. Vernon	29 do	pek	2610	39
Lameliere	18 hf ch	bro or pek	1080	45 bid
Peru	14 ch	bro pek	1400	41
	17 do	pek	1445	32
	13 do	pek sou	1170	24 bid

	Pkgs.	Name.	lb.	c.
Wanarajah	21 hf ch	bro pek fans	1365	27 bid
	12 do	dust	1008	26
Taunton	21 ch	bro or pek	2100	out
Mount Everest	23 hf ch	bro or pek	1150	55 bid
	32 do	or pek	1600	50
	25 ch	pek	2500	38
L H O	21 do	pek sou	1890	21
	13 do	fans	1456	24
Gonavy	26 hf ch	or pek	1300	38
	58 do	bro or pek	3190	44 bid
	24 ch	pek	2400	32 bid
Ottery	12 do	bro pek	1200	54
	12 do	fly or pek	1140	40
	33 do	pek	2970	30
Cocoawatte	26 do	bro pek	2600	35 bid
	34 do	pek	3400	30
	24 do	pek sou	2400	26
Cabin Ella	22 do	bro pek	2200	47
	15 do	pek	1275	40
Ganasarapolla	51 hf ch	bro or pek	2652	30 bid
	24 do	bro pek	1200	23 bid
	27 do	pek	1215	21
Elston	20 ch	pek	1600	31
	21 do	pek sou	1680	27
Kandaloya	34 hf ch	bro or pek	1530	45
	43 do	or pek	1720	34
Myraganga	26 ch	pek sou	1900	24 bid
Dubena	13 do	pek	1297	19 bid
St. John's	25 hf ch	bro or pek	1450	68
	16 ch	or pek	1449	68
	18 do	pek	1710	49
	16 hf ch	pek fans	1088	38
Mt. Vernon	20 ch	pek	1760	37
Tismoda	45 hf ch	bro pek	2250	withd'n
	30 ch	pek	2100	withd'n
C C	26 hf ch	pek dust	2210	12 bid
Myraganga	11 ch	or pek	1045	36
	19 hf ch	br or pek No. 1	1045	48 bid
	32 ch	br or pek No. 2	3200	38 bid
	17 do	pek No. 1	1445	29 bid
	15 do	pek No. 2	1350	27 bid
Brownlow	35 hf ch	bro or pek	1820	54 bid
	27 ch	bro pek	2592	36 bid
	24 do	pek	2040	33 bid
	14 hf ch	bro pek fans	1022	28
K T C	25 do	pek	1375	24 bid
Nabavilla	19 ch	or pek	1710	41 bid
	21 do	bro pek	2100	51 bid
	16 do	pek	1410	43
	14 do	pek sou	1120	34
Glassaugh	33 hf ch	or pek	1749	61
	28 do	bro or pek	1848	57 bid
	15 ch	pek	1545	52
Mooha	30 hf ch	bro or pek	1800	64 bid
	20 ch	or pek	1800	51
	24 do	pek	2160	47
Bowella	21 do	or pek	1785	24 bid
Galloola	37 do	bro pek	3700	45
	44 do	pek	3960	44
	28 do	pek sou	2240	34

Messrs. Somerville & Co.

[325,123 lb.]

	Pkgs.	Name.	lb.	c.
Lonach	26 hf ch	bro or pek	1404	43 bid
	16 ch	or pek	1360	37
	24 do	pek	1920	27 bid
New Angamana	36 ch	bro or pek	3600	33 bid
	19 do	or pek	1710	29 bid
	42 do	pek	3780	27 bid
	19 do	pek sou	1710	21 bid
Marigold	43 hf ch	bro pek	2150	48
	31 do	pek	1550	41
	31 do	pek sou	1519	38
Allacollawewa	21 hf ch	bro pek	1092	44
Kallebokka	14 ch	bro or pek	1470	50 bid
	11 do	bro pek	1100	33 bid
	14 do	pek	1120	34
Tyspane	13 ch	pek	1040	25 bid
Hatdowa	21 ch	br pek	2100	29 bid
Monrovia	20 ch	bro pek	2000	28 bid
	13 do	pek	1235	23
Elchico	15 ch	bro or pek	1500	32 bid
	11 do	pek	1045	27
Damblagola	12 ch	or pek	1030	34
	15 do	pek	1275	25
Invery	36 hf ch	bro or pek	2232	57
	24 do	or pek	1248	46
	47 ch	pek	4700	39
	13 do	pek sou	1181	32
Walla Valley	27 hf ch	bro or pek	1485	62
	19 ch	or pek	1805	43
	25 do	pek	2125	43

	Pkgs.	Name.	lb.	c.
Labaduwa	17 ch	pek sou	1700	19
Salawa	20 ch	bro pek	2100	29 bid
	15 do	pek	1425	23
	14 do	pek sou	1260	19
Sadamulla	14 ch	pek	1330	18
Pindeni Oya	30 ch	pek	2400	24
	15 do	pek sou	1275	20
Elindhu	21 ch	bro pek	1995	29
	25 do	pek	2250	23
Ingeriya	21 ch	br pek	2100	33 bid
	16 do	pek	1440	27
Mount Temple	21 ch	bro pek	2058	29 bid
	20 do	pek	1560	26
	15 do	pek sou	1140	22
	28 do	bro or pek fans	2800	26
Warakamure	22 ch	bro or pek	2200	30 bid
	17 do	or pek	1445	31
	21 do	pek No 1	1785	26
	12 do	pek No 2	1020	24
	13 do	pek sou	1040	19
C W M	30 hf ch	bro pek	1650	48
	18 ch	pek	1530	35 bid
Blinkbonnie	24 hf ch	bro or pek	1440	48
	16 ch	or pek	1520	40
	17 do	pek	1530	36
Dryburgh	16 ch	or pek	1520	36
	25 do	pek	2225	28
Ossington	12 ch	pek	1020	23
Nyanza	13 ch	or pek	1170	37
	20 hf ch	bro or pek	1100	46
	18 ch	pek	1620	29
Abergeldie	27 hf ch	bro pek	1566	51
	27 ch	pek	2430	33
Polgabakande	11 ch	bro pek	1100	29
	13 do	pek	1010	25
	13 do	pek No. 2	1105	21
	12 do	pek sou	1020	19
Bodawa	30 hf ch	br pek	1500	33
Avisawella	24 hf ch	bro or pek	1200	45
	17 ch	or pek	1615	32
	19 do	pek	1710	27
Columbia	17 hf ch	bro pek	1020	48
	43 do	pek	2150	39
	22 do	pek sou	1100	35
	14 do	pek fans	1120	28
Bollagalla	20 ch	br pek	2000	33 bid
	13 do	pek	1040	27
Kelani	14 ch	or pek	1200	31
	17 do	bro or pek	1700	30 bid
	13 do	pek sou	1040	22
Park Hill	27 ch	bro pek	2835	29
	15 do	pek	1215	26
Highfields	19 hf ch	bro or pek	1045	49
	20 do	or pek	1000	49
	40 do	pek	2080	40
Kurulgalla	11 ch	bro or pek	1100	31 bid
	13 do	pek	1170	27
K R	34 hf ch	pek fans	2705	16 bid
Mowbray	15 ch	pek	1275	29
Donside	28 hf ch	br or pek fans	1680	26 bid
Murraythwaite	16 ch	bro pek	1600	31 bid
Jak Tree Hill	19 ch	bro pek	1900	35
	14 do	pek sou	1260	21
Old Maddegama	17 ch	bro or pek	1360	48 bid
	14 do	bro pek	1008	39
	25 do	pek	2125	35
Polgabakande	11 ch	bro or pek	1045	30 bid
	11 do	bro pek	1100	27 bid
	14 do	or pek	1120	32
	13 do	pek	1040	23
Farnham	22 hf ch	bro pek	1210	33
	17 ch	or pek	1394	32
	14 do	pek	1344	27
Monrovia	10 ch	bro pek	1000	29 bid
Hobart	30 ch	pekoe	2250	25
	24 do	bro pek	2203	28
Labugama	12 ch	or pek	1020	34
	36 do	pek	3060	26
Cooroondoowatte	11 ch	bro pek	1045	38 bid
	29 do	pek	2610	27
	19 do	pek sou	1900	20
Harrangalla	23 ch	bro or pek	2185	29 bid
	20 do	pek	1700	25 bid
Dover	21 ch	or pek	1890	34
	23 do	pek	2070	28
	18 do	pek sou	1350	23
Blackheath	13 ch	bro or pek	1300	34 bid
Mora Ella	21 hf ch	bro or pek	1050	48
	27 ch	pek No. 1	2376	30
Rayigam	*42 ch*	*young hyson*	*4200*	*36 bid*
	37 do	*hyson*	*3145*	*35*
	11 do	*siftings*	*1100*	*12*
Annandale	21 hf ch	bro or pek	1218	56 bid
	18 do	or pek	1026	46
	23 do	pek	1288	38
	29 do	pek sou	1121	34

	Pkgs.		Name.	lb.	c.
Kurunegalla	24	hf ch	bro or pek	1440	33 bid
	21	do	or pek	1050	31 bid
	12	ch	pek	1020	27
Yahalatenne	32	ch	bro pek	3296	38
	21	do	pek	1953	33
Weygalla	12	ch	pek	1020	24 bid
Ravenscraig	22	hf ch	bro or pek	1232	43 bi
	12	ch	pek	1080	28
Richlands	12	ch	bro or pek	1260	50
	12	do	or pek	1020	40
	12	do	pek No. 1	1140	34
	12	do	pek No 2	1020	29
Citrus	12	ch	pek	1020	23
Laxapanagalla	16	ch	bro or pek	1600	33 bid
Scarborough	17	ch	or pek	1615	40 bid
	20	do	pek	1900	36
	21	hf ch	bro or pek	1176	52 bid
Bambodde	36	hf ch	br pek	1980	37
	34	do	pek	1530	27
	24	do	pek scu	1200	22
Yarrow	17	hf ch	bro or pek	1190	38 bid
	22	do	or pek	1034	35
	27	do	pekoe	1215	29
Selvawatte	26	hf ch	bro or pek	1430	28 bid
Dartry	20	hf ch	fans	1520	27
Cooroondoowatte	10	ch	pek	1000	26

Messrs. Keell and Waldock.

[88,003 lb.]

	Pkgs.		Name.	lb.	c.
S K	20	hf ch	pek	1000	13 bid
Rock Cave	20	ch	br pek	2000	26 bid
	23	do	pek	1955	24
	18	do	pek sou	1440	19 bid
Ovitta	15	ch	bro or pek	1440	29 bid
Aigburth	13	ch	or pek	1235	26
	25	hf ch	bro or pek	1450	45
	13	ch	pek	1144	32
Bargany	20	hf ch	bro or pek	1200	54
	19	ch	pek	1805	36
Fairlawn	40	hf ch	bro or pek	2400	55
	34	ch	pek	3230	38
	14	do	pek sou	1330	34
Brecon	16	hf ch	bro or pek	1040	45 bid
	19	do	or pek	1045	38
Gampai	22	hf ch	or pek	1034	31
	35	do	bro or pek	1960	34 bid
	20	ch	pek	1600	27
	16	do	pek sou	1216	22
Taprobana	39	hf ch	bro or pek	1950	33 bid
	24	ch	pek	1920	27
Alpha	18	hf ch			
	6	ch	bro pek	1590	28 bid
	15	do	pek	1275	27
Hangranoya	16	ch	br pek	1520	28 bid
	14	do	pek	1120	24 bid
Hyde	15	ch	or pek	1245	40
	37	hf ch	bro or pek	2035	49
	27	cb	pek	2376	33
Pasmalie	18	ch	bro pek	1710	34
	21	do	pek	1440	26
	13	do	pek sou	1040	23 bid
Galgedioya	29	ch	bro pek	2900	28 bid
	31	do	pek	2790	20 bid
	22	do	pek sou	1980	19 bid
Woodend	30	ch	br pek	2880	28 bid
	41	do	pekoe	3608	23 bid
Battalawatte	20	ch	bro or pek	2000	out
	21	do	pek	1890	31 bid
S'Talawa	18	ch	pek sou	1620	25
B V in est mark	30	hf ch	dust	2550	17 bid
Hawa Ella	20	hf ch	bro or pek	1100	42 bid
	22	do	pek	1600	28 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Hornsey	6	ch	or pek	510	37 bid
Yuillefield	1	do	pek sou	90	26 bid
	1	hf ch	dust	80	24
Bunyan and Ovoca	10	ch	pek No 2	950	44
	9	hf ch	dust	765	23
	2	ch	red leaf	200	12
H	7	hf ch	dust	630	19
H D	3	do	dust	285	23
Choaleigh	9	ch	bro or pek	918	40 bid
	9	do	pek	792	24 bid
	2	do	fans	230	23
	2	do	dust	28	24

Messrs. Forbes & Walker.

	Pkgs.		Name.	lb.	c.
Yatiyana	4	ch	bro pek	400	21
	1	do	pek sou	100	17
	3	do	pek	294	17
	1	do	dust	131	16
Drayton	8	ch	pek sou	640	35
Mahayaya	6	do	pek sou	510	23
	2	do	dust	300	23
G	*4*	*hf ch*	*hyson*	*200*	31
Chrystler's Farm	3	cb	pek sou	270	31
	1	hf ch	dust	85	26
Yogama	3	ch	dust	375	24
Nagaganga	12	hf ch	bro pek	672	29
	9	do	pek	450	22
	7	do	pek sou	336	18
	3	do	fans	192	14
Belgodde	6	do	bro pek	300	24
	2	do	or pek	100	23
	3	do	pek	150	19
K B	3	ch	bro pek	300	27
	8	hf ch	dust	616	26
Alloowihare	3	ch	fans	330	26
	2	hf ch	dust	170	21
Panmure	2	ch	sou	1[illegible]0	22
	3	hf ch	dust	255	26
Rockside	5	ch	pek sou	400	23
	5	do	bro pek fans	600	26
	3	do	dust	405	25
I K V	6	ch	pek fans	720	24
Holton	8	do	pek	680	26
	4	do	pek sou	340	23
	4	do	fans	220	22
	2	do	dust	170	22
Wewawatte	10	hf ch	bro pek	670	30
	8	do	pek	488	25
H B L	14	do	bro pek	812	31
	6	ch	pek	528	25
	3	do	pek sou	222	20
	1	hf ch	dust	84	21
Dotala	18	do	or pek	810	43
	3	ch	pek sou	285	27
	2	hf ch	pek fans	150	27
I N G, in est. mark	2	ch	pek fans	200	24
	2	do	unas	280	20
	1	do	sou	80	17
Kettadola	1	ch	bro or pek	100	38
	1	do	or pek	95	21
	4	do	pek	380	20
	2	do	sou	170	15
	2	do	bro mix	160	12
	1	hf ch	dust	56	17
Wilpita	5	ch	bro or pek	500	26
	9	do	bro pek	900	25
	9	do	pek sou	855	17
	1	do	red leaf	116	11
Attabagie	2	hf ch	dust	1[illegible]0	16
	8	ch	bro mix	960	17
Moray	8	hf ch	dust	640	26
Avoca	5	ch	pek sou	500	31
	4	do	bro pek fans	536	29
D, in est. mark	5	hf ch	pek sou	400	17
B B B, in est. mark	7	hf ch	dust	490	23
Pana Watte	9	ch	pek sou	765	24
	3	do	fans	350	25
	2	do	dust	300	24
Sirikandure	3	ch	dust	405	21
	2	do	red leaf	1[illegible]0	16
Freds Ruhe	7	ch	pek sou	700	21
W A	3	do	bro mix	300	20
	2	do	dust	500	20
Detanagalla	6	ch	pek sou	600	33
	3	hf ch	bro pek fans	210	27
Stranraer	10	ch	pek No 2	9[illegible]0	28
	8	do	bro pek sou	800	24
Court Lodge	10	ch	or pek	980	51
	10	do	pek	970	46
	4	do	pek sou	360	34
	1	hf ch	pek fans	92	26
	3	do	dust	300	26
Tymawr, Inv. No 18	14	do	bro or pek	840	49
	6	do	dust	540	25
	6	do	fans	420	26
B D W P Inv. No. 13	5	ch	bro pek fans	550	27
	1	do	pek fans	100	21
	1	do	do No. 1	1[illegible]0	21
Monkswood, Invoice No. 16	12	ch	pek sou	960	52
	11	hf ch	fans	770	41
	3	do	dust	270	28
Sylvakandy	10	ch	or pek	950	36
	3	do	dust	300	25
Tunisgalla	8	ch	pek sou	680	22
	7	hf ch	dust	665	24
Kelvin	3	hf ch	fans	210	25
Ragalla	6	do	dust	540	27

	Pkgs.	Name.	lb.	c.
Stafford	7 ch	bro or pek	840	59
	9 do	pek	810	45
	1 do	fans	125	33
Welkandala	5 hf ch	fans	420	24
Torwood	2 ch	bro pek fans	230	23
Kelburne	12 bf cb	dust	960	25
G	2 cb	bro pek	220	30
R	5 hf ch	bro or pek	300	78
	5 ch	or pek	500	56
Queensland	2 ch	sou	190	14
	3 hf ch	bro pek dust	240	27
Lindoola	8 ch	bro pek	480	28
	4 do	pek	380	27
	9 do	pek sou	720	21
M T P, in est. mark	4 ch	dust	400	21
	1 do	sou	100	15
D, in est. mark	5 ch	sou	450	18
Mawiligangawatte	4 cb	bro or pek	420	37
	4 do	dust	416	23
Locbiel	9 hf cb	pek sou	765	23
Wevekelle	5 ch	bro tea	500	22
	3 bf ch	dust	264	22
Ingurugalla	4 cb	pek sou	360	19
	5 hf ch	bro tea	425	21
Mapesbury	1 ch	pek sou	84	18
Sbrubs Hill	7 ch	or pek	700	26
	6 do	pek sou	666	26
	8 do	bro pek fans	760	26
Bramley	10 hf cb	bro pek	520	55
Galapitakande	5 do	fans	500	28
	6 hf ch	dust	480	26
Swinton	7 cb	bro or pek	700	out
	8 do	or pek	800	30 bid
	8 do	pek	720	28 bid
	5 do	pek sou	425	24 bid
Amblangoda	8 cb	bro or pek	800	37 bid
	9 do	pek	810	28 bid
	6 do	pek sou	510	24 bid
	1 do	dust	110	24
Bullugolla	2 cb	fans	200	26
	2 do	dust	220	24
D G T	7 ch	bro pek	770	34 bid
	2 do	pek sou	192	20
Ambragalla	4 hf ch	dust	320	26
	1 do	red leaf	70	13
Avoca	1 ch	pek sou	100	32
Lyegrove	8 ch	pek	720	32 bid
	3 do	pek sou	255	26
	3 hf cb	fans	180	28
	2 do	dust	160	26
Florence	9 ch	sou	765	38
Glenorchy	15 hf ch	bro pek	900	58
	9 cb	pek	855	48
	3 do	pek sou	270	40
Thedden	6 ch	pek	570	24
	1 do	pek sou	95	20
	1 do	fans	130	24
	1 do	dust	130	18
Ninfield	9 ch	or pek	765	30
	4 do	pek sou	300	20
	2 hf ch	dust	160	20
Vogan	2 ch	pek fans	250	26
	5 bf ch	dust	400	24
Tempo	5 ch	sou	360	19
Tembiligalla	6 ch	pek sou	552	22
	3 do	pek fans	324	26
	1 do	pek dust	148	23
	8 cb	sou	720	17
	6 do	dust	900	25
Mimosawatte	*6 ch*	*young hyson*	*600*	*33*
	6 do	*hyson No. 1*	*510*	*30 bid*
	8 do	*hyson No. 2*	*640*	*29 bid*
	2 do	*Twanky*	*240*	*10*
North Matale	5 bf ch	dust	400	25
Weoya	6 ch	bro pek fans	522	25
	2 do	dust	300	23
Tonacombe	10 cb	pek sou	850	34
	9 hf cb	dust	765	27
Dromoland	14 bf cb	bro pek	742	35 bid
	8 do	fans	544	27
	5 do	dust	450	24
V O A	6 bf ch	bro or pek fans	396	32
	3 cb	dust	360	26
Battawatte	3 ch	dust	300	26
Dammeria	4 bf cb	bro pek fans	320	28
	2 do	dust	200	26
Polatagama	2 bf cb	dust	300	24
Morankande	8 ch	pek sou	560	20
	4 bf ch	bro or pek fans	280	25
	2 do	dust	180	23
Aberdeen	10 hf ch	bro pek fans	700	25
Seenagolla	15 hf ch	or pek	780	52
	4 do	pek sou	248	38
Letchmey	10 ch	pek sou	900	28
	5 hf ch	bro or pek fans	350	27
	4 do	pek fans	260	24
	2 do	dust	180	23
C	2 hf ch	dust No. 2	180	23

	Pkgs.	Name.	lb.	c.
Nonpareil	14 bf cb	or pek	784	40
	2 do	bro or pek fans	140	28
	10 do	pek sou	560	23
	2 do	dust	180	26
Ardlaw and Wishford	8 ch	bro pek No. 2	800	38
	3 do	fans	300	27
Mahaoya	1 cb	bro or pek	93	30
G	5 ch	or pek	500	25
	5 do	pek	500	23
	1 do	dust	90	22
Baddegama	6 ch	bro pek	600	30
	7 do	pek	595	25 bid
	7 do	pek sou	560	22 bid
	2 do	fans	240	25
Lindupatna	6 cb	pek sou	600	24 bid
	5 do	bro pek fans	660	29
Kalupahana	1 hf ch	bro pek	55	35
	24 boxes	bro pek	600	31
	5 ch	pek	450	22
	4 do	pek sou	344	18
	3 do	dust	444	16
Good Hope	2 ch	fans	204	24
Yellatenne	1 hf cb	dust	85	26
Ookoowatte	3 cb	pek sou	240	23
W W	1 ch	pek	90	23
Asgeria	3 ch	bro tea	315	19
	1 do	dust	165	22
Knavesmire	7 hf ch	bro pek fans	560	21
G O in est mark	4 bf ch	bro or pek	260	21
	5 do	pek	250	18
	2 do	pek sou	90	14
Tokatiamulla	3 ch	pek	300	20
	2 do	pek sou	180	16
	1 do	fans	95	15
	2 do	bro mixed	200	15
Munukettia, Ceylon	9 hf ch	dust	720	26
Beverley	12 hf cb	bro or pek	600	46
Bellongalla	10 cb	pek	950	22
	5 do	bro or pek fans	575	24
K P W	16 bf ch	or pek	720	32
	12 do	pek sou	600	21
	2 do	pek fans	150	25
	1 do	dust	90	22
Hatton	3 ch	dust	450	27
Freds Rhue	6 ch	pek sou	570	21
Udapolla	8 ch	bro pek	800	29
	5 do	or pek	450	31
	3 do	pek	240	20
	2 hf ch	dust	160	20
Preston	11 bf cb	or pek	484	60
	2 do	bro or pek fans	136	33
	3 do	unassorted	150	23
Clunes	11 ch	or pek	990	31
	3 do	bro pek fans	336	27
Hanwella	*2 hf ch*	*hyson No. 2*	*100*	*32*
	3 do	*hyson siftings*	*255*	*10*
Irehy	8 ch	pek sou	680	32
	5 hf ch	fans	350	30
	5 do	dust	425	27
K G	14 ch	pek sou	910	20
	2 do	sou	130	18
	6 do	fans	540	23
Marie Land	5 ch	pek sou	415	19
	1 do	dust	150	22
Hentleys	5 ch	pek sou	365	18
	4 hf ch	fans	268	25
	1 do	dust	73	16
Digdola	8 ch	bro pek	800	30 bid
	3 ch	pek sou	240	20
	2 do	bro pek fans	200	24
D	10 ch	sou	750	19
	8 do	fans	520	25
	4 do	pek fans	236	25
	5 do	dust	425	22
	1 do	bro mix	77	20
T C L	2 ch	pek fans	200	23
	4 do	dust	300	24
	1 do	pek dust	75	20
Memorakande	5 ch	fans	400	25
	2 do	dust	200	20
Poengalla	5 ch	pek fans	500	30
	3 do	dust	270	26
Uragalla	4 cb	pek sou	340	19 bid
	1 do	dust	88	16
L, in estate mark	8 ch	bro pek	800	26
Ugieside	4 ch	dust	320	20
Rickarton (Venesta packages)	6 ch	bro pek	660	32
North Cove	3 ch	pek sou	285	35
	6 bf ch	dust	480	27
	3 do	fans	225	28
	3 do	bro mix	300	18
St. Vigeans	8 ch	pek sou	800	35
Ismalle	4 cb	bro pek fans	440	24
New Peradeniya	8 bf ch	dust	640	26

	Pkgs.	Name.	lb.	c.
O B E C, in est. mark Wattawalla	5 ch	pek sou	475	19
	7 hf ch	bro pek fans	525	26
	7 do	dust	595	24
Passara Group	10 ch	pek sou	900	26 bid
Udaveria	10 hf ch	pek	850	43
	3 do	bro or pek fans	350	33
	3 do	fans	240	28
Castlereagh	12 ch	pek	960	32
B D W P, Invoice No 14,	2 hf ch	pek fans No 1	130	14
	8 ch	bro pek fans	840	25
	8 hf ch	dust	760	23

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Bamhragalla	6 hf ch	bro or pek	360	40
	7 do	or pek	350	32
	7 do	pek	350	26
	5 do	pek sou	230	22
G Ceylon, in est mark	9 ch	hro or pek	900	35 bid
	2 do	pek	160	24
	1 do	pek	81	24
Kandaloya	6 hf ch	bro pek	640	24
	6 do	pek	240	20
	7 do	bro tea	280	18
M P S	9 ch			
	1 hf ch	pek	860	out
Oonoogaloya	13 do	bro or pek No. 2	910	31
Winwood	8 ch	sou	720	20
	10 hf ch	dust	900	26
	5 do	or pek No. 2	250	29
Perth	9 ch	pek	675	25
	7 do	pek sou	490	22
	1 do	sou	71	17
	4 do	fans	520	24
St. Clair	9 do	pek sou	774	28
	8 do	pek dust	680	26
Alplakande	8 do	sou	688	13
Ratwatte	3 do	pek sou	240	18
	3 do	dust	240	24
W H	12 do	pek sou	672	25 bid
	4 do	dust	356	26
	1 do	unas	50	13
Gangawatte	4 hf ch	dust	340	26
	6 do	fans	390	28
G B	4 do	dust	360	22
	9 do	fans	675	26
	3 ch	hro mix	255	11
Kehelwatte	1 do	fans	110	28
	4 hf ch	dust	340	26
Rookwood	7 do	bro pek	490	30 hid
	3 do	pek dust	264	27
Elemane	3 ch	fans	300	30
Glentilt	12 hf ch	fans	960	28 hid
Kosgalla	15 do	hro pek	825	27
	8 do	pek	400	18
	5 do	pek sou	225	16
	1 do	hro pek fans	70	17
Gingranoya	3 ch	dust	390	25
Indsay	6 do	fans	690	27
Sangamatta	5 do	hro pek	500	27
A F	2 do	bro pek	200	32
	3 do	pek	270	20
	4 do	pek sou	360	18
	2 hf ch	unas	120	15
Warleigh	18 do	bro or pek	990	63 hid
	9 do	fans	567	28
	2 do	dust	170	26
Holhrook	12 do	bro or pek	720	59 bid
Y	4 ch	red leaf	360	12
Bavaria	5 do	pek	497	20
M R	10 hf ch	dust	900	25
M L W	7 ch	pek	560	25
	4 do	pek sou	300	18
	4 hf ch	dust	340	20
Dickapitiya	12 do	dust	900	25
Captains Garden	13 do	hro pek	647	28
Kolapatna	17 do	bro or pek	952	55 hid
	15 do	bro pek	945	37 hid
	19 do	or pek	950	38
M L K	3 bags	fluff	222	29
Waragalande	3 ch	dust	300	24
Agra Ouvah	10 do	pek	950	43
Ben Nevis	11 hf ch	hro or pek	627	61 hid
	6 do	dust	540	26
Midlothian	4 do	fans	320	26
Callander	15 do	bro or pek No. 1	930	46 hid
	13 do	bro or pek	754	51 hid
	17 do	pek	901	38
	7 do	pek sou	336	32
	11 do	bro pek fans	880	28
Wattagalla	12 do	or pek	600	39
	10 do	dust	900	25
Morton	9 ch	pek sou	675	19
	2 hf ch	dust	160	20

	Pkgs.	Name.	lb.	c.
Lameliere	5 ch	or pek	450	37
	6 do	pek	528	33
	7 do	pek No. 2	683	28
	3 hf ch	bro pek fans	210	27
Castle Hill	7 ch	dust	700	24
Lamiliere	5 do	or pek	450	37
	6 do	pek	528	33
	7 do	pek No. 2	686	28
	3 hf ch	bro pek fans	210	27
Annamallai	1 do	dust	85	13
Peru	2 ch	bro pek fans	250	26
	1 hf ch	dust	80	23
M	7 ch	pek sou	630	18
	4 do	dust	525	22
Taunton	10 do	pek	850	36
	4 do	pek sou	320	31
	1 hf ch	fans	65	26
	1 do	dust	100	15
O F E	6 ch	bro pek	600	30
	4 do	or pek	400	26
	4 do	pek	400	21
	3 do	pek sou	300	17
	1 do	hro pek fans	105	19
The Farm	3 hf ch	fans	210	26
	4 do	dust	320	23
Eladuwa	8 ch	pek	757	21
Oakfield	*5 hf ch*	*twanky*	*370*	*11*
Kiriwana	*3 ch*	*siftings*	*225*	*11*
	1 do	*dust*	*90*	*11*
L H O	7 hf ch	dust	560	22
Gonavy	7 ch	pek sou	644	26
W R P	2 do	or pek	154	21
	1 hf ch	pek sou	61	16
Cocoawatte	6 ch	fans	600	26
Cabin Ella	1 hf ch	pek fans	70	27
	1 do	pek dust	90	25
Shawlands	3 hf ch	fans	300	24
	2 do	dust	200	19
K T C	150 hoxes	pek	750	34 hid
Y	9 hf ch	pek sou	697	13
	3 ch	red leaf	285	10
S	1 do	dust	112	10
Hiralouvah	1 hf ch	fans	68	25
Harrisland	14 do	hro or pek	770	34 hid
	9 do	or pek	432	34
	10 ch	pek	800	24
	5 do	pek sou	385	19
	3 hf ch	fans	225	25
	1 do	dust	97	19
Myraganga	3 ch	pek fans	288	26
West Haputale	4 hf ch	bro pek	248	37
	4 do	pek	224	27 hid
	2 do	unas	94	15
Glassaugh	9 do	dust	837	28
Merrow	3 ch	pek sou	288	13 hid
	2 do	fans	200	23
Bowella	6 do	pek sou	480	13
Galloola	6 do	dust	60[illegible]	26
	3 do	fans	300	27

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
G in est mark	1 ch	bro pek	77	20 hid
	2 do	pek	170	18
	3 do	pek sou	240	16
	1 do	pek fans	120	14
M Kell	ch	bro or pek	275	33 hid
	do	br pekoe	300	28 hid
	3 do	pek	264	22 bid
	1 do	pek sou	87	18
	3 do	hro mixed	285	11
S K	8 ch			
	1 hf ch	hro pekoe	816	26 hid
	7 ch	hro mixed	620	11
	6 do			
	1 hf ch	red leaf	565	10
Rock Cave	4 ch	dust	560	22
Ovitta	11 ch	pek	913	25
	9 do	pek sou	720	22
	1 hf ch	dust	84	22
Aighurth	3 hf ch	dust	270	22
	8 do	hro pek fans	560	25
Brecon	15 hf ch	pek	750	34
Gampai	3 hf ch	dust	189	24
Taprohana	2 hf ch	dust	160	24
	4 do	or pek fans	240	25
Nawanagalla	16 hf ch	hro pek	880	33 hid
	4 ch	pek	300	24 hid
Alpha	1 hf ch	fans	75	23
	1 do	dust	95	16
Hyde	5 hf ch	pek sou	465	26
	9 do	fans	612	27
	4 do	dust	326	24
Galgedioya	3 hf ch	dust	240	20
	3 ch	fans	300	22
Woodend	12 ch	pek sou	960	18 hid
	3 do	bro pek fans	312	24
	2 do	dust	280	23
B'Talawa	9 ch	pekoe	810	26 hid

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Meddegodda	7	hf ch	bro pekoe fans	385	27
	9	do	pek sou	495	19 hid
	6	do	dust	450	23
	1	do	sou	55	16
Galata	10	ch	bro pek fans	750	27
Lonach	12	ch	pek sou	960	22
New Angamana	5	boxes	golden tips	10	out
	6	ch	pek fans	750	26
	3	do	dust	420	24
Kallebokka	10	ch	or pek	800	34 hid
	1	do	pek sou	110	24
	2	do	fans	220	26
Hatdowa	8	ch	pek	800	24
	7	do	pek sou	665	22
	4	do	fans	400	25
	3	hf ch	dust	240	25
Monrovia	5	ch	pek sou	425	19
	5	do	fans	450	18
Elchico	10	ch	or pek	950	28
	6	do	pek sou	540	22
D B G	2	ch	bro tea	200	12
	4	hf ch	dust	320	20
	5	ch	fans	500	18
G B	14	hf ch	dust	700	25
H R W	*2*	*hf ch*	*young hyson fans*	*140*	*10*
	2	*do*	*siftings*	*180*	*9*
Arcady	5	hf ch	bro pek	250	30
	7	do	pek	350	22
	2	do	pek sou	100	17
	1	do	dust	50	17
Lahaduwa	8	ch	bro pek	800	27 bid
	6	do	pek	600	22
	4	do	unast	400	14
Salawa	9	ch	unast	945	18
	3	do	pek fans	375	25
	1	do	pek dust	167	21
Sadamulla	8	ch	bro pek	800	27
	4	do	pek sou	400	17
	2	do	red leaf	180	15
	1	do	dust	115	14
	2	do	unast	185	12
Pindenioya	5	ch	dust	700	17
Eilandhu	2	ch	broken tea	150	14
	2	do	dust	250	23
	3	do	bro mix	225	14
Ingeriya	11	ch	pek sou	990	22
Warakamure	1	hf ch	fans	70	27
	1	do	dust	90	23
C W M	5	ch	pek sou	400	28
	4	hf ch	pek fans	300	28
Blinkhonnie	5	ch	pek sou	430	31
Dryburgh	16	hf ch	bro or pek	944	38
	6	ch	pek sou	486	22
	5	hf ch	fans	390	26
Hobart	18	hf ch	or pek fans	990	26
Ossington	9	ch	bro pek	900	28
	4	do	dust	520	18
Ahergeldie	10	ch	pek sou	850	26 hid
A	4	hf ch	dust	320	27
	2	do	souchong	100	16
S	5	hf ch	dust	400	27
	3	do	souchong	150	17
Ferriby	5	ch	sou	400	19
Nikawella	7	ch	bro pek	700	31
	7	do	pek	630	25
	4	do	pek sou	360	20
	1	hf ch	dust	80	18
Bodawa	9	ch	pek	810	26
	9	do	pek sou	765	20
	1	hf ch	bro mixed	54	10
	2	do	bro pek fans	160	25
M	8	ch	bro pek	896	36 hid
	1	do	or pek	80	34
	6	do	pek	570	23
	1	do	pek sou	92	22
	1	bf ch	bro pek fans	84	27
Avisawella	10	ch	pek sou	800	23
	3	do	souchong	240	17
Bollagalla	7	ch	pek sou	595	22
	7	hf ch	fans	490	23
Kelani	13	do	pek	660	24 hid
	6	ch	pek fans	480	25
Glenamore	9	ch	pek sou	765	25 bid
	6	hf ch	dust	480	26
Park Hill	9	ch	or pek	729	34
	12	do	pek sou	960	22
	4	do	souchong	280	19
	3	bf ch	dust	210	23
Kurulugalla	6	ch	or pek	540	28
	5	do	pek sou	450	20
	1	do	or pek fans	104	24
	2	do	or pek dust	270	21
Mukloway	6	hf ch	bro pek	300	32
	8	do	pek	360	20 hid
	10	do	pek sou	460	17 bid
	3	do	fans	186	18

	Pkgs.		Name.	lb.	c.
Kurunegalle	12	hf ch	bro or pek	720	31 hid
	18	do	or pek	900	32
	10	ch	pek	850	27
	5	do	pek sou	400	21
	1	do	congou	85	16
	4	hf ch	dust	340	26
Mowbray	5	ch	pek sou	400	22
Handrokande	3	ch	broken pekoe	330	21 bid
Murraythwaite	10	ch	pekoe	800	25
Ankande	4	hf ch	dust	320	22
Jak Tree Hill	10	ch	pekoe	900	27
	6	do	pekoe No. 2	540	24
	1	do	fans	100	23
	2	do	dust	200	21
Glenalmond	4	hf ch	bro or pek	240	40 hid
	4	do	broken pekoe	240	26 hid
	9	do	or pek	450	34
	9	do			
	1	hf ch	pek	860	28
	2	ch	pek sou	180	22
	1	do	fans	100	23
	2	hf ch	dust	160	23
Old Maddegama	4	ch	pek sou	340	28
	3	do	bro or pek fans	300	27
	1	do	dust	100	26
Polgahakande	3	ch	bro pek fans	378	23
Farnham	9	ch	pek sou	765	22
Monrovia	7	ch	pek	630	22 bid
	2	do	pek sou	170	17 hid
	4	do	fans	360	21
Paragahakande	5	ch	bro pk	500	out
	6	do	pekoe	570	out
	3	do	pek sou	270	out
	2	do	fans	200	12
	2	do	congou	162	10
	4	do	unast	370	12
Labugama	12	hf ch	bro or pek	660	32 bid
	8	ch	pek sou	640	19
M	5	ch	souchong	425	17
	4	do	bro pek fans	480	23
	3	do	dust	480	22
Hapngasmulle	6	ch	bro pek	660	30 bid
	10	do	pekoe	960	22
	7	do	unast	672	19
	1	do	dust	150	15
M P	*2*	*ch*	*hyson No 2*	*190*	*12*
Nutbourne	1	hf ch	pekoe souchong	51	out
Cooroondoowatte	2	ch	congou	200	14 bid
Blackheath	10	ch	pek	900	25 hid
	3	do	sou	225	18 bid
Rayigam	*10*	*ch*	*hyson No. 2*	*900*	*32*
Annandale	8	hf ch	fans	540	28
	8	do	dust	680	27
F A in est mark	1	ch	dust	130	24
Tongal Totam	*8*	*ch*	*young hyson*	*800*	*withd'n*
	6	*do*	*hyson*		
	3	*do*	*hyson N*		
G T	3	ch	bro mixed	261	out
	3	hf ch	dust	251	22
	6	do	fans	468	26
F in est mark	2	ch	pek sou	[illegible]	28
	5	hf ch	dust	375	27
Kurunegalla	3	hf ch	dust	[illegible]	[illegible]
Weygalle	7	ch	pek sou	700	21
N S C in est mark	2	ch	pek sou	180	18
	3	hf ch	dust	210	23
Richlands	1	hf ch	fans	70	25
	1	do	dust	80	25
Citrus	10	ch	bro pek	945	32
	3	do	br pek fans	288	22
Laxapanagalla	7	ch	or pek	665	25 hid
	1	do	pek	90	19 hid
	1	do	pek fans	100	25
	1	do	dust	100	23
H J W M	7	ch	pek	560	out
	4	do	bro pekoe	340	out
	2	do	bro pek	160	out
	1	do	fans	85	out
Scarborough	9	hf ch	bro pek	540	40
	4	do	dust	340	25
	6	do	fans	420	28
Rambodde	2	bf ch	sou	100	17
	3	do	dust	240	23
Yarrow	6	hf ch	pekoe souchong	360	22
	10	do	bro or pk fans	640	26
	2	do	pek dust	172	26
Selvawatte	7	ch	pek	595	22
	1	hf ch	fans	80	21 hid
Dartry	2	ch	pekoe souchong	172	20
	3	hf ch	dust	285	21
D T		*h*	*hyson fans*	*224*	*10*
Cooroondoowatte	6	ch	pekoe souchong	600	19
	6	do	pek fans	485	25

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, 5th September.

"Yorkshire."—Poonagalla A, 2 tierces sold at 116s 6d; ditto B, 3 casks sold at 109; ditto C, 1 barrel sold at 57s; ditto PB, 1 at 93s; ditto T, 1 at 48s.

"Clan Fraser."—R in estate mark Amherst O, 1 tierce sold at 51s; ditto P, 1 barrel sold at 41s; ditto T, 1 at 41s.

CEYLON COCOA SALES IN LONDON.

"Stentor."—Alloovihare Ceylon Cocoa A, 20 bags sold at 57s; ditto B, 14 at 56s 6d; ditto C, 2 at 57s 6d; 1 at 60s; 1 at 31s; ditto D, 3 at 40s 6d; Strathisla Ceylon Cocoa B, 5 bags sold at 60s; ditto D. 7 at 52s; ditto B, 5 at 50s 6d; Polwatta B, 3 bags sold at 52s; ditto C, 2 at 52s; ditto D, 4 at 45s; Wiharagama 1, 2 bags sold at 52s; ditto T, 15 at 53s; A Beredewelle COC Ex. No. 1, 20 bags sold at 69s; 25 at 68s 6d; A ditto B, 4 at 21s 6d; A ditto T, 5 at 51s; B ditto Ex. No. 1, 35 at 77s; B ditto T, 3 at 50s.

"Teenkai."—A Elmhurst, 19 bags sold at 64s; B ditto, 5 at 20s 6d; Hylton 1, 29 bags sold at 76s; ditto Broken. 6 at 62s; ditto I O, 3 at 57s 6d; ditto II I, 3 at 50s; ditto 1 D, 6 at 59s; ditto 2 D, 16 at 55s 6d; ditto Broken D, 11 at 46s; ditto III D, 1 at 46s.

"Alcinous."—Udapolla A, 37 bags sold at 57s 6d; ditto B, 10 at 55s; ditto G, 8 at 39s.

"Clan Fraser."—Katugastota, 19 bags sold at 67s; 3 at 56s; 18 at 62s; A Ukuwella, 22 bags sold at 64s.

"Teenkai."—F 1 Yattawatte F, 3 bags sold at 50s; B 1 ditto, 30 at 51s; F Broken, 1 at 47s; Ross No. 1, 33 bags sold at 74s; 19 at 66s; ditto D No. 1, 7 at 62s; 7 at 62s; 4 at 55s; ditto D No. 2, 2 at 49s; ditto Broken, 1 at 41s; ditto D Broken, 11 at 17s 6d; Dangan Estate No. 2, 8 bags sold at 52s; ditto Broken, 2 at 18s.

"Yorkshire."—Dynevor A, 7 bags sold at 62s; B, 12 at 57s; C, 6 at 51s; D, 1 at 15s; Middlemarch Forestero No. 1, 4 bags sold at 59s 6d; 4 at 58s; ditto No. 2, 2 at 51s; ditto Caraccas No. 1, 1 bag sold at 60s, ditto No. 2, 2 at 54s; ditto Blaok, 1 at 17s.

"Kanagawa Maru."—Middlemarch Forestero No. 1, 29 bags sold at 64s 6d; ditto No. 2, 3 at 53s 6d; ditto Caraccas No. 1, 2 bags sold at 58s; ditto Caraocas, 3 bags sold at 58s; ditto Black, 4 at 20s.

"Stentor."—Kotua No. 1, 13 bags sold at 57s; ditto No. 2, 4 at 29s.

"Clan Fraser."—A Grove, 29 bags sold at 65s 6d; O B SKK in estate mark Estate Cocoa, 20 bags sold at 30s.

"Stentor."—S MAK in estate mark, 2 bags sold at 53s 6d; 8 at 45s.

"Moyune."—O KMA in estate mark Estate Cocoa, 17 bags sold at 55s 6d; 2 at 50s; Lancefield Estate Cocoa, 25 bags sold at 56s 6d; 2 at 50s; Ketgalla Estate Cocoa, 7 bags sold at 56s 6d.

CEYLON CARDAMOMS SALES IN LONDON.

"Clan Macintosh."—CCC in estate mark, 8 cases sold at 2s 10d; 1 at 2 11d; 11 at 2s 10d; CT in estate mark, 8 cases sold at 2s 9d; 2 at 2s 10d; MMM in estate mark, 12 cases sold at 2s 9d; MG in estate mark, 1 case sold at 2s 8d; 2 at 2s 9d; 3 at 2s 10d.

"Massilia."—CM in estate mark, 2 cases sold at 1s 8d.

"Sado Maru."—Delpotonoya, 1 case sold at 2s; 1 at 1s 11d; 4 at 1s 6d; 5 at 1s 2d; 3 at 1s 3d; 3 at 1s 1d.

"Tactioian."—Wariagala, Mysore A, 2 cases sold at 1s 7d; ditto B, 3 at 1s 2d; ditto C, 1 at 1s; ditto D, 3 at 1s 1d.

"Clan Fraser."—Mausakauda O, 1 case sold at 2s 8d; ditto 1, 3 at 2 1d; ditto 3, 3 at 1s 2d; ditto Seed 2, 1 at 1s 6d; Altwood Ceylon Cardamoms, 5 at 1s 7d; 5 at 1s 1d.

"Kanagawa Maru."—Vedehette Cardamoms EX, 1 case sold at 2s 7d; ditto AA, 6 at 1s 9d; ditto B, 4 at 1s 2d; ditto D, 1 at 1s 1d; 1 Seed at 1s 6d; Pingarawa Cardamoms No. OO, 1 at 2s 6d.

"Yorkshire."—Pingarawa Cardamoms No. OO, 4 cases sold at 2s 6d; No. 1, 7 at 1s 7d; ditto Smalls, 1 at 1s 1d; Browns 1 at 1s 2d; Ratnatenna Cardamoms A, 2 at 1s; ditto B, 1 at 1s 1d.

"City of Anthens."—KOBO OO, 3 cases sold at 2s 9d; ditto O, 1 at 2s 2d; ditto 1, 20 at 1s 8d; ditto 2, 10 at 1s 8d.

"Somalia."—KOBO A 1, 2 cases sold at 1s 5d; ditto S 8, 1 at 1s 4d; ditto S 2, 1 at 1s 1d; ditto 3, 1 at 1s; ditto Brown, 1 at 1s 2d.

"Stentor."—Maragalla, 2 cases sold at 1s 3d; 4 at 1s 2d.

"Kanagawa Maru."—OBEC in estate mark, Naranghena AAA, 5 cases sold at 2s 1d; ditto AA, 5 at 1s 5d; ditto A, 3 at 1s 1d; ditto BB, 4 at 1s 1d.

"Yoeman."—OBEC in estate mark, AAA, 3 cases sold at 1s 8d.

"Inaba Maru."—Dromoland No. 1, 4 oases sold at 2s 8d; ditto No. 2, 3 at 1s 5d; ditto No. 3, 2 at 1s 2d; ditto Split, 1 at 1s 1d.

"Historian."—Midlands O, 2 cases sold at 1s 9d; ditto 1, 4 at 1s 4d; ditto 1, 1 at 1s 3d; ditto 2, 2 at 1s 1d.

"Stentor."—Elkaduwa O, 2 cases sold at 1s 8d; ditto 1, 2 at 1s 3d; ditto 1, 2 at 1s 2d; ditto 1, 1 at 1s; ditto 2, 1 at 1s; NM, 1 at 1s 2d.

"Hyson."—Upper Haloya No. 1, 4 cases sold at 1s 1d; ditto No. 1, 2 at 1s.

"Clan Fraser."—Forest Hill O, 1 case sold at 1s 8d; ditto 1, 1 at 1s 11d; ditto 2, 3 at 1s 8d; ditto 3, 4 at 1s 2d; ditto 4, 1 at 1s; ditto Seed 1, 3 at 1s 6d; Winchfield Park AA 2, 2 at 2s 4d; ditto A, 2 at 1s 11d; ditto A 1, 1 at 1s 11d; ditto A 2, 3 at 1s 7d; ditto A, Splits, 1 at 1s 7d; ditto 1 at 1s 3d; ditto B, 1 at 1s 2d; ditto 1, 1 at 1s 1d; Seeds, 2 at 1s 6d.

"Kanagawa Maru."—Narangalla 1, 3 cases sold at 2s 1d; ditto 2, 6 at 1s 6d; ditto 3, 9 at 1s 7d; ditto 5, 3 at 1s.

"Clan Fraser."—Dehigolla A 1, 6 half-cases sold at 2s 8d; ditto 1, 15 at 1s 11d; ditto 1, 12 at 2s; ditto 2, 8 at 1s 3d; ditto A 1, B & S, 3 at 1s 3d; ditto 1, 6 at 1s 5d; ditto 1, 4 at 1s 6d; Seeds, 1 at 1s 6d; ditto A1, 7 at 2s 4d; Dehigolla 1, 25 at 1s 11d; 3 at 2s; ditto 2, 6 at 1s 3d; A1 B & S, 1 at 1s 5d; ditto 1, 6 at 1s 3d; ditto 2, 1 at 1s; Waitalawa 2, 9 half cases sold at 1s 1d; ditto 2, 17 at 1s 2d; ditto 3, 6 at 1s 6d; ditto 4, 8 at 1s 1d; ditto A 1, 6 at 1s 11d; ditto 1, 11 at 1s 4d; ditto 2, 17 at 1s 2d; ditto 3, 5 at 1s 5d; ditto 4, 6 at 1s; ditto 1, Seeds, 2 at 1s 7d; ditto A 1, 5 at 1s 2d; ditto 2, 6 at 1s 1d; ditto 3, 21 at 1s 1d.

"Statesman."—Waitalawa A 1, 16 half oases sold at 1s 10d.

"Domo."—AL A Mysore, 17 half cases sold at 1s 2d; ditto B, 3 at 1s 1d.

CEYLON COCOA SALES IN LONDON.

Mincing Lane, 5th September.

"Alcinous."—Ankanda No. 1, 31 bags sold at 60s; ditto No. 2, 2 at 38s 6d; ditto No. 3, 3 at 25s 6d.

"Wakasa Maru."—Benveula No. 1, 13 bags sold at 60s; 2 at 47s 6d.

"Clan Fraser."—Benveula No. 1, 11 bags sold at 60s.

"Tamba Maru."—Pansalatenne 1, 6 bags sold at 46s 6d; ditto 2, 1 at 31s.

"Alcinous."—Warriapolla, 8 bags sold at 56s 6d; 18 at 49s; 16 at 44s 6d; Sudugsnga, 39 bags sold at 80s; 30 at 70s; 8 at 55s 6d; 10 at 53s 6d; 11 at 28s.

"Dalmatia."—North Matale Ceylon Cocoa A, 7 bags sold at 65s 6d; ditto B, 13 at 57s; ditto B, 1 at 47s.

"Teeukai."—Rockhill AA, 64 bags sold at 67s 6d; ditto B, 5 at 35s; Dangan Estate, 1 bag sold at 64s.

"Tactician."—A Glenalpin, 6 bags sold at 51s 6d; 5 at 57s 6d; 2 at 51s 6d.

"Aloinous."—Beredewella COC Ex. No. 1, 2 bags sold at 43s; ditto B, 4 at 26s 6d.

"Sado Maru."—OEC in estate mark Mahaberia Ceylon O, 20 bags sold at 82s 6d; 61 at 83s 6d; ditto 1, 19 at 64s; OBEC in estate mark Kondesalle Ceylon O, 41 bags sold at 54s; ditto 1, 11 at 23s.

CEYLON CARDAMONS SALES IN LONDON.

"Antenor."—TAJ in estate mark Ekelle Plantation 21 bales sold at 10d; 6 at 9½d.

"Clan MacNab."—MM in estate mark, 15 bags sold at 1s.

"Clan Robertson."—C H de S Kandevalle, 5 bales sold at 11d; 6 at 9½d; 3 at 8d; C H de S Salawa, 5 bales sold at 11d; 5 at 9½d; 1 at 8d; C H de S Bagatelle, 2 bales sold at 11d; 4 at 10d; 2 at 9d; C H de S Kaderane, 3 bales sold at 9½d; 1 at 9d: 1 at 8d; C H de S Hirripittiya, 1 bale sold at 9½d.

"Agamemnon."—C H de S Morrotto, 2 bales sold at 11d; 13 at 10d; 12 at 9½d; 2 at 9d; 5 at 8d; C H de S, DW K in estate mark, 1 bale sold at 9½d; C H de S Ratmalane, 4 bales sold at 11d; 12 at 10d; 7 at 9½d; 3 at 9d; 3 at 8d; C H de S Rustoom, 3 bales sold at 11d; 6 at 10d; 5 at 9½d; 6 at 9d; 1 at 8d; C H de S Koottanavalle, 4 bales sold at 11d; 7 at 10d; 5 at 9½d; C H de S BO K in estate mark, 1 bale sold at 11d; 2 at 9½d; 2 at 9d; C H de S, DW K in estate mark, 1 bale sold at 9d; 1 at 8d; F in estate mark, Ekelle Plantation, 12 bales sold at 11d; 1 at 9d; 1 at 8½d; 1 at 7½d; F in estate mark, 78 bales sold at 2½d.

"Moyune."—G R SA in estate mark, 2 bales sold at 11d; 16 at 9d; 6 at 8d; 8 at 7½d; 6 at 8½d; 2 at 8d; 2 at 7d.

"Antenor."—C H de S Kaderane, 3 bales sold at 11d; 6 at 10d; 3 at 9½d; 1 at 8d; C H de S Kuruwitte, 1 bale sold at 10½d; 5 at 9½d; 2 at 7½d; C H de S Salawa, 4 bales sold at 9½d; C H de S BK O in estate mark, 1 bale sold at 7½d; 2 at 9½d; 1 at 9d.

No. 39. COLOMBO, OCTOBER 6th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[25,650 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	20 ch	or pek	2000	38 bid
	18 do	pek	1530	35
Hornsey	26 hf ch	bro pek	1430	50
	13 ch	pek	1040	38
	20 hf ch	dust	1600	37
Battalgalla	20 ch	or pek	1997	37 bid
Mapitigama	13 do	bro or pek	1297	33 bid
	22 do	bro pek	2527	27 bid
	35 do	or pek	2147	out
Chouleigh	17 ch	bro pek	1697	29 bid
Bunyan and Ovoca	32 hf ch	bro or pek	1920	59 bid
	33 do	or pek	1650	44
	13 ch	pek	1235	34 bid
	12 do	pek No 2	1140	41 bid
	16 do	pek sou	1440	35 bid

Messrs. Forbes & Walker.

[567,734 lb.]

	Pkgs.	Name.	lb.	c.
Beverley	16 hf ch	dust	1280	25
Dunbar	21 do	bro or pek	1071	63
	12 ch	or pek	1008	43
	19 do	pek	1653	35
	11 do	bro pek	4034	42
	15 do	bro pek fans	1470	34
Galleheria	22 ch	pek	1870	33
Ritnageria	35 do	bro pek	2100	45
	20 do	pek	1140	36
Gleneorse	10 ch	bro pek	1000	38
	14 do	pek	1050	31
	20 do	pek sou	1500	22
Choisy	43 hf ch	bro or pek	2365	44
	18 ch	or pek	1530	35
	37 do	pek	3330	28
Chrystler's Farm	25 do	bro pek	1425	41
	23 do	pek	2185	36
G, in estate mark	23 ch	pek sou	2070	19 bid
O B E C, in est. mark Darrawella	46 hf ch	bro or pek	2530	50 bid
	32 ch	bro pek	3232	36
	15 do	or pek	1275	40
	51 do	pek	4423	31
Shrubs Hill	32 ch	bro pek	3124	38
	20 do	pek	2000	30
	10 do	or pek	1000	33
Mansfield	55 hf ch	bro pek	3300	64
	15 do	pek	1500	50
Holton	21 do	bro pek	1155	41
Moray	41 hf ch	or pek	1930	40
	59 do	bro or pek	3245	49
	47 ch	pek	4089	31
	14 do	pek No 2	1190	25
Maha Eliya	19 hf ch	bro or pek	1102	59 bid
	26 do	bro pek	1560	40 bid
	26 ch	pek	2340	35 bid
	15 hf ch	pek fans	1200	29
Adisham	31 do	bro or pek	1570	57 bid
	16 ch	bro pek	1600	39
	14 do	pek	1330	38
Erlsmere	20 hf ch	bro or pek	1040	58
	18 ch	bro pek	1728	39
	14 do	pek	1260	34 bid
Sylvakandy	16 ch	bro or pek No 1	1600	43
	23 do	bro or pek No 2	2300	37
	15 do	bro pek	1500	34 bid
	12 do	or pek	1110	37
	24 do	pek	2280	31
Glengariff	50 ch	bro or pek	3000	39
	14 do	pek	1258	31
	20 do	or pek	1700	36
	13 hf ch	dust	1040	24
Roeberry O	22 ch	bro or pek	2200	61
	40 do	bro pek	4000	42 bid
	45 do	pek	4140	45
	18 do	pek sou	1620	38
Eastland	60 hf ch	or pek	2400	31 bid
Valana	18 ch	bro pek	1620	31 bid
	14 do	pek	1120	28
Udabage	*46 hf ch*	*young hyson*	*2300*	*35 bid*
	40 do	*hyson No. 1 B*	*2000*	*34 bid*
Ingrogalla	16 ch	bro pek	1600	35
	13 do	pek	1170	30
Tempo	10 ch	bro pek	1000	37
	12 do	or pek	1080	33
	12 do	pek	1000	23
Nugagalla	42 hf ch	pek	2100	29
Waitalawa	85 do	bro pek	4250	43 bid
	107 do	pek	5350	29 bid
	20 do	pek sou	1000	24 bid
O B E C, in est. mark Sindumally	10 ch	bro or pek	1050	40
	27 do	bro pek	2565	33 bid
	24 do	pek	2040	30
	29 do	pek sou	2030	24
Great Valley, Ceylon in est. mark	22 ch	pek	1980	34
Kirimettia	*22 ch*	*young hyson*	*1980*	*36*
	38 do	*hyson No. 1*	*3420*	*34 bid*
	24 do	*hyson No. 2*	*2040*	*33*
Yelverton	13 ch	bro pek	1352	35 bid
	18 do	pek	1512	32
Dickhena	17 ch	or pek fans	1564	23
N	9 ch	pek fans	1170	out
Mousa Eliya	18 ch	bro pek	1800	36
	17 do	pek	1615	28
Strathisla	15 ch	bro or pek	1500	35
	13 do	or pek	1040	34
	15 do	pek	1350	29
	14 do	pek sou	1120	21
Vogan	22 ch	bro or pek	2200	49
	34 do	or pek	3060	34
	35 do	pek	3150	27
	20 do	pek sou	1700	21
Stamford Hill	17 hf ch	bro or pek	1020	62
	26 do	bro pek	1690	44
	30 do	or pek	1500	47
	28 ch	pek	2520	38
Robgill	20 hf ch	bro or pek	1000	59 bid
	30 ch	bro pek	2700	42
	26 do	pek	2080	37 bid
Maldeniya	26 ch	bro or pek	2600	37
	24 do	or pek	2400	30 bid
	23 do	pek	2310	28
Marlborough	27 hf ch	bro or pek	1404	56
	19 ch	or pek	1672	36 bid
	25 do	bro pek	2500	35
	22 do	pek	1760	32
Forres	31 hf ch	bro pek	1891	42
	23 ch	or pek	2072	41
	34 do	pek	3132	35 bid
	19 do	fans	1405	28
Torwood	15 ch	bro or pek	1350	33
	22 do	bro pek	1870	24 bid
	40 do	pek	3200	24 bid
Errollwood	30 hf ch	bro or pek	1800	48 bid
	13 ch	pek	1235	32 bid
Nahalma, Invoice No. 20	15 ch	or pek	1500	34
	15 do	pek	1470	26
Gonapitiya, Invoice No. 23	29 hf ch	or pek	1989	61
	22 do	bro pek	1328	58
	50 do	pek	2500	47
	24 do	pek sou	1176	44
W V R A, Invoice No. 10	26 hf ch	bro or pek	1300	45 bid
Kitulgalla, Invoice No 15	21 do	bro or pek	1218	31
	12 ch	or pek	1020	32
Wella, Inv. No 9	32 hf ch	or pek	1600	32
	67 do	bro pek	3350	36 bid
	27 do	pek	1350	28
Middleton, Invoice No. 34	21 hf ch	bro or pek	1155	48 bid
	20 ch	bro pek	2000	31 bid
	22 do	or pek	1980	34
	13 do	pek	1105	31
Dickhena	23 ch	bro or pek	2461	29 bid
	24 do	or pek	2280	28
	49 do	pek	3920	23
	19 do	pek sou	1520	19
Battawatte	36 ch	bro pek	3960	32 bid
	30 do	pek	2850	36
	13 do	pek sou	1170	29
High Forest	46 hf ch	or pek No 1	2346	60
	33 do	bro pek	1914	50 bid
	44 do	or pek	2200	52
	36 do	pek	1656	42 bid
Pallagodde	24 ch	bro or pek	2400	29
	35 ch	bro pek	3500	33
	26 do	pek	2210	23
	22 do	pek	1760	24
	21 do	pek sou	1785	21

	Pkgs.	Name.	lb.	c.
Ganapalla	29 ch	bro or pek	2663	30
	22 do	or pek	1826	34
	64 do	pek	4800	26
	10 do	bro pek fans	1100	25
Killarney	19 hf ch	bro or pek	1102	67
	24 do	bro pek	1440	50
	14 ch	or pek	1190	49
	17 do	pek	1445	43
O B E C, in est. mark Loolcondera	13 ch	pek fans	1755	28
	8 do	dust	1330	26
Kullivathanai	12 ch	bro pek	1260	22 bid
	17 do	pek	1581	17
H G M	34 hf ch	bro or pek	1870	36 bid
	24 ch	pek	2040	28
	20 hf ch	fans	1300	25 bid
	15 ch	pek sou	1125	21
Panmure	19 hf ch	bro or pek fan	1232	28 bid
	50 do	or pek	2497	35 bid
	25 ch	pek	2247	29 bid
Koskellie	18 hf ch	bro or pek	1080	45 bid
	30 ch	bro pek	3240	38 bid
	39 do	pek	3588	35 bid
	12 do	pek sou	1080	32
Madulkelle	13 ch	bro pek	1300	36
	15 do	sou	1125	27 bid
Templehurst	22 ch	bro pek	2200	59
Tonacombe	33 ch	or pek	3135	33 bid
	35 do	bro pek	3500	43 bid
	61 do	pek	5490	35 bid
	17 do	pek sou	1360	32
Glendon	11 ch	bro pek	1045	51
	26 do	or pek	2600	33
	24 do	pek	2160	28
Tunisgalla	20 hf ch	bro or pek	1097	60
Melston	34 hf ch	pek s u	1700	out
Preston	17 ch	bro or pek	1785	57
Myraganga	25 ch			
	1 box	pek sou	1900	22 bid
Tembiligalla	10 ch	bro or pk No 1	1000	34
	10 do	bro or pk No 2	1000	31
	13 do	or pek	1106	29
	11 do	pek	1012	26
Dromoland	32 hf ch	bro or pek	1693	45
Penrhos	35 hf ch	bro or pek	1925	53
	38 do	or pek	1748	37
	37 ch	pek	2960	31
	17 do	pek sou	1275	24
Talgaswela	14 ch	bro or pek	1400	39
	21 do	pek	1680	28
	16 do	pek sou	1200	23
	14 do	or pek	1120	33
Monkswood	17 hf ch	bro pek	1020	86
	39 do	or pek	1950	65
	32 ch	pek	3200	56
Anningkande	32 ch	bro pek	3200	32 bid
	13 do	pek	1235	27
Rcetenne	21 hf ch	pek	1050	36 bid
Marlborough	27 hf ch	bro or pek	1401	53 bid
	25 ch	bro pek	2497	35
M T P in est mark	11 ch	fans	1155	24
Monterry	13 ch	pek	1170	26
	12 do	pek sou	1080	21
	12 do	dust	1200	24
Dammeria	14 ch	bro or pek	1297	36
	15 do	pek	1347	withd'n
Ruanwella	15 ch	bro or pek	1575	34
	27 do	or pek	2430	28
	31 do	pek	2790	26
	12 do	pek sou	1080	22
Puspone	22 ch	bro pek No. 1	2310	36
	11 do	or pek	1045	29 bid
	15 do	bro pek No. 2	1650	36
	25 do	pek	2250	28
	27 do	pek sou	2295	22 bid
	10 do	bro pek No. 3	1000	36
Knavesmire	23 hf ch	bro or pek	1380	23 bid
	47 ch	bro pek	4700	27 bid
	42 do	pek	3360	22 bid
	27 do	pek sou	2025	18 bid
Forest Creek	27 ch	bro pek	2781	out
Parsloes	30 ch	bro pek	3000	34
	27 do	pek	2430	29
Bogahagodawatte	10 ch	bro pek	1000	31
Bandarapolla	38 hf ch	bro or pk No 1	2087	30 bid
	57 do	bro or pk No 2	2847	29 bid
Rickarton	12 ch	bro or pek	1200	58
	17 do	or pek	1700	36
	12 do	pek No. 1	1200	34
	12 do	pek	1200	31
Bandara Eliya	19 hf ch	bro or pk No 1	1042	50 bid
	38 do	bro or pk No 2	2277	42 bid
	50 do	pek	2397	34 bid
St. Heliers	14 ch	bro or pek	1372	37
	11 do	pek	1001	30
Amblakande	22 ch	pek	1900	28

	Pkgs.	Name.	lb.	c.
Queensland	20 hf ch	bro or pek	1000	66
	10 ch	bro pek	1000	46
	13 do	pek sou	1040	37
Mabawela	10 ch	bro pek	1100	39
	13 do	or pek	1300	32
	16 do	pek	1440	25 bid
	15 do	pek sou	1350	23
Pungetty	40 hf ch	bro pek	2560	46 bid
	17 ch	pek	1717	39 bid
Cloyne	32 hf ch	bro or pek	1984	36
	38 ch	or pek	3800	36 bid
	29 do	pek	2610	34 bid
	12 do	pek sou	1056	32
Attampettia	15 ch	bro pek	1725	63
	16 do	or pek	1600	60
	17 do	pek	1666	49
Dambagastalawe	16 ch	bro or pek	1680	66
	18 do	or pek	1836	40 bid
	15 do	pek	1380	35 bid
Madulkelle	12 ch	pek No 1	1080	28
Middleton	37 hf ch	bro or pek	2032	33 bid
	25 ch	bro pek	2497	35 bid
	17 do	bro pek	1697	35
	25 do	pek	2122	29 bid

Messrs. Keell and Waldock.

[65,952 lb.]

	Pkgs.	Name.	lb.	c.
Kitulkande	18 hf ch	bro pek	1000	28 bid
Meath	19 hf ch	bro or pek	1026	38 bid
	19 do	or pek	1026	36
	37 do	pek	1921	30
Aigburth	13 ch	or pek	1235	37
	20 hf ch	bro or pek	1100	48
	13 ch	pek	1144	30
Tillington	30 hf ch	bro pek	1500	36 bid
	19 ch	pek	1520	23 bid
Hangranoya	14 ch	bro or pek	1330	39 bid
	12 do	br pek	1140	28 bid
	13 do	sou	1040	20 bid
Pasmalie	15 ch	bro pek	1425	37
	23 do	pek	2070	28
	12 do	pek sou	1020	24
	22 hf ch	fans	1430	24
B in est mark	32 hf ch	bro pek fans	1792	18 bid
	15 do	dust	1275	13 bid
T in est mark	19 ch	br pek	2090	22
	16 do	pek	1600	18 bid
Gonagalella	20 ch	bro or pek	2000	withd'n
	25 do	pek	2250	
	19 do	pek sou	1710	
Panilkande	24 hf ch	flo. or pek	1260	58
	34 ch	bro or pek	3400	36
	30 do	pek	2700	33
Dunnottar	21 hf ch	bro pek	1155	42
	14 ch	pek	1190	33
M	13 hf ch	dust	1040	25
P in est mark	18 ch	pek	1710	21 bid
	14 do	pek sou	1260	17 bid
S C T C	16 ch	congou	1760	16 bid
Cholankande	20 hf ch	dust	1600	out
Battalawatte	20 ch	br or pek	1997	withd'n

Messrs. Somerville & Co.

[242,233 lb.]

	Pkgs.	Name.	lb.	c.
Walahanduwa	33 ch	bro or pek	3300	31 bid
	26 do	or pek	2210	29
	33 do	pek	2970	25 bid
Avisawella	22 hf ch	bro or pek	1100	43
	17 ch	or pek	1615	32
	19 do	pek	1710	27
	14 do	pek sou	1120	22
Maligatenne	15 ch	pek	1305	24
Theberton	16 ch	bro pek	1440	35
Warakamure	22 ch	bro or pek	2200	29 bid
	13 do	or pek	1105	30
	33 do	pek	2805	22 bid
Oolapane	23 ch	bro pek	2300	30
	23 do	or pek	2070	23
	13 do	pek	1170	24 bid
	21 hf ch	dust	1680	22
Highfields	19 hf ch	bro or pek	1045	47 bid
	20 do	or pek	1000	41 bid
	40 do	pek	2080	36 bid
Harrangalla	23 ch	bro or pek	2185	28 bid
	23 do	pek	1955	24 bid
Pindeni Oya	20 ch	or pek fans	1900	26
	15 do	pek sou	1275	20

	Pkgs.		Name.	lb.	c.
Ravenscraig	28	ch	bro pek	1568	30 bid
Marigold	30	hf ch	bro pek	1620	43
	17	do	br pk fans	1083	33
Pindeni Oya	24	ch	pek No. 1	1920	27
Ettie	11	ch	pek sou	1045	19 bid
	11	do	sou	1045	15 bid
Narangoda	27	ch	bro pek	2765	30
	17	do	pek	1530	23
N P in est mark	15	ch	bro pek	1500	27 bid
Paradise	18	ch	br pek	1890	30
P in est maak	10	ch	unast	1000	21
R K P	14	ch	or pek	1120	33
	15	do	bro or pek	1350	30 bid
	22	do	pek	1870	26
	13	do	pek sou	1040	22
I P	12	hf ch	dust	1056	25
Raglan	11	ch	br pek	1100	28
	16	do	pek	1520	20
Rayigam	*42*	*ch*	*young hyson*	*4200*	*36*
	30	*do*	*hyson*	*2700*	*35*
D M O G	19	hf ch	bro pek	1045	35
	20	do	or pek	1000	33
	14	do	pek	1120	30
	17	do	pek sou	1275	24
Southwark	41	ch	bro pek	4018	31
	12	do	pek	1020	29
Ccoroondoowatte	11	ch	bro pek	1045	36 bid
	12	do	pek	1200	27
New Angamana	36	ch	bro or pek	3600	33 bid
	19	do	or pek	1710	29 bid
	42	do	pek	3780	26 bid
	19	do	pek sou	1710	22
Kelani	13	ch	or pek	1040	32
	15	do	bro or pek	1350	30 bid
	21	do	pek	1785	24 bid
	13	do	pek sou	1040	23
Ferndale	11	ch	bro or pek	1001	40 bid
	18	do	pek	1620	31
Kallebokka	14	ch	bro or pek	1470	40 bid
	11	do	bro pek	1100	37
Whirgiama	50	hf ch	bro or pek	2300	30 bid
	25	do	bro pek	1250	25 bid
	27	do	pek	1215	21 bid
Mora Ella	18	hf ch	br pek	1062	37
	18	ch	pek	1620	30
	12	do	pek sou	1056	25
	23	hf ch	or pek	1012	37
Lenach	26	hf ch	bro or pek	1404	42 bid
Cooroondocwatte	26	ch	pek	1200	21 bid
Donside	28	hf ch	br or pek fans	1680	27
Havilland	20	ch	bro or pek	2000	32
	12	do	or pek	1020	32 bid
	31	do	pek	2635	26 bid
Gangwarily	55	ch	bro pek	5500	31 bid
	26	do	pek	2210	28
Glenalla	*17*	*ch*	*young hyson*	*1530*	*34 bid*
	26	*do*	*hyson No 1*	*2470*	*34*
Monrovia	10	ch	bro pek	1000	29
Cooroondocwatte	11	ch	bro pek	1045	36
Oonankande	20	hf ch	br pek	1000	38
	31	do	pek	1705	31
Mousakande	10	ch	bro or pek	1000	37
	13	do	bro pek	1166	33
	17	hf ch	fans	1156	25
Derelene	23	hf ch	bro pek	1380	31
	23	do	pek	1150	25 bid
	32	do	pek sou	1600	21
Laxapanagalla	16	ch	bro or pek	1600	36 bid
Rayigam	*31*	*ch*	*young hyson*	*2945*	*35 bid*
	20	*do*	*hyson*	*1800*	*34 bid*
Agra Tenne	16	ch	bro pek	1600	39 bid
	17	do	pek	1530	35
Jak Tree Hill	21	ch	bro pek	1890	33 bid
	12	do	pek	1080	26 bid
	13	do	pek No. 2	1170	24
Kurunegalle	12	hf ch	bro or pek	720	31
	24	do	bro or pek	1440	33
	21	do	or pek	1050	31
Ferriby	27	hf ch	bro pek	1350	34 bid
	32	ch	pek	2560	26
	24	do	pek sou	1800	20
Ravenscraig	22	hf ch	bro or pek	1232	36 bid
Neboda	17	ch	bro or pek	1700	40 bid
	17	do	or pek	1530	34
	24	do	pek	2100	29
Neuchatel	10	ch	bro or pek	1000	40 bid
	43	ch	or pek	4320	23 bid
	28	do	pek	2380	25 bid
	9	do	bro pek fans	1035	26
A	12	hf ch	dust	1137	10 bid

Messrs. E. John & Co.

[163,518 lb.]

	Pkgs.		Name.	lb.	c.
Pambagama	19	ch	bro pek fans	1900	23
	29	ch	pek sou fans	2900	15
	17	hf ch	dust	1360	15
Balado	14	ch	pek sou	1120	25
	14	hf ch	dust	1120	25
Pambagama	23	ch	pek sou	2185	16 bid
Stubton	30	ch	bro pek	3000	28
	12	do	pek	1200	20 bid
	10	do	pek sou	1000	18
Theresia	25	hf ch	bro or pek	1375	54 bid
	20	ch	pek	1700	28
	15	do	pek sou	1350	25
Ashburton	10	ch	bro or pek	1020	47
	17	do	bro pek	1785	34 bid
	17	do	pek	1530	29 bid
Glentilt	46	hf ch	bro or pek	2530	61
	25	ch	or pek	2250	43
	23	do	pek	2070	38
Bowella	10	ch	bro or pek	1000	29
Tismoda	25	hf ch	bro or pek	1250	34
	28	do	bro pek	1400	31
	18	ch	pek	1440	28
Devon	16	hf ch	bro or pek	1008	63
	15	ch	or pek	1560	42 bid
Natuwakele	38	ch	bro or pek	3800	36 bid
	38	do	bro pek	3120	30
	17	do	pek	1530	28
	19	do	pek sou	1710	22
Ohiya	20	ch	or pek	1957	44 bid
	29	hf ch	bro pek	1650	65
Agra Ouvah	47	hf ch	bro or pek	2820	60
	16	ch	or pek	1520	47
	12	do	pek	1080	42
Glasgow	26	hf ch	bro or pek	1456	67
	22	ch	bro pek	2200	47
	23	do	or pek	2139	44
	11	do	pek	1045	42
Rondura	11	ch	bro or pek	1100	41
	16	do	bro pek	1483	34
	39	do	or pek	3510	32
	36	do	pek	2700	25
	12	do	pek sou	1056	21
	17	do	dust	1155	22
	10	do	fans	1100	25
Maryland	10	ch	bro pek	1000	23
	10	do	pek	1000	25
Katawella	11	ch	bro pek	1100	31
	12	do	pek	1030	24
Cleveland	33	hf ch	fly or pek	1647	51 bid
Rookwood	32	hf ch	bro or pek	1920	44 bid
	25	ch	or pek	2400	33 bid
	26	do	pek	2340	30 bid
Templestowe	37	hf ch	bro or pek	1961	53 bid
	21	do	bro pek	1302	38 bid
	34	do	or pek	1496	43
	16	ch	pek	1280	35
Rookwood	45	hf ch	bro or pek	2700	40 bid
	23	ch	or pek	2208	33 bid
	48	do	pek	4320	30 bid
Gonavy	36	hf ch	bro or pek	2160	44 bid
	17	do	br or pek	1020	40 bid
Koswatte	15	ch	bro pek	1805	20 bid
	19	do	pek	1425	21
Woodstock	12	ch	bro or pek	1200	31 bid
Elston	25	ch	pek	2000	22
	19	hf ch	dust	1615	23
	25	ch	pek sou	2000	25
	17	hf ch	bro mix	1190	16 bid
M G	13	hf ch	fans	1014	25
Gangawatte	15	ch	bro or pek	1500	56 bid
	12	do	bro pek	1200	43
	27	do	pek	2430	36
Mahanilu	19	hf ch	or pek	1007	45
	24	do	bro or pek	1326	56
	12	ch	pek	1164	40
Ohiya	12	ch	or pek	1152	44
	19	do	bro pek	1183	43 bid
	22	do	pek	1914	41
Waragalande	16	ch	bro or pek	1597	36 bid
	21	do	bro pek	1827	28 bid
Kadienlena	16	ch	sou	1280	14

SMALL LOTS.

Messrs. Forbes & Walker.

	Pkgs.		Name.	lb.	c.
Beverley	15	hf ch	bro or pek fans	975	29
	1	do	pek fans	55	25
Dunbar	10	ch	pek sou	750	28 bid
N B	1	do	dust	149	24
Galleheria	10	ch	bro or pek	950	52
	10	do	or pek	800	42
	8	do	pek sou	720	28
Chrystler's Farm	2	hf ch	dust	170	24
Allagolla	8	ch	bro mix	600	19
Mansfield	5	ch	pek sou	475	29
	3	hf ch	dust	255	26

	Pkgs.	Name.	lb.	c.
Holton	15 do	pek	720	31
	4 do	pek sou	180	25
	2 do	bro pek fans	110	24
	2 do	dust	170	24
Moray	10 hf ch	dust	800	26
Allagalla	1 ch	bro mix	75	16
Adisham	5 do	pek sou	475	30
Erlsmere	7 ch	pek sou	560	30
	3 hf ch	dust	228	26
Sylvakandy	4 ch	dust	400	24
Eastland	14 hf ch	bro or pek	868	42
	7 do	pek sou	392	23 bid
	6 do	dust	465	24
Valana	3 ch	bro or pek	300	42
	8 do	pek sou	680	23
	2 do	bro pek fans	280	21 bid
Udabage	*11 hf ch*	*hyson No. 1 A*	*605*	*34 bid*
	2 do	*hyson No. 2*	*110*	*31*
	7 do	*fans*	*355*	*11*
	2 do	*dust*	*160*	*10*
Horagaskelle	7 hf ch	bro pek	430	28
	5 do	pek	262	22
	8 do	pek sou	428	20
Fetteresso	7 do	bro pek dust	630	27
Tempo	3 ch	bro pek fans	300	26
Nugagalla	15 hf ch	bro pek	750	42
	3 do	dust	270	2[illegible]
Waitalawa	8 hf ch	dust	720	25
O B E C, in est. mark Sindumallay	9 ch	or pek	972	29 bid
	4 do	fans	480	24
	2 do	dust	200	20
Kirrimettia	*10 hf ch*	*flowery young hyson*	*600*	*37*
	11 do	*siftings*	*770*	*10*
Yelverton	7 ch	or pek	602	40
	5 do	pek sou	400	24
	5 hf ch	dust	425	18
Kabragalla	3 ch	dust	255	26
N;	7 ch	sou	700	13
	3 do	bro tea	300	10
Mousa Eliya	7 ch	bro or pek	700	40
Vogan	3 ch	pek fans	375	23
	6 hf ch	dust	480	21
Stamford Hill	7 ch	pek sou	630	32
	4 hf ch	bro mix	360	24
Maldeniya	11 ch	pek sou	935	22
Pingarawa	4 hf ch	dust	360	24
Torwood	3 ch	dust	390	13
Errollwood	8 do	or pek	760	37 bid
Nahalma, Invoice No. 20	7 ch	bro or pek	700	36
	10 do	pek sou	920	23
	5 do	bro pek fans	500	26
	4 hf ch	dust	320	24
	4 ch	pek fans	400	21
W V R A, Invoice No 10	10 hf ch	fans	600	13
Kitulgalla, Invoice No. 15	2 ch	dust	270	21
	3 hf ch	fans	183	21
Wella, Inv. No. 9	17 do	pek sou	850	24
	5 do	bro mix	250	12
	6 do	dust	540	22
C R D, Invoice No 3	3 ch	sou	240	15
	1 hf ch	red leaf	65	14
	3 ch	dust	300	23
	4 do	pek	360	18
Battawatte	15 hf ch	bro or pek	975	33
	3 ch	dust	300	23
B A	5 do	pek sou	350	22
	8 hf ch	bro pek fans	480	23
	1 do	dust	75	20
Ganapalla	7 hf ch	dust	595	21
Killarney	14 do	fans	980	26
Kullivatbanai	8 ch	bro pek No 2	800	20
	5 do	or pek	475	28
Templehurst	9 ch	pek	810	50
	5 do	pek sou	400	40
Glendon	9 ch	pek sou	765	22
Preston	16 hf ch	or pek	704	50 bid
	4 do	pek	328	44
	3 do	fans	204	33
St. Margarets	7 ch	bro pek	728	37
	6 hf ch	bro pek fans	384	23
Panapitiya	7 ch	bro pek	700	29
	4 do	or pek	420	22
	8 do	pek	700	21
	9 do	pek sou	765	17
Agodawela	2 ch	bro pek	200	25
	1 do	or pek	100	20
	3 do	pek	285	18
	3 hf ch	pek sou	328	15 bid
Haputelewella	11 hf ch	bro pek	660	40
	9 do	pek	450	38 bid
	8 do	pek sou	560	27
	1 do	fans	75	26

	Pkgs.	Name.	lb.	c.
Tembiligalla	6 ch	pek sou	552	22
	2 do	pek fans	236	22
	2 do	pek dust	266	19
Dromoland	14 hf ch	bro pek	739	32 bid
Penrhos	5 hf ch	fans	375	23
	2 do	pek dust	180	20
Talgaswela	3 hf ch	dust	255	19
D in est mark	1 ch	sou	74	19
M T P in est mark	5 ch	sou	400	15
	5 do	pek dust	575	18
Swinton	7 ch	bro or pek	697	34 bid
Amblangoda	8 ch	bro or pek	797	34 bid
Monteriy	9 ch	sou	810	16 bid
	5 hf ch	bro pek fans	250	29
	1 do	bro tea	95	13
Ruanwella	9 hf ch	bro pek fans	9[illegible]0	20
Siriwatte	14 hf ch	bro or pek	700	32
	5 ch	or pek	400	34
	7 do	pek	560	27
	4 do	bro pek sou	400	22
	3 hf ch	bro pek fans	195	26
Puspene	10 hf ch	bro pek fans	720	24
Parsloes	12 ch	pek sou	960	22
	2 hf ch	dust	180	18
Bogahagodawatte	8 ch	pek	800	27
	2 do	pek sou	200	19
Rickarton	7 ch	bro pek	777	32
	7 do	fans	770	23
St. Heliers	4 hf ch	dust	321	23
Queensland	2 hf ch	dust	154	26
Mahawela	3 hf ch	dust	270	20
Pungetty	10 ch	pek sou	910	27
	3 hf ch	pek fans	255	22
Cloyne	1 ch	bro tea	115	22
	3 do	fans	345	24
	4 do	dust	600	22
Attampettia	5 ch	pek sou	475	44
Dambagastalawe	7 ch	pek sou	700	30 bid
	6 do	bro pek fans	810	29
Madulkelle	1 ch	fans	110	26
	1 do	dust	110	20

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
B in est mark	8	ch	pek	703	out
D in est mark	4	hf ch	pek fans	265	11
R S in est mark	4	ch	fans	394	14
S in est mark	3	ch	bro pek	240	26
	2	do	pek	168	16 bid
	3	do	pek sou	240	16
	3	do	dust	300	17
Kitulakande	18	hf ch	pek	895	19
	17	do	pek sou	765	16
	3	do	bro pek fans	180	14
	1	do	dust	88	14
Malsa	7	ch	bro pek	700	30
	3	do	or pek	270	31
	11	do	pek	935	24
	4	do	pek sou	320	18 bid
	1	do	dust	136	21
Meath	3	hf ch	bro pek	204	23
	2	do	dust	160	24
Aigburth	10	ch	pek sou	800	23 bid
	4	hf ch	bro pek fans	230	27
Tillington	2	ch	pek sou	170	17 bid
	4	hf ch	fans	280	25
	1	do	dust	90	11
A	1	ch	pek sou	80	15
	2	do	bro pek fans	210	21 bid
D	9	ch	bro pek	900	28 bid
	7	do	pek	665	22
	7	do	pek sou	630	15 bid
	1	do	congou	75	10
B in est mark	9	ch	pek	810	out
	3	ch			
	1	hf ch	souchong	300	14
	3	hf ch	red leaf	165	19
Dunnottar	6	ch	pek sou	510	30
	2	do	bro or pek fans	150	24
M	3	hf ch	dust	240	21

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
W	4	ch	fans	460	20
	3	do	dust	525	20
	4	do	fans	460	21
	1	do	dust	175	20
Avisawella	4	hf ch	fans	280	21
Yspa	12	ch	pek	996	23 bid
	11	do	pek sou	880	21
	2	hf ch	souchong	100	17
	8	ch	pek dust	420	23
	3	do	bro pek fans	375	25

	Pkgs.		Name.	lb.	c.
Maligatenne	1	hf ch	fine or tips	52	50
	5	do	bro or pek	285	30
	7	ch	bro pek	700	28
	4	do	pek sou	372	17
	1	hf ch	dust	77	18
Theberton	10	ch	pek	850	28
	1	do	br pek fans	110	25
	1	do	fans	100	22
Warakamure	10	ch	pek sou	800	19
	1	hf ch	dust	95	18
Oolapane	6	ch	pek sou	540	20
	1	do	sou	83	16
Torbay	6	hf ch	pek sou	253	24
	11	do	bro pekoe fans	726	30
	9	do	fans	630	27
	4	do	dust	320	25
Pindenioya	5	ch	dust	675	18 bid
Ravensgcraig	2	ch	dust	160	22
Allacollawewa	8	hf ch	bro pek fans	512	32
Pindeni Oya	10	ch	or pek	850	31
	8	do	pek	640	23
Allakolla	4	hf ch	dust	400	20
F F in est mark	3	ch	bro tea	300	15
Narangoda	11	ch	pek sou	990	20
	5	do	souchong	300	15
N P in est mark	13	ch	pek	975	20
	1	hf ch	bro pek fans	90	18
	1	do	dust	80	17
Paradise	10	ch	pekoe	950	23
	6	do	pek sou	540	17 bid
	1	do	fans	105	18
	1	do	dust	134	17
P in est mark	3	ch	bro mixed	321	14
	1	do	dust	147	16
S W	1	ch	bro pek	89	25
	1	hf ch	pekoe	45	18
	1	do	dust	66	16
R K P	6	ch	br or pk fans	600	25
Beausejour	5	ch	bro pk	450	30
	7	do	pekoe	525	28
	7	ch	pek sou	560	20
	4	do	bro pk fans	360	22
	4	hf ch	dust	320	19
G B	13	hf ch	dust	650	23
	10	do	bro tea	500	16
I P	22	ch	pek sou	900	20
	1	do	bro tea	96	13
Ingeriya	9	ch	sou	900	16
	6	do	dust	780	23
Raglan	1	ch	fans	105	17
	1	do	dust	145	17
Rayigam	*2*	*ch*	*hyson No 2*	*190*	*33*
	7	*do*	*siftings*	*700*	*9 bid*
Cooroondoowatte	7	ch	pek sou	700	21
C in est maak	2	ch	Ceylon faced gunpowder	150	out
Kelani	5	ch	br or pk fans	500	20
Ferndale	5	ch	pek sou	500	21
	4	do	dust	560	24
Kallebokka	10	ch	or pek	800	35
H R	2	hf ch	bro pek	95	29
	1	ch			
	1	hf ch	pekoe	98	18
	1	do	dust	78	18
Mora Ella	13	hf ch	bro or pek fans	897	28
	3	do	dust	270	22
M	8	ch	bro pek	896	38 bid
Havilland	7	ch	pek sou	557	21
	1	do	souchong	79	15
	1	do	dust	150	19
	2	do	fans	220	20
	2	do	bro mix	160	16
Gangwarily	11	ch	or pek	880	32 bid
	2	do	pek sou	170	17
	1	do	souchong	85	15
	2	hf cb	dust	170	16
	8	do	fans	480	20
Glenallla	1	hf ch	fans No 1	48	46
	4	ch	fans	416	10 bid
	1	do	dust	170	10
Monrovia	7	ch	pekoe	630	25
Oonankande	6	hf ch	pek sou	420	19
	6	do	dust	396	27
Mousakande	10	ch	pek sou	810	21
	5	do	sou	415	17
S R K	9	cb	pek	900	32
	2	do	br or pk ns	260	26
	4	do	dust	640	23
	5	do	bro tea	500	14 bid
Kalkande	4	ch	bro or pek	400	23
	6	do	or pek	480	29
	10	ch	pek	900	22
	1	do	br or pek fans	110	21
	1	do	pek fans	110	18
A T	5	ch	pek dust	600	15
	1	do	dust No 2	120	12
	2	do	fans	220	16

	Pkgs.		Name.	lb.	c.
Depedene	3	hf ch	fans	180	23
	4	do	dust	320	18
Blackheath	10	ch	pek	900	24
	3	do	souchong	225	17 bid
Rayigam	*2*	*ch*	*hyson No. 2*	*180*	*33*
	7	*hf ch*	*siftings*	*525*	*10*
Agra Tenne	10	ch	pek sou	800	26
	3	hf ch	dust	255	22
Jak Tree Hill	7	ch	pek sou	630	18
	1	do	fans	90	19
	2	do	dust	200	18
	1	do	congou	90	15
G V	10	ch	or pek	950	36 bid
Ferriby	12	ch	or pek	960	29
	12	hf ch	fans	720	27
	2	do	dust	160	23
Neboda	5	ch	pek fans	500	25
	4	do	pek sou	360	21
	4	hf ch	dust	340	20
Neuchatel	3	ch	dust	450	20
S	1	ch	broken pokoe	90	27
	1	do	pek	74	19
	1	do	pek sou	103	16
	1	ch	dust	96	16
	1	*box*	*hyson*	*15*	*out*

[Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
D	*2*	*ch*	*siftings*	*140*	*9*
E and H	6	hf ch	fans	450	26 bid
	5	do	dust	450	23
K T C	150	box	pek	750	withd'n
Stubton	1	ch	dust	150	20
Theresia	5	hf ch	dust	400	25
	3	ch	sou	255	26
Ashburton	7	do	pek sou	630	22 bid
	3	do	fans	360	26
	2	do	dust	312	23
Bowella	11	ch	pek	880	23
	3	do	sou	210	15
	1	do	fans	100	18
	5	hf ch	dust	400	22
Devon	8	ch	pek	816	38
Natuwakele	2	ch	dust	200	21
Eton	4	do	sou	400	25 bid
	3	hf ch	dust	250	22
Katawella	1	ch	dust	110	23
Danawkande	5	ch	bro pek	494	32
	6	do	pek	600	24
	6	do	pek sou	510	17 bid
	2	do	sou	153	17
	1	do	dust	88	17
	4	do	fans	375	22
Horagalla	8	ch	bro pek	824	27 bid
	11	do	pek	927	21 bid
	1	do	bro pek dust	102	18 bid
Rookwood	10	ch	bro pek	700	28 bid
	3	hf ch	pek dust	264	28
B K	2	ch	bro pek	180	27
	1	do	pek	128	20
	2	hf ch	fans	118	17
	4	ch	bro tea	395	12
Rookwood	9	hf ch	bro pek	630	27 bid
	3	do	pek dust	264	25
Gonavy	16	hf ch	or pek	848	28
	8	do	fans	544	28
	6	do	dust	552	27
Koswatte	14	ch	pek sou	910	15
	2	do	pek dust	254	20
Woodstock	6	ch	pek	570	23
	3	hf ch	bro pek fans	240	23
G Ceylon in est mark	9	ch	bro or pek	897	36
Harrisland	14	hf ch	bro or pek	767	36
Gangawatte	9	ch	pek sou	815	30
	13	hf ch	fans	845	28
Callander	15	hf ch	bro or pek No 1	927	42 bid
	13	do	bro or pek	751	49 bid
Y	3	ch	pek sou	255	12
	8	ch			
	1	hf ch	sou	697	12
Yapama	2	ch	dust	190	25
	2	do	fans	190	25
Canudon	9	ch	bro pek	897	25
	7	do	pek	697	18 bid

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, 18th September.

"Oopack."—O Roehampton, 1 tierce and 2 barrels sold at 110s ; 1 ditto, 7 casks 5 tierces and 1 barrel sold at 95s 6d ; 2 ditto, 3 tierces and 3 barrels sold at 69s ; PB ditto, 2 tierces sold at 63s ; T ditto, 1 cask sold at 58s ; 2 bags sold at 77s 6d ; Size 1 Thotulagala, 1 barrel sold at 114s ; Size 3 ditto, 1 cask sold at 58s ; T ditto, 1 barrel and 1 cask sold at 48s.

"City of Corinth."—Mausagala A, 1 barrel sold at 118s; ditto C, 1 tierce sold at 60s; ditto P, 1 barrel sold at 94s; ditto T, 1 at 45s.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Sept. 19th.

"Bingo Maru."—100 in estate mark Estate Cocoa, 6 bags sold at 50s 6d; 1 F in estate mark Estate Cocoa, 8 bags sold at 50s.

CEYLON CARDAMOMS SALES IN LONDON.

"Oopack."—Mousakanda O, 1 case sold at 2s 8d; ditto 1, 5 at 2s; ditto 2, 1 at 1s 6d; 4 at 1s 7d; ditto 3, 5 at 1s 2d; ditto Seed 1, 1 case sold at 1s 7d; ditto Seed 2, 1 at 1s 6d; Yellamullai O, 1 case sold at 3s 9d; ditto 1, 6 at 2s 8d; ditto 2, 10 at 1s 9d; ditto Seed 1, 1 case sold at 1s 7d; ditto Seed 2, 2 at 1s 5d.

"Alcinous."—MM in estate mark, 3 cases sold at 1s 1d; MAK in estate mark Seeds, 4 cases sold at 1s 6d.

"Shanghai."—Kobo OO, 3 cases sold at 3s 10d; ditto 1, 6 at 1s 9d; 10 at 1s 10d; ditto 2, 8 at 1s 2d; ditto Seed, 5 cases sold at 1s 7d.

"Stentor."—Kobo O, 5 cases sold at 2s; ditto 1, 9 at 1s 8d; ditto 2, 2 at 1s 2d; ditto 3, 1 at 1s 1d; ditto B, 2 at 1s 1d; ditto S, 2 at 1s 1d; ditto Seed, 1 bag sold at 1s 2d; Dromoland No. 1, 8 cases sold at 2s 5d; ditto No. 2, 5 at 1s 7d; 2 at 1s 8d; ditto No. 3, 4 at 1s 3d; ditto No. 4, 2 at 1s 1d; ditto Seed, 1 case sold at 1s 6d; Midlands O, 4 cases sold at 1s 9d; ditto 1, 6 at 1s 4d; 1 at 1s 5d; ditto 2, 1 at 1s 4d; ditto B & S, 1 at 1s 1d; ditto Seed, 1 case sold at 1s 5d.

"Somali."—Kobo A 1, 2 cases sold at 1s 5d; ditto S O, 2 at 1s 10d.

"Sarpedon."—Midlands O, 2 cases sold at 1s 10d; ditto 1, 5 at 1s 3d; ditto 2, 1 at 1s 1d; ditto B & S, 1 at 1s 1d.

"Teenkai."—Yattawatte 1, 1 case sold at 1s 3d; ditto 2, 1 at 1s 3d; Mixed, 1 case sold at 1s 1d; Seed, 1 case sold at 1s 4d.

"Sado Maru."—Vicartons C, 2 cases sold at 1s 1d; ditto D. 1 at 1s 1d.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 40. COLOMBO, OCTOBER 13th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[23,229 lb.]

	Pkgs.	Name.	lb.	c.
Kinchin	19 hf ch	bro or pek	1045	44 bid
	16 ch	pek	1360	33 bid
Hornsey	21 hf ch	bro pek	1260	48
	12 ch	pek	1080	35
Vellangowry	23 do	bro pek	2300	withd'n
	23 do	or pek	2070	withd'n
	36 do	pek	3240	withd'n
Mapitigama	18 do	or pek	1620	28
	22 do	bro pek	2524	25 bid
Galagama	16 do	bro or pek	1440	32 bid
	20 do	bro pek	1900	25 bid
	26 do	pek	2340	23 bid

Messrs. Keell and Waldock.

[59,732 lb.]

	Pkgs.	Name.	lb.	c.
Galgedioya	16 ch	bro pek	1520	25 bid
	12 do	br or pek	1200	25 bid
	14 do	pek	1260	21 bid
	14 do	pek sou	1274	18 bid
Ovitta	14 do	bro or pe	1344	29 bid
Paniyakande	17 do	bro pek	1700	30 bid
	12 do	pek	1080	27 bid
Goonambil	19 hf ch	dust	1520	out
Panilkande	17 ch	pek sou	1530	28
Fairlawn	36 hf ch	bro or pek	2160	53
	26 ch	pek	2340	35
	14 hf ch	dust	1120	26
Bargany	12 ch	br pek	1020	28 bid
Dunnottar	37 hf ch	bro or pek	1850	52
	12 ch	pek	1020	34 bid
M C E	*21 ch*	*hyson*	*1890*	32 bid
P G B	12 ch, 1 hf ch	souchong	1003	10 bid
U B D	*29 do*	*Hyson*	*1450*	31 bid
W	15 hf ch	dust	1200	out
Udawella	50 do	bro or pek	2900	38 bid
	39 do	or pek	1950	33 bid
	35 do	pek *A.*	1630	31 bid
	37 do	pek *B.*	1776	34 bid
Gonagalella	20 ch	bro or pek	2000	40 bid
	25 do	pek	2250	31 bid
	19 do	pek sou	1710	25 bid
S	17 ch	or pek	1615	out

Messrs. E. John & Co.

[204,593 lb.]

	Pkgs.	Name.	lb.	c.
Rookwood	27 ch	pek	2430	25 bid
O W	16 do	bro pek	1472	27 bid
	14 do	pek	1162	22 bid
Elston	20 do	pek	1700	33
	33 do	pek sou	2970	25
Shawlands	11 do	bro pek	1155	35
	21 do	pek	1995	28
Ratwatte	39 do	bro pek	3900	27 bid
	17 do	pek	1530	22 bid
Kandaloya	28 hf ch	bro or pek	1537	36 bid
	62 do	bro pek	3407	27 bid
Oonoogaloya	13 ch	or pek	1040	35
	15 do	bro or pek	1425	48
	14 do	pek	1260	29
Ormidale	34 hf ch	bro pek	1972	46
	14 ch	pek	1120	37
	13 do	pek sou	1235	37
Gonavy	58 hf ch	bro or pek	3187	41
	18 ch	pek	1764	33
Myraganga	12 do	or pek	1080	41
	19 hf ch	bro or pek No1	1045	47
	15 ch	bro or pek No2	1500	37 bid
Rondura	18 do	bro pek	1674	31 bid
	20 do	or pek	1800	32
	22 do	pek	1936	26
Glasgow	22 hf ch	bro or pek	1276	67
	20 ch	bro pek	2000	53
	19 do	or pek	1767	47
	24 hf ch	pek fans	1560	32
Agra Ouvah	48 do	bro or pek	2880	56 bid
	17 ch	or pek	1615	46
	15 do	pek	1380	42
	12 do	pek sou	1080	38
	23 hf ch	pek fans	1840	29
Poilakanda	28 ch	bro or pek	2520	28 bid
	44 do	bro pek	3960	22 bid
	39 do	pek	3120	23
P K T	14 hf ch	dust	1120	18
Winwood	37 do	bro or pek	1847	withd'n
Higham	32 ch	bro pek	3200	33
	28 do	pek	2520	31
	17 do	pek sou	1530	24
Ashburton	17 do	bro pek	1782	33
	17 do	pek	1527	29
Lameliere	13 do	bro or pek	1300	43
	12 do	pek	1030	35
Cleveland	29 hf ch	fly or pek	1595	53
	33 do	fly or pek	1644	withd'n
	38 do	pek	2014	40
Captains Garden	20 ch	pek	1800	23
P M	17 do	bro or pek	1697	out
Rosko	9 ch, 1 hf ch	or pek	1010	18 bid
Cocowatte	26 ch	bro or pek	2597	30 bid
Kandaloya	28 hf ch	bro or pek	1400	43
	24 do	fans	1200	21 bid
Mocha	32 hf ch	bro or pek	1760	67
	18 do	or pek	1026	53
	14 ch	Pek No. 1	1302	55
	16 do	Pek No. 2	1440	49
Mt. Vernon	26 do	pek	2288	40
	18 do	pek sou	1566	30
Lameliere	13 do	bro or pek	1300	43
	12 do	pek	1030	36
Brownlow	35 hf ch	bro or pek	1817	54
	27 ch	bro pek	2589	38
	24 do	pek	2037	34
Rookwood	29 hf ch	bro or pek	1740	37 bid
	20 ch	or pek	1920	32 bid
	26 do	pek	2340	31
Kelaneya & Braemar	15 do	br or pek	1500	52 bid
	10 do	or pek	1000	37
	24 do	pek	2280	33
Rookwood	45 hf ch	bro or pek	2697	40
	25 do	bro or pek	2697	33 bid
	53 ch	pek	4767	30
Wattagalla	25 hf ch	bro pek	1500	33
	20 ch	pek	1800	30
	13 do	pek sou	1040	22
Elston	23 do	pek sou	1952	24 bid
Glassaugh	29 hf ch	or pek	1595	64
	24 do	bro or pek	1584	65
	14 ch	pek	1470	54
Lynford	25 do	pek sou	2250	23 bid
	27½ hf ch	dust	2295	23
Orwell	15 ch	or pek	1425	29 bid
	26 do	pek	2340	28
Elston	22 do	pek sou	1867	24 bid
Brownlow	25 hf ch	bro or pek	1275	58
	25 do	bro pek	1350	37 bid
	21 ch	or pek	1869	39
	14 do	pek	1176	31 bid
Woodstock	12 do	bro or pek	1197	26 bid

Messrs. Somerville & Co.

[218,503 lb.]

	Pkgs.	Name.	lb.	c.
R. A.	16 hf ch	pek fans	1040	27
Tientsin	19 hf ch	bro or pek	1140	64
	22 ch	bro pek	2200	48 bid
	19 do	pek	1710	40 bid
Nyanza	15 do	pek	1425	28 bid
Mahatenne	11 do	pek	1045	23
Ambalawa	15 do, 1 hf ch	bro or pek	1550	26 bid
	14 ch	or pek	1190	27
	17 do	pek	1394	22
	15 do	pek sou	1200	18
Owilikanda	20 do	or pek	1530	31
	18 do	bro pek	2600	28 bid
	28 do	pek	2380	26
Mount Temple	22 do	bro pek	2090	23
	19 do	pek	1482	23 bid
	26 do	br or pek fans	2548	25
Dikmukalana	29 ch	br pek	1595	30
	23 do	or pek	1150	27 bid
	28 do	pek	1400	24
	24 do	pek sou	1152	22
Combe	40 do	bro pek sou	3600	out
	17 do	dust	1007	out

	Pkgs.	Name.	lb.	c.
Kirulugalla	10 do	bro or pek	1000	30
Beverley	30 hf ch	pek sou	1350	17 bid
Bollagalla	25 ch	bro pek	2500	28 bid
	23 do	pek	1840	24 bid
Grange Gardens	10 do	bro or pek	1000	42 bid
Dambagalla	23 hf ch	bro or pek	1472	30
Donside	19 ch	pek sou	1520	21
Agra Elbedde	37 hf ch	bro or pek	2035	56
	31 do	or pek	1705	43
	30 do	pek	1440	39
Mowbray	12 do	pek	1020	31
Bodava	34 hf ch	bro pek	1700	31
Damblagolla	23 do	bro pek	1380	27 bid
	14 do	pek	1190	24
	18 do	pek sou	1140	21
Meetiyagoda	10 do	bro pek	1000	22
W K P	43 do	bro pek	4515	32 bid
	30 do	or pek	2700	31
	92 do	pek	7360	24 bid
	24 do	pek sou	1800	21
Avissawella	21 hf ch	bro or pek	1050	43
	17 ch	or pek	1615	31
	17 do	pek	1530	27
	15 do	pek sou	1200	21
Monte Christo	24 do	bro pek	2400	50
	12 do	pek sou	1030	24
Scarborough	24 hf ch	bro or pek	1296	45 bid
	13 ch	or pek	1235	36 bid
	20 do	pek	1900	35 bid
Mincing Lane	23 hf ch	bro pek	1265	51
	21 ch	pek	1890	36
Siriniwasa	29 do	br pek	2900	33
	50 do	pek	4750	22 bid
	34 do	pek sou	3060	18
	10 do	br pk fans	1000	23 bid
Murraythwaite	15 do	bro pek	1500	32 bid
	13 do	pek	1040	25
Yahalatenne	28 do	br pek	2940	36 bid
	14 do	pek sou	1288	23
Rambodde	20 hf ch	bro pek	1000	41
	24 do	pek	1800	26
Dalukoya	26 hf ch	bro or pek	1560	39
	34 ch	or pek	1700	31 bid
	29 hf ch	pek sou	1450	24
Wiharagama	25 do	bro pek	1250	24 bid
Warakamure	33 ch	pek	2805	21 bid
Galphele	13 do	bro or pek	1300	50
	14 do	or pek	1400	39
	13 do	bro pek	1300	33
	20 do	pek	1800	33
Laukka	23 do	bro pek	2744	withd'n
	31 do	pek	2480	
Kurunegalla	21 hf ch	bro or pek	1260	29 bid
	29 do	or pek	1450	27 bid
	14 ch	pek	1190	25
Kinross	14 do	bro or pek	1540	36 bid
	19 do	or pek	1900	36
	23 do	pek	2254	31
Marigold	22 hf ch	or pek	1100	47
	26 do	bro pek No. 1	1300	51
	25 do	pek	1250	41
	29 do	pek sou	1421	40
Dover	20 hf ch	bro or pek	1100	39
	40 ch	pek	3400	23 bid
	30 hf ch	fans	2100	20 bid
Theberton	13 ch	bro pek	1170	34
	13 do	pek	1105	27
Hanagama	24 do	or pek	2400	21 bid
	25 do	pek	2500	23
	11 do	pek sou	1045	22
Oonanagalla	12 do	bro or pek	1260	42 bid
	12 do	or pek	1020	35 bid
	11 do	pek No. 1	1045	31
	12 do	pek No. 2	1020	28
	14 do	pek sou	1260	27
Morphy	15 do	dust	2175	16
	12 hf ch	pek dust	1020	18

Messrs. Forbes & Walker.

[509,837 lb.]

	Pkgs.	Name.	lb.	c.
Panawatte	22 ch	bro or pek	2310	46
	17 do	or pek	1530	34 bid
	22 do	pek	2090	30
	20 do	pek sou	1700	24
Walton	10 do	bro pek	1050	39
Florence	20 hf ch	bro or pek	1100	72 bid
	18 ch	or pek	1638	60
	32 do	pek	2816	45
Udabage	*31 hf ch*	*young hyson*	*1550*	36
	30 do	*hyson No. 1 B*	*1500*	32

	Pkgs.	Name.	lb.	c.
Welkandale	25 ch	bro pek	2500	34 bid
	16 do	or pek	1360	34
	26 do	pek	2340	26 bid
	13 do	pek sou	1040	19
G	26 do	dust	3000	16 bid
Roeberry P	53 do	pek	4876	44
	42 do	bro pek	4200	48
	13 do	bro or pek	1300	5
	14 do	dust	1400	22
	12 do	fans	1200	27
Chrystler's Farm	24 hf ch	bro pek	1368	51
	23 ch	pek	2185	36
Bramely	30 hf ch	pek	1410	39
	22 do	or pek No 1	1056	52
	42 do	or pek	2100	46
Bopitiya	30 ch	bro or pek	3150	36
	12 do	or pek	1140	33
	17 do	pek	1530	28
	20 do	pek sou	1800	24
Perawattie	52 do	bro or pek	5460	withd'n
	23 do	or pek	2185	withd'n
	36 do	pek	3240	withd'n
	35 do	pek sou	3150	withd'n
Yataderia	24 do	bro or pek	2544	28 bid
	24 do	or pek	2280	29
	51 do	pek	4233	23
	21 do	pek sou	1680	18
Dickhena	23 do	bro or pek	2415	28 bid
	29 do	or pek	2755	23
	47 do	pek	4136	23
	20 do	pek sou	1600	18
Summer Hill	36 do	pek sou	2880	41
	27 do	fans	1914	40
Ardlaw & Wishford	14 do	bro or pek	1512	59
	12 do	bro pek No. 1	1320	42
Sylvakandy	14 do	bro or pek No 1	1400	44
	24 do	bro or pek No 2	2400	38
	15 do	bro pek	1500	33
	11 do	or pek	1045	28
	25 do	pek	2500	32
Ardlaw & Wishford	15 do	pek	1260	35
Moray	48 hf oh	bro or pek	2544	52
	30 ch	pek	2460	30
Munukettia, Ceylon, in est. mark	12 ch	or pek	1080	39
	36 hf ch	bro pek	2160	53
	27 do	pek	2295	31
Macaldenia	15 ch	bro pek	1200	43
	18 hf ch	pek	1440	37
Panmure	24 do	bro or pek	1200	49
	37 do	or pek	1850	38
	24 ch	pek	2040	29 bid
Wilpita	12 do	bro or pek	1200	20
	13 do	or pek	1235	18
Algooltenne	19 hf ch	bro or pek	1043	53
	21 do	bro pek	1050	55
	14 ch	or pek	1120	34
	15 do	pek	1200	28
Nahalma	18 ch	or pek	1800	34
	10 do	bro or pek	1000	35
	14 do	pek	1372	26
	12 do	pek sou	1104	24
Malvern	53 hf ch	bro pek	2915	49
	60 do	pek	4200	29
Matale	42 do	bro pek	2520	36
	18 ch	pek	1620	29
	12 do	pek sou	1020	24
Putupaula	50 do	or pek	4250	30
	54 do	pek	4050	24
Kennington	18 do	pek sou	1260	21
Laurawatte (Venesta Packages)	16 hf ch	fans	1248	22
	27 ch	bro pek	2835	31
	19 do	pek	1672	26
	12 do	pek sou	1123	24
Poongalla	13 do	or pek	1196	47
	31 do	bro pek	3472	54
	22 do	pek	2090	41
Weyungawatte	28 do	bro pek	2940	28 bid
	31 do	pek	2635	23
	15 do	pek sou	1200	21
Mawiligangawatte	32 do	bro pek	3040	26
	36 do	pek sou	2700	19
Castlereagh	34 hf ch	bro or pek	1700	65
	13 ch	bro pek	1300	35
Marlborough	24 hf ch	bro or pek	1248	57
	13 ch	or pek	1170	41
	17 do	bro pek	1700	36
	16 do	pek	1312	36
Tonacombe	33 ch	or pek	3132	43
	35 do	bro pek	3497	48
	61 do	pek	5187	36
High Forest	31 hf ch	or pek No 1	1550	64
	20 do	bro pek	1200	65
	26 do	or pek	1326	54
	23 do	pek	1058	52

	Pkgs.		Name.	lb.	c.
Morankande	23	do	bro or pek	1288	30 bid
	32	do	or pek	1600	31
	20	ch	pek	1800	22 bid
Baniarapola	37	hf ch	bro or pek No 1	2035	30 bid
	38	do	bro or pek No 2	2014	25 bid
	40	do	bro pek	2000	26 bid
	30	do	pek	1350	21 bid
S	15	do	dust	1200	26
B P C	27	do	dust	2025	20 bid
Blackwood	20	ch	or pek	1700	33 bid
	21	do	bro or pek	1995	42
	21	do	pek	1890	30 bid
	13	do	dust	1040	22
Hanwella	*20*	*ch*	*young hyson*	*2000*	*35*
	14	*do*	*hyson No. 1*	*1400*	*32*
Dammeria	25	ch	or pek	2250	withd'n
	33	do	bro pek	3300	
	28	do	pek	2520	
	24	do	pek sou	2160	
High Forest	47	hf ch	or pek No 1	2350	51 bid
	34	do	bro pek	1972	62
	39	do	or pek	1911	44
	30	do	pek	1380	41
	24	do	pek dust	1872	29
Maha Uva	39	do	bro or pek	2457	36
	32	ch	or pek	3200	38
	34	do	pek	3060	34
	13	do	pek sou	1040	30
	14	bf-ch	dust	1120	20
Polatagama	51	ch	bro pek	5100	24 bid
	41	do	pek	3485	27
	13	do	fans	1300	22
R. G.	20	do	bro pek	2000	38 bid
	18	do	pek	1530	35 bid
	13	do	pek sou	1040	30
Dea Ella	31	hf ch	bro or pek	1705	44
	37	do	or pek	2035	32
	31	cb	pek	1550	29
Eastland	18	do	bro or pek	1080	43 bid
	36	hf ch	or pek	1728	31
Mousakellie	18	ch	bro or pek	1800	45 bid
	21	do	pek	1890	34 bid
	14	do	or pek	1330	33 bid
D. Y. N.	36	hf ch	bro or pek	2160	35 bid
Purana	16	ch	pek	1280	28
P. K. E.	15	do	pek	1350	26 bid
St. Martins	56	hf ch	pek	2240	26
H G M	19	do	bro or pek	1045	36
	14	ch	pek	1190	28
	12	bf cb	dust	1080	18
Torwood	13	ch	bro or pek	1170	33 bid
	18	do	bro pek	1548	23 bid
	28	do	pek	2240	21
N	9	do	pek fans	1167	16
T S T	20	do	pek sou	1620	15 bid
Great Valley	30	bf ch	bro or pek	1740	49 bid
Freds Ruhe	15	ch	bro pek	1500	28
W A	10	do	bro pek	1000	28
Drayton	31	hf cb	or pek	1550	48
	25	ch	pek	2000	42
Valana	18	do	bro pek	1617	32 bid
Ambragalla	61	bf ch	or pek	2576	36
	65	do	bro or pek	3510	38
	26	ch	pek	2080	29
	18	do	pek sou	1404	26
Coreen	38	hf ch	bro pek	2280	51
	13	ch	or pek	1170	36 bid
Bullugolla	35	do	bro or pek	3500	31 bid
	40	do	or pek	4000	23 bid
	38	do	pek	3420	24 bid
	24	do	pek sou	2040	22 bid
Tembiligalla	19	do	bro or pek	1995	28 bid
Talgaswela	10	do	bro or pek	1000	43
	21	do	pek	1680	23
	13	do	pek sou	1350	23
Bellongalla	17	do	bro pek	1700	28
	15	do	pek	1425	21
	18	do	pek sou	1530	18
Coldstream Group	65	hf ch	bro pek	3575	40
	31	ch	pek	2180	30
Passara Group	10	do	bro or pek	1000	47
	45	do	bro pek	4500	34
Mahawale	11	do	or pek	1100	32
	23	do	pek	2070	25 bid
Walpita	14	do	bro pek	1400	29
	14	do	or pek	1400	30
	23	do	pek	2070	26
Queensland	16	do	bro pek	1600	45
	12	do	pek	1020	41
Inverness	23	do	bro or pek	2300	66
	13	do	or pek	1170	50
	23	do	pek	1955	47
U R	43	do	bro or pek	4386	43
	20	do	or pek	1760	38 bid
	38	do	pek	3116	30 bid
Glenorchy	20	hf ch	bro pek	1200	66
New Peacock	31	do	bro pek	1705	35
	25	ch	pek fans	1750	34
Middleton	17	hf ch	bro or pek	1020	58
	22	ch	or pek	1980	35
	20	do	bro pek	2000	33
	14	do	pek	1190	31
Dunkeld	34	do	bro or pek	2040	38 bid
Harrow	17	do	bro or pek	1020	57
	10	do	or pek	1000	39
	21	do	pek	2016	39
Adisham	26	do	bro or pek	1430	58
	14	do	bro pek	1400	38
	11	do	pek	1045	41
Puspone	19	do	or pek	1805	27
Erlsmere	12	do	bro pek	1104	33
Devonford	32	hf ch	bro or pek	1696	71
	17	ch	or pek	1530	40 bid
	15	do	pek	1380	52
	13	do	pek sou	1091	43

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Vellangowry	1	ch	pek sou	90	withd'n
	6	hf ch	dust	480	
Mapitigama	4	ch	or pek fans	480	17 bid

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Galgedioya	5	ch	fans	500	23
	5	hf ch	dust	400	22
Ovitta	7	ch	pek	560	26
	7	do	pek sou	588	20
	1	hf ch	dust	88	17
Nawanagalla	15	do	bro pek	825	34 bid
	4	ch	pek	360	26
Paniyakande	5	do	pek sou	450	22
	2	do	sou	180	18
Goonambil	1	do	bro mix	72	14
Panilkande	9	do	sou	810	26
D in est mark	9	do	bro pek	900	18 bid
	10	do	pek	900	15 bid
	10	do	pek sou	870	16 bid
	6	do	dust	816	16 bid
Fairlawn	4	do	pek sou	310	28
Bargany	13	hf ch	bro or pek	780	47
	9	ch	pek	810	34
	8	hf ch	dust	640	28
Dunnottar	1	do	bro or pek fans	75	29
P G B	5	ch	pek sou	440	13 bid
W	3	hf ch	dust	255	26
L P in est mark	6	ch	coarse leaf	546	10
G	8	do	bro pek	800	23 bid
	11	do	pek	990	21 bid
	10	do	pek sou	870	16 bid
	7	do	dust	952	15 bid
B	12	hf ch	bro or pek	660	36 bid

[Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
Taunton	1	hf cb	Dust	97	13 bid
Koslanda	10	bf ch	bro pek	600	45
	7	do	or pek	350	42
	8	ch	pek	800	32
	1	do	pek sou	100	25
	1	hf ch	fans	70	23
	1	do	dust	90	19
O W	4	ch	pek sou	308	16
	4	hf ch	pek fans	268	20
Shawlands	2	ch	pek sou	180	15
Ratwatte	4	do	pek sou	320	17
	5	hf ch	dust	400	17
N	10	do	dust	870	22
Ormidale	12	hf ch	bro or pek	600	58
	6	bf ch	bro pek fans	420	29
Gonavy	6	ch	pek sou	552	27
Coslanda	10	hf ch	bro pek	600	45
	7	do	or pek	350	41
	8	ch	pek	800	32
	1	do	pek sou	100	25
	1	hf ch	fans	70	22
	1	do	dust	90	21
Agra Ouvah	1	hf ch	dust	100	25
Shawlands	1	ch	pek sou	90	18
Higham	10	hf cb	bro or pek	550	40
	1	do	dust	95	18
	1	ch	sou	100	17
	5	hf cb	bro pek fans	350	23

	Pkgs.	Name.	lb.	c.
K P	4 do	dust	372	18
	15 hf cb	pek fans	975	23
	4 ch	con	220	13
C D	2 do	bro pek	210	35
	1 do	pek	95	24
Kehelwatte	2 do	fans	220	23
	4 bf ch	dust	340	20
Ashburton	7 ch	pek sou	627	24
Lameliere	3 do	or pek	270	38
	5 bf ch	bro pek fans	350	25
Cleveland	3 do	fans	240	26
Craigingilt	11 hf ch	bro or pek	605	45
	14 do	or pek	700	35
	9 ch	pek	765	32
	4 do	pek sou	320	22
	3 hf ch	or pek fans	195	26
Mossend	7 bf cb	bro or pek	385	53 bid
	11 do	or pek	550	48
	15 do	bro pek	900	43 bid
	11 do	pek	550	39
	2 do	dust	120	27
G B	2 do	fans	130	17
Captains Garden	10 do	bro pek	500	26
	2 ch	pek sou	180	12
Halpita	5 do	pek	450	18
	5 do	sou	420	13
	2 do	bro mix	160	12
	3 hf ch	fans	210	13
P M	9 ch } 1 bf ch }	pek	857	17
Rosko	5 ch	pek	550	17
Kandaloya	16 hf ch	dust	800	20
Mocha	10 do	fans	750	27
Mt. Vernon	6 hf ch	fans	402	21
	12 ch	dust	996	24
	1 do	bro mix	120	15
Peru	7 do	bro pek	700	33 bid
	5 do	pek	400	32
	6 do	pek sou	480	27
	1 do	bro pek fans	120	25
	1 hf cb	dust	70	22
Lameliere	3 ch	or pek	270	38
	5 bf cb	bro pek fans	350	30
Rookwood	7 cb	bro pek	490	withd n
	4 do	pek dust	352	
Kelaneiya & Braemar	3 do	pek sou	285	28
	3 do	bro pek fans	300	30
	2 hf cb	dust	160	24
Reading	1 ch	bro or pek	79	20 bid
	2 hf ch	pek	104	20
	1 do	pek sou	53	17
	1 do	bro or pek fans	60	18
	1 do	pek fans	39	18
	1 do	dust	32	15
Rookwood	7 do	bro pek	487	27 bid
Wattagalla	5 do	dust	450	22
Glassaugh	9 ch	pek sou	882	41
Orwell	7 hf ch	bro or pek	434	41 bid
	4 ch	pek sou	360	24
	11 hf cb	pek fans	715	23
Penrith	6 ch	pek	540	18
	10 hf cb	fans	700	19
	6 do	dust	480	16

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
B A	6 bf ch	dust	540	20
	1 cb	bro tea	100	12
Tientsin	5 do	pek sou	425	31
	7 hf ch	dust	595	25
Nyanza	4 ch	pek sou	340	21
	9 hf cb	fans	585	27
	4 do	dust	300	23
San Cio	2 cb	dust	250	18
	8 do	sou	768	14
Owilikande	11 do	pek sou	990	21
	5 bf ch	dust	400	17
Mount Temple	8 cb	pek sou	600	20
Ellukkettia	4 do	bro pek	440	26
	4 do	pek	400	20
	2 do	pek sou	200	14
Kinross	6 do	bro tea	840	17 bid
Kirulugalla	4 do	or pek	360	32
	8 do	pek	720	26
	4 do	pek sou	360	18
	1 do	or pek fans	104	20
	1 do	or pek dust	140	18
Ferriby	6 hf ch	dust	450	18 bid
Wilidale	6 cb	bro pek	600	25
	5 do	pek	500	22
	2 do	pek sou	200	18
	2 do	pek fans	220	14
W K in est. mark	1 do	sou	90	12
Kosgahahena	5 do	bro pek	500	26
	5 do	pek	500	18
	2 do	pek sou	200	15
	2 do	sou	180	12

	Pkgs.	Name.	lb.	c.
Maragalla	9 do	bro pek	915	40
	7 do	or pek	595	37
	4 do	pek	380	28
	1 do	pek sou	80	19 bid
	1 do	dust	150	19
Grange Gardens	6 do	or pek	600	37
	8 do	pek	760	35
	2 do	pek sou	190	23
	1 do	fans	100	23
	1 hf ch	dust	85	24
Dambagalla	6 do	or pek	282	20
	1 do	dust	85	17
	1 ch	bro mixed	85	12
Donside	5 do	sou	400	16
	2 bf ch	dust	170	16
	2 do	fans	110	15
Massena	1 do	bro or pek	50	27
X X	5 do	bro or pek fans	325	31
	2 do	pek dust	170	23
Mowbray	9 ch	bro pek	900	38
	4 do	pek sou	340	23
Bodava	11 do	pek	990	25
	10 do	pek sou	850	18 bid
	1 do	bro mixed	89	12
	4 hf ch	bro pek fans	300	23
D B G	2 ch	bro tea	200	12
	1 bf cb	dust	80	17
	4 ch	fans	400	20
Meetiyagoda	4 do	pek	400	18
	2 do	pek sou	176	14
	1 do	bro dust	129	14
Gattagawala	7 do	or pek	730	25 bid
	1 do	bro pek	112	25
	3 do	pek	294	23
	2 do	pek sou	195	16
	1 do	dust	115	19
Tallegallakande	2 do	bro pek	225	24
	3 do	pek	300	22
	2 do	pek sou	190	17
	1 do	fans	120	16
Charlie Hill	12 hf cb	bro pek	660	
	13 do	pek	650	25
	9 do	pek sou	450	18
	1 do	congou	50	15
	1 do	dust	80	18
W K P	9 cb	sou	684	16
	7 bf ch	dust	532	18
Avissawella	8 do	dust	600	24
Monte Christo	4 ch	bro tea	400	16
	3 do	bro pek fans	300	27
	3 hf cb	dust	255	23
Mincing Lane	10 ch	or pek	850	43
	9 do	pek sou	810	32
Kannatota	5 do	bro or pek	500	25
	8 do	bro pek	640	23
	5 do	pek No. 1	400	19
	5 do	pek No. 2	400	16 bid
	2 do	bro or pek fans	156	17
Siriniwasa	2 do	dust	300	18
Murraythwaite	4 do	pek sou	320	17 bid
	2 do	bro pek fans	250	20
	1 do	dust	185	13 bid
Weygalle	10 bf ch	bro or pek	500	65
	5 ch	bro pek	550	34 bid
	9 do	pek	765	28
	2 do	pek sou	200	23
	1 bf ch	bro pek	60	33 bid
	2 ch	dust	160	22
	1 hf cb	dust	80	24
Rambolde	6 do	bro or pek	300	60
	13 do	pek sou	650	22
	1 do	sou	50	15
	2 do	dust	160	22
	1 do	bro pek fans	65	24
Handrokande	3 ch	bro pek	330	24
Daiukeya	19 bf cb	pek	950	28
Ravenoya	4 ch	pek sou	400	24
	3 do	fans	450	24
	1 do	souchong	100	17
Laukka	4 do	pek sou	340	withd'n
	9 hf ch	dust	630	do
Kurunegalla	5 ch	pek sou	400	18
	6 hf ch	dust	450	19
Kinross	1 ch	pek sou	98	18
	3 do	bro tea	360	17
	1 do	bro or pek fans	132	24
	1 do	dust	154	18
D	1 bf ch	dust	80	16
	1 cb	pek	70	17
Theberton	1 do	pek sou	85	17
	1 do	bro pek fans	100	24
	1 do	fans	100	20
Hanagama	9 do	bro or pek	900	34 bid
	4 do	sou	360	16
	4 do	fans	440	19
	3 hf ch	dust	240	17

	Pkgs.	Name.	lb.	c.
Oonanagala	1 do	dust	80	22
	1 do	fans	70	25
Auburn	10 ch	bro pek	990	24 bid
	9 hf ch	pek	360	19 bid
	1 ch	pek sou	71	16
	1 do	fans	100	20
L	4 do	dust	508	14
D B R in est mark	1 do	or pek	100	25

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Bogabagodawatte	2 ch	bro pek	200	26
	2 do	pek	200	20
	7 do	pek sou	700	17
	2 do	fans	210	16
Panawatte	2 do	dust	330	17
Walton	8 do	or pek	680	36
	6 do	pek	570	29
	2 do	sou	160	19
Ambanpitiya	2 do	dust	300	16
Udabage	*10 hf ch*	*hyson No. 1 A*	*550*	*32*
	1 do	*hyson*	*55*	*33*
	5 do	*fannings*	*275*	*10*
	2 do	*dust*	*160*	*9*
Welkandale	5 hf ch	dust	400	24
Chrystler's Farm	18 do	bro or pek	990	70
	2 ch	pek sou	180	28
	1 hf ch	dust	85	24
C F, in est. mark	2 ch	bro pek	210	35
	1 do	bro pek	57	35
	4 do	pek	400	24
	1 do	pek	57	24
P	6 do	fans	720	27
	7 hf ch	dust	630	26
Nynangodde	3 do	dust	270	16
	7 do	bro or pek fan	525	20
Bopitiya	4 do	dust	320	26
Perawattie	6 do	dust	480	25
Summer Hill	8 ch	dust	728	26
Ardlaw & Wishford	9 do	bro pek No 2	900	38
	8 do	or pek	720	45
	9 do	pek	738	36
	2 do	fans	200	28
Sylvakandy	4 do	pek sou	400	22
	3 do	dust	300	25
Ardlaw & Wishford	3 do	dust	300	22
Moray	20 hf ch	or pek	860	29
	8 ch	pek No. 2	640	24
	6 hf ch	dust	468	25
Macaldenia	10 do	bro pek	600	43
	3 do	pek sou	225	25
	1 do	fans	80	23
St. Helens	13 do	fans	845	21
	6 do	dust	480	16
Panmure	13 do	bro or pek fans	845	30
	3 ch	sou	270	22
	3 hf ch	dust	255	23
Wilpita	10 ch	pek	950	16
	1 do	bro or pek fans	114	14
	2 do	red leaf	192	11
Katadola	1 do, 1 hf ch	bro or pek	148	34
	2 ch	bro or pek	190	22
	6 do	pek	540	16
	2 do	sou	190	15
	1 do	bro mix	100	18
Nahalma	5 do	bro pek fans	500	22
	4 hf ch	dust	320	22
Malvern	1 do	red leaf	58	13
Deaculla	11 do	red leaf	550	13
Matale	2 do	fans	110	27
	2 do	dust	160	26
	2 ch	sou	180	18
Kennington	3 do	bro pek fans	315	21 bid
	2 do	pek fans	162	23
	5 do	dust	725	16 bid
	4 do	bro tea	320	14 bid
Laurawatte (Venesta packages)	7 hf ch	fans	516	25
Weyungawatte	1 ch	sou	80	16
	3 hf ch	dust	240	24
Mawiligangawatte	4 ch	bro or pek	400	29 bid
	8 do	or pek	640	28
	6 do	dust	720	20
Castlereagh	8 do	or pek	640	37
	11 do	pek	880	32
	10 hf ch	fans	750	26
Marlborough	8 ch	pek sou	736	28
	6 hf ch	bro pek fans	372	22
	2 ch	bro tea	200	14
Morankande	7 do	pek sou	490	20
	3 hf ch	bro or pek fans	210	22
	2 do	dust	180	18
S	14 do	fans	933	33
	2 do	dust No. 2	202	22
Hanwella	*2 hf ch*	*hyson No. 2*	*100*	*31*
	5 do	*hyson siftings*	*425*	*10*

	Pkgs.	Name.	lb.	c.
Dammeria	7 hf ch	bro pek fans	560	withd'n
	3 do	dust	300	
Maha Uva	3 do	pek fans	225	26
Polatagama	9 ch	or pek	855	28
	2 do	dust	300	16
R G	4 do	bro pek fans	480	27
East land	20 do	or pek	960	30 bid
	7 hf ch	pek sou	389	withd'n
Eastland	14 do	bro or pek	882	42
	4 do	pek sou	224	28 bid
	3 do	pek dust	210	24
	1 do	unas	50	18
Mousakellie	5 do	dust	375	24 bid
	9 do	bro pek fans	585	29
A O H	12 do	bro or pek	708	out
Purana	8 ch	bro pek	800	31
	8 do	pek sou	576	23
	1 hf ch	dust	80	21
	2 do	fans	180	27
	1 do	bro mix	40	18
Kinross	8 ch	pek	640	32
St. Martins	12 hf ch	bro pek	480	28 bid
	14 do	or pek	560	27
	10 do	fans	600	20
Cloyne	4 do	fans	270	20 bid
G Y N	11 ch	bro pek	990	21 bid
Torwood	2 do	dust	260	15
Freds Ruhe	8 do	pek	760	25
	8 do	pek sou	800	20
E D P	12 hf ch	dust	960	17
	9 ch	sou	720	17
Drayton	5 do	pek sou	425	30
Ambragalla	5 do	dust	500	23
Coreen	9 do	pek	810	32
	3 hf ch	pek sou	210	26
	2 do	dust	140	20
Bullugolla	3 ch	fans	300	20 bid
	3 do	dust	330	16 bid
Memorakande	2 do	pek fans	160	26
	1 do	dust	100	18 bid
Tembiligalla	9 do	pek	855	25
	3 do	pek sou	255	19
	2 do	pek fans	184	24
	2 do	pek dust	208	17
Talgaswela	12 do	or pek	960	33
	15 hf ch	bro pek No. 2	900	25
Bellongalla	10 ch	or pek	900	22
	7 do	bro pek fans	875	20
Coldstream Group	6 do	pek sou	480	23
	4 hf ch	bro pek fans	260	25
	2 do	dust	160	19
Passara Group	10 ch	pek sou	900	28
Kirriwana	*5 hf ch*	*siftings*	*350*	*withd'n*
	7 do	*dust*	*560*	
Mahawale	5 ch	bro pek	550	38
	11 do	pek sou	990	23
	5 hf ch	dust	450	20
	2 do	fans	120	26
Kitrimittia	3 ch	bro pek	270	31
	4 do	pek	360	27
	2 do	pek sou	180	23
	3 hf ch	fans	186	23
Walpita	6 ch	pek sou	480	20
	3 do	sou	240	14
	3 do	dust	420	16
L B K	4 do	bro or pek fans	480	22
	4 do	pek fans	405	20
	5 do	dust	700	20
	4 do	dust	540	18
	7 do	br mix	700	13
St. Clive	*18 hf ch*	*young hyson*	*900*	*36*
	15 do	*hyson*	*675*	*33*
	8 do	*hyson No. 2*	*360*	*32*
	4 do	*hyson fans*	*200*	*29*
New Galway	8 hf ch	bro pek	480	63
	8 do	pek	440	45
	2 do	pek sou	100	40
Glenorchy	8 ch	pek	760	46
	2 do	pek sou	190	40
	2 hf ch	dust	170	27
St. H	5 ch	pek	455	18 bid
B D W P	5 do	br or pek	525	27
Adisham	4 do	pek sou	360	27
Puspone	11 hf ch	dust	946	18 bid
Erlsmere	16 do	bro or pek	832	57
	12 ch	pek	996	34
Devonford	1 hf ch	dust	86	25
Halbarawa	7 do	or pek	561	21
	12 do	pek	864	17
	1 ch	dust	125	14
	1 do, 1 hf ch	fans	173	19
	2 do	unas	184	12
Ambanpitiya	12 do	bro pek	660	24
	12 do	pek	576	18
	2 do	dust	134	14
North Matale	6 do	dust	480	24

No. 41. COLOMBO, OCTOBER 20th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[13,723 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	17 hf ch	bro pek	1020	51
	12 ch	or pek	1020	37
Yuillefield	16 do	pek	1440	35
Coodoogalla	45 hf ch	bro pek	2250	33
Bunyan & Ovoca	22 do	bro or pek	1210	60 bid
	21 do	or pek	1050	42

Messrs. Keell and Waldock.

[56,715 lb.]

	Pkgs.	Name.	lb.	c.
F C T	15 ch	dust	1950	12 bid
Panilkande	25 hf ch	bro or pek No 1	1150	51 bid
	20 ch	bro or pek	2000	34 bid
	12 do	pek	1080	29 bid
	18 hf ch	dust	1440	20
Morabela	13 ch	bro or pek	1182	33
	39 do	bro pek	4134	37 bid
	30 do	or pek	3000	30
	31 do	pek	2914	26 bid
Hyde	14 do	or pek	1148	28
	34 hf ch	bro or pek	1904	43 bid
	22 ch	pek	1914	35
Brecon	26 hf ch	or pek	1430	39
Pasmalie	20 ch	bro pek	1900	34 bid
	23 do	pek	2070	25 bid
	14 do	pek sou	1190	25
	13 hf ch	dust	1105	22
Taprobane	32 do	br or pek	1600	35
	18 ch	pek	1440	27
Glenwood	19 do	bro pek	1900	27
	15 do	or pek	1580	26 bid
Woodend	10 ch	bro pek	1000	26 bid
	12 do	pek	1080	26
Hawa Ella	14 do	pek	1330	32
Panilkande	20 hf ch	bro or pek No 1	1000	50
	21 ch	bro or pek	2000	31 bid
	12 do	pek	1080	30
Udawella	24 hf ch	or pek	1173	38 bid
	35 do	bro or pek	1980	out
	43 do	pek	1978	34 bid
Cottes Brooke	20 do	pek	1000	22 bid
W	15 do	dust	1197	16 bid

Messrs. E. John & Co.

[189,274 lb.]

	Pkgs.	Name.	lb.	c.
Salem	10 ch	pek	1000	27
Elemane	36 do	bro pek	3600	40 bid
	35 do	pek	3150	36
Kandaloya	60 hf ch	bro pek	2700	31
	105 do	pek	4200	26
Kandahar	20 do	bro or pek	1120	50 bid
	32 do	or pek	1696	38 bid
	48 do	pek	2640	33 bid
Tellisford	18 ch	bro pek	1728	29 bid
	26 do	pek	2366	26
Doonhinde	23 do	or pek	2300	41
	18 do	bro pek	1800	40 bid
O W	14 do	bro pek	1344	28
	12 do	pek	1020	23
Lawrence	23 hf ch	fans	1676	29
Glasgow	23 do	bro or pek	1334	66
	17 ch	bro pek	1700	48
	18 do	or pek	1674	45
	14 do	pek	1330	42
Agra Ouvah	39 hf ch	bro or pek	2340	56 bid
	13 ch	or pek	1275	39 bid
Midlothian	17 hf ch	bro pek	1020	51
	23 do	pek	1196	39
Gingranoya	14 ch	bro or pek	1400	51
	13 do	or pek	1105	37
	10 do	bro pek	1000	31 bid
	16 do	pek	1280	31
Tismoda	29 hf ch	bro pek	1950	31
	18 ch	pek	1440	28
Poilakanda	14 do	bro or pek	1400	29
	27 do	bro pek	2430	24
	24 do	pek	1920	23
Bowhill	12 do	pek	1200	29
D K P	22 do	bro or pek	2524	28
	18 do	or pek	1620	30
	20 do	pek	2000	21
Winwood	23 hf ch	br or pek	1265	51
	18 ch	or pek	1710	36
	16 do	pek	1440	34
	14 do	pek sou	1260	29
Myraganga	12 do	or pek	1140	37 bid
	21 hf ch	bro or pek No 1	1155	46 bid
	41 ch	bro or pek No 2	4100	38
	15 do	pek	1200	30 bid
Rookwood	19 hf ch	bro or pek	1060	43
	12 ch	or pek	1146	35
	18 do	pek	1620	30
L H O	35 do	pek sou	3147	20 bid
Mt. Vernon	27 do	pek	2376	37 bid
Avington	21 do	bro or pek	2100	34
	57 do	pek	4560	32 bid
	48 do	pek sou	3360	19 bid
Nahavilla	16 do	or pek	1440	33 bid
	20 do	bro pek	2000	40 bid
	12 do	pek	1080	36
Balado	12 do	pek	1140	28
Birnam	20 do	pek sou	1400	37
	24 hf ch	fans	1632	30
Galloola	28 ch	bro pek	2800	45
	34 do	pek	3060	39
	21 do	pek sou	1680	34
Ottery	14 do	bro or pek	1400	50
	19 hf ch	bro pek	1140	27
	32 ch	pek	2880	27
Elston	29 do	pek	2465	32
	20 do	pek sou	1800	25
Gangawatte	11 do	bro or pek	1100	61
	10 do	br pek	1000	41
	14 do	pek	1260	36
Dalhousie	26 hf ch	pek	1170	36
S T L	17 ch	or pek	1445	27 bid
	10 do	bro pek	1000	27 bid
Ella	15 do	or pek	1197	29 bid
Glentilt	35 hf ch	bro or pek	1925	61
	20 ch	or pek	1800	43
	23 do	pek	2070	38
Bittacy	18 do	bro pek	1764	29 bid
	14 do	pek	1176	38
Waragalanda	16 do	bro or pek	1594	36 bid
	21 do	bro pek	1884	28 bid
Natuwakele	22 do	bro or pek	2200	35 bid
	18 do	bro or pek	1790	36
	16 do	bro pek	1440	30
	15 do	pek	1350	28
	18 do	pek sou	1170	24
St Clair	10 do	fans	1157	24 bid
Lynsford	25 do	pek sou	2217	25 bid

Messrs. Somerville & Co.

[281,652 lb.]

	Pkgs.	Name.	lb.	c.
R K P	16 ch	or pek	1360	33
	18 do	bro or pek	1800	29
	32 do	pek	2720	27
	18 do	pek sou	1530	23
Carney	20 hf ch	bro pek	1000	32
	23 do	pek	1035	24
Hatdowa	17 ch	bro pek	1700	29
	11 do	pek	1100	20 bid
St Leys	25 hf ch	bro pek	1500	45 bid
	28 ch	pek	2388	34 bid
Strathdon	19 do	bro pek	2052	52
	27 do	pek	2430	35
	15 do	pek sou	1275	28
Lonach	27 hf ch	bro or pek	1458	45
	17 ch	or pek	1445	35
	28 do	pek sou	2240	27
	15 do	fans	1200	28
Columbia	19 hf ch	br pek	1140	44
	22 do	pek	1100	38
	21 do	pek sou	1050	32
Horagalla K V	14 ch	or pek	1190	33
	14 do	pek	1190	27
Dryburgh	17 ch	pek	1394	26
Mahatenne	20 hf ch	bro or pek	1000	41
	12 ch	or pek	1200	39
	11 do	pek	1045	26
Warakamure	18 do	bro or pek	1800	30
	19 do	or pek	1615	30
	29 do	pek	2465	24
Glenalmond	14 do	pek	1260	26
Laukka	28 do	bro pek	2744	28
	31 do	pek	2180	21 bid
Atherton	50 hf ch	bro pek	3000	25
Florida	20 ch	bro pek	1938	25
	17 do	pek	1624	20

	Pkgs.	Name.	lb.	c.
Nyanza	13 do	bro or pek	1365	48
	13 do	pek	1235	30
Labuduwa	13 do	pek sou	1040	20
Moragalla	12 do	pek sou	1080	19
Laxapanagalla	13 do	bro or pek	1300	37
Lyndhurst	49 hf ch	bro pek	2695	31
	53 do	pek	2385	21
	45 do	pek sou	2025	20
Mary Hill	34 do	bro pek	1870	35
	29 do	pek	1450	25
Roseneath	33 ch	bro or pek	3300	30 bid
	24 do	pek	2160	26
Harrangalla	29 do	bro or pek	2755	30 bid
	25 do	pek	2125	26
	20 do	pek sou	1600	20
New Angamana	32 do	bro or pek	3200	31
	20 do	or pek	1800	31
	42 do	pek	3780	27
	23 do	pek sou	2070	21
Eilandhu	12 do	pek	1020	26
Cotswold	13 do	pek	1040	37
Farnham	22 hf ch	br pek	1210	33
	16 ch	or pek	1344	31
	12 do	pek	1128	26
California	12 do	pek	1200	20
Beausejour	12 do	bro or pek	1200	31 bid
	34 do	pek	2640	27
Meddegodda	39 hf ch	bro pek	2340	37
	27 do	pek	1485	27
Wewebedda	24 ch	bro pek	2400	41 bid
	19 do	pek	1710	29
Ravenscraig	27 hf ch	bro or pek	1512	46
	11 ch	pek	1013	29
Dambagalla	20 hf ch	bro pek	1060	31
	20 do	pek	1470	25
	13 ch	pek sou	1040	23
Highfields	21 hf ch	bro or pek	1176	46
	22 do	or pek	1100	48
	47 do	pek	2444	38
Blinkbonnie	24 hf ch	bro or pek	1440	49
	17 ch	pek	1580	40
Mount Temple	22 do	bro pek	2200	29
	20 do	pek	1600	24
	19 do	br or pek fans	1900	26
Deniyaya	28 ch	bro pek	2800	35
	23 do	pek	2185	29
	20 do	pek sou	1800	24
Combe	7 do	dust	1004	16 bid
Mossville	12 do	dust	1260	20
Dover	25 do	pek	2125	withd'n
	30 hf ch	fans	2100	withd'n
Walla Valley	35 do	bro or pek	1855	59
	27 ch	or pek	2565	40 bid
	46 do	pek	3910	37
W K P	43 do	bro pek	4515	34 bid
	92 do	pek	7360	25 bid
Citrus	21 do	bro pek	1988	30
	29 do	pek	2475	23
Karangalla	15 do	bro pek	1590	29
	12 do	pek	1080	26
Yarrow	18 hf ch	bro pek	1260	24
	21 do	pek	1008	23
Hanagama	24 ch	or pek	2400	28
Nehoda	23 do	bro or pek	2300	44
	19 do	or pek	1746	31
	35 do	pek	3500	28
Dikmukalana	23 hf ch	or pek	1150	withd'n
Havilland	19 ch	bro or pek	1960	30 bid
	25 do	pek	2125	24 bid
Glenella	*15 ch*	*young hyson*	*1500*	*36*
	28 do	*hyson*	*2680*	*34*
Dalukoya	34 hf ch	or pek	1700	withd'n
Coorondoowatte	10 ch	pek	1000	29
Ellerslie	25 hf ch	bro or pek	1250	56
	14 ch	or pek	1120	39
	28 do	pek	2240	31 bid
	40 hf ch	br pek	2000	36
Raglan	16 ch	pek	1517	22
Abbotsford	50 hf ch	bro pek	3100	57
	48 do	bro pek	2400	40 bid
	21 ch	pek	2100	36
	18 do	pek sou	1800	35

Messrs. Forbes & Walker.

[404,147 lb.]

	Pkgs.	Name.	lb.	c.
Belton	31 hf ch	or pek	1550	46 bid
Irex	14 ch	bro or pek	1400	33
	15 do	pek	1350	27
Thedden	17 do	bro pek	1700	32 bid
Clarendon, Dimbula	32 hf ch	bro pek	1792	65
	23 ch	pek	1840	42
	19 do	pek sou	1425	40
Bloompark	11 do	bro pek	1100	28
Ketulawila	12 do	bro pek	1200	withd'n
	10 do	pek	1000	withd'n
Vincit	14 do	bro pek	1400	30
	23 do	pek	2070	26
Strathspey	11 do	or pek	1037	43 bid
	12 do	pek	1104	37 bid
Shrubs Hill	29 hf ch	bro pek	2030	37 bid
	17 ch	pek	1887	31
	10 do	pek sou	1000	23
Nawalapitiya	22 do	sou	2200	15
Ardross	19 hf ch	dust	1615	17
Halbarawa	26 ch	bro pek	2392	27
Beverley	36 hf ch	or pek	1800	31
	47 do	pek	2350	29
	23 do	pek sou	1035	22
Carlabeck	11 ch	pek sou	1100	36
	9 do	bro pek fans	1215	33
H J P, in est. mark	27 do	bro pek	2700	34 bid
	48 do	pek	4080	27 bid
	25 do	pek sou	2125	24 bid
Tempo	14 do	bro pek	1400	39
	16 do	or pek	1520	23
	20 do	pek	1800	23
	14 do	pek sou	1120	23
Vogan	15 do	bro or pek	1500	52
	25 do	or pek	2250	24
	26 do	pek	2340	30
	12 do	pek sou	1020	24
Robgill	27 do	bro pek	2430	42
	20 do	pek	1600	28
Great Valley, Ceylon, in est. mark	59 do	bro or pek	3540	50
	16 do	or pek	1472	38
	19 do	pek	1748	37
	14 do	dust	1120	24
Darrawella	37 hf ch	bro or pek	2035	60
	15 ch	bro pek	1530	42
	20 do	pek	1700	34
	23 hf ch	fans	1679	27
Handford	25 ch	bro pek	2500	32
	14 do	pek	1330	29
	11 do	pek sou	1045	23
Kitulgalla	18 hf ch	bro or pek	1008	29
	13 ch	pek	1066	26
Anningkande	11 do	pek sou	1045	24
Goodhope	14 do	pek sou	1260	23
	11 do	bro pek fans	1155	23
Gonapatı	21 hf ch	or pek	1092	58
	27 do	pek	1350	52
Tymawr	20 do	or pek	1040	36
	18 do	bro or pek	1080	46 bid
	28 do	pek	1344	33
	23 do	pek sou	1081	26
Passara Group	37 ch	bro pek	3700	34 bid
	28 do	pek	2520	34
Sirikandura	36 do	bro pek	3240	28
	28 do	pek	2475	23
	16 do	pek sou	1040	20
Forest Creek	13 do	bro or pek	1300	78
	35 do	bro pek	3500	45
	17 do	or pek	1496	38
	31 do	pek	2790	31
P P A in est. mark	35 do	pek	3255	23
	17 do	pek No 2	1530	20
Delta	29 do	bro pek	2813	35 bid
	27 do	pek	2160	23 bid
	14 do	pek sou	1120	24 bid
Penrhos	21 hf ch	bro or pek	1176	49
	20 ch	pek	1700	32
Bandara Eliya	46 hf ch	or pek	2208	40
	19 do	bro or pek No 1	1045	50 bid
	68 do	bro or pek No 2	3944	38 bid
	83 do	pek	3984	33 bid
	17 do	dust	1360	20 bid
	32 do	pek fans	2240	25 bid
High Forest	35 do	or pek No 1	1820	60
	24 do	bro pek	1440	50
	25 do	or pek	1275	50
	21 do	pek	1008	47
	29 do	pek sou	1247	37
Battawatte	31 ch	bro pek	3410	37
	25 do	pek	2500	34
	12 do	pek sou	1020	28
Gampaha	36 hf ch	bro or pek	2160	41
	27 ch	or pek	2592	43
	30 do	pek	2550	37
	15 do	pek sou	1350	32
Erracht	20 ch	bro or pek	2000	35
	14 do	or pek	1190	35
	39 do	pek	3120	27
Gampaha	37 hf ch	bro or pek	2220	41
	27 ch	or pek	2592	43 bid
	30 do	pek	2550	33
	16 do	pek sou	1440	33 bid
Dunkeld	42 hf ch	bro or pek	2520	51
	13 ch	or pek	1170	38
	16 do	pek	1440	36

	Pkgs.	Name.	lb.	c.
S. Katelle	*15 ch*	*young hyson*	*2100*	*38 bid*
	11 do	*hyson No. 1*	*1375*	*35 bid*
P R M	20 hf ch	dust	1880	25 bid
Templehurst	15 ch	bro pek	1500	58
Bowlana	18 do	or pek	1800	38 bid
	29 hf ch	bro or pek	1740	51
	20 ch	pek	1900	37 bid
Ingrogalla	14 do	bro pek	1400	35
	12 do	pek	1080	27
V D N D in est mark	25 hf ch	dust	2090	15 bid
Pine Hill	28 do	bro or pek	1680	51
	17 ch	or pek	1615	36 bid
	24 do	pek	2160	31 bid
Naseby	30 hf ch	bro or pek	1800	66
	25 do	or pek	1175	65
	30 do	pek	1500	53
Ugieside	12 ch	bro mix	1020	17
Waitalawa	107 hf ch	pek sou	5347	27 bid
Kirklees	50 do	bro or pek	3000	44
	25 ch	or pek	2375	40
	25 do	pek	2375	38
	20 do	pek sou	2000	32
	15 hf ch	dust	1350	22
Yataderia	24 ch	bro or pek	2544	32
	20 do	or pek	1900	30
	40 do	pek	3360	23 bid
	13 do	pek sou	1070	20 bid
	33 do	bro or pek	3465	31 bid
	24 do	or pek	2280	30
	46 do	pek	3726	22 bid
	20 do	pek sou	1600	20
G Dimbulla	18 do	pek sou	1818	27
Newmarket	37 hf ch	bro or pek	2035	50
	37 ch	bro pek	3885	37 bid
	21 do	pek	1890	34
	12 do	pek sou	1080	30
Choisy	27 hf ch	bro or pek	1485	50
	13 ch	or pek	1105	39
	26 do	pek	2340	30
Marlborough	25 hf ch	bro or pek	1300	53 bid
	10 ch	bro pek	1000	35 bid
	14 do	pek	1176	31 bid
Bellongalla	19 do	pek	1710	24
Ardross	24 hf ch	bro or pek	1320	46
	19 ch	bro pek	1995	37
	29 do	pek	2755	26
Sylvakandy	56 do	bro pek	5600	31
	15 do	bro pek	1500	31 bid
	26 do	pek	2600	28
M O	22 do	or pek	1980	35
	21 do	bro pek	2100	35 bid
Aberdeen	18 do	bro pek	1620	32
	25 do	pek	1875	22 bid
St. Vigeans	18 hf-ch	bro or pek	1080	54
	12 ch	or pek	1056	43
Oodoowerre	15 do	bro or pek	1425	35
	9 do	bro pek	1008	34 bid
M B W	31 do	pek	2635	42 bid
Drayton	20 do	pek	1700	57 bid
Poonagalla	10 do	or pek	1000	41 bid
	42 do	bro pek	4704	50 bid
	34 do	pek	3230	37 bid
	18 do	fans	1476	25 bid
Edward Hill	19 do	bro pek	1900	37
	13 do	or pek	1118	31
	18 do	pek	1458	25
Moray	36 hf ch	bro or pek	1908	51
	20 ch	pek	1740	30
Mousakellie	21 do	pek	1887	33
Dammeria	25 do	or pek	2250	withd'n
	33 do	bro pek	3300	withd'n
	28 do	pek	2520	withd'n
	24 do	pek sou	2160	withd'n

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	17 hf ch	bro or pek	850	47
	3 ch	pek sou	270	24
	1 hf ch	sou	45	20
	2 do	dust	148	20
Coodoogalla	12 do	pek	600	26
Bunyan & Ovoca	10 ch	pek	900	36
	7 do	pek No 2	665	40 bid
	10 do	pek sou	900	33 bid
	13 hf ch	pek fans	845	28
	6 do	dust	510	22

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Panilkande	9 ch	pek sou	810	26
	3 do	sou	270	21
Morahela	1 do	souchong	100	19
	4 bf ch	dust	336	19

	Pkgs.	Name.	lb.	c.
Brecon	10 do	br or pek	650	39 bid
	11 do	pek	550	31
	1 do	pek sou	50	43 bid
	2 do	dust	180	20
Taprobane	4 do	or pek fans	240	23
Panilkande	11 do	pek sou	98	23

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
D in est. mark	6 ch	bro pek	602	11 bid
Wadhurst	8 do	bro pek	800	28 bid
	6 do	pek	540	27 bid
	3 do	pek sou	270	20
	1 hf ch	dust	80	20
Salem	9 ch	bro or pek	900	27
	1 ch	dust	100	23
Elemane	8 ch	pek sou	720	29 bid
	2 ch	fans	200	24
Kandaloya	14 hf ch	pek sou	560	21
Kandahar	6 hf ch	dust	236	23
Tellisford	11 ch	pek sou	913	21
	3 ch	dust	333	21
	1 ch	bro pek fans	58	21
	1 ch	bro pek fans	59	22
Doonhinde	6 ch	pek sou	600	30 bid
	3 ch	dust	300	23
Alplakande	8 ch	sou	688	16
Chapelton	9 hf ch	dust No. 1	810	22
	1 hf ch	dust No. 2	115	25
	4 ch	sou	400	17
O. W.	4 ch	pek sou	308	18
	10 hf ch	pek fans	690	20
Holbrook	5 ch	dust	750	21
Lawrence	12 hf ch	dust	933	23
Agra Ouvah	10 ch	pek	920	38 bid
Midlothian	3 hf ch	fans	240	27
Rookwood	7 do	bro pek	490	30
	4 do	pek dust	352	28
G Ceylon in est. mark	8 ch	bro or pek	840	34
	1 ch	pek	95	26
	1 ch	pek	92	27
Gingranoya	5 ch	fans	600	26
	1 ch	dust	140	21
Cloveland	3 ch	br pek	300	29
	4 ch	pek	400	21
	2 ch	unassorted	200	18
	2 ch	pek sou	200	16
Bowhill	4 ch	bro or pek	400	47
	7 ch	bro pek	700	36
	5 ch	or pek	450	38
	2 ch	dust	200	24
Myraganga	10 ch	pek sou	800	24
	1 ch	dust	180	20
	2 ch	pek fans	290	26
Rookwood	3 ch	bro pek	210	29
	1 box	pek dust	88	28
	1 ch	bro mixed	18	17
	2 hf ch	bro tea	117	12
M	4 ch	pek sou	400	23
	2 ch	dust	300	22
The Farm	4 ch	dust	320	22
Avington	3 ch	dust	360	20
Nahavila	13 hf ch	pek fans	910	29
W est. mark	8 hf ch	dust	672	21
Kehelwatte	5 ch	fans	550	23
	5 bf ch	dust	425	23
	1 ch	bro pek	110	33
N B	4 ch	bro mix	404	16
Yapame	2 ch	dust	190	18
	2 do	fans	190	21
S T V	3 ch	bro pek	336	12
Galloola	2 ch	dust	200	23
	3 ch	fans	300	31
Ottery	10 ch	fly or pek	900	40
	4 ch	pek sou	364	23
Gangawatta	4 ch	pek sou	360	27
	5 hf ch	dust	425	23
	5 hf ch	fans	325	30
Dalhousie	16 do	or pek	800	38
	13 do	bro pek	715	58
	2 do	pek sou	90	25
	6 do	bro pek fans	360	27
Alplakande	10 ch	sou	860	14 bid
Bittacy	6 hf ch	bro or pek	300	68
	3 ch	fans	330	29
	2 ch	pek sou	180	27
	2 hf ch	dust	168	25
Natuwakele	2 ch	dust	200	23

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Ferniby	12 hf ch	souchong	600	17
	8 do	dust	640	19

	Pkgs.	Name.	lb.	c.
Carney	13 do	pek.sou	650	20
	2 do	bro pek fans	100	19
	1 do	sou	50	17
	1 do	dust	50	21
	2 do	pek fans	100	18
Carriglea	7 do	pek sou	560	21
	2 do	br pk fans	140	23
	1 do	dust	70	26
Hetdowa	7 ch	pek sou	665	21
	3 do	fans	300	23
	4 hf ch	dust	320	21
St Leys	2 ch	pek sou	160	24
	2 do	Red leaf	160	16
	3 do	fans	255	21
S	5 hf ch	dust	400	23
	2 do	sou	100	18
A	2 do	dust	160	26
	3 do	sou	150	18
Columbia	6 hf ch	fans	450	25
Dryburgh	13 hf ch	bro or pek	728	33
	7 ch	or pek	644	31
	3 ch	pek sou	246	21
	4 hf ch	fans	296	21
Mahatenne	2 ch	fans	214	21
Warakamure	10 do	pek sou	800	20
	1 hf ch	dust	90	21
Glenalmond	3 hf ch	bro or pek	180	45
	4 do	bro pek	240	23
	19 do	or pek	950	33
	2 ch	pek sou	180	21
	1 do	fans	100	22
	2 hf ch	dust	160	22
Laukka	4 ch	pek sou	340	19
	9 hf ch	dust	630	17
Atherton	14 do	bro or pek	770	28 bid
	17 do	pek	850	20
	3 do	fans	225	17
	2 do	dust	160	17
Isledon	1 ch	Red leaf	95	12
Florida	9 do	pek sou	846	18
	6 do	bro fans	600	16
	2 do	unasorted	184	14
	3 do	dust	414	16
	3 do	red leaf	270	14
H J M W	3 ch	bro pek	268	24
	4 do	pek	328	16
Gammaddewatte	3 do	bro pek	300	23
	3 do	pek	300	15
	2 ch, 1 hf ch	pek sou	240	11
Labuduwa	5 ch	bro pek	500	28
	4 do	pek	360	25
Kahatagalla	5 do	bro or pek	500	27
	6 do	pek	510	26
	4 do	or pek	320	30
	4 do	pek sou	320	23
	1 do	fans	100	19
G A	4 do	pek	300	21
	6 do	pek sou	504	20
	5 do	sou	365	18
	11 hf ch	fans	880	18
Meragalla	4 ch	bro pek No. 1	400	28
	8 do	bro pek No. 2	800	28
	8 do	pek	720	26
	3 do	fans	300	18
	1 bag	red leaf	91	13
Laxapanagalla	8 ch	bro pek	760	30
	2 do	pek	180	25
	2 do	pek fans	200	21
	1 do	dust	100	18
Mary Hill	2 hf ch	dust	160	18
Rosenheath	3 do	dust	300	20
	2 do	fans	160	22
Harrangalla	10 do	dust	850	20
	7 ch	bro pek fans	700	24
New Angamana	6 do	pek fans	750	23
	2 do	dust	334	21
Eilandhu	7 do	bro pek	665	32
	1 do	bro tea	90	15
	1 do	dust	135	19
	1 do	mixed	90	13
Cotswold	8 do	bro or pek	800	51
	6 do	or pek	450	37
	4 do	pek sou	340	25
	1 do	bro or pek fans	100	24
	1 do	dust	110	22
Farnham	7 do	pek sou	616	22
	4 hf ch	dust	368	20
	11 do	fans	770	22
California	6 ch	bro pek	600	28
	6 do	pek sou	600	16
Beausejour	10 do	or pek	800	30
	14 do	pek sou	980	22
	4 do	bro pek fans	380	23
Patulpana	7 do	bro pek	700	29
	6 do	pek	600	24
	5 do	pek sou	475	23
	3 do	unast	270	15
	1 hf ch	dust	82	16

	Pkgs.	Name.	lb.	c.
Meddegodda	18 do	pek sou	990	21
Wewebedde	5 ch	pek sou	450	30 bid
	1 do	fans	100	26
F in est. mark	1 do	pek sou	96	26
	2 hf ch	dust	162	20
M in est. mark	1 do	dust	47	23
Morphy	3 ch	dust	492	20
Kudaganga	9 do	bro pek	910	28
	9 do	pek	855	25
	6 do	pek sou	510	22
	5 do	fans	400	20
	4 do	bro pek dust	480	19
N S C in est. mark	3 hf ch	dust	240	23
Haudrokande	2 ch	bro pek	215	22
	1 do	pek	95	14
	1 hf ch	pek sou	50	10
Dambagalla	1 do	dust	85	19
	1 ch	bro mixed	85	12
Torbay	3 hf ch	pek sou	132	24
	9 do	pek fans	630	29
	2 do	dust	150	20
Blinkbonnie	5 ch	pek sou	430	27
	12 hf ch	fans	864	30
	6 do	dust	552	27
Kinross	6 ch	fans	537	15 bid
Yspa	8 do	pek sou	600	24
	2 do	dust	280	21
	2 do	fans	250	25
F F	10 hf ch	dust	850	23 bid
B and D	9 do	bro pek fans	558	25
	8 do	dust	656	21
Citrus	7 ch	pek sou	560	18
	3 do	bro pek fans	300	17
Karangalla	4 ch	pek sou	360	21
	1 hf ch	sou	55	17
	3 do	dust	255	20
Ferriby	6 hf ch	dust	447	16 bid
M	6 ch	bro pek	648	32
	1 do	or pek	80	30
	5 do	pek	475	28
	1 do	pek sou	85	21
	2 hf ch	bro pek fans	160	20
Yarrow	6 do	pek sou	282	21
	6 do	bro or pek fans	340	27
	1 do	dust	100	18
Auburn	10 ch	bro pek	990	24 bid
Neboda	4 do	pek fans	410	23
	3 do	pek sou	270	22
	5 hf ch	dust	425	20
Havilland	7 ch	or pek	595	31 bid
	4 do	pek sou	320	19
	1 do	dust	129	18
	2 do	fans	210	20
Glenalla	2 ch	fans No. 1	190	10
	2 ch	fans	140	10
	2 do	dust	250	9
Cooroondoowatte	3 do	pek fans	390	21
Blackheath	10 do	pek	900	22 bid
	3 do	sou	225	18

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
W F G	7 hf ch	pek fans	420	22
Belton	17 do	pek	850	32
	3 do	dust	180	21
Irex	9 ch	or pek	720	23
	5 do	pek sou	400	22
	2 do	fans	220	21
	1 do	dust	85	18
J P, in est. mark	8 hf ch	dust	680	22
	6 ch	sou	600	18
H B L	8 hf ch	bro pek	448	29
	5 do	bro or pek	280	32
	6 ch	pek	510	24
	3 do	pek sou	231	20
	1 hf ch	bro pek fans	76	27
Thedden	7 ch	pek	630	26
	2 do	pek sou	160	21
	1 do	bro pek fans	130	20
Clarendon, Dimbula	6 do	s u	420	28
	1 hf ch	pek dust	85	25
Bloompark	6 ch	bro or pek	655	26
	7 do, 1 hf ch	pek	680	24
	7 ch	pek sou	593	20
Panapitiya	1 do	bro pek	100	26
	1 do	or pek	121	21
	2 do	pek	170	18
	2 do	pek	164	17
Ketulawila	3 do	fans	330	
	2 do	dust	280	withd'n
H, in est. mark	1 do	sou	88	
Vincit	3 do	bro pek fans	330	22
	1 do	dust	150	17

	Pkgs.	Name.	lb.	c.
Strathspey	6 do	bro or pek	600	64 bid
	6 do	bro pek	600	45
	2 do	dust	230	21
	3 do	red leaf	258	16
Shrubs Hill	4 do	or pek	340	34
	8 hf cb	bro pek fans	744	24
Dehiowita	2 ch	dust	200	10
Clontary	4 do	sou	260	18
Ardross	2 do	sou	170	18
Halbarawa	11 do	or pek	792	26
Nakiadeni	1 hf ch	flowery pek	65	70
	6 ch	or pek	600	35
	5 do	bro pek fans	400	22
	12 do	pek	960	20
	2 do	bro tea	180	22
Beverley	10 hf cb	bro or pek	500	46
Ragalla	8 do	dust	720	23
Monterey	7 ch	sou	630	17
	5 do	fans	500	23
	4 hf cb	dust	320	22
Tempo	2 do	bro pek fans	220	25
	4 cb	dust	400	20
Vegan	2 do	pek fans	250	25
	4 hf ch	dust	320	22
Robgill	11 ch	pek sou	935	32
	8 hf ch	bro or pek fans	555	27
	10 do	dust	850	21
Great Valley, Ceylon, in est. mark	9 ch	pek sou	720	23
	3 do	sou	240	17
Darrawella	11 do	or pek	880	39
Yatiana	9 do	or pek	945	23
	3 do	bro pek	294	18
	2 do	pek sou	194	15
	2 do	pek	210	16
	1 do	dust	1 8	16
Kitulgalla	2 hf ch	dust	160	21
	2 do	bro or pek fans	210	24
Anningkande	3 ch	bro pek fans	3 0	23
	3 do	dust	360	21
Goodhope	8 do	bro or pek	880	29
	7 do	pek	665	25
N P	2 do	bro pek No. 2	1 6	26
	1 do	pek No. 2	72	20
	1 hf ch	pek sou	54	18
	1 do	bro mixed	98	14
Gonapatiya	16 do	bro pek	960	60
	8 do	pek fans	560	36
Wyamita	7 ch	bro pek	735	34 bid
	8 do	pek	760	28
	5 do	pek sou	425	24
	2 hf ch	bro pek fans	150	26
Passara Group	7 cb	bro or pek	700	46
	8 do	pek sou	720	25
	3 hf cb	dust	2 0	20
	13 do	fans	910	23 bid
	1 cb	bro mix	105	14
Sirikandura	4 do	dust	520	17
	2 do	red leaf	140	15
Delta	7 do	bro or pek	756	53
	7 do	fans	840	24
	5 hf cb	dust	425	20
Battawatte	15 hf ch	bro or pek	975	34
	1 ch	dust	100	22
Gampaha	8 hf ch	pek fans	720	24
Erracbt	8 ch	pek sou	680	23
	3 do	pek fans	435	20
S. Katelle	*3 hf ch*	*hyson No. 2*	*195*	*36*
	5 do	*hyson siftings*	*425*	*9*
K W D, in est. mark	10 hf cb	bro pek fan	700	23
H M	1 ch	bro mixed	98	14
P R M	14 hf cb	pek sou	770	33 bid
Bowlana	8 cb	pek sou	720	29 bid
	3 hf ch	dust	255	23
	6 do	fans	420	30
Bramley	1 do	pek sou	53	21
	7 do	fans	760	23
Ugieside	6 ch	pek fans	570	20
	4 do	dust	320	21
Poengalla	2 do	pek fans	200	29
	2 do	dust	180	22
T	1 hf ch	dust	80	20
Waitalawa	20 do	pek sou	997	24
I K V	2 ch	sou	170	14
	5 do	pek fans	600	20
Rockside	4 do	pek sou	320	22
	6 do	bro pk fans	600	24
	2 do	dust	270	23
	1 do	dust No 2	175	16
Bellongalla	9 do	bro pek	900	27
	8 do	pek sou	650	19
	7 do	bro pek fans	840	18
Sylvakandy	3 do	dust	300	23
M O	10 hf cb	bro or pek	550	57
	9 ch	pekoe	765	27 bid
M	2 hf ch	bro pek	112	32
	3 do	pek	150	23
Aberdeen	7 do	bro pek fans	480	22
St. Vigeans	4 do	dust	340	23
Oodoowerre	7 ch	bro pek No 2	784	29
	11 do	pekoe	990	26
	3 do	pek sou	270	23
	1 do	pek sou No 2	105	22
	1 hf ch	dust	125	18
Devonford	1 do	bro or pek	210	withd'n
Poonagalla	3 ch	pek sou	270	24 bid
Edward Hill	10 do	pek sou	950	22
	8 hf ch	dust	225	22
Ookoowatte	1 ch	pek sou	80	18
	1 do	pek fans	120	15
	1 hf cb	dust	100	15
Moray	21 do	or pek	903	39
	10 ch	pek No. 2	800	24
	5 do	pek dust	400	24
Dromoland	14 do	bro pk	736	20 bid
Dammeria	7 hf ch	bro pekoe fans	660	withd'n
	3 do	dust	300	withd'n
Kennington	3 ch	br pek fans	312	21
	5 do	dust	723	18

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, 26th September.

"Warwickshire."—T Haputale, 1 tierce and 4 barrels sold at 48s 6d.

"Clan Fraser."—Ampitikande O B in estate mark, 1 cask and 1 barrel sold at 107s; 1, 1 tierce sold at 87s; 2, 1 barrel sold at 58s; T, 1 at 51s.

"Oopack."—Size O Pingarawa, 1 barrel sold at 98s 6d; Size 2, 2 casks sold at 83s 6d; Size 3, 1 barrel sold at 51s; T, 2 at 51s; T, 1 packet sold at 50s.

"City of Corinth."—Gowrakellie F, 1 cask sold at 118s; ditto 1, 3 at 113s; ditto 2, 5 at 104s; 5 at 104s 6d; 1 cask and 1 tierce sold at 104s 6d; ditto S, 1 cask and 1 tierce sold at 68s 6d; ditto PB, 1 cask sold at 123s; GKE T in estate mark, 1 tierce sold at 55s; GKE 2, 1 cask sold at 40s, GKE PB, 1 barrel sold at 51s; Gowrakellie, 3 bags sold at 51s; ditto S, 1 at 51s; Wiharagalla F, 2 tierces sold at 113s; ditto 1, 1 cask and 1 tierce sold at 107s 6d; ditto 2, 6 casks and 1 barrel sold at 98s; ditto S, 1 cask sold at 64s; ditto PB, 1 tierce sold at 118s; WHG T in estate mark, 1 tierce sold at 118s; WHG 2, 1 barrel sold at 40s.

"Warwickshire."—Niabedda F, 1 barrel sold at 107s; ditto 1, 1 cask and 1 barrel sold at 107s; ditto 2, 9 casks sold at 97s 6d; ditto S, 7 casks and 1 barrel sold at 68s 6d; ditto PB, 1 cask and 1 barrel sold at 108s 6d; NB T in estate mark, 1 cask sold at 52s.

"Stentor."—Niabedda S, 1 cask and 1 barrel sold at 57s 6d; NB T in estate mark, 1 cask sold at 46s.

CEYLON COCOA SALES IN LONDON.

"Sarpedon."—Kumaradola A, 20 bags sold at 70s 6d; 58 at 70s; Asgeria A, 23 bags sold at 73s 6d; Maragalla A, 20 bags sold at 66s; Y, 11 at 66s; ditto R, 15 at 65s 6d; T, 1 at 37s.

"Teenkai."—Rockhill C, 14 bags sold at 52s 6d; Maousava C, 4 bags sold at 47s.

"Oopack."—Monarakelle 1, 34 bags sold at 69s; 2 at 48s.

"Malacca."—F OBEC in estate mark Kondesalle Ceylon O, 51 bags sold at 69s; F ditto 1, 19 at 58s 6d; ditto 1, 6 at 57s; G ditto, 6 at 35s; OEC in estate mark Mahaberia Ceylon O, 20 bags sold at 82s 6d; C ditto 1, 8 at 82s; 8 at 68s; G ditto, 4 at 42s 6d.

"Wakasa Maru."—New Peradeniya, 3 bags sold at 56s.

"City of Corinth."—Alloovitharie B, 21 bags sold at 50s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Oct. 3rd.

"Clan Urquhart."—GA Ouvah O, 1 tierce sold at 106s; ditto 3, 2 at 56s; ditto 1 PB. 1 at 91s; ditto triage, 1 at 47s; 1 bag sold at 66s.

"Matiana."—Blackwood P, 1 barrel sold at 91s; ditto T, 1 at 45s.

CEYLON CARDAMOMS SALES IN LONDON.

"Bombay."—St Martins Cardamoms London OO, 2 cases sold at 2s 10d ; ditto No. O, 2 at 2s ; 2 at 2s 1d ; 2 at 2s 2d ; 2 at 2s 4d ; 1 at 2s 6d ; ditto No. 1, 6 at 1s 9d ; 2 at 1s 11d ; 2 at 2s ; ditto No. 2, 6 at 1s 6d ; ditto No. 1 Splits, 3 at 1s 6d ; ditto No. 2 Splits, 2 at 1s 4d ; ditto No. 3 Splits, 2 at 1s 3d ; ditto No 1 Brown, 1 at 1s 2d.

"Bingo Maru."—A R in estate mark Mysore, 2 cases sold at 1s 3d ; B R in estate mark Mysore, 30 cases sold at 1s ; 20 at 1s ; C R in estate mark, 4 cases sold at 1s ; 9 at 1s 1d ; S ditto, 3 at 1s 6d.

"Persia."—Gavatenne Mysore 2, 3 cases sold at 1s ; ditto B, 3 at 1s.

"Bingo Maru."—Delpotonoya, 1 case sold at 1s 5d 1, at 1s 4d ; 1 at 1s 1d ; 1 at 1s 7d.

"Tactician."—Kobo Mysore O, 10 cases sold at 1s 11d ; 9 at 1s 6d ; ditto 1, 2 at 1s 7d ; ditto 2, 3 at 1s 2d ; ditto 3, 1 at 1s ; ditto B, 4 at 1s 2d ; ditto S, 3 at 1s 1d ; ditto Seed, 1 bag sold at 1s 7d.

"Alcinous."—Kobo Mysore O, 10 cases sold at 2s 3d ; ditto 1, 2 at 1s 9d ; 8 at 1s 10d ; ditto 2, 3 at 1s 3d ; ditto 3, 1 at 1s 1d ; ditto B, 2 at 1s 4d ; 1 at 1s 3d ; ditto S, 4 at 1s 3d ; ditto Seed, 1 bag sold at 1s 7d.

"Statesman."—Midlands O, 2 cases sold at 1s 11d ; 2 at 1s 10d ; ditto 1, 11 at 1s 5d ; 1 at 1s 3d ; ditto 2, 3 at 1s : ditto B & S, 1 at 1s.

"Matiana."—Gallaheria, 2 cases sold at 1s ; 1 at 1s 4d.

OBSERVER PRINTING WORKS.

No. 42. COLOMBO, OCTOBER 27th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[29,822 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	29 ch	or pek	2900	38
	18 do	pek	1530	26
	20 do	pek sou	1500	29
Hornsey	19 hf ch	bro pek	1140	53
	13 ch	pek	1170	37
Navala Kanda	16 do	sou	1440	18
	25 hf ch	dust	2125	10 bid
Bunyan and Ovoca	26 do	bro or pek	1450	64
	28 do	or pek	1400	40
	13 ch	pek	1170	37
	13 do	pek sou	1170	34 bid
Agrakanda	19 do	bro or pek	1874	55 bid
	23 do	bro pek	2300	36 bid
	25 do	pek	2150	36 bid
	26 do	or pek	2392	37 bid

Messrs. Keell and Waldock.

[38,983 lb.]

	Pkgs.	Name.	lb.	c.
Moneragalla	25 ch	bro or pek	17 0	34 bid
	15 do	or pek	1020	31 bid
	27 do	pek	1863	25 bid
Alpha	21 hf ch	bro or pek	1155	25 bid
Melston	12 do / 9 ch	pek sou	1500	21 bid
Galgedioya	21 do	bro pek	1995	27 bid
	11 do	bro or pek	1100	28
	12 do	pek	1080	18 bid
	12 do	pek sou	1050	19
Raxawa	15 hf ch	bro or pek fans	1020	23 bid
Hangranoya	15 do	or pek	1200	27 bid
	12 do	br pek	1140	18 bid
	20 do	pek	1600	25
	9 do	fans	1080	21
B'talawa	16 do	pek sou	1410	25 bid
S in est. mark	5 ch / 9 hf ch	pek fans	1029	16 bid
W Y D	20 ch	bro pek	1800	26 bid
	52 do	pek	4100	22 bid
	13 do	pek sou	1049	19 bid

Messrs. E. John & Co.

[180,165 lb.]

	Pkgs.	Name.	lb.	c.
Karawkettia	15 ch	bro pek	1642	25 bid
	10 do	pek	1047	19
Perth	20 do	bro or pek	1900	26
	27 do	bro pek	2430	20 bid
	32 do	or pek	2560	27
Theresia	15 do	or pek	1275	44 bid
	15 do	pek	1275	37 bid
Kandaloya	22 hf ch	bro or pek	1100	49
	41 do	or pek	1640	33 bid
Eila	17 ch	bro pek	15 0	31
	15 do	pek No. 1	1200	24
	43 do	pek No. 2	3140	23 bid
	70 do	pek sou	4900	20
Templestowe	36 hf ch	bro or pek	1980	52
	22 do	bro pek	1276	41
	33 do	or pek	1452	43
	13 ch	pek	1040	34
Kolapatna	16 hf ch	bro pek	1008	33 bid
	20 do	or pek	1000	32 bid
	11 ch	pek	1012	31
M L K	12 do	fans	1440	14
Ooncogaloya	19 do	or pek	1520	35
	17 do	br or pek	1615	54
	22 do	pek	1980	32
St. John's	18 hf ch	bro or pek	1044	75
	12 ch	or pek	1080	60 bid
	18 do	pek	1710	50
Merrow	29 hf ch	bro pek	1566	28
Mount Everest	29 hf ch	bro or pek	1450	56 bid
	23 do	or pek	1100	45
	31 ch	pek	3100	35
	23 hf ch	bro pek fans	1610	28
	10 do	dust	1000	23

	.	Name.	lb.	c.
Glasgow	21 hf ch	bro or pek	1218	64 bid
	16 ch	bro pek	1600	43 bid
	21 do	or pek	1953	43
	11 do	pek	1045	41
Rondura	14 do	bro pek	1375	33
	11 do	or pek	1023	30
	12 do	pek	1176	27
	12 do	pek sou	1080	23
Agra Ouvah	44 hf ch	bro or pek	2640	54 bid
	26 do	or pek	1404	41
Bowella	15 ch	or pek	1275	26
	14 do	pek	1120	23
Cabin Ella	24 hf ch	bro or pek	1440	42
	13 ch	bro pek	1235	40
	19 do	pek	1615	36
Elston	20 do	pek	1600	29 bid
	25 do	pek sou	2000	24
Brownlow	21 hf ch	bro or pek	1092	56
	20 do	bro pek	1140	38 bid
	16 ch	or pek	1344	36 bid
	23 do	pek	2024	33
Kahagalla	19 hf ch	bro pek	1178	50 bid
Dickapitiya	21 ch	bro pek	2100	36
	15 do	pek	1425	28 bid
	30 do	pek sou	2850	24 bid
Gonavy	18 hf ch	bro or pek	1026	46
	26 do	bro pek	1430	31 bid
	22 ch	pek	2090	26 bid
Rookwood	27 do	pek	2127	23 bid
Devon	19 hf ch	bro or pek	1197	61
	18 ch	or pek	1890	41
	10 do	pek	1040	37
Kosgalla	19 do	bro pek	1045	27
Kandahar	32 hf ch	or pek	1693	37 bid
	48 do	pek	2687	32 bid
Venture	21 do	fans	1302	28
Mt. Vernon	23 ch	pek	2024	37
Wanarajah	21 hf ch	bro pek fans	1365	25 bid
M K	15 ch	dust	2250	17 bid
Myraganga	25 do / 1 hf ch	pek sou	1900	23 bid
Rookwood	29 do	bro or pek	1737	30 bid
	25 do	bro or pek	2594	39 bid
Tismoda	26 do	bro or pek	1300	37
	24 do	bro pek	1200	32
A A	10 ch	dust	1000	21
Mahanilu	21 hf ch	or pek	1113	45 bid
	20 do	bro or pek	1120	58
	15 ch	pek	1425	35 bid
Glassaugh	32 hf ch	or pek	1760	61
	29 do	bro or pek	1914	55 bid
	16 do	pek	1680	46 bid
Waragalande	12 ch	bro or pek	1200	37 bid
Elston	24 do	pek sou	2037	25
Higham	32 do	bro pek	3197	withd'n
Rookwood	*41 hf ch / 1 hf ch*	*young hyson*	*2326*	*36 bid*
	10 ch / 45 hf ch	*hyson*	*3058*	*33 bid*
	24 ch	*hyson No. 1*	*1073*	*32 bid*
Myraganga	12 do	or pek	1140	34 bid
	19 hf ch	bro or pek No 1	1045	44 bid
	18 ch	bro or pek No 2	1800	34 bid
	13 do	pek No. 1	1040	31
	12 do	pek No. 2	1020	28

Messrs. Somerville & Co.

[196,562 lb.]

	Pkgs.	Name.	lb.	c.
Iogeriya	30 ch	bro pek	3000	32
	20 do	pek	1800	23
	15 do	pek sou	1350	22
Avisawella	20 hf ch	bro or pek	1000	47
	17 ch	or pek	1615	31
	18 do	pek	1620	26
	14 do	pek sou	1120	23
Hangranoya	10 do	fans	1200	23 bid
Elchico	29 do	bro or pek	2900	38
	15 do	or pek	1425	28 bid
	15 do	pek	1425	25
	12 do	pek sou	1050	22
	16 hf ch	bro or pek fans	1040	25
Dover	42 hf ch	bro or pek	2310	40
	16 ch	or pek	1440	31 bid
	33 do	pek	2505	28
	33 do	pek sou	2850	23
Oolapane	38 do	bro pek	3800	28
	11 do	pek	1045	25
Surrey	32 do	bro pek	3520	withd'n
Mahagoda	10 do	pek	1000	19

	Pkgs.	Name.	lb.	c.
M D F in est. mark	20 do	pek	1600	23 bid
Monrcvia	22 do	bro pek	2200	28
	23 do	pek	2185	23
Narangoda	45 do	bro pek	4275	27 bid
	30 do	pek	2700	23
	18 do	pek sou	1620	21
H G L	23 hf cb	dust	1840	22
Old Madegama	19 ch	bro or pek	1425	48
	23 do	pek	1840	34 bid
Sadumulla	13 do	pek	1300	18
R K P	17 do	bro or pek	1700	29
	12 do	or pek	1020	30
	30 do	pek	2700	26
	15 do	pek sou	1275	22
R S	14 do	pek sou	1300	19
L in est. mark	12 hf ch	dust	1032	16
Combe	21 ch	pek sou	1575	20
A V	20 do	sou	1600	20
	25 hf ch	bro pek fans	1750	23 bid
Rayigam	*23 ch*	*young hyson*	*2300*	*36*
	21 ch	*hyson*	*1995*	*33*
Annandale	18 hf ch	bro or pek	1080	58
	19 do	or pek	1064	41
	22 do	pek	1232	37
	20 do	pek sou	1000	33
New Valley	23 ch	bro or pek	2300	45 bid
	26 do	or pek	2470	35 bid
	27 do	pek	2565	29 bid
	14 do	pek sou	1260	26 bid
Mount Temple	19 do	br pek	1862	29
Glenanore	11 do	bro pek	1100	37 bid
	13 do	pek	1225	31
	11 do	bro mixed	1100	21 bid
St Andrews K	20 hf ch	bro pek	1200	33
Uggala	19 do	bro pek	1064	22
Mary Hill	28 do	pek sou	1260	22 bid
Blackbeath	14 ch	bro or pek	1400	33 bid
	22 do	pek	1980	22 bid
Depedene	32 hf ch	pek sou	1600	21 bid
Harrangalla	23 ch	pek	1955	24
	20 do	pek	1700	26
Cooroondoowatte	10 do	bro pek	1000	45
	13 do	pek	1300	28
	15 do	pek sou	1500	23
Walla Valley	23 hf ch	bro or pek	1265	59
	21 ch	or pek	1995	41 bid
	22 do	pek	1870	28
Welgampola	25 hf ch	pek	1250	25
Rabatungoda	36 ch	bro or pek	2016	49
	19 do	or pek	1881	29
	37 do	pek	3478	26
Highfields	18 hf ch	bro or pk No 1	1008	47 bid
	19 do	bro or pek	1045	38 bid
	25 do	or pek	1225	33 bid
	30 do	pek	1560	35
H J S	25 do	pek sou	1500	21
Kurunegalle	17 do	bro or pek	1020	32
	20 cb	or pek	1060	30
Yahalatenne	28 do	bro pek	2912	36
	19 do	pek	1729	32
Ferndale	11 do	bro or pek	1045	44
	15 do	pek	1350	31
Gangwarily	40 do	bro pek	4000	31
	21 do	pek	1785	26
Owilikande	16 do	bro or pek	1600	29
	13 do	or pek	1105	30
	23 do	pek	2070	23 bid
Southwark	22 do	br pek	2090	30

Messrs. Forbes & Walker.

[482,319 lb.]

	Pkgs.	Name.	lb.	c.
Summer Hill	34 ch	bro or pek	1972	59
	28 do	bro pek	1736	57
	13 do	or pek	1144	53
	15 do	pek	1365	46
Nillomally	23 do	pek	2024	31
	19 do	pek sou	1558	27
	15 do	bro or pek	1500	50
	13 do	or pek	1068	40
Galapitakande	23 do	or pek	2300	38
	33 do	bro pek	3300	40 bid
	37 do	pek	3330	32
Swinton	17 do	bro or pek	1700	31 bid
	20 do	or pek	2000	27 bid
	19 do	pek	1710	25 bid
	12 do	pek sou	1020	22
Amblangoda	17 do	bro or pek	1700	30 bid
	20 do	or pek	2000	30
	19 do	pek	1710	24 bid
	13 do	pek sou	1105	22
Bulugolla	25 do	bro or pek	2500	30 bid
	31 do	or pek	3100	26 bid
	26 do	pek	2510	26
	19 do	pek sou	1615	23

	Pkgs.	Name.	lb.	c.
Amblankande	10 do	bro pek	1000	31 bid
	16 do	pek	1440	24 bid
	12 do	pek sou	1020	21
Bramley	42 hf cb	or pek	1932	43
Dickbeua	35 ch	bro or pek	3710	31
	26 do	or pek	2470	29 bid
	51 do	pek	4488	24
	16 do	pek sou	1328	19
Poonagalla	27 do	bro pek	3105	52 bid
	17 do	pek	1564	39 bid
N W D	16 hf ch	pek dust	1360	23
Dunedin	*29 hf ch*	*young hyson*	*1508*	*38*
	28 ch	*hyson*	*2464*	*33*
Ardlaw & Wishford	11 ch	bro or pek	1100	58
	12 do	bro pek No. 1	1200	42
	11 do, 1 hf cb }	or pek	1035	29
Halbarawa	17 ch	pek	1224	22
	31 do	pek sou	1922	19
Waldemar	16 hf ch	bro or pek	1008	61 bid
	12 ch	bro pek	1344	46
	13 do	or pek	1746	43
	18 do	pek	1656	39
Florence	19 hf ch	bro or pek	1045	72
	14 cb	or pek	1274	62
	33 do	pek	2904	43
St. Helens	25 hf ch	bro or pek	1375	23
	13 ch	or pek	1105	29
	12 do	pek	1080	25
Stafford	15 do	or pek	1500	41
	12 do	pek	1080	41
Great Valley, Ceylon, in est. mark	39 hf ch	or pek	2840	54
	20 do	or pek	1080	37 bid
	25 ch	pek	2300	32 bid
Tembiligalla	20 do	bro or pek	2000	30
	11 do	pek	1023	24
Tempo	11 do	or pek	1045	30
	12 do	pek	1020	27
Waitalawa	56 hf ch	bro pek	2800	46
	68 do	pek	3400	36
Glencorse	14 ch	or pek	1120	36
	13 do	pek sou	1200	23
Clunes	10 do	bro pek	1000	34
	12 do	or pek	1080	33
	19 do	pek	1710	26
	11 do	fans	1210	23
Weoya	17 ch	bro or pek	1785	34
	43 do	bro pek	4300	29
	34 do	pek	2890	26
Maha Uva	23 hf ch	bro or pek	1449	36
	15 ch	or pek	1500	36
	16 do	pek	1440	32
Pallagodde	22 do	bro or pek	2200	32
	36 do	bro pek	3600	35
	33 do	or pek	2805	31
	27 do	pek	2160	27
	23 do	pek sou	2070	23
	13 do	sou	1105	20
High Forest	26 hf ch	or pek No. 1	1400	60 bid
	23 do	bro pek	1380	59
	21 do	or pek	1071	50
B W	*35 hf ch*	*twanky*	*1750*	*10*
Lucky Land	32 hf ch	bro or pek	1920	40
	14 ch	or pek	1344	39 bid
	15 do	pek	1275	39
Parussella	30 do	bro or pek	3300	36
	23 do	or pek	2300	28 bid
	29 do	pek	2610	26
	20 do	pek sou	1700	23
Ganapalla	33 do	bro or pek	3036	31 bid
	27 do	or pek	2295	34
	48 do	pek	3696	25
Glencorse	13 do	bro pek	1300	38
	13 do	or pek	1040	36
	15 do	pek	1125	27
	20 do	pek No 2	1500	23
	24 do	pek sou	1800	23
Ireby	41 hf ch	bro pek	2460	49 bid
	20 ch	pek	1700	37 bid
Vogan	22 do	bro or pek	2200	44 bid
	38 do	or pek	3420	32
	41 do	pek	3690	24 bid
	21 do	pek sou	1785	23
Ambragalla	43 hf ch	or pek	2021	35
	41 do	bro or pek	2378	37 bid
	19 ch	pek	1558	30
	14 do	pek sou	1092	23 bid
Dunbar	20 hf ch	bro or pek	1080	59 bid
	16 ch	or pek	1392	37 bid
	14 do	pek	1148	35 bid
	11 do	bro pek fans	1093	34
Agraoya	28 bf ch	bro or pek	1680	37
	27 do	or pek	1350	32
	12 ch	pek	1030	29
Tymawr	18 hf ch	bro or pek	1080	46
	27 do	pek	1296	36
Middleton	20 ch	bro pek	2000	43
	18 do	or pek	1620	36

	Pkgs.	Name.	lb.	c.
Nahalma	16 do	or pek	1600	31
	13 do	bro or pek	1274	36
	14 do	pek	1344	24
	12 do	pek sou	1080	23
Monkswood	18 hf ch	bro or pek	1080	80
	41 do	or pek	2050	60
	39 ch	pek	3510	49
	14 do	pek sou	1120	46
Deacolla	26 hf ch	bro pek	1430	51
	31 ch	pek	2[illegible]70	32
	21 do	pek sou	1470	24
	14 hf ch	dust	1120	24
Good Hope	42 ch	bro or pek	3780	28
	16 do	pek	1440	25
	11 do	pek sou	1260	22
Yelatenne	12 do	bro pek	1320	43
Puspone	13 do	bro pek	1365	32
	17 do	pek	1530	23
Castlereagh	30 hf ch	bro or pek	1500	54
B P C	19 do	dust	1425	21
Seenagolla	22 do	bro or pek	13[illegible]0	60
Dunkeld	19 do	pek fans	1292	25
	14 do	dust	1[illegible]60	23
S. Katelle	*15 ch*	*young hyson*	*2100*	*35 bid*
	11 do	*hyson No. 1*	*1320*	*33 bid*
Polatagama	53 ch	bro pek	5300	34
	41 do	pek	3690	26
K D	*37 hf ch*	*young hyson*	*2035*	*34 bid*
	29 ch	*hyson*	*2523*	*33 bid*
Puspone	18 ch	bro pek	1980	31 bid
Thedden	17 ch	bro pek	1697	30 bid
Baddegama	10 do	bro or pek	10[illegible]0	38
	14 do	or pek	12[illegible]0	34
W A	22 do	bro pek	2200	27 bid
	12 do	pek	1140	23
Inverness	19 do	bro or pek	1900	62
	20 do	pek	[illegible]	43
Battawatte	24 do	bro pek	2640	35
	19 do	pek	1900	30
Marlborough	27 hf ch	bro or pek	1458	59
	19 ch	or pek	1710	36 bid
	11 do	bro pek	1100	34
	14 do	pek	1148	33
Palmerston	19 hf-ch	bro or pek	1140	64
	13 ch	pek	1105	41
St. Heliers	26 hf ch	bro or pek	1430	46
	11 ch	pek	1001	31
Knavesmire	30 do	pek	2550	22
Glendon	12 do	bro pek	1200	49
	38 do	or pek	3800	32
	36 do	pek	3240	30
	18 hf ch	pek sou	16[illegible]0	24
	9 ch	bro pek fans	11[illegible]5	26
North Cove	19 hf ch	bro or pek	1064	66
	33 do	bro pek	2088	49
	23 ch	pek	2070	40
Kitulgalla	18 hf ch	bro or pek	1008	29
	12 ch	or pek	1014	28
	12 do	pek	1020	25
Yataderia	40 do	pek	3357	23
	46 do	pek	3723	23
Poonagalla	10 do	or pek	1000	42
	34 do	pek	3230	40
Pussela	50 do	pek sou	4200	18 bid
Dotala	17 hf ch	bro or pek	1020	53 bid
	19 ch	pek	1710	31
Bowlana	18 do	or pek	1797	37 bid
Fine Hill	23 hf ch	bro or pek	1610	44 bid
	13 ch	or pek	1710	37
	21 do	pek	1890	32
	13 do	pek sou	1105	25
Mawiligangawatte	27 do	pek sou	2025	22
Tonacombe	37 do	or pek	3515	38
	38 do	bro pek	3800	38 bid
Tonacombe	57 do	pek	5130	34
	19 do	pek sou	1520	26
	15 hf ch	dust	1275	24
M P	14 ch	sou	1190	17
	10 do	bro pek fans	1200	23
Strathspey	11 do	or pek	1064	39 bid
	12 do	pek	1101	37
Forest	30 do	bro or pek	3036	33 bid
Adisham	33 do	bro or pek	1650	54
	10 do	bro pek	1000	37 bid
Adisham	13 do	pek	1235	35 bid
Passara Group	17 do	bro pek	1700	33 bid
	12 do	pek	1080	32
Knavesmire	34 do	bro pek	3400	34
	33 do	pek	2640	24
El Teb	17 hf ch	dust	1496	24
Dehiowita	19 ch	bro pek	1900	36
	37 do	pek	3330	26
Madulkelle	14 do	pek	1120	27
Blackwood	20 do	or pek	1697	35
	21 do	pek	1887	31
U R	38 do	pek	3113	30

	Pkgs.	Name.	lb.	c.
Elstowe	27 do	pek sou	2332	25 bid
Preston	32 hf ch	bro or pek	1792	53 bid
M T P in est. mark	13 do	fans	1300	27
Delta	29 do	bro pek	2810	35

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	4 hf ch	dust	306	24
U D in est. mark	3 do	dust	255	26
Navala Kanda	6 ch	congou	510	16
Gondanawella	8 hf ch	bro pek	440	30
	17 do	pek sou	850	22
	5 do	bro tea	340	14
Coodoogalla	5 do	pek sou	250	21
	5 do	dust	400	23
Agrakanda	3 ch	pek sou	240	28 bid
	3 do	fans	276	30
	3 do	dust	420	21 bid

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Kitulakanda	14 hf ch	bro pek	812	21 bid
	11 do	pek	550	19 bid
	17 do	pek sou	765	18
Moneragalla	7 ch	fans	679	26
	1 do	dust	100	22
Alpha	6 do	or pek	510	25 bid
	8 do	pek	680	24 bid
	5 do	pek sou	400	22 bid
	2 hf ch	fans	150	19
Kerenvilla	8 ch	pek	800	21 bid
	7 do	pek	700	18
	3 do	sou	309	17
	2 do	fans	200	14
Galgedioya	3 hf ch	dust	240	19
	4 ch	fans	400	22
A	10 hf ch	dust	800	22
Raxawa	4 do	dust	300	22
A	8 do	dust	610	23
Dunnottar	16 do	bro pek	880	26
A	4 do	dust	340	22
Hangranoya	3 do	dust	255	20
A	2 do	dust	180	17

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Killin	4 ch	sifts	400	10
P. P. P.	2 ch	bro pek	200	25
	4 ch	pek	320	25
	1 ch	pek sou	75	22
Melvilla	15 hf ch	bro pek	750	23
	14 hf ch	pek	700	23
	5 hf ch	pek sou	250	19
Karawkettia	2 ch	con	210	13
	1 ch	dust	146	15
Perth	8 ch	pek	600	25
	4 ch	pek sou	280	23
	4 ch	fans	520	23
Theresia	15 hf ch	bro or pek	825	52 bid
Templestowe	12 hf ch	fans	960	28
Kolapatna	17 hf ch	bro or pek	952	60
	5 hf ch	fans	340	29
	2 hf ch	dust	166	23
St. Johns	10 hf ch	dust	860	27
Merrow	8 ch	pek	760	22
Dubena	8 ch	pek	800	19
	7 ch	pek sou	665	18
	1 ch	fans	77	17
	2 ch	dust No. 1	224	17
	1 ch	dust No. 2	99	14
	1 ch	con	95	12
Rondura	10 ch	bro or pek	980	42
Agra Ouvah	10 ch	pek	920	37
Bowella	2 ch	fans	170	21
	5 hf ch	dust	400	20
Cabin Ella	5 hf ch	bro pek fans	350	28
	1 hf ch	pek dust	90	23
Brownlow	9 ch	pek sou	792	26
Kahagalla	7 ch	pek	686	44
	8 ch	pek sou	720	34
	2 hf ch	dust	168	25
K W	2 ch 1 hf ch	bro pek	280	26
	4 ch	pek	380	19
	2 hf ch	pek sou	100	18
Kebelwatte	2 ch	fans	2[illegible]0	24
	4 hf ch	dust	340	23
Sanquhar	3 ch	bro mix	270	13
Devon	4 hf ch	dust	332	23

	Pkgs.	Name.	lb.	c.
Kcsgalla	8 ch	pek	400	23
	7 ch	pek sou	315	19
	2 ch	bro pek fans	140	16
Venture	9 hf ch	dust	765	22
Wanarajah	1 hf ch	pek sou	55	30
	8 hf ch	dust	672	22
Ankande	3 hf ch	dust	240	18
	1 ch	sou	100	18
Taunton	8 ch	pek sou	640	23
	2 hf ch	fans	130	23
	4 hf ch	dust	340	21
Annamallai	1 hf ch	dust	85	15
Tismoda	8 ch	pek	6.0	28
Glassaugh	12 hf ch	fans	900	35
Waragalande	11 ch	pek	990	25 bid
	7 ch	pek sou	630	23
R F	10 ch	pek	900	20
Rookwood	7 ch	sfts	487	9

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Avisawella	6 hf ch	dust	450	23
Kurulugale	2 ch	bro or pek fans	200	18
Bandaratenne	1 do	sou	76	18
H	1 hf ch	or pek	56	28
H in est mark	2 ch	or pek	177	15
Batgoda A	4 do	bro or pek	256	43 bid
	3 do	bro pek	324	40
	4 do	pek	400	36
	1 do	pek sou	91	30
	1 do	dust	94	23
Oolapane	8 do	pek sou	720	23
Mount Temple	1 hf ch	bro pek	50	28
Attahakena	13 do	bro pek	728	26
	4 do	pek	2.6	18
	5 ch	pek sou	485	16
Mahagoda	3 do	bro pek	330	26
	2 do	pek sou	200	16
L E in est mark	2 do	bro pek	200	16
	2 do	pek	140	18
G A D	2 do	red leaf	137	withd'n
M D F in est mark	14 hf ch	bro or pek	770	34
	8 ch	or pek	680	33
	8 do	pek sou	640	20
Monrovia	8 do	pek sou	(8)	20
	3 do	unas	285	19
	8 do	fans	720	20
H G L	3 hf ch	sou	300	17
Old Madegama	10 ch	or pek	700	37 bid
	4 do	pek sou	320	28
	3 do	bro or pek fans	300	28
	1 do	dust	100	24
D in est mark	4 hf ch	bro pek	220	withd'n
	6 do	pek	300	withd'n
	4 do	pek sou	210	withd'n
Sadumulla	8 ch	bro pek	803	23 bid
	3 do	pek sou	267	15
	3 do	fans	333	14
	4 do	Red leaf	358	10
R K P	4 do	dust	400	22
Theberton	11 do	bro pek	930	24 bid
	11 do	pek	935	28
	1 do	bro pek fans	100	24
	1 do	fans	100	23
R S	6 do	bro pek	576	26
	5 do	pek	455	19
L in est mark	2 hf ch	fans	152	20
	10 ch	bro mixed	950	10 bid
Newnhella	9 hf ch	bro or pek	450	35
	3 ch	bro pek	300	28
	4 do	pek	400	22
	2 do	pek sou	164	19
	4 do	bro or pek fans	500	19
Rayigam	*3 ch*	*hyson No. 2*	*285*	*32*
	9 hf ch	*siftings*	*720*	*10*
	5 do	*siftings*	*400*	*withd'n*
Annandale	8 do	bro pek	480	35
	5 do	fans	330	20
	4 do	dust	340	25
Glenanore	8 ch	pek sou	630	26
	5 hf ch	dust	400	23
St Andrews K	11 do	pek	550	24 bid
	1 do	pek sou	50	21
	1 do	dust	86	20
Uggala	11 do	pek sou	616	18
Deville	9 ch	bro pek	900	32
	8 do	pek	720	25
	5 do	pek sou	450	20 bid
	2 hf ch	dust	160	22
Blackheath	5 ch	souchong	450	18
	4 do	fans	300	22
Oaklands	6 hf ch	dust	480	20
	5 ch	br or pek fans	500	22
H	*4 ch*	*Twanky*	*400*	*11*
Atherton	2 hf ch	dust	160	16
Galatota	3 ch	bro pek	300	24
	2 do	pek	200	13
	1 do	pek sou	100	17

	Pkgs.	Name.	lb.	c.
Welgampola	10 hf ch	or pek	580	27
	12 do	bro pek	720	25
	6 do	pek sou	336	20
	2 do	fans	110	18
Galata	7 do	bro pek fans	525	25
C in est mark	1 ch	pek	92	18
	1 hf ch	dust	75	16
G M	*1 ch*	*hyson*	*100*	*26*
Kurunegalle	7 ch	pek	630	27
	2 do	pek sou	170	22
	4 hf ch	dust	340	23
Gangwarily	11 ch	or pek	880	33
	1 do	pek sou	85	21
	2 hf ch	dust	160	16
	5 hf ch	fans	300	19
	1 ch	sou	85	18
R in est mark	1 do	br pek	70	28
	2 hf ch	pek	114	21
	2 do	fans	150	19
Owilikande	9 ch	pek sou	810	21
	4 hf ch	dust	320	21
Southwark	11 ch	or pek	803	26
	10 do	pek	750	24
	4 do	pek sou	312	22
	1 do	bro tea	95	16

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Trewardena	5 ch	bro pek	500	29
	4 do	pek	400	23
	7 do	pek sou	700	20
	6 do	sou	600	19
	2 do	fans	200	22
	1 do	congou	78	16
Mahayaya	4 do	bro pek	420	36
	3 do	pek	270	25
	2 do	pek sou	170	24
	1 hf ch	dust	40	20
Nill mal'y	6 ch	fans	(0)	27
	2 do	dust	200	18
Galapitakande	6 do	pek sou	570	27
	4 hf ch	bro pek	200	53
	5 do	dust	425	26
Swinton	2 ch	fans	200	22
	2 do	dust	220	20
Amblangoda	2 do	fans	200	22
	1 do	dust	110	20
Bulugolla	3 do	fans	300	22
	2 do	dust	220	20
Amblakande	5 do	dust	500	21
Bramley	9 hf ch	bro pek	504	60
	15 do	bro or pek	720	74
	21 do	pek	966	42
	14 do	or pek No 1	644	withd'n
Poonagalla	6 ch	fans	492	31
N W D	3 do	pek sou	270	28
C R S	4 hf ch	bro pek	204	21
	1 do	dust	100	12
Dunedin	*3 ch*	*hyson No. 2*	*285*	*32*
	9 hf ch	*fannings*	*540*	*9*
	3 do	*dust*	*255*	*9*
V O A	2 ch	pek sou No 2	180	26
	4 do	dust	480	22
	1 do	b o tea	120	16
Ardlaw & Wishford	6 do	bro pek No 2	600	35
	11 do	pek	902	31
	2 do	fans	200	28
Findlater	2 do	pek No. 2	210	20
	3 hf ch	dust	252	25
Weywawatte	9 do	bro pek	594	28
	7 do	pek	427	22
Halharawa	2 ch	fans	224	20
	1 hf ch	dust	85	16
Forest Creek	10 ch	pek	950	26
Tennehena	1 do	bro pek	116	24
	2 do	pek	162	19
Kelburne	10 hf ch	dust	800	22
Kelwin	3 ch	pek sou	270	23
	4 hf ch	dust	340	13
	6 do	fans	420	22
	1 ch	bro mix	90	18
Pingarawa	4 hf ch	dust	360	23
Stafford	8 ch	bro or pek	960	56 bid
	1 do	dust	150	24
	1 do	fans	125	29
Great Valley, Ceylon, in est. mark	10 do	pek sou	800	27
	7 hf ch	dust	560	23
Nakiadenia	*8 ch*	*young hyson*	*520*	*34*
	5 do	*hyson*	*350*	*32*
	1 do	*hyson No. 2*	*70*	*32*
Nakiadenia	3 ch	bro or pek	315	43
	3 do	or pek	300	32
	8 do	pek sou	560	23
	1 do	bro tea	90	24
	3 do	bro pek fans	240	23

	Pkgs.	Name.	lb.	c.
Tembiligalla	4 do	pek sou	372	22
	2 do	pek fans	200	23
	1 do	pek dust	170	17
Tempo	9 do	pek sou	675	23
Waitalawa	16 hf ch	pek sou	800	24
Eriacolla	1 ch	bro pek	100	34
	1 do	or pek	85	34
	2 do	pek	160	22
Weya	9 do	pek sou	765	22
	8 do	bro pekoe fans	880	22
	3 do	dust	450	18
Lucky Land	7 do	pek sou	630	30 bid
Parussella	9 hf ch	fans	765	21
A B C	3 ch	sou	300	18
Ganapalla	6 do	bro pek fans	660	21
	6 hf ch	dust	510	18
Ireby	8 ch	pek sou	680	29 bid
Yogan	3 do	pek fans	375	24
	7 hf ch	dust	560	21
Ambragalla	4 ch	dust	400	23
Dunbar	5 do	pek sou	385	31
N B	1 do	dust	150	23
M	4 hf ch	bro pek	240	41
	3 ch	pek	270	27
Nahalma	3 do	bro pek fans	300	23
	5 hf ch	dust	400	21
	5 ch	pek fans	500	18
Monkswood	11 hf ch	fans	770	42
	4 do	dust	360	28
Good Hope	1 do	bro pek fans	65	18
	4 do	dust	360	20
Yelatenne	9 ch	pek	900	33
	7 do	pek sou	700	24
	2 hf ch	dust	172	24
Castlereagh	9 ch	bro pek	900	33
	8 do	or pek	640	35
	11 do	pek	880	29
Seenagolla	13 hf ch	or pek	676	47
	13 do	pek	780	38
	3 do	dust	240	25
S. Katelle	*3 ch*	*hyson No. 2*	*180*	*34*
	5 do	*hyson siftings*	*450*	*9*
Pelatagama	10 ch	or pek	950	38
	9 ch	fans	900	22
	1 do	dust	150	19
K D	*6 ch*	*hyson No. 2*	*480*	*32*
	4 do	*hyson fannings*	*480*	*out*
Agra Ouvah	2 hf ch	bro or pek	120	out
R	2 ch	sou	108	16
	5 do	dust	600	24
Baddegama	4 do	bro pek	400	30
	6 do	pek	510	26
	7 do	pek sou	560	25
	2 do	fans	240	25
W A	7 do	pek sou	700	20
	4 do	bro mix	400	18
	4 do	dust	640	18
Beruketiya	8 hf ch	bro pek	456	25
	11 ch	pek	550	21
	1 do	or pek	83	24
	1 do	bro pek fans	61	17
	1 do	dust	65	18
Inverness	10 do	or pek	900	50
Pattawatte	11 hf ch	br or pek	715	33
	8 ch	pek sou	720	25
	2 do	dust	200	23
Devonford	4 hf ch	bro or pek	237	44
Palmerston	4 ch	pek sou	300	30 bid
St. Heliers	8 do	pek sou	744	22
K P W	1 hf ch	bro or pek	60	31
L L in est. mark	1 do	pek fans	78	17
Coteland	3 ch	pek sou	247	22
Kitulgalla	3 do	br or pek fans	330	24
	2 hf ch	dust	160	21
C R D	6 ch	pek	540	19
	3 do	sou	240	19
	1 do	red leaf	70	11
	3 hf ch	dust	300	20
Dotala	14 do	or pek	630	39
	3 ch	pek sou	285	26
	3 hf ch	pek fans	225	24
Bowhina	8 ch	pek sou	717	26 bid
M P	2 do	dust	280	18
	3 do	dust No. 2	510	15
Augusta	2 do	fans	240	20
	6 do	dust	870	20
Kotuagoda	5 hf ch	or pek	250	25
	3 do	bro pek	150	19
	3 ch	pek	150	16
	1 hf ch	dust	65	14
D	4 ch	sou	300	18
K B	3 do	bro pek	300	20
	7 hf ch	pek dust	525	22
Adisham	3 ch	pek sou	285	30
Passara Group	5 do	bro or pek	500	54
	4 do	pek sou	360	26
Knavesmire	13 do	pek sou	975	20
	9 hf ch	br pk fans	720	20
Dehiowita	6 ch	or pek	540	32
	9 do	pek sou	765	21
Madulkelle	1 do	fans	100	27
W W	1 do	bro pek	109	28
North Matale	5 hf ch	dust	425	23
Nakiadeniya	*9 hf ch*	*young hyson*	*567*	*34*
	9 do	*hyson*	*567*	*32*
	2 do	*hyson No. 2*	*100*	*33*
	1 ch	*siftings*	*90*	*9*
Preston	15 hf ch	or pek	792	48
	11 ch	pek	902	38
	4 hf ch	bro or pek fans	272	35
M T P in est mark	2 ch	dust	200	23
	1 do	souchong	100	16

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Oct. 3rd.

"Matiana."—Monarakelle 2, 3 bags sold at 43s; Broken, 1 at 46s.

"Duke of Devonshire."—Meegama 1, 6 bags sold at 57s.

"Clan Ferguson."—Meegama 1, 5 bags sold at 57s; ditto B 1, 2 at 40s.

"Glenens."—Meegama 1, 8 bags sold at 57s 6d; B 1, 1 at 40s.

"Alcinons."—Meegama 1, 13 bags sold at 57s 6d.

"Bingo Main."—Meegama 1, 6 bags sold at 57s 6d; B 1, 1 at 40s.

"Clan Gordon."—Marakona, 6 bags sold at 56s; Nibs, 6 at 40s; Ankanda 1, 12 bags sold at 44s; 2, 1 at 44s; 3, 1 at 13s.

"Sarpedon."—Sirigalla T, 6 bags sold at 51s; ditto T D, 2 at 51s 6d.

"Logician."—R in estate mark, 1 bag sold at 35s.

"Duke of Devonshire."—PD in estate mark, Estate Cocoa, 1 bag sold at 44s; KK in estate mark, Estate Cocoa, 1 bag sold at 44s; Sundry Marks, 1 bag sold at 49s.

"Clan MacNab."—Grove L, 1 bag sold at 32s; ditto B, 1 at 35s; ditto A S, 1 at 32s; H H H, 1 at 49s.

"Clan Gordon."—Katugastota, 22 bags sold at 70s 6d; 3 at 54s.

"Urquhart."—Kumaradola A, 23 bags sold at 70s; 4 at 47s 6d; Maragalla Y, 28 bags sold at 68s; ditto R A. 13 at 67s 6d; ditto T Y, 2 at 41s 6d; A, 1 at 37s 6d.

"Matiana."—Glen Urquhart, 13 bags sold at 34s 6d.

"Teenkai."—Rockhill B, 3 bags sold at 50s.

"Machaon."—Greenwood 1, 6 bags sold at 47s 6d; ditto 2, 8 at 47s 6d; ditto 3, 1 at 30s.

"Clan Urquhart."—F OBEC in estate mark, Kondesalle Ceylon O, 18 bags sold at 69s 6d; F ditto 1, 2 at 55s; ditto O, 4 at 71s; ditto 1, 1 at 50s 6d; F ditto D 2, 1 at 50s 6d; G ditto, 1 at 21s; F OEO in estate mark, Mahaberia Ceylon O, 6 bags sold at 68s; F ditto 1, 4 at 55s 6d; G ditto 2, 6 at 47s 6d.

OBSERVER PRINTING WORKS.

No. 43. COLOMBO, NOVEMBER 3rd, 1902. Price:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[14,872 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	20 ch	or pek	2000	41
	18 do	pek	1530	33
Choubleigh	11 do	bro or pek	1100	44 bid
	21 do	bro pek	2058	30 bid
	13 do	pek	1144	27 bid
Cocdoogalla	25 bf ch	bro pek	1250	31 bid
Mapitigama	12 ch	bro or pek	1320	33 bid
	34 do	pek	3060	24

Messrs. Keell and Waldock.

[47,054 lb.]

	Pkgs.	Name.	lb.	c.
X V	16 ch	bro pek	1680	20 bid
Gampai	50 hf ch	or pek	2350	31
	55 do	bro or pek	3080	33 bid
	29 cb	pekoe	2320	28
	29 do	pek sou	2204	23
Ovitta	15 do	bro or pek	1500	30 bid
	12 do	pekoe	1020	25 bid
Udawella	23 hf ch	or pek	1127	36 bid
	53 do	bro or pek	3074	40 bid
	43 do	pek	1978	31 bid
Pasmalie	25 cb	bro pek	2375	32 bid
	26 do	pek	2340	26 bid
	15 do	pek sou	1200	23 bid
	19 hf ch	pek fans	1235	24
Aigburth	11 ch	or pek	1100	36
	19 hf cb	bro or pek	1045	48
	21 ch	pek	1848	30
Fairlawn	44 hf ch	bro or pek	2640	51
	20 do	bro pek	1000	35
	14 ch	pek	1120	35
Bargany	18 hf cb	bro or pek	1080	53
Kurugalla	22 ch	bro pek	2090	26 bid
	13 do	br or pek	1300	29
	13 do	pek	1170	22 bid

Messrs. E. John & Co.

[102,096 lb.]

	Pkgs.	Name.	lb.	c.
Warleigh	13 ch	or pek	1261	40
	24 do	pek	2040	35
R K	11 hf ch	dust	1122	18 bid
Mocha	39 bf cb	bro pek	2262	62 bid
	14 ch	or pek	1302	45 bid
	16 do	pek	1520	42 bid
Fordyce	17 hf ch	fans	1190	27
Castle Hill	13 cb	or pek	1300	26
	13 do	pek	1170	22
	16 do	pek sou	1440	18
Glasgow	24 hf cb	bro or pek	1392	64
	18 cb	bro pek	1800	41 bid
	19 do	or pek	1767	42
	11 do	pek	1045	40
A A	29 hf cb	dust	2465	20 bid
Ottery	11 ch	bro or pek	1100	54
	22 do	pek	1950	31
	12 hf cb	dust	1020	25
Osborne	21 ch	or pek	1932	37
	15 do	pek	1410	30 bid
Bowella	13 do	pek sou	1040	23
Mt. Vernon	22 do	pek	1936	38
Glenesk	25 do	pek sou	2550	24
S H	34 do	pek sou	3045	18 bid
Theresia	16 do	or pek	1272	44
	15 do	pek	1272	withd'n
Alnic	*20 hf ch*	*young hyson*	*1340*	*37 bid*
	20 hf ch	*hyson*	*1140*	*36 bid*
Gangawatte	10 cb	bro pek	1000	41
	18 do	pek	1620	35
Elston	22 do	pek	1870	32
	19 do	pek sou	1615	26
Longville	27 do	bro pek	2700	33
	15 do	pek	1500	29
O W	14 do	bro pek	1344	27 bid
	13 do	pek	1010	22 bid
Kolapatna	16 hf ch	bro pek	1056	35 bid
Eversfield	17 ch	bro pek	1700	28 bid
	13 do	pek	1300	26
	10 do	pek sou	1010	22
Ford	15 do	bro pek	1500	29
Karawkettia	15 do	bro pek	1629	24 bid
Rookwood	25 do	bro or pek	2691	35 bid
M	17 do	bro or pek	1694	20
Glentilt	38 hf ch	bro or pek	2090	56 bid
	23 ch	or pek	2070	42
	22 do	pek	1980	38
	19 hf ch	fans	1520	30
R P A	12 ch	bro or pek	1260	26
	20 bf cb	pek	1000	23
	25 ch	pek sou	2125	19
Rookwood	27 cb	pek	2424	24 bid

Messrs. Somerville & Co.

[151,216 lb.]

	Pkgs.	Name.	lb.	c.
Polgahakande	14 ch	or pek	1050	33
	10 do	bro pek	1000	28
	13 do	pek	1040	22 bid
	11 do	pek sou	1045	20 bid
Adawatte	22 do	bro pek	2200	27 bid
	15 do	pek	1350	26 bid
Mahatenne	10 do	or pek	1000	30
Waganila	18 do	bro pek	1800	38 bid
	28 do	pek	2744	30 bid
Laxapanagalla	22 do	bro or pek	2200	35
Pindeni Oya	17 do	bro pek	1530	27 bid
	16 do	pek No. 1	1280	25
	15 do	pek No. 2	1200	23
Warakamure	21 do	bro or pek	2100	31
	21 do	or pek	1680	31
	34 do	pek	2890	23
	13 do	pek sou	1040	21
Avon. Haputale	33 do	bro or pek	2178	50
	22 do	or pek	2376	43
	23 do	pek	2185	39
	14 do	pek No 2	1314	34
Ambalawa	14 do	bro pek	1400	28
	14 do	pek	1148	23
Mount Temple	19 do	bro pek	1900	30
	25 do	pek	2000	24
	20 do	bro or pek fans	2000	26
Fairfield	23 do	pek No. 2	2185	32 bid
Hobart	19 do	bro pek	1862	29
Hanagama	21 do	or pek	2100	29
	21 do	pek	2100	24
Laukka	20 do	bro pek	1930	27 bid
	20 do	pek	1600	23
Harangalla	28 do	bro pek	2660	30 bid
	26 do	pek	2210	26 bid
Walla Valley	26 hf ch	bro or pek	1430	62
	17 cb	or pek	1612	41 bid
	26 do	pek	2210	42
Farnham	19 bf ch	bro pek	1045	31
	12 ch	or pek	1008	28
	12 do	pek	1030	25
Neboda	27 ch	bro or pek	2700	40
	17 do	or pek	1564	34
	26 do	pek	2600	26
Neuchatel	14 ch	bro or pek	1400	42
	56 do	or pek	5015	32
	44 do	pek	3520	26
	12 do	bro pek fans	1380	26
Meeriatenne	19 hf ch	bro pek	1102	53
	22 do	pek	1100	39
	21 do	pek sou	1008	35
Mousakande	15 ch	pek	1425	27
Oonankande	21 bf ch	bro pek	1050	withd'n
	30 do	pek	1650	withd'n
Havilland	25 ch	pek	2125	27
Ravenscraig	20 bf ch	bro pek	1120	48
	20 do	or pek	1120	33
Yarrow	17 do	pek	1054	26
Mabavilla	24 do	bro or pek	1368	32
	30 do	or pek	1530	37
	43 do	pek	2279	28
	20 do	pek sou	1060	23
	26 do	pek sou	1378	23
Rambodde	20 do	bro pek	1030	40
	23 do	pek	1035	29
Avisawella	20 do	bro or pek	1000	44
	16 cb	or pek	1520	33
	18 do	pek	1620	27
	13 do	pek sou	1040	23
Carney	23 hf ch	bro pek	1150	28 bid
	23 do	pek	1035	25
Scarborough	19 do	bro or pek	1026	52
	19 ch	or pek	1805	39
	20 do	pek	1900	34 bid

Messrs. Forbes & Walker.

[414,537 lb.]

	Pkgs.	Name.	lb.	c.
Avoca	14 ch	bro or pek	1428	69
	16 do	or pek	1600	39 bid
	13 do	pek	1170	33 bid
Darrawella	48 ch	pek	4128	31
Lindupatna	15 ch	bro or pek	1530	68
	19 do	or pek	1900	40
	14 do	pek	1260	34
Panwatte	13 ch	bro or pek	1650	43
	25 do	pek	2375	29
	22 do	pek sou	1980	26
Detenegalla	29 ch	or pek	1682	41
	21 do	bro or pek	1218	55
	18 do	pek	1800	39
Rickarton	11 ch	bro or pek	1100	64
	14 do	pek No 1	1400	35
	17 do	pek	1700	29
Moray	25 bf ch	bro or pek	1325	50
	18 ch	pek	1566	32
Yogama	15 ch	bro pek	1575	33 bid
	15 do	or pek	1500	30
	27 do	pek	2430	28
	14 do	pek sou	1190	24
Maha Eliya	20 hf ch	bro or pek	1200	58 bid
	26 do	bro pek	1560	41
	13 ch	or pek	1170	42
	22 do	pek	1980	37
Kincora	16 ch	bro or pek	1760	45 bid
	11 do	or pek	1045	35 bid
	15 do	pek	1275	32
Udabage	*58 hf ch*	*young hyson*	*2900*	*37 bid*
	39 do	*hyson No 1 B*	*1950*	*32 bid*
Bramley	57 hf ch	dust	4446	27
Tunisgalla	28 hf ch	bro pek	1680	36
	33 do	or pek	1650	32
	15 ch	pek	1350	27 bid
Ingrcgalla	17 ch	bro pek	1700	36
	12 do	pek	1080	30
Mansfield	60 hf ch	bro pek	3000	55
	15 ch	pek	1500	44
Bandara Eliya	40 hf ch	or pek	2000	38 bid
	27 do	bro or pek	1431	64 bid
	72 do	pek	3600	36
Sylvakandy	53 ch	bro pek	5300	33
	27 do	pek	2700	28
K P W	40 hf ch	bro or pek	2400	32
	45 do	bro pek	2250	31
	24 do	or pek	1080	32
	45 do	pek	2250	24
	28 hf ch	bro or pek	1680	32
	22 do	bro pek	1100	32
	33 do	pek	1650	24
Marieland	13 ch	bro or pek	1339	35
	28 do	bro pek	2800	32
	20 do	pek	1680	27
Hentleys	23 hf ch	bro pek	1242	33
	13 ch	pek	1001	24
Digdola	12 ch	bro pek	1200	35 bid
	20 do	pek	1600	27
Yatadeira	28 ch	bro or pek	3024	32 bid
	26 do	or pek	2470	30
	45 do	pek	3960	24
	15 do	pek sou	1245	22
Poonagalla	12 ch	or pek	1152	44
	28 do	bro pek	3136	55
	16 do	pek	1440	36 bid
Bromoland	25 hf ch	bro pek	1325	52
	13 ch	pek	1105	29 bid
Roeberry, Q	10 ch	bro or pek	1000	60
	32 do	bro pek	3200	42 bid
	34 do	pek	3128	40
	17 do	pek sou	1530	35
Roeberry, R	14 ch	pek	1288	35 bid
	12 do	bro pek	1200	38 bid
Macaldeniya	16 ch	bro pek	1280	40
	16 do	pek	1280	33
Torwood	14 ch	bro or pek	1288	34
	18 do	bro pek	1548	27 bid
	27 do	pek	2160	23
Hatton	23 ch	bro pek	2300	58
	20 do	pek	1800	39
G K	17 hf ch	dust	1360	22
Dammeria	33 ch	bro pek	3300	37
	37 do	pek	3330	28 bid
	59 do	or pek	5310	34
Hayes	18 ch	bro pek	1620	35
	18 do	or pek	1440	35
	27 do	pek	2430	26
Ruanwella	19 ch	bro or pek	1995	32
	33 do	or pek	2970	31
	24 do	pek	2160	25
Dammeria	33 ch	bro pek	3300	36
	25 do	or pek	2250	33 bid
	28 do	pek	2520	29
	24 do	pek sou	2160	24 bid

	Pkgs.	Name.	lb.	c.
Massena	33 hf ch	bro or pek	1650	43
	24 do	bro pek	1030	32
	30 do	pek	1350	29
Ganapalla	17 ch	bro or pek	1751	34
	15 do	bro pek	1260	31
	21 do	or pek	1680	35
	35 do	pek	2870	26
Killarney	22 hf ch	bro or pek	1210	68
	24 do	bro pek	1440	46
	14 ch	or pek	1148	41
	17 do	pek	1445	40
Drayton	36 hf ch	or pek	1800	42 bid
	33 ch	pek	2640	37
Mousa Eliya	10 do	bro or pek	1000	40
	21 do	bro pek	2100	35
	21 do	pek	1995	26
Crystler's Farm	30 ch	bro pek	1710	51
	25 do	pek	2425	36
Walton	11 ch	bro pek	1155	42
Choisy	26 hf ch	bro or pek	1430	45
	12 ch	or pek	1020	33
	23 do	pek	2070	28
Newmarket	9 ch	fans	1116	28
	8 do	dust	1218	26
Glengariffe	50 hf ch	bro or pek	2900	41
	11 do	pek	1045	28 bid
	15 do	or pek	1275	39
	13 do	pek sou	1040	26
	20 bf ch	pek fans	1400	28
Middleton	20 hf ch	bro or pek	1100	67
	13 ch	or pek	1170	41
	15 do	bro pek	1500	45
	23 hf ch	pek	1955	33
C N N	13 ch	pek sou	1235	32 bid
Gonapitiya	20 hf ch	or pek	1040	51
	20 do	pek	1000	44
W V R A	20 hf ch	bro or pek	1000	51
High Forest	28 hf ch	or pek No. 1	1400	55 bid
	22 do	bro pek	1276	58
	28 do	pek	1316	43
Marlborough	33 hf-ch	bro or pek	1782	53 bid
	13 ch	or pek	1170	37
	14 do	bro pek	1400	37
	16 do	pek	1472	34
Sirikandura	17 ch	bro pek	1598	28
	14 do	pek	1120	22
Penrhos	21 hf ch	bro or pek	1197	43
	21 do	or pek	1008	38
	14 ch	pek	1190	31
Tempo	15 ch	bro pek	1500	33 bid
	14 do	or pek	1330	30
	13 do	pek	1170	26
Pansalatenne	13 ch	bro pek	1300	32
	12 do	pek	1200	26
	12 do	or pek	1200	28
	12 do	pek sou	1140	22
U S A	10 ch	dust	1000	21
Ouvah	12 ch	pek sou	1076	23
A N	15 ch	pek sou	1500	19 bid
Monterey	17 hf ch	dust	1360	22
	14 do	pek sou	1260	22
Waldemar	16 ch	bro pek	1840	47
	12 do	or pek	1164	43
	13 do	pek	1170	40
B G	58 ch	pek sou	4920	19 bid
Talgaswela	19 ch	pek	1520	26
	14 do	pek sou	1050	24
Delta	28 ch	bro pek	2744	36
	29 do	pek	2320	29
Broughton	21 ch	pek	1995	43
	16 do	pek No 1	1568	45 bid
	26 hf ch	or pek	1404	48 bid
C, in estate mark	31 ch	pek	2979	out
Carfax	15 ch	bro or pek	1500	50
	17 do	or pek	1530	41
	17 do	pek	1530	37
Dunkeld	33 ch	bro or pek	3300	4
	18 do	or pek	1620	39
	20 do	pek	1860	35
P, in estate mark	14 ch	pek	1260	20 bid
Morankande	20 bf ch	bro or pek	1120	32
	35 do	or pek	1750	34
	23 ch	pek	2070	25
Dunbar	16 ch	or pek	1389	withd'n
Alver	20 ch	sou	1500	21
	15 hf ch	dust	1425	18
	21 do	bro pek fans	1470	25
Queensland	20 hf ch	bro or pek	1000	66
	15 ch	bro pek	1500	45
	12 do	or pek	1080	38 bid
Hunugalla	13 hf ch	dust	1040	19
Bellongalla	21 ch	pek	1890	23
Harrow	19 ch	bro or pek	1064	56
	12 do	or pek	1200	38
	29 do	pek	2755	33
Dambagastalawa	13 ch	bro or pek	1352	68
	17 do	or pek	1700	38 bid
	14 do	pek	1260	37

	Pkgs.	Name.	lb.	c.
Sylvakandy	15 ch	bro pek	1494	32
Swinton	20 ch	or pek	1997	27 bid
Ambalangoda	19 ch	pek	1707	25
Bulugolla	31 ch	or pek	3097	29

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Chouhleigh	2 ch	dust	280	24
	2 do	fans	240	25
Coo 'oogalla	13 hf ch	pek	650	26
	3 do	dust	240	23

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
X Y	4 ch	or pek	320	23
	2 do	pek sou	180	21
Gampai	6 hf ch	dust	468	22
Ovitta	6 ch	pek sou	480	22
	3 do	pek sou No 2	240	22
	2 hf ch	dust	150	22
K G	5 ch	souchong	425	19
Aigburth	4 ch	pek sou	320	23
	1 hf ch	dust	90	22
	4 do	bro pek fans	280	26
A B C	4 ch, 1 hf ch	bro pek	405	18
Bargany	9 do	bro pek	450	35
	7 ch	pek	560	33
Kurugalla	9 do	pek sou	810	22

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Oonoogaloya	9 hf ch	bro or pek No. 2	630	28
	9 ch	pek No. 2	810	24 bid
	7 hf ch	dust	595	24
	11 hf ch	fans	715	26
Warleigh	15 hf ch	bro or pek	825	74
	6 hf ch	fans	378	34
Fordyce	9 hf ch	dust	810	21
Castle Hill	8 ch	bro or pek	800	25
	6 ch	dust	600	21
Awliscombe	6 ch	bro pek	630	30 bid
	5 ch	pek	450	25
	3 ch	pek sou	255	22
	1 hf ch	dust	95	21
G. B.	2 ch	bro pek	210	28
	2 ch	pek	170	25
Westhall	1 ch	dust	95	23
	1 ch	fans	95	23
Ottery	9 ch	fly or pek	810	42
Osborne	54 box	fly or pek	972	43 bid
Galloola	1 ch	or pek	90	36
K. W.	3 ch, 1 hf ch	bro or pek	328	46
	1 ch	pek	95	19
Bowella	9 ch	bro or pek	900	30
	10 ch	bro pek	900	27
	6 ch	pek	480	23
	5 ch	sou	375	20
	3 ch	fans	270	23
O. F. E.	5 ch	bro pek	500	37
	4 ch	or pek	400	25 bid
	5 ch	pek	500	23
	3 ch	pek sou	300	22
	1 ch	bro pek fans	100	24
Gallpotta	9 hf ch	fans	585	9
Gang watta	9 ch	bro or pek	900	59 bid
	5 ch	pek sou	450	29
	7 hf ch	fans	455	24
Longville	5 ch	pek sou	500	24
Taunton	1 ch	dust	94	14
Horagalla	1 ch	bro pek dust	99	21

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
S R K	8 ch	pek	800	27
	2 do	dust	320	23
Adawatte	13 do	pek sou	940	22 bid
Waganila	5 do	pek sou	430	30 bid
	2 hf ch	dust	180	23
Laxapanagalla	9 ch	or pek	855	26 bid
	2 do	pek	180	23
	1 do	pek fans	100	24
	1 do	dust	100	21

	Pkgs.	Name.	lb.	c.
Pindeni Oya	10 do	bro or pek	900	35
	8 do	pek sou	720	22
	3 do	br or pek fans	300	25
	4 do	bro pek fans	340	25
	2 do	dust	250	21
Warakamure	1 hf ch	dust	90	21
Avon. Hapntale	1 do	pek dust	98	21
	4 ch	fans	324	24
G;C	3 do	bro pek	297	28
	2 do	pek	168	26
	1 do	pek sou	82	21
Patulpana	7 ch	bro pek	700	33
	7 do	pek	700	22
	5 do	pek sou	475	21
	3 do	unas	270	18
	1 do	dust	100	17
Atherton	15 hf ch	bro or pk	900	30 bid
	13 do	bro pek	715	27 bid
	13 do	pek	598	25 bid
	4 do	pek sou	188	23
	1 do	fans	75	22
	1 do	dust	88	21
G A D	2 ch	red leaf	137	12
S T	1 do	br pek	88	24
	1 do	pek	83	17
	1 hf ch	dust	95	16
K M	1 ch	bro pek	100	28
	1 ch, 1 hf ch	pek	148	23
	1 ch	pek sou	70	20
Alutkelle	6 ch	bro pek	600	26
	3 do	pek	270	21
	3 do	pek sou	240	18
Hanagama	8 do	bro or pek	800	39
Laukka	2 do	pek sou	150	21
	3 hf ch	dust	255	21
Harangalla	10 ch	pek sou	850	23
Neboda	5 ch	pek sou	425	22
	4 hf ch	dust	340	21
Neuchatel	4 ch	dust	600	22
Oonankande	6 do	pek sou	420	with'n
	5 hf ch	dust	330	with'n
Ravenscraig	7 ch	pek	630	28
Yarrow	10 hf ch	bro or pek	700	35
	12 do	or pek	720	33
	4 do	pek sou	240	22
	4 do	bro or pek fans	268	26
	2 do	pek fans	124	21
	1 do	pek dust	90	22
Rambodde	7 do	bro or pek	350	66
	14 do	pek sou	630	27
	2 do	sou	100	21
	4 do	bro fans	260	29
	2 do	dust	160	23
Maragalla	8 ch	bro pek	840	35 bid
	4 do	or pek	380	29 bid
	4 do	pek	360	25 bid
	1 do	pek sou	80	22 bid
Avisawella	4 do	sou	320	20
	4 hf ch	dust	300	23
D R	4 ch	dust	560	17
Carney	15 hf ch	pek sou	900	21
	1 do	bro pek fans	50	20
	4 do	sou	200	19
	2 do	pek fans	100	19
F F	5 do	dust	425	25
	2 ch	bro tea	200	18
Bodagoda	3 do	bro pek	255	27
	4 do	pek	400	20
	3 do	pek sou	300	19
	1 hf ch	dust	75	15

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Tokatiamulla	4 ch	bro pek	400	32
	9 do	pek	898	19
	3 do	pek sou	270	19
	2 do	fans	175	16
	1 do	bro pek No 2	100	20
	1 do	dust	140	15
	1 do	bro mix	100	14
Nagaganga	11 hf ch	bro pek	616	24
	8 do	pek	416	20
	7 hf ch	pek sou	350	19
	2 do	fans	134	24
Avoca	5 ch	pek sou	500	30
	6 do	bro pek fans	780	28
Lindupatna	7 ch	pek sou	700	29
	6 do	bro pek fans	780	28
Panawatte	11 ch	or pek	990	32
	7 do	fans	805	25
	2 do	dust	300	20
Detenagalla	6 ch	pek sou	600	28 bid
	5 do	fans	400	27

	Pkgs.	Name.	lb.	c.
Rickarton	7 ch	pek sou	700	24
	6 do	dust	726	25
Moray	18 hf ch	or pek	774	28
	9 ch	pek No. 2	720	25
	4 hf ch	dust	300	27
Yogama	3 ch	dust	405	25
Kincora	6 ch	bro pek	660	34
Udabage	*13 hf ch*	*hyson No. 1 A*	*715*	*33*
	4 do	*hyson No. 2*	*220*	*32*
	8 hf ch	fans	440	10 bid
	2 do	dust	160	9 bid
Bramley	13 hf ch	bro tea	598	20
Tunisgalla	12 hf ch	bro or pek	660	54
	4 ch	pek sou	340	21
	4 hf ch	dust	380	28
Mahayaya	5 ch	bro or pek	525	33
	3 do	or pek	300	30
	5 do	pek	450	24
	2 do	pek sou	170	19
	1 do	dust	130	20
Strathisla	5 ch	fans	550	23
	3 do	dust	255	18
Mansfield	5 ch	pek sou	475	36
Lycgrove	7 ch	bro pek	735	33
	8 do	pek	720	31
	3 do	pek sou	255	24
	2 hf ch	dust	160	24
	2 do	fans	120	26
G	4 hf ch	or pek	276	30
	8 do	pek	584	26
Sylvakandy	3 ch	dust	300	25
K P W	16 hf ch	pek sou	800	22
	3 do	pek fans	225	23
	2 do	dust	180	22
	15 hf ch	or pek	675	32
	10 do	pek sou	500	22
	2 do	pek fans	150	24
	1 do	dust	90	22
Marieland	6 ch	pek sou	498	24
	2 do	dust	168	23
Hentleys	4 ch	pek sou	300	22
	2 hf ch	fans	150	24
	1 do	dust	70	20
Digdola	11 ch	or pek	880	32
	7 do	pek sou	560	22
Dromoland	16 hf ch	bro pek	848	33
	1 ch	pek sou	82	25
	6 hf ch	fans	408	26
	2 do	dust	190	24
Roeberry Q	3 ch	dust	300	23
	5 do	fans	500	27
Roeberry R	5 ch	bro or pek	500	60
	4 do	pek sou	360	30
Macaldenia	5 ch	pek sou	400	24
	1 do	fans	80	24
T B	5 hf ch	dust	375	20
	3 do	fans	180	21
Torwood	2 ch	br pek fans	230	23
Hatton	4 ch	pek sou	340	28
G K	3 ch	pek sou	210	22
	1 do	sou	65	20
	5 do	fans	475	21
Ruanwella	10 ch	pek sou	900	22
Dammeria	7 hf ch	bro pek fans (H)	560	26
	3 do	dust (H)	300	22
Massena	9 hf ch	pek sou	450	22
	13 do	bro pek fans	780	28
	12 do	pek fans	510	29
	2 do	congou	110	17
	4 do	dust	280	2[illegible]
Ganapalla	9 ch	bro pek fans	915	25
	6 hf ch	dust	516	22
Killarney	5 do	dust	450	26
Drayton	7 ch	pek sou	595	23
Mousa Eliya	3 do	pek sou	300	20
	5 do	dust	500	21
Chryst'er's Farm	2 do	dust	170	26
Walton	7 do	or pek	665	32
	5 do	pek	475	28
	1 do	sou	80	22
S G, Ceylon	7 do	pek	614	24
	3 do	pek sou	246	21
Newmarket	7 do	bro pek fans	840	30
Kaluoya	6 ch	pek sou	504	26
	7 hf ch	dust	595	25
Gonapitiya	15 do	bro pek	900	58
	13 do	pek sou	624	28
W V R A	4 do	fans	320	18
Sirikandura	5 ch 1 do	} pek sou	402	20
	1 do	bro tea	79	15
	3 do	dust	364	22
Penrhos	12 do	pek sou	924	25
	4 hf ch	fans	300	25
	1 do	pek dust	140	21
Pansalatenne	1 do	bro pek	50	withd'n
	9 ch	bro or pek	945	39
	8 hf ch	bro or pek fans	600	26
U S A	7 ch	pek fans	700	20
D	3 do	sou	225	19
	6 hf ch	bro or pek fans	390	27
	2 do	pek fans	120	24
	4 do	dust	325	18
	1 do	bro mix	90	20
T C L	9 ch	sou	810	20
	1 do	pek fans	100	21
	4 hf ch	dust	280	24
S R	1 ch	dust	150	24
Monterey	7 do	fans	700	23
	11 do	sou	990	18
M D F, in est. mark	8 do	pek sou	640	19 bid
Talgaswela	8 do	bro or pek	800	40
	10 do	or pek	800	32
	4 hf ch	dust	340	18
Delta	9 ch	bro or pek	972	54
	12 do	pek sou	960	26
Broughton	10 do	pek sou	850	30 bid
	4 hf ch	dust	340	27
Morankande	10 ch	pek sou	700	22
	4 hf ch	bro or pek fans	280	26
	1 do	dust	90	23
Findlater	10 ch	pek sou	930	27 bid
Queensland	5 hf ch	dust	375	26
Fernbank	*6 ch*	*young hyson*	*600*	*32 bid*
Hunugalla	4 ch	bro pek	380	22
	8 do	pek sou	680	21
	2 do	bro mix	190	20
Bellongalla	4 do	or pek	360	30
	3 do	br or pek	330	28
	4 do	bro or pek fans	480	25
P R S	4 hf ch	dust	360	24
O O, in est. mark	*1 ch*	*hyson*	*94*	*28*
	1 box	*hyson dust*	*17*	*7*
	1 hf ch	bro pek	46	36
	1 ch	dust	138	18
	9 do	pek sou	924	18
Harrow	2 do	fans	150	29
Dambagastalawa	6 do	pek sou	600	31
	5 do	bro pek fans	650	30

CEYLON COCOA SALES IN LONDON.

Mincing Lane, Oct. 17th.

"Oopack."—Warriapolla, 9 bags sold at 80s; 9 at 80s; 31 at 70s 6d; 2 at 60s; 3 at 53s 6d; 9 at 56s; 12 at 45s.

"Bingo Maru."—North Matale, Ceylon Cocoa A, 8 bags sold at 68s; 3 at 52s; ditto B, 3 at 60s; 13 at 52s.

"Alcinous."—Anniewatta G A, 1 bag sold at 52s.

No. 44. COLOMBO, NOVEMBER 10th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[13,306 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	19 hf ch	bro pek	1140	50
	15 ch	pek	1275	38
Weemalle	12 ch	bro pek	1200	35 bid
	12 do	or pek	1020	37
	21 do	pek	1785	28
L H O	19 ch	pek sou	1710	23
Chouhleigh	21 ch	bro pek	2055	33

Messrs. Keell and Waldock.

[47,602 lb.]

	Pkgs.	Name.	lb.	c.
Hawa Ella	12 ch	pek sou	1080	30
Battalawatte	25 hf ch	bro or pek	1375	42 bid
	16 ch	pck sou	1440	30
Hyde	29 hf ch	bro or pek	1624	46 bid
	14 ch	or pek	1190	43
	17 do	pek	1564	35
Hangranoya	16 ch	bro or pek	1520	48
	21 do	bro pek	1995	33
	19 do	pek	1520	28
N T	11 ch			
	1 hf ch	bro pek	1215	25
	30 do	dust	2700	19
	15 do	pek fans	1050	22
Mutu Eliya	17 ch	bro or pek	1700	51
	21 do	pek	1890	29
Panilkande	20 hf ch	bro or pek No.1	1000	55 bid
	25 ch	bro or pek	2500	38
	16 do	pek	1440	31
Paniyakande	12 ch	bro pek	1200	37
H	15 hf ch	dust No. 2	1275	24
Glenwood	20 ch	or pek	1600	32
	29 hf ch	bro or pek	1624	28
P P P	27 hf ch	dust	2025	23
Wilpita	10 ch	bro or pek	1050	29
	11 do	or pek	1045	25

Messrs. E. John & Co.

[148,321 lb.]

	Pkgs.	Name.	lb.	c.
Salem	10 ch	bro or pek	1000	37
Balado	23 ch	pek sou	1840	26
	13 hf ch	dust.	1040	26
Ohiya	20 hf ch	bro pek	1160	48
	15 ch	pek	1355	39
Brownlow	23 hf ch	bro or pek	1288	57
	20 ch	or pek	1840	38
	17 ch	pek	1394	34
Wattagalla	30 hf ch	bro pek	1500	35
	14 ch	pek	1260	31
	14 ch	pek sou	1120	26
Glasgow	26 hf ch	bro or pek	1503	64
	21 ch	bro pek	2100	47
	23 do	or pek	2139	44
	11 do	pek	1045	40
	21 hf ch	pek fans	1365	31
Agra Ouvah	39 hf ch	bro or pek	2340	58
	29 hf ch	or pek	1566	42
	11 ch	pek	1012	42
Kolapatna	18 hf ch	bro or pek	1008	57
	17 hf ch	bro pek	1054	38
	20 hf ch	or pek	1000	39
	11 ch	pek	1012	35
Elemane	37 ch	bro pek	3700	withd'n
	32 ch	pek	2880	withd'n
	13 ch	pek sou	1170	withd'n
Kandaloya	38 hf ch	bro pek	1710	32
	81 hf ch	pek	3240	29
Theresia	19 ch	pek	1520	38
Oonoogaloya	13 ch	or pek	1040	40
	14 ch	bro or pek	1330	55
	14 ch	pek	1260	35
Kandahar	20 hf ch	bro or pek	1120	48 bid
	25 hf ch	pek	1375	34
Navangama	13 ch	bro or pek	1300	36
Gonavy	43 hf ch	or pek	2365	39
	25 ch	pek	2400	31
	17 do	pek sou	1326	28

	Pkgs.	Name.	lb.	c.
Eila	16 ch	bro or pek	1000	36
	67 ch	pek No. 1	5300	28
	22 ch	dust	2640	22
Templestowe	36 hf ch	bro or pek	1872	59
	18 hf ch	bro pek	1044	43
	29 hf ch	or pek	1276	45
	15 ch	pek	1275	38
	14 ch	pek sou	1232	26
Y K	19 ch	pek fans	1900	24
	24 do	sou	1560	22
Mt. Vernon	22 ch	pek	1936	38
Midlothian	23 hf ch	pek	1196	30
R K	23 ch	bro pek	2300	29
Myraganga	11 ch	or pek	1045	36
	11 ch	bro or pek No1	1100	49
	18 ch	bro or pek No2	1800	39
Natuwakele	23 ch	bro or pek	2300	40
	16 ch	or pek	1440	34
	17 ch	pek	1530	29
	12 ch	pek sou	1080	25
Holbrook	55 hf ch	bro or pek	3300	26
	19 ch	or pek	1805	34 bid
	12 ch	pek	1080	27
Kadienlena	21 hf ch	bro or pek fans	1574	24
Glassaugh	36 hf ch	or pek	1944	48 bid
	38 do	bro or pek	2546	40
	19 ch	pek	2052	33
Eladuwa	20 ch	pek	1900	30
Hiralouvah	24 hf ch	bro pek	1248	61
	14 ch	pek (H)	1148	55
	12 ch	pek sou (H)	1116	45
Ratwatte	40 ch	bro pek	4000	33
	17 ch	pek	1530	26

Messrs. Somerville & Co.

[170,428 lb.]

	Pkgs.	Name.	lb.	c.
Salawa	18 ch	bro pek	1800	33
Depedene	21 hf ch	bro pek	1260	34
	32 do	pek	1600	27
	26 do	pek sou	1300	24
Watbumulla	24 hf ch	bro pek	1440	33 bid
	13 ch	pek	1170	25
Nyanza	19 ch	or pek	1700	38
	15 do	pek	1425	33
Dover	20 hf ch	bro or pek	1000	50
	19 ch	or pek	1615	34
	28 ch	pek	2380	29
	20 do	pek sou	1500	25
Oonankande	21 hf ch	bro pek	1050	37 bid
	30 do	pek	1650	30
Pindeni oya	18 ch	bro pek	1620	35
	16 do	pek	1360	28
Allacollawewa	22 hf ch	or pek	1034	45
	20 do	bro pek No. 1	1040	51
	21 do	pek sou	1029	35
Marigold	24 hf ch	or pek	1128	44 bid
	24 do	bro pek No. 1	1248	53
	21 do	pek	1029	40
	23 do	pek sou	1127	37
Kallebokke	17 ch	bro or pek	1700	50 bid
	24 do	or pek	2280	36
	13 do	or pek	1040	36 bid
	23 do	pek	1840	30 bid
Ferriby	26 hf ch	bro or pek	1430	37
	21 ch	or pek	1890	33
	22 do	pek	1980	28
	13 do	pek sou	1040	25
Gwernet	12 ch	bro pek	1200	38
	18 do	pek	1440	32
Wiharagama	50 hf ch	bro or pek	2650	29
	30 do	bro pek	1500	27
	24 do	pek	1128	26
Bodaya	47 hf ch	bro pek	2350	37
	13 ch	pek	1170	28
	13 do	pek sou	1105	26
Nellicollaywatte	20 hf ch	bro pek	1160	33
	18 do	bro or pek	1008	54
	12 ch	pek	1080	32
G B	20 hf ch	dust	1000	26
I P	12 hf ch	dust	1056	25
Annandale	19 hf ch	or pek	1026	40 bid
	20 do	pek	1080	36 bid
Monte Christo	32 ch	bro pek	3200	47
Invery	48 hf ch	bro or pek	2976	55
	31 do	or pek	1550	46
	63 ch	pek	6048	39
	18 do	pek sou	1476	35
	26 hf ch	pek dust	2288	23
Highfields	18 hf ch	bro or pek	1008	47
	21 do	or pek	1029	38
	25 do	pek	1250	33

	Pkgs.		Name.	lb.	c.
Hanagama	15	ch	pek sou	1425	25
Deniyaya	27	ch	bro pek	2700	35
	14	do	pek	1335	29
	12	do	pek sou	1080	27
Murraythwaite	18	cb	bro pek	1800	36
Cooroondoowatte	11	ch	br pek	1100	44
	11	do	pek	1100	30
	10	do	pek sou	1000	28
Blinkbonnie	30	hf ch	bro or pek	1800	55
	19	ch	or pek	1784	42
	15	do	pek	1350	40
Agra Elbedde	33	hf ch	bro or pek	1815	51
	29	do	cr pek	1595	42
	27	do	pek	1296	40
Yahalatenne	40	ch	bro pek	4000	37
	15	do	pek	1365	31
X Ceylon	11	cb	pek	1027	28
	12	do	pek sou	1080	27
Jak Tree Hill	20	ch	bro pek	2000	38
	15	ch	pek	1380	29
Glenanore	11	cb	bro mixed	1100	33
P G A	13	ch	pek	1105	26
	12	do	pek sou	1020	24
Dover	26	ch	pek sou	1950	25
Cooroondoowatte	11	cb	bro or pek	1045	39
Forest Hill	17	ch	bro pek	1564	36
	14	do	pek	1148	29
Waganila	18	ch	bro pek	1800	47 bid
	28	do	pek	2744	33 bid
Fairfield	23	ch	pek No 2	2185	36
F H	22	cb	bro pek	2200	34 bid
	15	do	pek	1350	29 bid
	13	do	pek sou	1040	25
New Valley	14	ch	pek sou	1260	28

Messrs. Forbes & Walker.

[362,176 lb.]

	Pkgs.		Name.	lb.	c.
Great Valley	37	ch	bro or pek	2220	54
	20	do	or pek	1160	40
	23	do	pek	2116	33
Galleleria	21	cb	pek	1785	33
K C E	18	ch	bro pek	1800	30
	14	do	pek	1260	25
	18	do	pek sou	1440	23
Ardross	15	ch	or pek	1575	37
	24	do	pek	2280	30
	12	do	pek sou	1080	27
	13	hf ch	dust	1105	24
Matale	40	hf ch	bro pek	2400	36
	15	ch	pek	1350	33
Ardross	22	ch	pek sou	1870	26
Aldie	20	cb	bro pek	2000	54 bid
	18	do	pek sou	1440	41
	15	bf ch	bro pek fans	1050	36
	15	do	dust	1125	28 bid
Dewalakande	*45*	*hf ch*	*siftings*	*2700*	*13*
Munukettia, Ceylon, in estate mark	14	ch	or pek	1260	40
	40	bf ch	bro pek	2400	52 bid
	32	ch	pek	2720	33
Beverley	29	ch	or pek	1450	36
	22	do	pek	1100	31
Chesterford	19	ch	bro or pek	1900	42
	22	do	bro pek	1980	34
	28	do	pek	2520	31
	20	do	pek sou	1800	29
Rajawatte	10	ch	bro or pek	1050	49
	12	do	or pck	1140	36
	13	do	pek	1170	31
Poonagalla	29	ch	bro pek	3190	56
	19	do	pek	1767	38
Florence	20	hf ch	bro or pek	1100	75
	23	do	bro or pek fans	1495	44
	35	do	pek	3080	42 bid
	18	do	or pek	1638	65
Tymawr	21	hf ch	or pek	1155	40
	17	do	bro or pek	1020	51
	29	do	pek	1450	37
Nugagalla	30	hf ch	pek	1500	29 bid
Tembiligalla	10	ch	bro or pek	1020	34
	10	do	or pek	1000	33
	11	do	pek	1023	28
Erlsmere	29	hf ch	bro or pek	1566	54
	17	ch	bro pek	1530	38 bid
	13	do	pek	1105	35 bid
Tonaccombe	30	ch	or pek	2700	37
	31	do	bro pek	3100	41 bid
	44	do	pek	3740	33
	16	do	pek sou	1280	28
Yataderia	33	ch	bro or pek	3198	35
	25	do	or pek	2375	32
	49	do	pek	4067	28
	21	do	pek sou	1743	24

	Pkgs.		Name.	lb.	c.
St. Vigeans	17	hf ch	bro or pek	1037	58
	13	ch	pek	1105	41
S. Katelle	*15*	*ch*	*young hyson*	*2100*	*37*
	10	*do*	*hyson No 1*	*1200*	*35*
Ganapalla	18	ch	or pek	1404	34
	18	do	bro or pek	1800	37
	18	do	bro pek	1512	31
	30	do	pek	2400	29
Pallagodda	26	cb	bro or pek	2600	35
	32	do	bro pek	3200	35
	27	do	or pek	2430	31
	22	do	pek	1760	29
	23	do	pek sou	1955	26
	17	bf ch	dust	1445	27
Kirklees	40	hf ch	bro or pek	2400	45
	30	ch	pek	2700	33 bid
	21	do	or pek	1995	39
Maha Uva	25	hf cb	bro or pek	1500	38
	20	cb	or pek	2000	41
	22	do	pek	1930	35
	12	do	pek scu	1020	30
Bogabagodawatte	12	cb	bro pek	1116	33
Dunbar	25	hf ch	bro pek	1350	54
Vogan	24	ch	bro or pek	2400	48
	37	do	or pek	3330	34
	40	do	pek	3600	29
	21	do	pek sou	1785	26
Templehurst	15	cb	bro pek	1500	57
Castlereagh	36	hf ch	bro or pek	1800	54
	12	ch	bro pek	1200	35 bid
Harrow	29	ch	pek	2755	35
Adisham	27	hf ch	bro or pek	1485	57
	15	ch	pek	1425	35
Puspone	25	ch	bro pek	2750	34
	13	do	pek	1170	29
	17	ch	pek sou	1445	27
Mahawale	15	ch	bro pek	1500	45
	16	do	or pek	1600	34
	30	do	pek	2700	28
	18	do	pek sou	1620	28
H G M	15	ch	bro pek	1500	34
	20	hf ch	fans	1300	27
Pine Hill	34	bf cb	bro or pek	2040	44
	24	ch	or pek	2280	36
	22	do	pek	1980	32
T C M E	28	cb	or pek	2520	41
Erracht	20	ch	bro or pek	2000	38
	21	do	or pek	1785	35
	35	do	pek	2800	31
Dickhena	30	ch	bro or pek	3180	34
	18	do	or pek	1710	32
	37	do	pek	3256	28
	19	do	pek sou	1577	26
Marlborough	69	hf cb	bro or pek	3726	56
	20	ch	or pek	1800	38
	24	do	bro pek	2400	37
	28	do	pek	2352	35
Laurawatte	30	ch	bro pek	3000	35
	23	do	pek	2070	29
	14	do	pek sou	1274	28
Polatagame	13	ch	fans	1300	26
Ella Oya	*33*	*hf ch*	*young hyson*	*1650*	*withd'n*
	28	*do*	*hyson*	*2660*	*withd'n*
Anningkande	19	cb	bro pek	1900	57
	12	do	pek	1140	30
Middleton	24	bf ch	bro or pek	1320	66
	30	ch	bro pek	3000	60
	29	do	pek	2465	37
	27	do	or pek	2430	39
	15	hf cb	dust	1200	28
Darrawella	38	bf ch	bro or pek	2090	58
	18	ch	bro pek	1800	43
	23	do	or pek	1932	39
	38	do	pek	3040	33
	25	hf ch	fans	1875	30
Sindamallay, O B E C	15	ch	bro or pek	1578	43
	29	do	or pek	2755	38
	30	do	pek	2550	33
	22	do	pek sou	1540	28
Handford	27	cb	bro pek	2700	32
Opalgalla	16	bf ch	dust	1248	26
Bandara Eliya	44	bf ch	or pek	2200	39
	24	do	bro or pek	1320	50 bid
	65	do	pek	5910	36
Ambagalla	44	hf ch	bro or pek	2375	37
	14	do	pek sou	1092	27
Coreén	51	hf ch	bro pek	3060	45 bid
	17	ch	or pek	1530	38
	12	do	pek	1080	34
Ardlaw & Wishford	19	ch	bro or pek	2052	57
	22	do	bro pek No 1	2376	47
	14	do	bro pek	1400	41
	17	do	or pek	1530	41
	35	do	pek	2870	37
Glencorse	17	ch	bro pek	1700	39
	12	do	or pek	1080	34
	12	do	pek	1080	30
	28	do	pek sou	2100	27

	Pkgs.		Name.	lb.	c.
Invernes	26	ch	bro or pek	2800	58
	19	do	or pek	1710	47 bid
	26	do	pek	2210	41 bid
Dammeria	43	ch	pek sou	3870	29
	21	do	pek	1890	32
	28	do	bro pek	2800	37
	24	do	bro or pek	2400	33
	23	do	or pek	2070	34 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Weemalle	6	ch	pek sou	540	24
	6	hf ch	bro tea	510	25
L H O	7	ch	fans	784	31
	8	hf ch	dust	640	24
Coodoogalla	13	hf ch	pek	647	28

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
W	5	ch	bro pek	468	28
	1	do	pek	64	24
	1	do	pek sou	60	22
Hawa Ella	17	hf ch	bro or pek	935	45
Hyde	4	ch	pek	365	27
	12	hf ch	bro pek fans	792	28
	6	do	pek dust	504	25
N T	5	ch	pek	500	24
Lowlands	3	ch	bro pek	330	29
	4	do	pek	360	25
	3	do	pek sou	240	23
	1	do	dust	80	22
Nawanagalla	10	hf ch	bro pek	550	35
	2	ch	pek	180	27
Panilkande	9	ch	pek sou	810	26 bid
	3	do	sou	270	24
Paniyakande	6	ch	pek	540	27
	3	do	pek sou	270	24
	1	do	sou	90	24
	1	do	bro mix	95	14
Glenwood	4	do	dust	400	22
K	*4*	*ch*	*green tea fans*	*337*	17
Wilpita	6	ch	pek	600	20
	3	do	bro or pek fans	330	21
	3	do	bro mix	300	13
Ketadola	3	ch	bro or pek	300	31
	4	do	or pek	375	26
	7	do	pek	665	24
	1	do	sou	90	19
	1	do	fans	107	24

[Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
A T	6	ch	fans	660	22
	1	ch	dust	120	19
Ohiya	9	ch	pek sou	729	34
	9	hf ch	dust	738	28
	11	hf ch	fans	715	24
Y P	1	ch	bro pek	105	26
	1	do	pek sou	100	25
H F D	6	ch	dust	660	25
Salem	4	ch	pek	400	29
	5	do	pek sou	450	25
	1	do	dust	100	26
Balado	11	ch	pek	990	39
Ohiya	13	hf ch	bro or pek	741	53 bid
	9	ch	or pek	864	45
Brownlow	12	hf ch	bro pek fans	948	30
Wattagalla	3	hf ch	dust	270	25
Eton	1	ch	bro or pek	100	36
	2	do	or pek	200	32
	1	do	pek sou	100	26
	4	do	sou	400	23
	2	hf ch	dust	170	26
Kolapatna	7	hf ch	fans	476	30
	4	do	dust	332	27
Elemane	5	ch	fans	500	withd'n
Kandaloya	19	hf ch	pek sou	760	26
Theresia	15	hf ch	bro or pek	825	55
	11	ch	pek sou	935	34 bid
Navangama	7	ch	pek	630	26
	7	do	pek sou	630	24
	1	do	dust	125	25
Gonavy	11	hf ch	fans	770	29
	8	hf ch	dust	720	25
Midlothian	18	hf ch	or pek	900	44
	17	hf ch	pek sou	850	32
R K	12	ch	or pek	960	30
	7	do	pek	695	25
	6	do	pek sou	540	22

	Pkgs.		Name.	lb.	c.
Stubton	7	ch	bro pek	700	32 bid
	4	do	pek	360	26
	4	do	pek sou	360	24
	4	do	bro pek fans	360	25
	1	do	pek dust	140	20
Wadhurst	5	ch	unassorted	850	28
	8	hf ch			
Glentilt	6	ch	pek	540	30
Natuwakele	3	ch	dust	300	26
S E	8	hf ch	bro or pek	464	35
Eladuwa	4	ch	or pek	380	33
	4	do	bro pek	435	28
	6	do	pek sou	540	24
	1	do	dust	150	22
	1	do	unassorted	115	19
Hiralouvah	1	hf ch	fans	68	24
	4	do	dust (H)	320	24
Holbrook	7	ch	pek fans	840	30
Ratwatte	4	ch	pek sou	320	22
	3	do	dust	240	21

[Messrs. Somerville & Co.]

	Pkgs.		Name.	lb.	c.
Salawa	8	ch	pek	760	26
	10	do	pek sou	900	24
	4	do	unassorted	400	23
	2	do	pek fans	260	24
	1	do	pek dust	170	21
Depedene	1	hf ch	bro pek fans	60	26
	4	do	dust	300	23
Oonankande	6	ch	pek sou	420	26
	5	hf ch	dust	330	26
Pindeni Oya	8	ch	or pek No 2	720	30
	2	do	pek fans	180	26
	1	do	bro pek fans	100	25
	2	do	dust	260	24
Allaeollawewa	16	hf ch	pek	784	39
	5	do	pek dust	370	28
Marigold	8	hf ch	pek dust	592	28
Kallebokka	2	ch	pek sou	220	16
	2	do	fans	250	27
Ferriby	6	hf ch	fans	450	26
Gwernet	5	ch	pek sou No. 1	425	26
	5	do	pek sou No. 2	400	27
	3	do	dust	330	23
Bodava	1	ch			
	2	hf ch	bro pek fans	292	25
	1	ch	bro mixed	47	18
Nellicollaywatte	4	ch	pek sou	320	27
	1	hf ch	dust	92	25
	3	do	bro pek fans	204	30
Allakolla	1	ch	bro pek	100	31
B F	6	hf ch	dust	480	26
I P	6	ch	pek sou	450	24
Charlie Hill	11	hf ch	bro pek	605	36
	14	do	pek	700	27
	11	do	pek sou	550	25
	1	do	congou	50	22
	2	do	dust	160	22
Torbay	5	hf ch	pek sou	215	27
	5	do	or pek fans	350	31
	8	do	fans	560	28
	2	do	dust	180	23
Hanagama	3	ch	bro or pek	321	46
	8	do	or pek	800	32
	9	do	pek	900	28
	7	do	souchong	630	24
	2	do	fans	228	26
	3	hf ch	dust	255	23
Deniyaya	10	ch	sou	900	26
	5	do	pek fans	500	27
Murraythwaite	12	ch	pek	960	28
Blinkbonnie	6	ch	pek sou	510	33
X X	5	hf ch	bro or pek fans	325	30
	2	do	pek dust	170	24
X Ceylon	9	ch	bro pek	920	31
	5	do	bro pek sou	450	24
	5	do	unas	400	22
	3	hf ch	fans	210	24
	1	do	dust	50	20
D	8	ch	pek sou	720	22
S	2	hf ch	bro pek	119	28
	1	ch	pek	90	23
	1	ch			
	1	hf ch	pek sou	124	21
	1	ch	dust	131	22
	1	*hf ch*	*hyson*	*55*	*out*
Jak Tree Hill	11	do	pek No. 2	990	29
	2	do	pek sou	180	26
	2	do	dust	200	24
H P in est. mark	6	ch	bro pek	600	29
	3	do	or pek	263	23
	20	hf ch	pek	900	21
	6	ch	bro mixed	595	16
	2	do	dust	249	20
	1	do	fans	75	16

	Pkgs.	Name.	lb.	c.
R S	11 hf ch	pek	547	24
Maragalla	8 ch	bro pek	840	38
	4 do	or pek	380	33
	4 do	pek	380	30
D	2 ch	dust	300	22 hid
V	4 hf ch	dust	320	23
Batgoda A	4 hf ch	bro or pek	256	43
N in est mark	1 ch	bro pek	108	19
	1 do	pek	85	18
	1 hf ch	dust	80	14

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Galleheria	10 ch	bro or pek	950	59
	10 do	or pek	800	40
	9 do	pek sou	810	29
	1 do	dust	100	26
K C E	6 ch	bro pek fans	660	23
	2 do	fans	190	19
	3 do	congou	270	21
	2 do	dust	280	19
Eriacolla	*8 ch*	*young hyson*	*800*	*37*
	10 do	*hyson*	*950*	*33*
	2 do	*hyson No. 2*	*180*	*32*
	3 do	*siftings*	*180*	*10*
	1 do	*green dust*	*70*	*10*
Matale	10 ch	pek sou	900	23
Amhanpitiya	1 ch	dust	168	23
Dewalakande	*6 hf ch*	*green dust*	*420*	*10*
Beverley	9 ch	bro or pek fans	585	30
	3 do	dust	240	24
	14 do	bro or pek	700	50
	11 do	pek sou	495	25
	8 do	bro or pek fans	520	29
	2 do	dust	160	23
Horagaskelle	7 hf ch	bro pek	426	30
	5 do	pek	280	26
	7 do	pek sou	406	24
	1 do	bro mix	67	20
Welkandale	5 hf ch	fans	350	25
	4 do	dust	340	24
Rajawatte	7 ch	pek sou	630	27
	9 hf ch	fans	540	26
	10 do	dust	750	25
Poonagalla	12 hf ch	fans	996	31
S V, in estate mark	11 hf ch	pek fans	715	29
	4 do	dust	320	26
	6 ch	pek sou	570	27
Nugagalla	12 hf ch	bro pek	600	46
	2 do	dust	180	25
Temhiligalla	5 ch	pek sou	460	25
	3 do	fans	321	25
Erlsmere	6 ch	pek sou	504	28 hid
	3 hf ch	dust	228	27
Kaharagalla	2 hf ch	dust	170	26
Asgeria	1 ch	bro tea	105	23
	1 do	dust	165	26
S. Katelle	*4 hf ch*	*hyson No. 2*	*232*	*33*
	6 do	*yng hyn siftings*	*540*	*11*
Ganapalla	3 ch	bro pek fans	840	27
B W P	6 hf ch	red leaf	300	18
Kirklees	6 ch	pek fans	720	27
	3 hf ch	dust	270	26
Bogahagodawatte	8 ch	pek	800	26
	7 do	pek sou	700	22
	1 do	fans	105	24
Dunbar	3 ch	pek sou	240	33
N B	2 ch	dust	266	23
Belgoda	9 hf ch	bro pek	450	23
	5 do	or pek	250	21
	4 do	pek	200	19
	2 do	dust	90	16
Vogan	3 ch	pek fans	375	25
	8 hf ch	dust	640	24
Templehurst	11 ch	pek	990	40
	7 do	pek sou	560	34
	1 do	dust	90	25
Castlereagh	11 ch	or pek	880	35
	10 do	pek	800	30 hid
Duff	10 hf ch	or pek	590	27
Glaslyn	2 hf ch	fans	160	27
Adisham	7 ch	or pek	595	39
N T C, in est. mark	2 ch	bro pek	188	28
	1 ch			
	1 hf ch	pek	141	24
	2 ch	pek sou	108	23
	1 ch			
	1 hf ch	dust	195	23
Mahawale	2 hf ch	fans	120	28
	4 do	dust	280	24
Erracht	11 ch	pek sou	880	21
	3 do	pek dust	420	21
G	1 hf ch	or pek	70	27
	2 do	pek	140	23
	1 do	pek sou	60	21
	1 do	dust	83	20
Marlborough	3 ch	pek sou	270	27
	7 hf ch	bro pek fans	462	30
Laurawatte	6 hf ch	fans (Venesta)	468	26
M D F, in est. mark	8 ch	pek sou	640	24
Ella Oya	*9 hf ch*	*hyson No 2*	*900*	*withd'n*
	10 do	*siftings*	*700*	*withd'n*
Anningkande	7 ch	pek sou	665	25
	1 hf ch	sou	50	23
	1 do	bro pek fans	115	27
	2 do	dust	230	22
Torwood	7 ch	pek sou	546	22
Hanford	2 ch	bro pek fans	230	27
	1 do	sou	65	22
	3 do	dust	240	22
Mousakellie	5 ch	or pek	475	33
B B B, in est. mark	5 ch	dust	400	24
Opalgalla	5 ch	congou	435	22
Relugas	2 ch	sou	170	20
	6 do	dust	990	26
Kalupahana	12 hf ch	bro pek	660	32
	4 ch	pek	400	23
	5 do	pek sou	400	23
	3 do	bro pek fans	290	18
	1 do	dust	175	15
Coreen	4 hf ch	pek fans	280	30
	2 do	dust	150	27
Ardlaw & Wishford	3 ch	fans	300	31
	3 do	dust	300	27
Glencorse	10 ch	dust	850	26
Lower Kananka	5 ch	bro pek	550	33
	4 do	pek	400	23
	2 do	pek sou	180	19
V O A	3 ch	dust	360	25
	1 do	bro tea	120	16
Dammeria	7 ch	bro pek fans	530	28

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Oct. 17th.

"Derbyshire."—Kahagalla F, 1 barrel sold at 100s; ditto 1, 1 cask sold at 95s; ditto 2, 8 at 83s; ditto S, 3 at 62s; ditto PB, 1 at 97s; KGP in estate mark, 1 cask sold at 43s; KGP in estate mark, 1 barrel sold at 34s; KG, 1 barrel sold at 39s; Kahagalla, 3 bags sold at 52s.

CEYLON COFFEE SALES IN LONDON.

"Ben Lawers."—F OEC in estate mark, Mahaberia Ceylon O, 27 bags sold at 70s; F ditto 1, 13 at 61s.

"City of Madrid."—F OEC in estate mark, Mahaberia Ceylon O, 5 bags sold at 80s 6d; C ditto O, 14 at 86s; F ditto 1, 10 at 62s; C ditto 1, 5 at 66s 6d; G ditto 2, 6 at 51s.

"Craftsman."—HK 1, 8 bags sold at 63s 6d; ditto 2, 1 at 40s; ditto T, 1 at 41s.

"Clan Gordon."—Katugastota, 1 bag sold at 52s.

"Telemachus."—Palli London T, 6 bags sold at 54s.

"Craftsman."—Hampshire London 2, 4 bags sold at 52s; ditto T, 3 at 51s.

"Idomeneus."—OO SS in estate mark, Estate Cocoa, 12 bags sold at 58s; Pelsatenne GOFW in estate mark, 14 bags sold at 65s; ditto 2, 1 at 48s.

"City of Madrid."—Kotua 1, 5 bags sold at 57s 6d; 22, at 50s 6d; 3, 6 at 30s.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 45. COLOMBO, NOVEMBER 19th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[30,102 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	12 ch	or pek	1080	41
	18 do	bro pek	1080	51 bid
	12 do	pek	1020	38
Battalgalla	23 ch	or pek	2300	41 bid
	21 do	pek	1785	38
Yuillefield	26 hf ch	bro or pek	1430	55
	27 ch	pek	2565	36
Bunyan & Ovoca	29 hf ch	bro or pek	1595	56 bid
	31 do	or pek	1550	43
	15 ch	pek	1350	36 bid
	15 do	pek sou	1350	36
	16 hf cb	fans	1040	29
P'Galla	12 ch	bro or pek	1 60	30 bid
V in est. mark	20 ch	bro or pek	2000	32 bid
N in est. mark	15 hf ch	bro pek fans	1050	19 bid

Messrs. Keell and Waldock.

[54,658 lb.]

	Pkgs.	Name.	lb.	c.
R W C	11 ch	pek sou	1100	28
Ovitta	15 ch	bro or pek	1500	36
M D	13 ch	pek sou	1300	25
Gonagalella	23 hf cb	bro or pek	1265	40 bid
	30 do	pek	1500	37
	18 ch	pek sou	1620	29 bid
Shepperton	12 ch	pek sou	10 0	28 bid
Meath	19 bf ch	bro or pek	1007	42 bid
	10 ch	or pek	10 0	34 bid
	12 do	pek	1 92	32
Galgedioya	15 ch	bro pek	1425	32
	13 do	pek	1 70	29
Dunnottar	24 hf ch	bro or pek	1200	54
	12 ch	pek	1020	35
	12 do	pek sou	1080	32
V O	23 ch	bro pek	1 65	31
	52 do	pek	4160	28
	14 do	pek sou	1112	26
Woodend	56 ch	bro pek	5600	33
	42 do	pek	3696	30
	17 do	pek sou	1360	28
P K	13 ch	pek	1222	23
X X	4 cb			
	13 hf cb	bro pek fans	1148	23
P in est. mark	16 ch	pek sou	1230	26 bid
Udawella	53 hf ch	bro or pek	3174	44
	43 do	pek	1978	34

Messrs. Somerville & Co.

[175,205 lb.]

	Pkgs.	Name.	lb.	c.
Citrus	14 ch	bro pek	1 30	36
	24 do	pek	2040	30
Kelani	16 ch	bro or pek	1600	37
	30 do	pek	2850	31
	12 do	or pek	10 0	37
	16 do	pek sou	1250	29
Rothes	23 hf cb	bro pek	1330	48
Cotswold	14 ch	bro or pek	1050	44 bid
	23 do	pek	1840	34 bid
Grange Gardens	12 ch	bro or pek	1200	43
	11 ch	pek	1045	35
Polgahakande	11 ch	bro or pek	10 5	39
	13 do	bro pek	1235	34
	25 do	pek	2000	29
St Leys	25 ch	pek	2400	36 bid
Mt Temple	22 ch	bro pek	2 00	34
	22 do	pek	1760	30
	15 do	pek sou	1125	27
	22 ch	br or pek fan	2200	30
	15 hf ch	dust	1200	26
California	14 ch	pek	1105	28
Glenanmore	18 hf ch	bro or pek	1170	42
	18 ch	pek	1710	34
Mora Ella	42 hf ch	bro or pek	2100	45 bid
	23 ch	pek No. 1	2070	38
	23 hf ch	or pek	1035	39 bid
	17 do	bro pek	1020	37
Kinross	11 ch	bro or pek	1210	47
	21 do	or pek	2100	37
	10 do	pek	1036	33
Avisawella	20 bf ch	bro or pek	1000	47
	18 ch	or pek	1710	37
	22 do	pek	1980	31
	15 do	pek sou	1200	29
Dartry	23 hf ch	fans	1702	25
Hobart	15 ch	pek	1200	30
Galphele	13 ch	bro or pek	1300	53
	17 do	or pek	1530	42
	11 do	pek	1100	40
	13 do	bro pek No. 2	1300	34
	27 do	pek	2430	33 bid
Beausejour	17 ch	bro pek	15 5	35
	29 do	pek	2320	30
	14 do	pek sou	1120	28
Siriniwasa	27 ch	br pek	2700	39
	46 do	pek	4370	30
	24 do	pek sou	2280	29
Forest Hill	12 ch	pek	1008	31
	14 do	pek sou	1 20	28
Mousakande	15 ch	bro pek	1410	37
	17 do	pek (Imperial)	1615	30
	16 do	pek sou (Do.)	1440	28
Marigold	24 hf ch	or pek	1125	44
Rayigam	*36 hf ch*	*young hyson*	*1800*	37
	24 do	*hyson*	*1200*	35
P H	13 ch	bro pek	1430	36
Ferndale	15 ch	bro or pek	1425	47
	25 do	pek	2250	32
Yahalatenne	28 ch	bro pek	2500	38
	18 do	pek	16 6	33
Kallebokke	13 ch	or pek	1057	37
	23 do	pek	1837	32
Kurulugalla	17 ch	bro or pek	1700	35
	23 do	pek	2070	30
Annandale	19 hf ch	or pek	1023	37 bid
	20 do	pek	1077	34 bid
Kurunegalle	24 hf ch	bro or pek	1140	34 bid
	28 do	or pek	1400	34
Cooroondoowatte	21 ch	pek	2100	32
Thelerton	24 ch	bro pek	2160	withd'n
	23 do	pek	1955	
Walahanduwa	41 ch	bro or pek	4100	37
	35 do	or pek	3035	33
	64 do	pek	5760	30
W	12 ch	sou	1080	27
	9 do	pek fans	1050	25
Neboda	29 ch	bro or pek	29 0	43
	20 do	or pek	1840	36
	34 do	pek	3400	35
Mahatenne	11 ch	bro or pek	1100	45
	15 do	or pek	1500	36
	22 do	pek	2090	31

Messrs. E. John & Co.

[261,530 lb.]

	Pkgs.	Name.	lb.	c.
Nabavilla	30 ch	or pek	2700	38
	28 do	bro pek	2800	40 bid
	13 do	pek	1170	33
	13 do	pek sou	1040	30
Lynford	26 hf ch	or pek	1248	45
Higham	36 ch	bro pek	3600	38
	26 do	pek	2470	33 bid
	22 do	pek sou	1980	23
Elston	26 ch	pek	2080	36
	20 hf ch	dust	1800	25
	25 ch	pek sou	2000	32
	18 hf ch	bro mixed	1350	23
Poilakanda	37 ch	bro or pek	3330	36
	49 do	bro pek	4410	32
	47 do	pek	3760	30
P K T	12 hf ch			
	1 ch	dust	1060	23
Tismoda	20 hf ch	bro or pek	1000	42
	39 do	bro pek	1950	35
	16 ch	pek	1280	31
Kandahar	21 hf ch	or pek	1 13	43
	19 do	pek	1045	33
Bittacy	14 ch	bro pek	1372	41 bid
	13 do	pek	1092	33
Elemane	37 ch	bro pek	3700	42
	32 do	pek	2880	33
	13 do	pek sou	1170	34
Karawitettia	15 ch	bro pek	1636	withd'n
Eila	59 ch	or pek	4720	36
	64 do	pek	5270	31
Koslande	12 ch	pek	1200	33
Lameliere	43 hf ch	bro or pek	2580	44
	26 ch	pek	2392	35

	Pkgs.	Name.	lb.	c.
Glentilt	36 hf ch	bro or pek	1980	61 bid
	19 ch	or pek	1805	45
	22 do	pek	1980	41
Glasgow	28 hf ch	bro or pek	1624	64
	21 ch	bro pek	2100	47
	26 do	or pek	2418	41
	11 do	pek	1045	39 bid
Callander	18 hf ch	bro or pek	1008	53
	19 do	or pek	1007	43
	28 do	bro pek	1736	43
Wattagalla	24 hf ch	bro or pek	1440	39
	24 ch	pek	2160	33
Coslanda	12 ch	pek	1200	32 bid
Kandaloya	27 hf ch	bro pek	1350	36
	28 do	or pek	1120	38 bid
	80 do	pek	3200	33
St Andrews	20 ch	pek sou	1600	30
	13 hf ch	dust	1105	27
Mossend	30 do	or pek	1650	46 bid
Binnam	22 ch	pek sou	1540	33 bid
	25 hf ch	dust	2100	23
Orwell	21 ch	or pek	1995	34
	16 do	pek	1520	33
	14 do	pek	1260	33
Ottery	10 ch	bro or pek	1000	54
	19 do	pek	1710	36
Rondura	10 ch	bro or pek	1050	47
	28 do	bro pek	2800	37
	25 do	or pek	2250	36
	19 do	pek	1900	33
	10 do	fans	1100	29
Devon	29 hf ch	bro or pek	1827	59
	24 ch	or pek	2520	46
	11 do	pek	1144	43
Cleveland	21 hf ch	br or pek	1134	56
	35 do	pek	1890	39
Mt Vernon	25 ch	pek	2250	42
	28 do	pek sou	2380	36
	19 hf ch	dust	1577	27
Lameliere	43 hf ch	bro or pek	2580	44
	26 ch	pek	2392	33
T E	19 ch	bro pek	1710	29 bid
	17 do	or pek	1700	26 bid
	13 do	pek	1300	32 bid
	25 do	pek sou	1950	31
Cocoawatte	19 ch	bro pek	1900	36
	28 do	pek	2800	31
	26 do	pek sou	2600	28
Galloola	33 ch	bro pek	3300	48
	41 do	pek	3090	35
	18 do	pek sou	1440	33
M T S	40 hf ch	dust	3400	out
Ooswatte	10 ch	bro pek	1000	28
	19 do	pek	1710	25
	11 do	pek sou	1037	20
M	21 hf ch	dust	1785	14 bid
Cocoawatte	24 ch	bro pek	2520	26
	11 do	pek	1100	31
A V M	19 hf ch	pek dust	1710	16 bid
	22 do	dust	1980	12 bid
Agra Ouvah	53 hf ch	bro or pek	3180	59
	20 ch	or pek	1900	44
	14 do	pek	1288	44
	22 hf ch	pek fans	1760	51
Bowhill	10 ch	bro or pek	1000	49
	12 do	bro pek	1200	29
	12 do	pek	1080	33
Winwood	28 hf ch	bro or pek	1540	64
	20 ch	or pek	1900	39
	16 do	pek	1440	36
	19 hf ch	or pek No. 2	1045	45 bid
	12 ch	sou	1080	29
Theresia	15 ch	or pek	1500	45
	20 do	pek	1600	39
Captains Garden	22 ch	pek	1980	29
Gangawatte	14 ch	bro or pek	1400	59 bid
	10 do	bro pek	1000	44
	23 do	pek	2070	36
Brownlow	20 hf ch	bro or pek	1040	53
	16 ch	or pek	1520	38
	20 do	pek	1700	36
Glassaugh	33 hf ch	or pek	1815	63
	34 do	bro or pek	2 12	53
	18 ch	pek	1908	44
O W	18 ch	bro pek	1674	32
Mahanilu	22 hf ch	or pek	1144	46
	12 ch	pek	1010	39
Elston	19 ch	pek	1520	36
	28 do	pek sou	2240	33

Messrs. Forbes & Walker.

[458,034 lb.]

	Pkgs.	Name.	lb.	c.
Panawatte	27 ch	bro or pek	2970	42
	20 do	or pek	1800	36
	33 do	pek	3135	32
Ninfield	18 ch	pek	1440	31
Moray	31 hf ch	bro or pek	1705	52
	32 ch	pek	2784	37
	15 do	pek No. 2	1200	32
Nillomally	26 ch	pek	2288	34
	24 do	pek sou	1968	31
	17 do	bro or pek	1700	49
	15 do	or pek	1230	45
R, in est mark	25 ch	pek sou	2125	withd'n
N	9 ch	pek fans	1170	25
Dunedin	*40 hf ch*	*young hyson*	*2000*	*withd'n*
	22 ch	*hyson*	*1804*	
	11 do	*hyson No 2*	*1045*	
Mudamana	9 ch	dust	1260	12
	29 do	fans	2900	12
	30 do	fans No 2	2550	17
Yelverton	13 ch	bro pek	1352	42
	15 do	pek	1350	35
Mawiligangawatte	33 ch	bro pek	3163	34
	26 do	pek sou	1850	29
Wallaha	15 ch	br or pek fans	1710	35
	24 do	bro tea	2400	28
Rickarton	12 ch	bro pek	1200	40 bid
	12 do	or pek	1200	39 bid
	11 do	pek	1100	36
Pansalatenne	10 ch	bro pek	1000	39
Maldeniya	16 ch	bro or pek	1600	38
	29 do	pek	2610	31
	25 do	or pek	2500	35
Shrubs Hill	55 ch	bro pek	5775	40 bid
	39 do	pek	3705	33
Maha Eliya	20 hf ch	bro or pek	1200	67
	28 do	bro pek	1680	49
	24 ch	pek	2160	43
Great Valley, Ceylon in est. mark	17 ch	bro or pek	1700	55
	15 do	pek	1380	36
	16 do	pek sou	1408	[illegible]
Sylvakandy	19 ch	br or pek No. 1	1600	39
	34 do	br or pek No 2	3100	36
	16 do	bro pek	1600	33
	14 do	or pek	1400	33
	23 do	pek	2300	32
Poonagalla	19 ch	or pek	1805	42 bid
	91 hf ch	bro pek	5460	52 bid
	24 ch	pek	2208	39
Bopitiya, R M	35 ch	bro or pek	3675	39
	17 do	or pek	1530	33
	24 do	pek	2160	31
	25 do	pek sou	2250	30
Robgill	22 hf ch	bro or pek	1100	56 bid
	27 ch	bro pek No 1	2430	45 bid
	22 do	pek	1760	39
Tempo	13 ch	bro pek	1300	37
	16 do	or pek	1440	34
	17 do	pek	1445	31
Mousakellie	21 ch	bro or pek	2100	48
	20 do	pek	1800	33
	16 do	or pek	1520	37
High Forest	32 hf ch	or pek No 1	1600	57
	41 do	or pek	2091	50
	27 do	bro pek	1566	56
	41 do	pek dust	3280	40
Gampaha	28 ch	bro or pek	3080	45
	20 do	or pek	1920	41
	24 do	pek	2040	40
Battawatte	21 hf ch	bro or pek	1365	36
	39 ch	bro pek	3900	39
	25 do	pek	2500	34
Polatagama	26 ch	bro or pek	2600	43
	25 do	bro pek	2375	38
	41 do	pek	3690	31
	31 do	pek sou	2790	30
Coldstream Group	83 hf ch	bro pek	4565	40
	32 ch	pek	2560	32
Edward Hill	14 ch	bro pek	1428	38
	20 do	pek	1540	31
Yeyungawatte	29 ch	bro pek	3045	33 bid
	32 do	pek	2720	29
Mariawatte	29 ch	dust	2465	25
St Helens	51 hf ch	bro or pek	2753	37
	15 ch	or pek	1275	36
	17 do	pek	1530	31
	15 do	pek sou	1350	28
New Peacock	25 ch	bro pek	1250	42
	33 do	pek fans	2310	
Dimbula, Clarendon	26 hf ch	bro pek	1456	
	19 ch	pek	1520	
	15 do	pek sou	1125	
Deaculla	36 hf ch	bro pek	1930	
	45 ch	pek	3150	
Good Hope	25 ch	bro or pek	2375	
	24 do	or pek	2160	
	23 do	pek	2070	

	Pkgs.	Name.	lb.	c.
Nahalma	22 ch	or pek	2200	36
	20 do	bro or pek	1960	40
	21 do	pek	1974	30
	15 do	pek sou	1350	29
Amherst	15 hf ch	dust	1150	28
Purane	11 ch	bro pek	1100	37
	25 do	pek	2000	31
Knavesmire	59 ch	bro pek	5900	34
	59 do	pek	4720	31
Clyne	18 ch	bro or pek	1116	43
	27 do	or pek	2700	35
	16 do	pek	1440	32
Panmure	25 hf ch	bro or pek	1250	60 bid
	41 do	or pek	2050	39
	26 ch	pek	2340	33
Melforth	12 ch	bro pek	1344	43
	11 do	or pek	1100	38
Parsloes	34 ch	bro pek	3400	34 bid
	29 do	pek	2610	31 bid
	15 do	pek sou	1 8)	29
K P W	25 hf ch	bro or pek	1500	36
	25 do	bro pek	1250	35
	30 do	pek	1500	30
Penrhos	34 hf ch	bro or pek	1904	49
	21 do	or pek	1008	38
	31 ch	pek	2635	34
Torwood	13 ch	bro or pek	1195	39
	12 do	bro pek No 1	1056	43
	26 do	pek	2080	29
Palmerston	17 hf ch	bro or pek	1020	69
	18 do	bro pek	1020	53
	12 ch	pek	1020	44
Ingrogalla	18 ch	bro pek	1800	38
	13 do	pek	1170	32
Forest Creek	15 ch	bro or pek	1500	67 bid
	37 do	bro pek	3700	45
	19 do	or pek	1615	40
	39 do	pek	3627	37
Walpita	39 ch	bro pek	3900	34
	31 do	pek	2790	31
Maealdenia	18 ch	bro pek	1440	41
Putupaula	14 ch	bro or pek	1470	56
	50 do	or pek	4250	35
	44 do	pek	3520	32
	11 do	bro pek fans	1375	30
C F X	25 ch	bro pek	2105	33 bid
H G M	42 hf ch	bro or pek	2310	41
	12 ch	bro pek	1200	33
	25 do	pek	2125	31
Aberdeen	28 ch	bro pek	2576	34 bid
	34 do	pek	2550	29
Seenagolla	18 hf ch	bro or pek	1093	51 bid
	13 ch	or pek	1189	49
Inverness	23 ch	bro or pek	2300	49
	17 do	or pek	1530	54
	23 do	pek	1955	46
	18 hf ch	bro or pek fans	1170	34
	15 do	dust	1275	27
Maha Uva	26 hf ch	bro or pek	1560	40
	14 ch	or pek	1400	39
	15 do	pek	1350	33
Hayes	20 ch	bro pek	1800	40
	18 do	or pek	1440	37 bid
	30 do	pek	2700	31
High Forest	24 hf ch	or pek No 1	1200	67
	13 do	bro pek	1044	54
	34 do	pek	1632	40
Talgaswella	17 ch	bro or pek	1700	45
	15 do	or pek	1200	35
	22 do	pek	1760	31
	22 do	pek sou	1650	30
Nabalma	17 ch	bro or pek	1700	40
	12 do	or pek	1152	36
	14 do	pek	1344	31
Algooltenne	19 hf ch	bro or pek	1007	54
	14 ch	bro pek	1130	51 bid
	22 do	or pek	1760	37
	35 do	pek	2450	32
Kincora	20 ch	pek	1800	34
G. in estate mark	20 ch	pek	1800	28
Digdola	14 ch	bro pek	1280	35
Osaka	*11 ch*	*young hyson*	*1100*	*40 bid*
	13 do	*hyson*	*1105*	*36 bid*
Bellongalla	18 ch	pek	1620	31
Freds Ruhe	15 ch	bro pek	1650	35
	12 do	sou	1140	30
New Peradeniya	33 hf ch	dust	2640	26
Rock Cave	12 ch	bro pek	1200	35
	17 do	pek	1445	31
Mudulkelle	10 ch	bro or pek	1000	49
	13 do	or pek	1040	41
	12 do	pek	1080	34
Harrow	20 ch	bro or pek No 1	1000	63 bid
	22 do	bro or pek No 2	1230	51 bid
	12 do	or pek	1200	39
	25 do	pek	2375	35

	Pkgs.	Name.	lb.	c.
Adisham	28 ch	bro or pek	1540	55 bid
	11 do	bro pek	1045	42
	13 do	pek	1235	34 bid
Great Valley	20 hf ch	or pek	1060	36 bid
Madulkelle	14 ch	pek	1120	31

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	4 ch	pek sou	380	30
	3 hf ch	fans	195	33
	2 do	dust	160	26
Bunyan & Ovoca	9 ch	pek No. 2	855	41
	7 hf ch	dust	595	27
C in est. mark	4 ch	pek sou	340	26
	2 do	bro or pek	170	31
	2 do	pek sou	184	24
P K	6 ch	bro pek	660	27
	9 do	pek	898	26 bid
P'Galla	8 ch	pek	7 0	27 bid
	8 do	pek sou	600	25
	1 hf ch	dust	64	24
T in est. mark	9 ch	bro pek	760	30 bid
F F	12 hf ch	bro pek	672	30 bid
T in est. mark	5 ch	pek	500	20 bid

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
F F	3 hf ch	bro pek	171	38
	2 ch	or pek	200	38
	2 do	pek	172	35
Ovitta	10 ch	pek	850	30
	8 do	pek sou	640	28
	1 hf ch	dust	88	24
Meath	3 hf ch	dust	243	25
Galgedioya	8 ch	bro or pek	800	34
	11 do	pek sou	990	26
	5 hf ch	dust	400	24
	4 ch	fans	400	26
	4 do	bro mix	380	26
H	6 hf ch	dust	480	25
	6 do	dust	510	24
S	1 ch	bro pek	89	30
	3 do	pek	235	26
Dunnottar	3 hf ch	bro or pek fans	225	30
W	6 ch	dust	744	25
V O	7 ch	dust	847	22
Woodend	1 hf ch	bro pek fans	51	27
	5 ch	dust	700	24
A A	1 ch			
	3 hf ch	dust	402	10 bid
P in est. mar	9 ch	bro tea	8.7	19

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Evalgolla	16 hf ch	pek sou	880	26
	5 do	dust	375	24
	5 do	bro pek fan	275	26
	2 do	sou	100	25
Kanoatota	9 ch	bro pek	855	31
	7 do	pek	630	29
	5 do	pek sou	450	28
Citrus	7 ch	pek sou	620	28
	3 ch	bro pek fans	300	26
	2 ch	dust	316	24
Kelani	4 ch	dust	400	24
Rothes	8 ch	pek	760	35
	1 hf ch	dust	90	25
Cotswold	9 ch	or pek	630	39
	5 ch			
	1 hf ch	pek sou	465	29
O L W	3 ch	bro or pek fans	300	29
	2 ch	dust	200	24
K R W	3 hf ch	fans	210	12
	2 do	sfts	190	12
Grange Gardens	7 ch	or pek	700	34 bid
	1 ch	pek sou	95	31
	1 ch	fans	100	30
	1 hf ch	dust	85	25
St Leys	1 ch	pek sou	80	31
California	5 ch	bro pek	500	33
	7 ch	pek sou	700	23
	1 ch	dust	150	23
Glenanere	6 ch	or pek	600	40
F A in est mark	3 hf ch	pek sou	120	36
	1 do	dust	76	25
Kinross	1 ch	bro tea	120	28
	1 ch	bro or pek fans	130	25
	1 ch	dust	160	24

	Pkgs.	Name.	lb.	c.
Avisawella	5 hf ch	dust	375	24
Mossville	5 ch	red leaf	425	10
Hobart	8 ch	bro pek	768	34
	9 ch	pek sou	675	28
Ravenoya	5 ch	pek sou	500	30
	3 ch	fans	450	28
Beausejour	8 ch	bro or pek	800	38
	4 ch	or pek	320	33
	1 ch	fans	100	27
Siriniwasa	7 ch	bro pek fans	735	19
Rayigam	*4 hf ch*	*hyson No 2*	*200*	*33*
	6 do	*siftings*	*495*	*12*
B Y	21 hf ch	or pek	966	43 bid
Yahalatenne	11 hf ch	dust	924	26
Kurulugalla	9 ch	or pek	900	34
	8 do	pek sou	720	29
	1 do	pek fans	105	26
	2 do	or pek dust	260	25
H B L	4 hf ch	bro or pek	234	33
Handford	5 ch	bro or pek	500	34
Huluganga	3 ch	or pek	300	34
	7 du	bro or pek	700	40
	6 du	pek	510	33
	4 do	pek sou	300	30
	2 hf ch	dust	176	24
Kuruncgalle	10 ch	pek	850	32
	2 do	pe sou	170	30
	5 hf ch	dust	400	27
Castlereagh	4 hf ch	bro or pek	200	34 bid
Marlborough	6 ch	bro pek	600	34 bid
Theberton	1 ch	sou	85	withd'n
	2 do	bro pek fans	200	withd'n
	1 do	fans	100	withd'n
B K	6 hf ch	fans	330	25
K P W	5 ch	pek sou	250	23
W	6 ch	dust	960	25
	2 do	congou	180	24
Neboda	3 ch	pek fans	300	28
	2 do	pek sou	170	28
	5 hf ch	dust	425	24
Mahatenne	2 ch	fans	290	25
Ahamed	16 hf ch	bro pek	800	31
	10 do	pek	500	28

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Chemnitz	*7 hf ch*	*young hyson*	*350*	*37*
	3 do	*hyson*	*135*	*33*
	3 do	*hyson No. 2*	*165*	*33*
	2 do	*siftings*	*100*	*12*
Higham	14 hf ch	bro or pek	770	43
	1 do	dust	95	23
	1 ch	sou	100	25
	8 hf ch	bro pek fans	500	27
N	10 hf ch	dust	850	26
Horagalla	5 ch	bro pek	464	34
	6 do	pek	526	29
	1 do	bro pek fans	103	27
	1 do	bro pek dust	61	24
Tismoda	8 ch	pek sou	640	29
Bittacy	5 hf ch	bro or pek	250	70
	3 ch	fans	330	36
	1 do	pek sou	90	35
	1 hf ch	dust	84	26
Elemane	5 ch	fans	500	29
Kcslande	15 hf ch	bro pek	900	51
	10 do	or pek	550	38
	2 ch	pek sou	200	31
	1 do	fans	110	26
Lameliere	11 ch	or pek	990	41
	8 hf ch	bro pek fans	560	31
	1 do	sou	85	30
Callander	13 hf ch	pek	676	39
	5 do	bro pek fans	400	29
Wattagalla	9 ch	pek sou	720	30
	7 hf ch	dust	630	25
Coslanda	15 hf ch	bro pek	900	50
	10 do	or pek	550	38
	2 ch	pek sou	200	31
	1 do	fans	110	26
Kandaloya	12 hf ch	pek No. 2	480	28
	5 do	fans	250	27
	6 do	dust	600	24
	8 ch			
Bowella	1 hf ch	bro or pek	750	26 bid
	5 ch	or pek	425	31 bid
	11 do	pek	880	30
	2 do	fans	180	21 bid
	6 hf ch	dust	480	24 bid
Mossend	16 hf ch	bro or pek	960	65
	16 do	pek	800	43
	2 do	dust	140	27
Orwell	6 hf ch	bro or pek	366	50
	8 do	pek fans	610	27
Apllakande	6 ch	sou	516	23

	Pkgs.	Name.	lb.	c.
Ottery	9 ch	fly or pek	810	50
	3 ch	bro pek	330	34
Ottery	1 hf ch	bro pek	68	34
	1 ch	pek	86	31
	1 hf ch	sou	46	28
	3 do	dust	270	25
R S	4 ch	fans	340	26
Cleveland	8 hf ch	flwy or pek	440	92
	3 do	fans	240	30
Mt Vernon	9 do	fans	612	35
Lameliere	11 ch	or pek	990	31
	8 hf ch	bro pek fans	560	30
	1 ch	sou	85	30
Dunedin	9 hf ch	fans	540	24
V	7 do	pek dust	630	32 bid
Carlsruhe	5 do	dust	450	14 bid
M T M	4 do	dust	345	11 bid
Y	4 ch	pek	412	out
	5 do	bro pek	650	12 bid
	1 do	dust	113	15
Cocoawatte	3 ch	fans	300	28
Galloola	3 do	dust	300	25
	3 do	fans	300	30
Ooswatte	1 do	sou	75	21
	7 hf ch	pek fans	490	22
	10 do	bro pek dust	800	16 bid
Cocoawatte	10 ch	pek sou	950	28
Q X A	6 do	unassorted	570	25
Agra Ouvah	11 ch	pek sou	920	40
	2 hf ch	dust	200	27
Dalhousie	12 hf ch	or pek	600	40
	10 do	bro pek	550	56 bid
	13 do	pek	585	38
	8 do	pek sou	360	33
	3 do	bro pek fans	195	31
Bowhill	6 ch	or pek	540	38
	3 du	dust	3	25
Cloveland	4 ch	bro pek		30
	6 do	pek	600	29
	1 do	pek sou	103	25
	1 do	fans	95	24
Winwood	15 hf ch	fans	800	29
Theresia	15 hf ch	bro or pek	825	53 bid
	5 ch	bro pek fans	500	31
	6 hf ch	dust	480	26
E S N	12 hf ch	pek sou	600	26
Captains Garden	13 hf ch	bro pek	650	33
	3 ch	pek sou	270	25
Gangawatte	4 ch	pek sou	360	33
	5 hf ch	dust	425	23
	6 hf ch	fans	390	32
Brownlow	16 hf ch	bro pek	896	39
Kebelwatte	2 ch	fans	220	29
	4 hf ch	dust	340	25

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Panawatte	8 ch	pek sou	720	30
	7 do	fans	770	27
	4 do	dust	600	26
Ninfield	5 ch	bru or pek	500	35
	6 do	bro pek	540	33
	11 do	or pek	935	35
	5 ch	pek sou	400	30
	2 hf ch	dust	160	25
Moray	20 hf ch	or pek	840	44
	5 do	dust	375	27
Nillomally	6 ch	fans	600	30
Northmatale	6 hf ch	dust	480	25
N	7 ch	sou	700	25
	5 do	bro tea	500	20
H, B L	13 hf ch	bro pek	728	35
	8 do	bro or pek	448	40
	8 ch	pek	704	31
	4 do	pek sou	320	29
	1 hf ch	dust	87	24
	2 do	fans	140	30
Dunedin	6 hf ch	fans	360	withd'n
	2 do	dust	172	withd'n
Yelverton	7 ch	or pek	602	40
	4 do	pek sou	320	32
Mawiligangawatte	4 ch	dust	430	23
Rickarton	8 ch	dust	968	27
	8 do	fans	880	23
Pansalatenne	4 hf ch	bru or pek	220	46
	8 ch	pek	760	38
	6 do	pek sou	540	24
	3 hf ch	bro pek fans	210	28
Maldeniya	6 ch	pek sou	510	29
	2 do	dust	300	24
Shrubs Hill	4 ch	pek sou	360	28
	8 hf ch	dust	688	27
P R S	1 ch	pek	90	32
	1 hf ch	bro or pek	58	38
	6 do.	bro pek	336	34

	Pkgs.	Name.	lb.	c.
Great Valley, Ceylon in est mark	8 hf ch	dust	640	28
Sylvakandy	3 ch	pek sou	300	30
	5 do	dust	500	25
Poonagalla	2 ch	pek sou	186	33
	7 hf ch	fans	574	29
Bopitiya	5 hf ch	dust	400	25
Tempo	10 ch	pek sou	800	29
	4 do	bro pek fans	440	28
	6 do	dust	660	25
Mousakellie	5 hf ch	dust	375	26
	9 do	bro pek fans	585	34
Gampaha	8 ch	pek sou	720	33
Battawatte	8 ch	pek sou	720	31
	2 do	dust	200	24
Polgama	8 ch	fans	800	27
	2 do	dust	300	24
Coldstream Group	8 ch	pek sou	640	29
	3 hf ch	bro pek fans	195	28
	2 do	dust	160	25
Edward Hill	8 ch	bro or pek	800	43
	12 do	or pek	9 4	34
	8 do	pek sou	784	28
	4 hf ch	dust	288	25
Weyungawatte	11 ch	pek sou	880	28
	1 do	sou	60	26
	2 do	dust	170	24
Maiiawa te	8 ch	sou	720	28
Clarendon, Dimbula	1 ch	sou	75	33
	1 hf ch	pek dust	85	26
Good Hope	1 ch	bro pek fans	116	28
Nahalma	5 ch	bro pek fans	500	28
	6 do	dust	480	25
	3 do	pek fans	300	24
Amherst	10 hf ch	fans	700	36
Purane	10 ch	pek sou	720	23
	3 hf ch	dust	240	25
	2 ch	fans	200	30
Knavesmire	6 hf ch	bro pek No 2	300	28
Cloyne	3 ch	pek sou	264	31
Ookoowatta	1 ch	pek sou	80	26
	1 do	pek fans	120	27
	1 hf ch	dust	100	23
Panmure	14 hf ch	bro or pek fans	770	38
	3 ch	pek sou	270	29
	6 hf ch	dust	450	27
Strathspey	4 ch	bro or pek	400	72
	4 do	bro pek	400	40
	7 do	or pek	679	40 bid
	8 do	pek	752	38
	1 do	dust	115	27
Nakiadeniya	*3 hf ch*	*young hyson A*	*120*	*38*
	2 do	*hyson A*	*144*	*36*
	1 box	*hyson No 2*	*11*	*34*
	7 hf ch	*young hyson*	*441*	*36*
	8 do	*hyson*	*384*	*35*
	1 do	*hyson No 2*	*54*	*34*
	1 do	*sifting*	*80*	*10*
Nakiadeniya	2 ch	bro or pek	210	48
	3 do			
	1 hf co	bro pek	350	42
	3 ch	or pek	300	35
	9 do	pek	720	31
	7 do	pek sou	490	28
	1 do	bro tea	90	27
	1 do	bro pek fans	80	26
Melforth	11 ch	pek	935	32
Parsloes	3 hf ch	dust	270	25
K P W	10 hf ch	or pek	450	36
	8 do	pek sou	400	29
	1 do	pek fans	75	26
	1 do	dust	90	21
Penrhos	10 ch	pek sou	780	31
	4 hf ch	fans	276	30
	1 do	dust	95	25
Torwood	10 ch	bro pek	880	32
	4 do	sou	320	25
Tor	4 ch	bro or pek	360	38
	4 do	bro pek	340	33
	8 do	pek	640	30
Walpita	9 ch	pek sou	720	28
	4 do	sou	320	26
Macaldenia	9 ch	pek	720	31
Putupaula	6 ch	pek sou	510	30
	2 do	dust	300	23
R B Y	5 hf ch	dust	367	21
Aberdeen	11 ch	sou	869	25
	7 hf ch	bro pek fans	490	25

	Pkgs.	Name.	lb.	c.
Seenagolla	5 ch	pek sou	500	27
M G H	9 ch	pek sou	900	28
Talgaswela	16 hf ch	bro pek No. 2	960	26
Nahalma	5 ch	fans	500	28
	4 hf ch	dust	320	25
Algooltenne	2 ch	fans	210	29
	5 hf ch	dust	350	26
B D W	6 ch	bro or pek	660	30
G, in estate mark	9 ch	congou	810	26
Kotuagoda	*4 hf ch*	*young hyson*	*200*	*24*
	2 do	*yng hyson No. 2*	*120*	*20*
	2 do	*hyson*	*110*	*20*
Rosebery	14 hf ch	or pek	770	36
	5 do	bro pek	300	38
	3 do	pek	165	33
	3 do	pek sou	165	30
	1 do	pek fans	60	27
K H L	3 ch	pek fans	390	27
	5 do	dust	800	25
Memorakande	3 ch	pek fans	240	26
	1 do	dust	100	25
Digdola	7 ch	bro or pek	700	42
	2 do	or pek	160	33
	6 do	pek	480	30
	4 do	pek sou	320	28
	4 do	bro pek fans	380	27
Bellongalla	4 ch	or pek	360	35
	4 do	bro or pek	420	35
	4 do	dust	560	18
	2 do	bro or pek fans	210	28
	2 do	pek fans	162	21
Freds Ruhe	10 ch	pek	900	35
W A	2 ch	dust	330	24
	6 do	pek sou	600	27
New Galway	7 hf ch	bro pek	420	69
	5 do	pek	275	53
I K V	1 ch	sou	90	26
	3 do	pek fans	390	25
Rock Cave	12 ch	pek sou	960	23
	2 do	dust	232	25
Madulkelle	2 ch	dust	200	25
	1 do	fans	100	30
Harrow	5 ch	pek sou	450	33
	2 do	fans	140	30
Bramley	21 hf ch	pek	966	40 bid
Adisham	5 ch	pek sou	450	33
Scarborough	10 ch	or pek	950	39
Coslanda	10 hf ch	bro pek	600	36 bid
Strathela	4 ch	bro or pek	400	40
Good Hope	8 ch	bro or pek	880	31

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, Oct. 31st.

"Clan Monroe."—Needwood F, 1 barrel sold at 110s; ditto 1, 1 cask sold at 108s; ditto 2, 8 at 92s 6d; 1 barrel sold at 92s 6d; ditto S, 3 casks and 1 barrel sold at 65s; ditto PB, 1 tierce sold at 87s; NW T in estate mark, 1 tierce sold at 41s; NW, 1 tierce sold at 43s; NW P in estate mark, 1 barrel sold at 36s; 3 bags sold at 57s 6d.

"Bombay."—B in estate mark, Nonpareil O, 1 barrel sold at 35s.

CEYLON CARDAMOMS SALES IN LONDON.

"Canton."—Kobo OO Seed, 6 cases sold at 1s 7d.

"Telemachus."—Midlands O, 3 cases sold at 1s 9d; ditto 1, 9 at 1s 4d; ditto 2, 3 at 1s 1d; ditto B & S, 2 at 1s; Warriagalla Mysore A, 5 cases sold at 1s 6d; ditto D, 4 at 1s.

"Canton."—Mahauva O, 12 cases sold at 1s 9d; ditto 1, 2 at 1s 6d; ditto 3, 1 at 1s; ditto S, 2 at 1s 1d.

"Benvoirlich."—Gammadua 1, 4 cases sold at 1s 10d; ditto Seed, 2 at 1s 6d; ME B & S Mysore, 1 case sold at 1s; ditto 1 Seeds Mysore, 3 cases sold at 1s 6d.

"Candia."—A L 1 Malabar, 4 cases sold at 1s 3d.

No. 46. COLOMBO, NOVEMBER 26th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[26,674 lb.]

	Pkgs.	Name.	lb.	c.
Coodoogalla	40 hf ch	bro pek	2000	37
V in est mark	16 ch	bro pek	1680	23 bid
Battalgalla	20 do	bro pek	2000	42
	18 do	pek	1530	36 bid
	20 do	pek scu	1600	33
Hornsey	20 hf ch	bro pek	1200	47 bid
	12 ch	pek	1020	36 bid
	14 do	pek sou	1050	31 bid
Mapitigama	17 ch	bro or pek	1819	39 bid
	22 do	or pek	1980	32
	16 do	pek	1440	30
	28 do	pek sou	2380	28
	10 do	fans	1200	25
Kinchin	18 hf ch	bro or pek	1080	46 bid
	20 ch	or pek	1710	33 bid
	22 do	pek	1980	32 bid

Messrs. Keell and Waldock.

[74,105 lb.]

	Pkgs.	Name.	lb	c.
Brixworth	27 hf ch	bro or pek	1485	48 bid
	15 ch	pek	1350	33 bid
	12 do	pek sou	1080	30 bid
Galla	23 ch	bro pek	2300	34 bid
Aigburth	20 hf ch	bro or pek	1100	47
	12 ch	or pek	1200	38
	30 do	pek	2610	31 bid
Hangranoya	14 ch	or pek	1120	33
	28 do	bro pek	2660	34
	18 do	pek	1440	30
Brecon	18 hf ch	bro pek	1050	43 bid
Woodend	34 ch	bro pek	3400	33
	32 do	pek	2880	29 bid
Lunuwala	21 ch	bro pek	2100	20 bid
	16 do	pek	1600	18 bid
Mutu Eliya	34 hf ch	bro or pek	1700	42 bid
	16 ch	pek	1410	31 bid
	19 do	pek sou	1710	30
Taprobana	39 hf ch	bro or pek	1950	35 bid
	26 ch	pek	2080	30 bid
Paniyakande	16 ch	bro pek	1600	39 bid
Moneragalla	20 ch	bro or pek	1500	39 bid
	15 do	or pek	1005	38
	21 do	pek	1470	33
	17 do	pek sou	1020	29
M O	12 ch	bro pek	1128	out
	16 do	pek	1280	28 bid
	28 hf ch	pek sou	1148	out
H T H	25 ch	bro pek	2500	36 bid
	20 do	pek	1840	30 bid
	14 do	pek sou	1345	29 bid
F F	10 hf ch			
	7 ch	bro pek No. 2	1370	25 bid
Lowlands	22 ch	bro pek	2200	out

Messrs. E. John & Co.

[227,201 lb.]

	Pkgs.	Name.	lb.	c.
Merrow	40 hf ch	bro pek	2240	33 bid
	12 ch	pek	1140	29 bid
Kelaneiya & Braemar	19 ch	bro or pek	1900	52 bid
	14 do	or pek	1400	32 bid
	34 do	pek	3230	35
Oono galeya	18 do	or pek	1440	40
	18 do	bro or pek	1710	53
	18 do	pek	1620	35
Ormidale	38 hf ch	bro pek	2204	49
	21 ch	pek	1932	39
Myraganga	19 hf ch	bro or pek	1042	48
	18 ch	bro or pek	1797	42
Harrisland	14 do	pek	1120	30
Gingranoya	11 do	bro or pek	1100	47 bid
	12 do	or pek	1020	40 bid
	14 do	pek	1120	33 bid
Glasgow	30 hf ch	bro or pek	1740	63
	22 ch	bro pek	2200	46
	27 do	or pek	2511	43
	11 do	pek	1045	41

	Pkgs.	Name.	lb.	c.
Midlothian	20 hf ch	bro pek	1200	49 bid
	21 do	pek	1092	40
Perth	27 ch	bro or pek	2565	40
	36 do	bro pek	3240	34
	42 do	or pek	3360	31 bid
Glentilt	38 hf ch	bro or pek	2090	59
	21 ch	or pek	1995	45
	23 do	pek	2070	40
Mocha	39 hf ch	bro or pek	2340	57 bid
	20 do	flwy or pek	1000	60
	14 ch	or pek	1330	45 bid
	14 do	pek	1330	41 bid
Templestowe	39 hf ch	bro or pek	2028	58
	20 do	bro pek	1120	44
	34 do	or pek	1462	43 bid
	15 ch	pek	1230	36 bid
	15 hfch	fans	1125	36
	12 do	dust	1140	27
St Johns	12 ch	or pek	1020	49 bid
	18 do	pek	1710	44
	12 do	pek sou	1080	40
Eila	14 ch	bro pek	1260	37
	79 do	pek sou	5530	29
Ashburton	10 do	bro or pek	1020	49
	21 do	bro pek	2205	37
	15 do	pek	1350	32 bid
Kolapatna	18 hf ch	bro or pek	1008	52 bi
	17 do	bro pek	1037	38
	20 do	or pek	1009	37
	11 ch	pek	1012	33 bid
G B	15 hf ch	fans	1050	29
M L W	15 ch	bro pek	1350	37
	16 do	pek	1280	31
Brownlow	20 hf ch	bro or pek	1120	58
	15 ch	or pek	1365	39
	17 do	pek	1445	34
	19 do	pek sou	1615	31
Birnam	27 ch	fans	1890	29
Vilgoda	17 ch	bro pek	1785	25 bid
Hakwela	21 hf ch	bro pek	1260	
	11 ch			w'drawn
	1 hf ch	pek	1150	
K D	15 ch	bro pek	1636	29 bid
	11 do	or pek	1097	28 bid
Holbrook	55 hf ch	bro or pek	3297	w'drawn
Natuwakelle	16 ch	bro or pek	1600	40 bid
	19 ch	or pek	1710	36
	18 do	pek	1620	32 bid
	14 do	pek sou	1260	30
Wanarajah	23 hf ch	bro pek fans	1564	31 bid
Mt Vernon	24 ch	pek	2112	38 bid
M K	8 ch	dust	1200	25
Rookwood	19 hf ch	fly or pek	1102	42 bid
	10 do	or pek	1500	38
	33 ch	pek	1518	34
Myraganga	14 ch	or pek	1330	39
	13 do	br or pek No. 1	1300	49
	30 do	br or pek No 2	3000	40
	16 do	pek No 1	1360	33 bid
	14 do	pek No. 2	1190	32
Tismoda	25 hf ch	bro or pek	1250	41
	57 do	bro pek	2850	35
	31 ch	pek	2480	32
M C	26 ch	bro pek	2600	37 bid
	22 do	or pek	2200	36 bid
	13 do	pek	1300	32 bid
	13 do	pek sou	1014	30 bid
Agra Ouvah	62 hf ch	br or pek	3720	53 bid
	26 ch	or pek	2470	44
	18 do	pek	1656	42
Rendura	12 ch	bro or pek	1260	48
	24 do	bro pek	2400	38
	24 do	or pek	2280	34
	18 do	pek	1800	34
	12 do	pek sou	1140	31
	7 do	dust	1155	24
Mahanilu	27 hf ch	or pek	1404	42 bid
	21 hf ch	bro or pek	1155	56
	20 ch	pek	1800	34 bid
Glassaugh	30 hf ch	or pek	1650	61
	30 do	bro or pek	2040	47 bid
	17 ch	pek	1502	49
Poilakande	30 do	bro or pek	2700	34
	46 do	bro pek	4140	30
	24 do	pek	1920	30
Warleigh	15 ch	or pek	1455	39 bid
	25 do	pek	2125	36
M T	40 hf ch	dust	3400	13 bid
M A	20 do	dust	1700	14
A	19 hf ch	pek dust	1710	15 bid
	22 hf ch	dust	1980	13 bid

Messrs. Somerville & Co.

[309,200 lb.]

	Pkgs.	Name.	lb.	c.
Yspa	22 ch	pek sou	1870	28
	9 do	fans	1143	25 bid
Laxapanagalla	22 ch	bro or pek	2200	39
	14 do	or pek	1330	32
Ambalawa	20 ch	bro pek	1800	31
	17 do	pek sou	1309	27
Theberton	24 ch	bro pek	2160	38
	23 do	pek	1955	31
Nyanze	35 hf ch	bro or pek	1925	49
	15 ch	pek	1425	34
Lonach	25 hf ch	bro or pek	1375	43
	18 ch	or pek	1530	38
	40 do	pek	3200	32
	14 do	pek sou	1190	30
Warakamure	32 ch	bro or pek	3200	38
	27 do	or pek	2160	35
	40 do	pek	3400	30
	15 do	pek sou	1200	28
Abergeldie	35 hf ch	br pek	2020	53
	20 do	pek	1800	36
	15 do	pek sou	1275	31
Ravenscraig	37 hf ch	bro or pek	2072	48
	19 do	or pek	1046	37
	15 ch	pek	1350	32
Owilikande	11 ch	bro or pek	1100	55
	13 do	or pek	1105	35
	13 do	pek	1170	30
	12 do	pek sou	1080	29
Mari Hill	29 hf ch	bro pek	1450	59
	71 do	pek	3195	32
	29 do	pek sou	1305	29
Dover	20 hf ch	bro or pek	1000	withd'n
	12 ch	or pek	1020	
	42 do	pek	3570	
	19 hf ch	fans	1330	
Mowbray	13 ch	pek	1040	32 bid
Kudaganga	10 ch	bro pek	1000	36
Ingeriya	13 ch	bro or pek	1300	38
	16 do	bro pek	1440	36
	20 do	pek	1800	31
	12 do	pek sou	1080	29
Columbia	25 hf ch	bro pek	1500	50
	18 ch	pek	1620	38
	16 do	pek sou	1280	32
Rahatungoda	31 hf ch	bro or pek	1736	53
	20 ch	pek	1880	35
	30 hf ch	or pek	1650	40
Mount Temple	19 ch	bro pek	1900	33
	37 do	pek	2960	30
	27 do	br or pek fan	2700	29
Meeriatenne	24 hf ch	pek sou	1032	32 bid
Highfields	20 hf ch	pek	1000	35
Yspa	24 ch	pek sou	2160	29
Hangama	19 ch	or pek	1900	33
	27 do	pek	2700	30
New Angamana	36 ch	bro or pek	3600	37
	17 do	or pek	1530	33 bid
	46 do	pek	4140	30 bid
	23 do	pek sou	2070	29
	9 do	pek fans	1098	27 bid
Old Maddegama	18 ch	bro or pek	1350	46 bid
	27 do	pek	2160	35 bid
Annandale	19 hf ch	bro or pek	1102	61 bid
	19 do	or pek	1026	41
	23 do	pek	1283	36
Scarborough	14 ch	or pek	1330	41
	14 do	pek	1330	35 bid
New Valley	9 ch	bro or pek	2900	52
	24 do	or pek	2280	40
	30 do	pek	2850	34
	14 do	pek sou	1260	30
Meddegoda	18 hf ch	bro or pek	1170	47
	26 do	pek	1430	33
Harrangalla	60 ch	bro pek	5700	34
	73 do	pek	6205	31
	18 do	pek sou	1530	29
W K P	21 ch	bro pek	2100	35 bid
	13 do	or pek	1170	34 bid
	37 do	pek	2960	30 bid
Ambalawa	13 ch	pek	1040	30
G A	26 ch	bro or pek	2678	32
Park Hill	25 ch	bro pek	2500	34
Avisawella	20 hf ch	bro or pek	1000	49
	18 ch	or pek	1710	36
	22 do	pek	1930	32
	15 do	pek sou	1200	29
Monrovia	19 ch	bro pek	1900	32
	17 do	pek	1615	29
Glenalmond	13 ch	pek	1170	32
Murraythwaite	13 ch	bro pek	1300	37
Ferndale	11 ch	bro or pek	1045	47 bid
	12 do	pek sou	1080	29

	Pkgs.	Name.	lb.	c.
Weygalla	20 hf ch	bro or pek	1000	65
	23 ch	pek	2300	30
Yahalatenne	18 ch	bro pek	1800	41
	12 do	pek sou	1092	30
Ellerslie	37 hf ch	bro or pek	2035	50 bid
	30 do	bro pek	1650	36 bid
	23 ch	or pek	1840	38 bid
	20 do	pek	1600	31 bid
K E N	60 hf ch	bro pek	3600	38
	20 ch	pek sou	1800	29
	25 hf ch	sou	1000	29
G in est. mark	16 ch	pek sou	1504	27 bid
Dryburgh	23 hf ch	bro or pek	1288	35
	13 ch	or pek	1209	37
	29 do	pek	2378	30
Theberton	22 ch	bro pek	1980	36
	16 do	pek	1360	31
Glenalla	*15 ch*	*young hyson*	*1425*	*38*
	27 do	*hyson*	*2565*	*34*
Labugama	27 hf ch	bro or pek	1485	35
	28 ch	pek	2380	29
Karangalla	18 ch	bro pek	1800	37
	15 do	pek	1275	30
Yarrow	14 hf ch	bro or pek	1830	40
Highfields	21 hf ch	bro or pek	1176	47
	21 do	or pek	1029	40
	31 do	pek	1612	35
S R K	13 ch	pek	1300	33
Mahavilla	22 hf ch	or pek	1122	38
	23 do	bro or pek	1311	35
	34 do	pek	1802	31
	42 do	pek sou	2268	29
Neuchatel	14 ch	bro or pek	1400	51
	53 do	or pek	4505	36
	50 do	pek	4000	31
	15 do	bro pek	1650	33
Cooroondoowatte	12 ch	bro pek	1200	40
	11 do	pek	1100	31
	22 do	pek sou	2200	28
Tillington	35 hf ch	bro pek	1925	41
	31 ch	pek	2635	31 bid
St. Catherine	32 hf ch	bro or pek	1653	41
	18 ch	pek	1532	31

Messrs. Forbes & Walker.

[579,980 lb.]

	Pkgs.	Name.	lb.	c.
E D P	16 hf ch	dust	1280	23
Glencorse	13 ch	pek	1040	31
	19 do	pek sou	1425	29
Drayton	38 hf ch	or pek	1900	45
	34 ch	pek	2890	36
Summerhill	33 hf ch	bro or pek	1914	59 bid
	24 do	bro pek	1464	50
	13 ch	or pek	1118	48
	15 do	pek	1335	43
Newmarket	47 hf ch	bro or pek	2585	53
	47 ch	bro pek	4935	40
	26 do	pek	2340	35
	12 do	pek sou	1080	32
Riverside	16 ch	bro pek	1680	35
	31 do	pek	2480	30
Florence	24 hf ch	bro or pek	1320	70
	18 ch	or pek	1710	57
	35 do	pek	3080	45
	20 do	pek sou	1820	39
Ismalle	16 ch	sou	1440	28
Glendon	15 ch	bro pek	1500	54
	45 do	or pek	4275	37
	48 do	pek	4320	33
	20 do	pek sou	1600	30
	7 do	dust	1050	25
Waldemar	17 ch	bro or pek	1955	52 bid
	19 do	or pek	1824	44
	13 do	pek	1144	38 bid
Galapitakande	20 ch	or pek	2000	40
	23 do	bro pek	2185	48
	25 do	pek	2300	36
Madulkelle	10 ch	bro pek	1000	41
	14 ch	sou	1050	29 bid
Aldie	22 ch	bro pek	2200	56 bid
	26 do	pek	2210	41 bid
Norton	65 hf ch	bro pek	3250	36 bid
	26 ch	pek	2340	31 bid
O B E C, Sindumally	11 ch	bro or pek	1155	39 bid
	11 do	br or pek No 2	1210	34
	21 do	or pek	1890	36
	24 do	pek	2040	33
Choisy	40 hf ch	bro or pek	2200	49
	18 ch	or pek	1530	38
	36 do	pek	3240	33
Detenagalla	15 ch	or pek	1500	44 bid
	16 do	pek	1600	35 bid

	Pkgs.	Name.	lb.	c.
Holton	33 hf ch	bro pek	1815	39
	22 do	pek	1056	31
Ardlaw and Wishford	11 ch	bro or pek	1188	57
	11 do	bro pek	1210	43
	11 do			
	1 hf ch	or pek	1035	42
	16 ch	pek	1312	38
Sylvakandy	11 ch	bro or pek No 1	1100	41 bid
	25 do	bro or pek No 2	2500	36 bid
	14 do	bro pek	1400	33 bid
	12 do	or pek	1200	37
	21 do	pek	2100	32
Yataderia	31 cb	bro or pek	3255	37
	25 do	or pek	2375	34
	47 do	pek	4136	31
	20 do	pek sou	1760	29
Munnkettia, Ceylon in estate mark	15 ch	or pek	1350	41
	36 hf ch	bro pek	2160	52
	30 ch	pek	2550	34
Laxapana	26 hf ch	bro pek fans	1950	28
Dowatakelle	34 hf ch	bro or pek	1904	41 bid
	30 ch	bro pek	3000	41
	24 hf ch	or pek	1296	39
	30 ch	pek	2520	33
	18 do	pek sou	1494	30
Pallagodde	17 ch	bro or pek	1700	39
	34 do	bro pek	3400	39
	29 do	or pek	2465	34
	23 do	pek	1840	33
	23 do	pek sou	1955	30
Clunes	10 ch	bro pek	1000	40
	13 do	or pek	1170	36
	33 do	pek	2970	30 bid
C	11 ch	dust	1485	27
Dunkeld	27 ch	bro or pek	2700	52
	15 do	or pek	1350	42
	17 do	pek	1530	37
Tembiligalla	18 ch	bro or pek	1800	35
	16 do	or pek	1504	34
Stamford Hill	17 hf ch	bro or pek	1020	63
	27 do	bro pek	1620	39
	38 do	or pek	1900	47 bid
	25 ch	pek	2250	35 bid
St Heliers	36 hf ch	bro or pek	1980	44
	12 ch	pek	1104	33 bid
Attampettia	16 ch	bro pek	1792	53 bid
	17 do	or pek	1615	45 bid
	16 do	pek	1520	42 bid
Yatiana	11 ch	or pek	1111	28
Ingrogalla	14 cb	bro pek	1400	39
Great Valley, Ceylon in estate mark	26 hf ch	bro or pek	1560	56
	18 do	or pek	1008	39
	15 ch	pek	1350	35
	12 do	pek sou	1056	31
Dunbar	31 hf ch	bro pek	1674	56
	13 ch	or pek	1118	41
	21 do	pek	1827	38
W N	15 hf ch	fans	1200	26
	16 ch	pek sou	1600	31
Belton	32 hf ch	or pek	1760	47 bid
	24 do	pek	1200	35 bid
Welkandala	22 ch	bro pek	2200	40
	28 do	pek	2520	32
	17 do	pek sou	1445	29
Sirikandure	12 ch	bro pek	1200	36
	11 do	pek	1045	30
Halbarawa	20 ch	pek sou	1500	28
Erlsmere	27 hf ch	bro or pek	1458	58
	17 ch	bro pek	1649	42
	12 do	pek	1032	39
Passara Group	11 ch	bro or pek	1100	53
	49 do	bro pek	4900	37
	33 do	pek	3135	37
	11 do	pek sou	1045	33
Adisham	28 hf ch	bro or pek	1540	withd'n
	11 ch	bro pek	1045	
	13 do	pek	1235	
Udaveria	22 hf ch	bro or pek	1320	62
	36 do	br or pek No 1	2160	48
	17 ch	or pek	1564	43
Delta	14 ch	bro or pek	1498	59
	39 do	bro pek	3522	37
	43 do	pek	3440	33
	19 do	pek sou	1520	30
S'Katclle	*30 hf ch*	*young hyson*	*2250*	37
	16 do	*hyson No 1*	*1040*	25
Middleton	18 hf ch	bro or pek	1080	61
	28 ch	bro pek	2800	46
	26 do	or pek	2210	40
	24 do	pek	2040	36
Agra Oya	19 hf ch	bro or pek	1045	57
	39 do	or pek	1950	40
	36 do	bro pek	2160	43
	16 ch	pek	1446	36

	Pkgs.	Name.	lb.	c.
Pine Hil	29 hf ch	bro or pek	1740	46
	21 do	or pek	1995	37
	20 do	pek	1800	32 bid
	15 hf ch	dust	1200	26
H G M	21 hf ch	flowery or pek	1155	52 bid
	24 do	bro or pek	1440	36 bid
	20 do	pek	1900	31 bid
	15 hf ch	fans	1050	28
Pine Hill	27 hf ch	bro or pek	1566	44 bid
	18 ch	or pek	1710	37
	19 do	pek	1710	32 bid
	12 do	pek sou	1020	30
Galkande	28 hf ch	or pek	1400	42
	22 ch	pek	1980	38
Poonagalla	69 hf ch	bro pek	4140	54 bid
	25 ch	pek	2250	40
Castlereagh	44 hf ch	bro or pek	2200	53 bid
	11 ch	bro pek	1100	36
Middleton	17 hf ch	bro or pek	1020	63
	28 ch	bro pek	2800	47
	24 do	or pek	2040	39
	23 do	pek	1955	36
Errollwood	13 ch	or pek	1300	38 bid
	16 do	pek	1440	35 bid
	10 do	pek sou	1000	30 bid
Monkswood	18 hf ch	bro or pek	1080	80
	39 do	or pek	1950	59
	33 ch	pek	3126	54
Udapola	*13 ch*	*hyson*	*1105*	*34*
Naseby	35 hf ch	bro or pek	2100	70
	25 do	or pek	1175	60
	30 do	pek	1500	49
Marlborough	34 hf ch	bro or pek	1836	51 bid
	11 ch	bro pek	1100	37
	16 do	pek	1328	34 bid
Tembiligalla	14 ch	bro or pek	1400	34
	17 do	or pek	1615	34
	19 do	pek	1634	31
Digdola	16 ch	pek	1280	30 bid
Penrhos	22 hf ch	bro or pek	1232	51
	16 ch	pek	1312	32
Mansfield	50 hf ch	bro pek	3000	51 bid
	11 ch	pek	1100	36 bid
Baduluoya	13 ch	bro pek	1252	45 bid
	16 do	pek	1445	34 bid
Ambalakande	10 ch	bro pek	1000	39
	14 do	pek	1260	31
Ireby	54 hf ch	bro pek	3240	48 bid
	27 ch	pek	2295	39 bid
Marlborough	65 hf ch	bro or pek	3510	52 bid
	25 ch	or pek	2200	39
	22 do	bro pek	2200	37
	27 do	pek	2241	33 bid
Dickhena	38 ch	bro or pek	3990	37
	31 do	or pek	2945	34
	44 do	pek	3740	30
	19 do	pek sou	1691	28
Preston	36 hf ch	bro or pek	1980	56
	18 ch	pek	1440	44 bid
L	12 ch	pek	1055	28
Bandara Eliya	46 hf ch	or pek	2300	38
	24 do	br or pek No 1	1200	51 bid
	50 do	br or pek No 2	2800	41 bid
	60 do	pek	2760	34 bid
	28 do	fans	1848	29
Ambragalla	44 hf ch	or pek	2068	36
	46 do	bro or pek	2184	40 bid
	19 ch	pek	1520	31 bid
	14 do	pek sou	1092	30
R K E	22 ch	or pek	1760	30 bid
	38 hf ch	pek	1900	29 bid
	32 ch	pek sou	2624	26 bid
Erracht	30 ch	bro or pek	3000	39
	17 do	or pek	1445	37
	49 do	pek	3675	33
Hayes	21 ch	bro pek	1890	39
	21 do	pek	1995	31 bid
	22 do	pek sou	1760	29
Dammeria	34 ch	bro pek	3400	38 bid
	25 do	or pek	2250	35
	31 do	pek	2790	33
	29 do	pek sou	2610	30
Great Valley	20 hf ch	or pek	1050	38
High Forest	28 hf ch	or pek No. 1	1400	52 bid
	32 do	bro pek	1856	51
	40 do	or pek	2040	46
Inverness	24 ch	bro or pek	2400	53 bid
	17 do	or pek	1530	49
	20 do	pek	1700	41
K, in estate mark	20 hf ch	bro pek fans	1200	28
Killarney	22 hf ch	bro or pek	1320	70
	30 do	bro pek	1740	70
	14 ch	or pek	1148	42 bid
	16 do	pek	1360	42
Kennington	17 ch	pek sou	1309	29
	12 do	pek fans	1260	29

	Pkgs.	Name.	lb.	c.
Palmerston	25 hf ch	bro or pek	1500	61 bid
	18 ch	pek	1530	41 bid
Queensland	20 hf ch	bro or pek	1000	69
	17 ch	bro pek	1700	44
	17 do	pek	1445	38
Sylvakandy	12 ch	bro pek	1200	35
	11 do	or pek	1100	36
	23 do	pek	2300	32
	12 do	bro or pk No 1	1200	41
	25 do	bro or pk No 2	2500	36
Vogan	29 ch	bro or pek	2900	51
	47 do	or pek	4230	35
	52 do	pek	4680	32 bid
	26 do	pek sou	2210	30
Elfindale	14 do	fans	1260	22
	12 do	dust	1200	31
Vincit	12 ch	bro pek	1200	37
	19 do	pek	1710	29 bid
W G	29 ch	or pek	2465	28 bid
Bowlana	41 hf ch	bro or pek	2460	48 bid
	29 ch	pek	2610	35 bid
	25 do	or pek	2375	40 bid
Ford	42 hf ch	bro pek	2100	33 bid
Crossby	43 hf ch	bro pek	2150	32 bid
W D M R	44 ch	bro or pek	4229	45 bid
Yogama	15 ch	bro pek	1575	37
	16 do	or pek	1600	33
	33 do	pek	2970	31
	15 do	pek sou	1275	29
Court Lodge	11 ch	bro or pek	1254	52
	14 do	pek	1288	36 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
D	2 ch	bro pek fans	250	24
Kinchin	2 ch	pek sou	160	29
	7 hf ch	dust	595	26

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
C C	2 ch	bro or pek	206	28
	3 do	bro pek	309	28
	3 do	pek	282	28
	3 do	pek sou	258	27
	2 hf ch	fans	158	24
	7 do	dust	497	23
	2 do	bro tea	140	20
Assaddumawatte	7 ch	bro pek	385	29
	7 do	pek	350	27
	4 do	pek sou	192	25
X X	3 ch	fans	253	11
Kitulakande	10 hf ch	bro pek	560	34
	10 do	pek	500	28
	9 do	pek sou	405	27
	4 do	bro pek fans	224	23
	1 do	or pek	50	39
	1 do	dust	88	17
Galla	9 ch	pek	855	29 bid
	3 ch	pek sou	240	28
	1 ch	bro pek fans	120	26
	1 ch	dust	145	23
R C in est. mark	10 hf ch	dust	800	17
Aigburth	5 ch	pek sou	400	28
Hangranoya	8 ch	bro or pek	760	46
Brecon	18 hf ch	pek	900	34
Woodend	12 ch	pek sou	960	28
	2 ch	dust	276	26
Lunuwala	9 hf ch	fans	585	25
T X	4 ch	pek	280	24
Taprohana	4 hf ch	or pek fans	240	28
	2 hf ch	dust	140	25
Alpha	18 hf ch	bro or pek	990	35
	6 ch	or pek	510	33
	6 do	pek	510	29 bid
	1 hf ch	fans	75	25
	1 do	dust	98	22
	4 ch	pek sou	320	27
Paniyakande	6 ch	pek	540	31
	3 ch	pek sou	270	28
	1 ch	sou	90	27
Moneragalla	7 ch	fans	714	29 bid
M O	7 hf ch	dust	525	24
H	7 ch	pek sou	660	27 bid
D T	*1 ch*	*hyson fans No. 1*	*120*	*9 bid*
	2 do	*hyson fans No. 2*	*224*	*10*
S S	9 hf ch	dust	765	20
K G	5 ch	sou	400	24

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Craigingilt	15 hf ch	bro or pek	750	45
	5 ch	or pek	475	38
	8 do	pek	640	36
	5 do	pek sou	375	30
	2 hf ch	or pek fans	130	29
Kosgalla	17 hf ch	bro pek	935	34
	11 do	pek	550	26 bid
	6 do	pek sou	270	24 bid
	4 do	bro pek fans	240	24
	1 do	dust	70	22
Kelaneiya & Braemar	4 ch	sou	380	32
	4 do	bro pek fans	400	34
	2 hf ch	dust	160	28
Oonoogaloya	6 do	br or pek No 2	420	33
	6 do	dust	510	32
	10 do	fans	650	31
Ormidale	12 hf ch	bro or pek	600	36 bid
	5 do	bro pek fans	350	33
Harrisland	13 hf ch	bro or pek	741	41
	12 do	or pek	540	37
	5 ch	pek sou	425	25 bid
	2 hf ch	fans	150	27
	1 do	pek dust	95	24
G O	1 ch	sou	58	25
Midlothian	6 hf ch	or pek	300	41 bid
	6 do	pek sou	288	33 bid
	3 do	bro tea	162	18
	4 do	fans	320	24
Ranawella	5 hf ch	bro or pek	250	43
	4 ch			
	1 hf ch	or pek	410	38
	9 ch	pek	765	33
Perth	9 ch	pek	675	29
	5 ch	pek sou	350	28
	4 do	pek dust	520	24
Mocha	6 hf ch	fans	450	32
St Johns	12 do	pek fans	816	41
Ashburton	8 ch	pek sou	696	29
	3 ch	fans	372	27
	1 ch	dust	156	26
Kolapatna	6 ch	pek sou	552	30
	5 hf ch	fans	340	29
	2 do	dust	166	26
M L K, Ceylon	6 ch	fans	672	21
	3 bags	fluffs	210	15
M L W	9 ch	pek sou	720	27 bid
	9 hf ch	dust	720	25
Chapelton	8 hf ch	dust No 1	752	27
	1 do	dust No 2	78	27
	3 ch	sou	255	24
Vilgoda	10 ch	pek	992	26
	7 do	pek sou	665	22
Hakwela	6 hf ch	fans	390	withd'n
Natuwakelle	1 ch	dust	100	25
Oakwell	5 ch	pek sou	455	28 bid
	6 do	fans	390	28
	3 do	dust	255	25
Taunton	2 ch	fans	240	22 bid
	2 hf ch	dust	180	25
The Farm	5 hf ch	fans	350	26
	2 hf ch	dust	160	25
Wanarajah	8 hf ch	dust	704	27
Rookwood	14 hf ch	fly br or pek	854	45 bid
	4 do	bro pek	280	34 bid
	1 do	pek dust	88	33
Myraganga	8 ch	pek sou	600	28
	5 do	bro mixed	450	26
	1 do	dust	180	25
	4 do	pek fans	560	27
Killin	*13 hf ch*	*young hyson*	*650*	*41*
	10 ch	*hyson*	*900*	*36*
	4 do	*hyson No. 2*	*320*	*34*
	2 do	*siftings*	*200*	*13*
Mahanilu	7 hf ch	dust	560	27
	9 do	fans	630	29
Glassaugh	6 ch	pek sou	600	37
Warleigh	17 hf ch	bro or pek	935	58 bid
	7 hf ch	fans	441	32
	5 hf ch	dust	425	28
O	10 do	bro pek dust	900	16

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Yspa	7 ch	dust	980	26
Laxapanagalla	4 ch	pek	360	28
	2 do	pek fans	200	26
Tbeberton	1 ch	sou	85	26
	2 do	bro pek fan	200	27
	1 do	fans	100	27
Nyanza	3 ch	pek sou	270	31
	4 hf ch	dust	300	27
	8 do	fans	520	30

	Pkgs.	Name.	lb.	c.
Eilandhu	6 ch	bro pek	570	35
	7 do	pek	630	29
	3 do	pek sou	270	27
	2 do	brok tea	200	26
	1 do	dust	125	25
L	10 hf ch	dust	850	26
	6 ch	bro mixed	510	27
Warakamure	2 hf ch	dust	180	22
A	3 hf ch	dust	240	26
	4 do	sou	200	26
S	5 hf ch	dust	400	27
	4 do	sou	200	26
Ravenscraig	5 hf ch	dust	400	27
Owilkande	3 hf ch	dust	240	24
H J S	16 hf ch	bro pek	960	33
	8 do	pek	480	29
Mary Hill	5 hf ch	bro or pek	275	52
	9 do	bro pek fans	585	35
	3 do	dust	240	25
H	*3 ch*	*Twanky*	183	21
Mowbray	9 ch	bro pek	900	39
	5 do	pek sou	400	32
Kudaganga	9 ch	pek	855	30
	7 do	pek sou	595	27
	2 do	fans	180	27
	3 do	pek dust	330	24
S W	1 hf ch	bro pek	82	26
	1 do	pek	56	21
	1 do	dust	56	18
Mount Temple	13 ch	sou	975	27
Meeriatenne	17 hf ch	bro pek	935	49
	22 do	pek	990	37 bid
	2 do	dust	178	26
Highfields	12 hf ch	bro or pek	672	47
	10 do	or pek	500	40
Hanagama	7 ch	bro or pek	756	45
New Angamana	3 ch	dust	480	24
Manangoda	5 ch	bro pek	500	27
	8 do	pek	760	25
	4 do	pek sou	380	24
	1 hf ch	unasorted	95	22
	2 ch	red leaf	180	14
Galata	10 hf ch	bro pek fans	750	28
Dikbedde	3 ch	bro pek	300	26
	6 ch	pek	600	25
	1 do	pek sou	98	25
	1 do	bro pek fans	116	24
Donside	8 ch	sou	680	29
	2 hf ch	fans	120	23
	3 do	dust	240	21
Annandale	6 hf ch	bro pek fans	408	31
	3 do	dust	255	27
Scarborough	4 hf ch	dust	348	25
	10 do	fans	680	29
New Valley	1 hf ch	dust	90	24
	6 ch	pek No. 2	570	31
Meddegoda	12 hf ch	or pek	660	38
	13 do	pek sou	715	29
Harrangalla	12 hf ch	dust	960	23
	9 ch	br pk fans	900	29
W K P	11 ch	pek sou	825	27 bid
	4 do	sou	304	25
	2 hf ch	dust	120	24
Ambalawa	2 ch	bro pek fans	190	26
San Cio	2 hf ch	dust	150	26
Park Hill	12 ch	pek	948	31
	3 do	or pek	264	36
	10 do	pek sou	750	29
	3 do	sou	186	27
	3 hf ch	dust	210	24
Avisawella	6 hf ch	dust	450	26
Monrovia	6 ch	pek sou	510	27
	7 do	fans	630	22
Glenalmond	5 hf ch	bro or pek	288	49
	17 do	or pek	850	36
	1 ch	pek sou	90	29
	2 do	fans	200	27
	2 hf ch	dust	160	25
M	9 ch	bro pek	945	40
	7 do	pek	665	34
	1 do	pek sou	90	28
	1 hf ch	dust	86	26
H R	1 ch			
	1 hf ch	bro pek	125	34
	2 ch	pek	135	29
	1 do	dust	100	22
	1 hf ch	*hyson*	*45*	*25*
Muaraythwaite	10 ch	pek	800	30
	3 do	pek sou	240	29
	1 do	dust	170	21
	1 do	bro pek fans	130	27
Weygalla	15 hf ch	bro pek	900	39
	6 ch	pek sou	600	28
Ellerslie	4 hf ch	dust	280	27
	2 ch	pek sou	140	29
K E N	4 hf ch	dust	340	26

	Pkgs.	Name.	lb.	c.
F H	8 ch	bro or pek	840	37
	11 do	bro pek	792	32
	7 do	pek	700	w'drawn
Dryburgh	4 ch	pek sou	320	29
	6 hf ch	fans	444	27
Theberton	2 ch	bro pek fans	200	27
Glenalla	1 ch	fans No 1	110	12
	2 do	fans No 2	180	13
	1 do	dust	145	10
Lahugama	9 ch	or pek	720	35
	6 do	pek sou	480	28
Karangalla	5 ch	pek sou	450	28
	3 hf ch	dust	240	26
Yarrow	12 do	or pek	780	36
	15 do	pek	930	31
	7 do	pek sou	420	29
	4 do	bro or pek fans	344	29
	1 do	pek fans	76	25
Torhay	5 hf ch	bro or pek fans	350	32
	6 do	fans	420	30
	2 do	dust	180	27
	5 do	pek sou	215	29
S R K	3 ch	dust	480	26
Mahavilla	5 hf ch	sou	255	25
	12 do	dust	960	26
F F	5 do	dust	425	24
	2 ch	pek sou	200	26
D B R, in est mark	1 hf ch	bro pek	63	29
	1 do	dust	75	20
Neuchatel	3 ch	dust	435	25
Cooroondoowatte	11 hf ch	pek fans	880	27
	5 ch	dust	500	23
Tillington	2 ch	pek sou	170	30
	4 hf ch	fans	300	27
A T	9 ch	pek sou	792	24
	5 do			
	1 hf ch	bro pek fans	554	20 bid
St. Catherine	3 ch	bro pek fans	333	28

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Drayton	10 ch	pek sou	850	33
Gabbela	5 hf ch	bro pek	275	31
	4 do	pek	215	27
	4 do	pek sou	240	24
Riverside	11 ch	or pek	990	34
	8 do	pek sou	600	28
	4 do	sou	304	25
	2 do	dust	150	24
	1 do	dust	76	22
Ismalle	7 ch	dust	945	25
	7 do	bro pek fans	875	25
B B, in estate mark	10 ch	dust	900	26
Galapitakande	8 ch	pek sou	760	31
	6 ch	dust	480	27
Valana	9 hf ch	bro or pek	450	43 bid
	5 ch	pek	400	32 bid
	4 do	or pek	380	39
	3 do	pek sou	225	30
	1 hf ch	or pek fans	65	27
Norton	10 hf ch	dust	850	26
A O, in estate mark	1 ch	bro pek	60	33
	1 do	pek	79	29
	3 do	pek sou	316	26
	1 hf ch	dust	30	23
	1 hf ch	*hyson*	34	25
	1 box	*hyson dust*	12	10
Siriwatte	14 hf ch	bro or pek	784	36
	5 ch	or pek	450	35
	7 do	pek	583	32
	5 do	bro pek sou	500	30
	2 do	bro pek fans	200	28
	4 do	fans	440	26
O B E C, Sindumally	14 ch	pek sou	980	29
C B L	3 ch	bro or pek	300	33
	4 do	pek	360	32
	1 do	sou	80	28
	2 do	fans	150	25
Rockside	4 ch	bro pek fans	480	30
	3 do	dust	405	27
Holton	3 ch	pek sou	255	28
	3 hf ch	fans	165	27
	2 do	dust	170	24
Pannapitiya	8 ch	bro pek	800	34
	4 do	bro or pek	460	30
	8 do	pek	710	30
	5 do	pek sou	400	28
Sylvakandy	3 ch	dust	300	25
C R S	6 hf ch	bro pek	300	30
	1 do	dust	40	25
Clunes	5 ch	pek sou	450	28
	3 do	fans	330	27
	5 do	dust	750	24
C	4 ch	dust No 2	600	26

	Pkgs.	Name.	lb.	c.
Tembiligalla	7 ch	pek	651	30
	5 do	pek sou	465	27
	2 do	fans	190	26
	3 do	dust	444	25
Stamford Hill	6 ch	pek sou	540	34
	4 hf ch	dust	360	27
St Heliers	5 hf ch	dust	415	27
Bromley	1 ch	pek sou	90	33
	8 do	fans	610	28
Attampettia	3 ch	pek sou	270	36
Yatiana	3 ch	bro pek	303	24
	3 do	pek	289	23
	1 do	pek sou	95	21
Kelvin	6 hf ch	fans	390	27
Pingarawa	8 ch	sou	640	29
Ragalla	8 hf ch	dust	720	26
H	3 ch	pek	351	27
	2 do	pek	194	27
I N G, in est mark	4 ch	pek fans	400	25 bid
	3 do	bro pek dust	420	25
Dunbar	2 ch	b P pek fans	268	30
	3 do	pek sou	246	34
W N	3 hf ch	dust	270	24
Belton	3 hf ch	dust	180	25
Welkandala	8 ch	or pek	650	38
	7 hf ch	dust	560	26
	3 do	fans	210	29
Sirikandure	10 ch	pek sou	850	27
	1 do	bro pek fans	76	27
	1 do	fans	59	25
	1 do	dust	137	26
Halbarawa	7 ch	bro pek	700	38
	5 do	or pek	400	34
	11 do	pek	935	31
	5 do	fans	550	23
	2 do	dust	300	21
Erlsmere	3 ch	pek sou	252	33
	4 hf ch	dust	312	26
Adisham	5 ch	pek sou	450	withd'n
Udaveria	8 ch	pek	680	41
	5 hf ch	bro or pek fans	350	28
	4 do	fans	320	29
Wyamita	9 ch	bro pek	900	37
	10 do	pek	900	30
	6 do	pek sou	510	29
	2 do	bro pek fans	146	28
Delta	4 hf ch	fans	480	26
	5 ch	dust	425	26
C R D	2 ch	sou	160	27
	4 do	pek	360	28
S'katelle	*4 hf ch*	*hyson No 2*	*240*	*25*
	2 do	*hyson sifting*	*540*	*10*
Poonagalla	5 hf ch	fans	425	29
Castlereagh	8 ch	or pek	640	36
	9 do	pek	720	32
	11 hf ch	fans	770	27
Erroll wood	16 hf ch	bro or pek	960	out
	9 ch	or pek fans	585	31
	8 do	dust	720	25
Monkswood	7 ch	pek sou	560	46
	5 hf ch	fans	350	40
	3 do	dust	270	29
Udapolla	*8 ch*	*young hyson*	*760*	*36*
	9 do	*hyson No 2*	*720*	*33*
	4 hf ch	dust	300	10
Naseby	7 hf ch	bro pek	420	44
	12 do	unassorted	600	40
Tembiligalla	8 ch	pek sou	736	27 bid
	3 do	pek fans	330	27
	2 do	dust	306	24
Digdola	1 ch	bro pek	90	35
	11 do	pek sou	880	27
	1 do	bro pek fans	100	28
Mansfield	3 ch	pek sou	300	28
	2 hf ch	bro pek fans	170	27
	3 do	dust	285	27
Baduluoya	5 ch	or pek	430	30
	5 do	pek sou	440	27
	3 hf ch	dust	225	24
Amblakande	2 ch	bro or pek	200	29
Ireby	9 ch	pek sou	765	32 bid
	1 do	sou	100	30
	4 do	fans	280	34
	6 hf ch	dust	510	28

	Pkgs.	Name.	lb.	c.
G K	5 ch	fans	475	24
Preston	19 hf ch	or pek	874	54
	6 do	fans	408	39
Taldua	2 ch	dust	160	24
Ugieside	6 ch	pek fans	570	23
Uragalla	7 ch	bro pek	686	36
	10 do	pek	850	29
	2 do	pek sou	180	27
	1 do	dust	90	29
L	9 ch	bro pek	945	28
	3 do	dust	480	23
Poengalla	3 ch	dust	270	26
	4 do	fans	400	28
Bandara Eliya	8 hf ch	pek sou	360	33
	11 do	dust	880	27
	4 do	red leaf	224	23
Ambragalla	5 ch	dust	350	26
	2 do	red leaf	200	20
R K E	8 hf ch	bro pek	440	34
Errecht	3 ch	dust	438	25
Killarney	4 do	pek sou	380	39
Coslanda	10 hf ch	bro pek	600	44 bid
Kennington	4 ch	bro tea	288	28
	3 do	dust	375	25
	1 do	unassorted	99	25
Queensland	4 hf ch	bro pek dust	300	29
R, in est mark	4 ch	or pek	340	31
Sylvakandy	3 ch	dust	300	25
K A W, in est mark	11 ch	pek	880	29 bid
Vogan	10 hf ch	dust	800	25
	3 ch	pek fans	375	27
Strathspey	7 ch	or pek	676	40
Hunugalla	3 hf ch	bro pek	195	23
	4 ch	pek sou	360	26
	3 hf ch	dust	240	24
	3 ch	bro mix	270	24
Vincit	1 ch	sou	90	26
	2 do	fans	250	27
	1 do	dust	165	24
B	16 hf ch	pek	877	out
Bowlana	10 ch	pek sou	850	32
	7 hf ch	fans	490	30
	5 do	dust	425	26
Glaslyn	11 ch	bro pek	990	34
Kalupahana	1 do	dust	172	out
Yogama	4 do	dust	520	25
Court Lodge	10 do	or pek	930	43

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Nov. 7th.

"Banca."—Meeriabedde S, 1 barrel sold at 45s; MB T in estate mark, 1 barrel sold at 55s; 1 tierce sold at 35s; Meeriabedde 2, 1 bag sold at 57s.

"Tamba Maru."—Nonpariel CM in estate mark O, 1 tierce and 3 casks sold at 102s; ditto PB, 1 barrel and 1 tierce sold at 100; 1 bag sold at 55s.

"Persia."—Mahaville CM in estate mark 1, 1 cask and 10 barrels sold at 85s.

CEYLON COCOA SALES IN LONDON.

"Sanuki Maru."—Maragalla 2, 1 bag sold at 49s.

"Benvorlich."—Sunnyside BB, 8 bags sold at 60s; ditto A, 3 at 57s; ditto B, 3 at 54s; ditto C, 4 at 50s; Greenwood A, 5 bags sold at 58s 6d; ditto C, 11 at 56s 6d; ditto D, 3 at 53s; ditto F, 1 at 51s; ditto G, 1 at 55s; Totum 3 bags sold at 55s.

"Oruba."—Bandarapola 2, 1 bag sold at 42s.

"Benvorlich."—Monarakelle 2, 2 bags sold at 45s; Broken, 1 bag sold at 49s; F OEC in estate mark, Mahaberia Ceylon O, 19 bags sold at 71s 6d; E ditto 1, 6 at 57s 6d; C ditto O, 9 at 88s; C ditto 1, 6 at 66s.

"Clan Urquhart."—OEC in estate mark, Mahaberia Ceylon 1, 6 bags sold at 66s 6d.

"City of Athens."—Alloovibarie, Ceylon Cocoa A, 110 bags sold at 80s.

No. 47. COLOMBO, DECEMBER 3rd, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[15,281 lb.]

	Pkgs.	Name.	lb.	c.
Yuillefield	31 hf ch	bro or pek	1705	49
	25 ch	pek	2375	35
Wahagapitt'a	10 ch	bro or pek	1040	41 bid
	19 do	bro pek	1900	34
Battalgalla	21 ch	bro pek	2100	35 bid
	17 do	pek	1445	36

Messrs. Keell and Waldock.

[64,406 lb.]

	Pkgs.	Name.	lb.	c.
Ovitta	14 ch	bro or pek	1400	35
Hyde	17 ch	or pek	1411	41
	41 hf ch	bro or pek	2296	44 bid
	26 ch	pek	2314	34
B Talawa	21 ch	bro or pek	2100	41 bid
Woodend	39 do	bro pek	3900	33
	34 do	pek	3060	23 bid
Katugastota	21 ch	bro pek	2205	35 bid
	34 do	pek	2720	28 bid
Dunnottar	29 do	bro or pek	1450	40 bid
	21 do	bro pek	1050	38
Aigburth	11 ch	bro pek	1045	36
	24 do	pek	2112	29 bid
Glenwood	16 ch	bro or pek	1568	39 bid
	35 do	or pek	2975	31 bid
	16 do	pek	1280	27 bid
	40 do	pek sou	3280	26 bid
G in est mark	21 hf ch	bro pek	1260	18 bid
H G O	18 ch	pek	1437	28 bid
Mutu Eliya	34 hf ch	bro or pek	1697	41 bid
	16 ch	pek	1437	31 bid
	19 do	pek sou	1707	27 bid
Etteheria	32 hf ch	bro or pek	1600	39 bid
	21 ch	pek	1890	32 bid
	15 ch	pek sou	1350	27 bid

Messrs. E. John & Co.

[160,054 lb.]

	Pkgs.	Name.	lb.	c.
G Ceylon in est mark	10 ch	bro or pek	1050	37
Oonoogaloya	17 ch	or pek	1360	39
	16 do	bro or pek	1520	49
	25 do	pek	2250	33
Mount Everest	39 hf ch	bro or pek	1950	50 bid
	30 do	or pek	1500	45
	36 ch	pek	3600	36
O W	13 ch	bro pek	1079	31
	14 do	pek	1050	27 bid
Balado	12 ch	pek	1080	30 bid
	23 do	pek sou	1725	29
Elston	19 do	pek	1520	36
	21 do	pek sou	1680	31 bid
Westhall	23 hf ch	dust	1955	26
Birnam	21 ch	pek sou	1470	36
Glasgow	37 hf ch	bro or pek	2146	64
	29 ch	bro pek	2900	46
	45 do	or pek	4185	41 bid
	15 do	pek	1425	40
	17 hf ch	pek fans	1105	32
Ben Nevis	25 hf ch	bro pek	1500	38 bid
	27 do	or pek	1350	41 bid
	25 ch	pek	2250	35
	12 do	pek sou	1030	30 bid
Lameliere	28 hf ch	bro or pek	1680	43
	17 ch	pek	1564	36
S J	13 do	pek	1014	27
Dickapitiya	20 do	bro pek	2000	39
	17 do	pek	1615	31 bid
	24 do	pek sou	2280	28 bid
Cabin Ella	25 hf ch	bro or pek	1500	43
	17 ch	bro pek	1615	34 bid
	22 do	pek	1870	34
Brownlow	19 hf ch	bro or pek	1064	53 bid
	17 ch	or pek	1547	39
	18 hf ch	bro pek	1003	38
	19 ch	pek	1615	34
Tarawera	*18 ch*	*young hyson*	*1710*	*36 bid*
Kandaloya	22 hf ch	bro or pek	1100	46

	Pkgs.	Name.	lb.	c.
	29 do	or pek	1160	39
	76 do	pek	3040	31 bid
Agra Ouvah	58 hf ch	bro or pek	3480	55
	39 do	or pek	2106	42
	16 ch	pek	1472	39
Lameliere	28 hf ch	bro or pek	1680	42 bid
	17 ch	pek	1564	35
Mt Vernon	26 ch	pek	2340	40
	21 do	pek	1890	39
Mocha	39 hf ch	bro or pek	2337	59 bid
	14 ch	or pek	1327	43 bid
	14 do	pek	1327	40 bid
Theresia	20 hf ch	bro or pek	1100	53
	24 ch	pek	1920	36
	15 do	pek sou	1275	32 bid
Warleigh	15 ch	or pek	1452	40 bid
Waragalande	25 do	bro or pek	2500	40
	18 do	pek	1620	30 bid
Bowella	15 ch			
	1 hf ch	pek	1320	27 bid
A A	20 ch	dust	3000	22
Myraganga	12 do	or pek	1080	33
	15 do	bro or pk No 1	1500	45 bid
	38 do	bro or pk No 2	3800	38 bid
	13 do	pek No. 1	1040	34
Wanarajah	23 hf ch	bro pek fans	1561	28 bid
Higham	26 ch	pek	2167	30 bid
O W	12 ch	bro pek	1104	34
	15 do	pek	1200	27 bid
	20 hf ch	pek fans	1260	27
Poilakande	21 ch	bro pek	1890	28
	32 ch	pek	2560	28
Morton	26 do	bro or pek	2600	35
	26 do	pek	2080	28 bid
	18 do	or pek	1530	34
Salem	10 do	bro or pek	1000	38
	10 do	pek	1000	30

Messrs. Somerville & Co.

[277,802 lb.]

	Pkgs.	Name.	lb	c.
Narangoda	60 ch	bro pek	5700	32 bid
	34 do	pek	3060	29
	18 do	pek sou	1620	27
Citrus	18 ch	bro pek	1710	34
Southwark	58 ch	bro pek	5220	32
	13 do	pek	1079	29
Lyndhurst	30 hf ch	br pek	1650	37
	33 do	pek	1485	30 bid
	28 do	pek sou	1176	27 bid
Selvawatte	22 hf ch	bro pek	1210	32 bid
Yspa	21 ch	pek sou	1680	27 bid
Dambagalla	16 hf ch	bro or pek	1024	35
	21 do	pek	1039	30
Kituldeniya	10 ch	bro pek	1050	35
	20 do	pek	1600	29
Nyanza	16 ch	or pek	1360	37
	12 do	pek	1140	34

	Pkgs.	Name.	lb.	c.
Oonanagalla	16 ch	or pek	1360	39
	20 do	bro or pek	2000	49
	18 do	pek No. 1	1710	34
	13 do	pek No. 2	1040	34
Kallebokka	21 ch	bro or pek	2100	51
	23 do	bro pek	2630	36
	13 do	or pek	1040	37
	29 do	pek	2320	31 bid
Mincing Lane	32 hf ch	bro pek	1760	52
	22 ch	or pek	1870	41
	24 do	pek	2160	39
C W M	28 hf ch	bro pek	1540	46 bid
	17 ch	pek	1445	31 bid
Mount Temple	27 ch	pek	2052	29
	19 do	br or pek fan	1862	27
Laxapanagalla	24 ch	bro or pek	2400	35
	14 do	or pek	1330	30
Polgahakande	23 ch	or pek	1840	34
	12 do	bro pek	1200	33
	21 do	pek	1680	28
	9 do	dust	1260	22
Blinkbonnie	27 hf ch	bro or pek	1620	48 bid
	11 ch	or pek	1012	43 bid
	17 do	pek	1530	40
Hatdowa	15 ch	bro pek	1497	35
	14 do	pek	1330	29
Damblagolla	12 ch	or pek	1080	36
	14 do	pek	1190	30
Paradise	29 ch	bro pek	3045	3
	17 do	pek	1615	29

	Pkgs.	Name.	lb.	c.
Old Maddegama	14 ch	or pek	1098	38
Walla Valley	20 hf ch	bro or pek	1060	59 bid
	21 ch	or pek	1995	43
	33 do	pek	3230	40
Farnham	20 hf ch	bro pek	1060	36
	13 ch	or pek	1040	34
	17 do	pek	1530	29 bid
	13 do	pek sou	1157	27
	15 do	bro pek fans	1005	27
Walla Valley	17 ch	or pek	1615	43
	24 do	pek	2040	39
	17 do	pek	1445	36
Monte Christo	37 ch	bro pek	3700	47
	12 do	pek	1080	33
	22 do	pek sou	1980	29
Rayigam	*24 ch*	*young hyson*	*2280*	*36 bid*
	17 do	*hyson*	*1540*	*35 bid*
Scarborough	20 hf ch	bro or pek	1080	49
	18 ch	or pek	1710	withd'n
	12 do	pek	1140	withd'n
P T N in estate mark	21 hf ch	bro pek	1176	26
Harangalla	33 ch	bro pek	3135	35
	22 do	pek	1870	30
Hobart	11 ch	bro or pek	1100	35
	14 do	bro pek	1260	33
	18 do	pek	1350	28
Mahatenne	10 ch	bro or pek	1000	43
	12 do	or pek	1200	32 bid
	17 do	pek	1615	29
D M O G in est. mark	24 hf ch	bro pek	1320	38
	20 hf ch	or pek	1000	33
	14 ch	pek	1120	28 bid
	20 do	pek sou	1500	27 bid
Labuduwa	14 ch	pek sou	1120	27
Richlands	12 ch	or pek	1020	38 bid
	28 hf ch	bro or pek	1540	48 bid
	15 ch	pek No. 1	1425	33
	12 do	pek sou	1030	31
Yahalatenne	22 ch	bro pek	2200	39
	15 do	pek	1350	33
Rambodde	25 hf ch	bro pek	1250	39
	26 do	pek	1170	32
Morantenne	22 hf ch	bro pek	1210	35
Dalukoya	24 hf ch	bro or pek	1320	44
	25 do	or pek	1250	36
	24 do	pek	1200	32
	25 do	pek sou	1250	27 bid
Murraythwaite	21 ch	bro pek	2100	36
	14 do	pek	1120	29
K E N	30 ch	pek	2850	29 bid
Theberton	12 ch	bro pek	1620	34
	20 do	pek	1700	28 bid
Gangwarily	42 ch	bro pek	4200	35
	25 do	pek	2125	30
Forest Hill	19 hf ch	bro pek	1026	41 bid
	13 ch	pek	1079	28 bid
	15 hf ch	fans	1030	28
Ferriby	26 hf ch	bro or pek	1430	37
	16 ch	or pek	1440	33
	22 do	pek	1870	28
R K P	41 ch	bro or pek	4160	35
	45 do	pek	4050	29
	27 do	pek sou	2160	27
C in estate mark	20 hf ch	bro or pek	1300	30 bid
	15 ch	bro pek	1500	26 bid
Neboda	28 ch	bro or pek	2800	39
	22 do	or pek	2024	35
	39 do	pek	3900	30
M	10 ch	bro or pek	1000	31 bid
Warakamure	23 ch	bro or pek	2300	34
	19 do	or pek	1520	33
	29 do	pek	2465	28
Walla Valley	36 hf ch	bro or pek	1980	55 bid
	21 ch	or pek	1785	41
	49 do	pek	4165	39
Pindeni Oya	17 ch	bro pek	1615	36
	19 do	pek	1615	29
	12 do	pek sou	1020	27
N P	17 ch	bro or pek	1700	35
	24 do	pek	1920	27
Avisawella	20 hf ch	bro or pek	1000	45
	18 ch	or pek	1710	36
	21 do	pek	1890	29
	14 do	pek sou	1120	27

Messrs. Forbes & Walker.

[504,667 lb.]

	Pkgs.	Name.	lb.	c.
Galleberia	12 ch	bro or pek	1200	48 bid
	13 do	or pek	1040	38 bid
	25 do	pek	2125	35
Wattekelly	24 ch	bro pek	2400	34 bid
	14 do	bro or pek	1419	44 bid
	13 do	or pek	1040	33 bid
	17 do	pek	1391	30 bid

	Pkgs.	Name.	lb.	c.
Coldstream Group	57 hf ch	bro pek	3135	36
	20 ch	pek	1600	31
Irex	21 ch	bro or pek	2100	41
	14 do	or pek	1120	32 bid
	17 do	pek	1530	30
Nillomally	24 ch	pek	2112	33
	26 do	pek sou	2132	29
	23 do	bro or pek	2300	48
Florence	34 hf ch	bro or pek	1320	61 bid
	12 ch	or pek	1140	49 bid
	47 do	pek	4277	40 bid
Moray	33 hf ch	bro or pek	1749	50 bid
	16 ch	bro pek	1520	39
	30 do	pek	2490	34
	22 do	pek No 3	1760	29 bid
Great Valley, Ceylon in estate mark	25 hf ch	bro or pek	1425	45 bid
	20 ch	pek	1700	31 bid
	18 do	pek sou	1404	29
Tunisgalla	19 hf ch	bro or pek	1045	51
	45 do	bro pek	2700	40
	53 do	or pek	2650	36
	30 ch	pek	2700	32
Monterey	13 ch	sou	1170	26
	10 do	fans	1000	27
	19 hf ch	dust	1520	23
Darrawella	63 hf ch	bro or pek	3465	54 bid
	25 ch	or pek	2000	39
	46 do	pek	3772	33
Mahawale	15 ch	bro or pek	1500	42 bid
	42 do	or pek	2090	36
	24 do	pek	2160	29 bid
	15 do	pek sou	1350	28
Ruanwella	14 ch	bro or pek	1466	35
	33 do	or pek	2970	32
	23 do	pek	2070	29
Maha Uva	14 ch	bro or pek	1540	41
	15 do	or pek	1500	40
	20 do	pek	1800	35
	13 do	pek sou	1040	32
	12 hf ch	dust	1008	27
B P C	35 hf ch	dust	2625	22
Bramley	21 hf ch	bro or pek	1134	64 bid
	21 do	pek	1008	41
	36 do	or pek	1728	39 bid
Stafford	12 ch	bro or pek	1320	53
	16 do	or pek	1520	36 bid
Carlabeck	16 ch	pek	1472	36
	11 do	pek sou	1100	31
	10 do	bro pek fans	1360	31
Torwood	18 ch	bro or pek	1656	38
	20 do	bro pek	1760	33
	16 do	or pek	1376	29
	34 do	pek	2720	27
Hentleys	25 hf ch	bro pek	1325	35
	17 ch	pek	1360	30
Waitalawa	81 hf ch	bro pek	4050	43 bid
	84 do	pek	4200	29 bid
	30 do	pek sou	1500	27
Rickarton	10 ch	bro or pek	1000	60 bid
	10 do	or pek	1000	39
	1 do	bro pek	1100	38
	16 do	pek	1600	33
Drayton	30 hf ch	or pek	1500	42
	29 ch	pek	2465	36
Puspone	26 ch	or pek	2600	32
	18 do	bro dek	1980	35
	12 do	pek	1080	30
Harrow	24 hf ch	bro or pek	1344	47 bid
	13 ch	or pek	1300	39
	21 do	pek	2016	30 bid
Dehiowita	24 ch	bro pek	2400	withd'n
	32 do	pek	2880	withd'n
Ganapalla	13 ch	or pek	1040	36
	32 do	pek	2496	29 bid
	11 do	bro pek fans	1155	27
Seenagolla	24 hf ch	bro or pek	1440	57
	18 do	pek	1030	41
Newmarket	34 hf ch	bro or pek	1870	49
	32 ch	bro pek	3296	36 bid
	22 do	pek	1950	36
	13 do	pek sou	1131	32
Marlborough	35 hf ch	bro or pek	1890	45 bid
	10 ch	bro pek	1000	35
	16 do	pek	1328	33
Hatton	25 ch	bro pek	2500	51
	23 do	pek	2070	37
Bellongalla	27 ch	pek	2430	28
Baddegama	10 ch	bro or pek	1000	44
	13 do	or pek	1170	34
Walpita	14 ch	bro pek	1400	35
	13 do	pek	1170	29
Ardlaw and Wishford	9 ch			
	1 hf ch	bro or pek	1037	54
	11 ch	bro pek No 1	1210	40
	12 do	bro pek No 2	1200	38
	15 do	pek	1230	35

	Pkgs.	Name.	lb.	c.
Putupaula	30 ch	or pek	2550	33 bid
Yellangowrey	20 ch	bro pek	2000	42
	20 do	or pek	1800	36
	30 do	pek	2700	28 bid
Glengariffe	45 hf ch	bro or pek	2610	45
	13 ch	pek	1235	33
	20 do	or pek	1 00	38
	13 do	bek sou	1040	29
	15 do	bro pek fans	10..0	30
Polatagama	34 ch	bro or pek	3400	42
	34 do	bro pek	3230	36
	57 do	pek	5130	29 bid
	37 do	pek No 2	3330	28 bid
Weoya	28 ch	bro or pek	2940	38
	69 do	bro pek	6900	35
	38 do	pek	3230	29 bid
	16 do	pek sou	1280	28
Aldie	11 ch	pek sou	1600	39 bid
Hatherleigh	10 ch	bro or pek	1000	35
St Martins	40 hf ch	pek	1600	30 bid
Kitulgalla	25 hf ch	bro or pek	1450	33 bid
	12 ch	or pek	1032	33
	12 do	pek	1020	30
Gonapatiya	31 hf ch	or pek	1581	47
	24 do	bro pek	1416	57
	37 do	pek	1739	42
Karagaha	25 hf ch	bro pek	1375	46
	38 ch	pek	2660	31
Tymawr	20 hf ch	or pek	1100	41
	17 do	bro or pek	1020	52
	28 do	pek	1400	35
	25 do	pek sou	1250	32
Good Hope	26 ch	bro or pek	2470	37
	15 do	pek	1350	28 bid
	15 do	pek sou	1350	27
B D W	12 ch	bro or pek	1320	32
Good Hope	15 ch	bro pek	1425	32
	21 do	or pek	1890	29 bid
Wella	25 hf ch	or pek	1250	35
	72 do	bro pek	3600	43 bid
St Katelle	*27 hf ch*	*young hyson*	*2025*	*33 bid*
	17 do	*hyson No 1*	*1105*	*34*
Middleton	17 hf ch	bro or pek	1020	59
	30 ch	bro pek	3000	43
	28 do	or pek	2380	39
	23 do	pek	1955	37
Handford	15 ch	pek	1425	32
Karagaha	21 hf ch	bro pek	1155	43
	23 ch	pek	1610	30
	17 do	pek sou	1190	27
Maldeniya	33 ch	bro or pek	3300	40
	24 do	or pek	2400	34
	26 do	pek	2340	31
	12 do	pek sou	1020	28
Castlereagh	40 hf ch	bro or pek	2000	47
	11 ch	bro pek	1045	35
Lebanon Group	38 ch	bro pek	3990	35
	28 do	pek	2520	29 bid
	17 do	pek	1530	30 bid
	22 do	pek sou	1870	28
Waldemar	25 hf ch	bro or pek	1550	54
	14 ch	bro pek	1568	42
	24 do	or pek	2.80	42
	12 do	pek	1032	39
	12 do	pek sou	1056	35
Bandara Eliya	29 hf ch	or pek	1450	38
	28 do	br or pek No 2	1510	45
	48 do	pek	2208	33 bid
Forest Creek	15 ch	bro or pek	1500	60
	36 do	bro pek	3600	41
	20 do	or pek	1700	38
	40 do	pek	3720	30 bid
Panawatte	27 ch	bro or pek	2835	39
	22 do	bro pek	2090	35
	34 do	pek	3230	30
	14 do	pek sou	1260	27
Freds Ruhe	12 ch	bro pek	1320	35
	11 do	pek	1045	29
	12 do	pek sou	1140	27
Detenegalle	15 ch	or pek	1497	39 bid
	16 do	pek	1597	36
Delta	13 ch	bro or pek	1404	48 bid
	41 do	bro pek	3854	34
	43 do	pek	3440	31
	20 do	pek sou	1600	28
Mansfield	11 ch	pek	1097	with'n
Glencorse	15 ch	bro pek	1500	42
	16 do	or pek	1440	36
	13 do	pek	1170	32
	30 do	pek sou	2250	27
Bandara Eliya	60 hf ch	pek	2760	37
Knavesmire	15 ch	or pek	1350	35
	68 do	bro pek	6800	36
	53 do	pek	4505	29
G C	25 ch	pek sou	2500	25 bid
	30 hf ch	bro pek fans	1800	26 bid

	Pkgs.	Name.	lb.	c.
St Vigeans	20 hf ch	bro or pek	1280	54
	11 ch	or pek	1034	41 bid
	11 do	pek	1001	38 bid
Kincora	12 ch	bro or pek	1320	47 bid
	12 do	or pek	1140	37
L B K	9 ch			
	1 hf ch	dust No 2	1435	15 bid
Talgaswella	16 ch	bro or pek	1600	41
	16 do	or pek	1280	35
	21 do	pek	1680	30
	21 do	pek sou	1575	28
Inverness	22 ch	bro or pek	2200	52
	17 do	or pek	1530	49
	21 do	pek	1785	44
Carfax	18 ch	br or pek	1800	50
	20 do	or pek	1800	40
	20 do	pek	1800	36
Digdola	18 ch	pek	1440	29 bid
Bandara Eliya	24 hf ch	bro or pek	1320	48 bid
	43 do	br or pek No 2	2784	42 bid
Bowlana	25 ch	or pek	2372	38 bid
Marakona	27 ch	bro or pek	2700	34
	40 do	pek	3200	29 bid
Yataderia	15 ch	or pek	1545	32
	39 do	bro or pek	4134	33 bid
	48 do	pek	4224	27 bid
	12 do	pek sou	1032	27
Dawatakelle	34 hf ch	bro or pek	1901	38 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Mawahella	13 hf ch	pek sou	715	26
Yuillefield	5 ch	pek sou	475	27
	2 hf ch	dust	160	27
Wahagapitiya	7 ch	pek	616	29 bid
	1 do	pek sou	106	28
	2 do	dust	310	27
	2 do	fans	214	28
E & H	3 hf ch	bro pek fans	210	30
	4 do	pek fans	300	29
	6 do	fans	450	27
	7 do	dust	630	27
E, in est mark	4 ch	pek dust	500	25

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
W	2 ch	pek fans	180	26
	3 hfch	bro mixed	210	22
Ovitta	10 ch	pek	850	25
	10 do	pek sou	800	29
	2 hf ch	dust	146	26
Hyde	11 hf ch	bro or pek fans	737	30
Galgedioya	9 ch	bro pek	855	31 bid
	8 do	bro or pek	800	34
	7 do	pek	630	28
	8 do	pek sou	720	27
	5 hf ch	dust	400	26
	5 ch	fans	500	27
	9 do	bro pek	855	31 bid
	5 do	bro or pek	500	33 bid
	6 do	pek	540	26 bid
	9 do	pek sou	810	26 bid
Woodend	11 ch	pek sou	880	24
	3 ch	dust	420	25
Katugastota	11 ch	or pek	990	32
	7 do	pek sou	525	27
	2 do	sou	152	26
	3 hf ch	dust	202	26
Dunnottar	2 ch	bro or pek fans	1?0	30
A, in est mark	2 do	pek dust	250	24
Aigburth	5 ch	pek sou	400	27
	8 hf ch	br or pek fans	560	25
	2 do	dust	170	24
C, in est mark	4 ch	pek dust	500	24
G in est mark	5 ch	unassorted	400	16
	9 ch	sou	720	11 bid

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Ullandapitiya	2 hf ch	bro or pek	110	41
	2 do	bro pek	100	35
	3 do	or pek	150	30
	4 do	sou	180	27
	1 do	unassorted	45	27
G Ceylon in est mark	4 ch	pek	365	31

	Pkgs.	Name.	lb.	c.
Oonoogaloya	8 ch	pek sou	720	29
A T	3 ch	dust	360	23
	2 do	fans	220	25
Galkanda	6 ch	bro or pek	570	31
	7 do	pek	560	28
	2 do	pek sou	140	27
	1 do	fans	85	26
Bambragalla	6 hf ch	bro or pek	360	40 bid
	7 do	or pek	350	33
	7 do	pek	350	31
	5 do	pek sou	230	27
O W	6 ch	pek sou	420	26
Alad	1 hf ch	bro tea	54	18
Ben Nevis	14 hf ch	bro or pek	812	58 bid
	4 do	dust	372	26
Lameliere	8 ch	or pek	720	28
	6 hf ch	bro pek fans	420	29
Koslande	9 hf ch	bro pek	540	46 bid
	7 do	or pek	385	36
	6 ch	pek	600	31
	2 do	pek sou	200	27
S J	5 ch	pek sou	430	26
	9 do	fans	900	22
Dickapitiya	12 hf ch	dust	900	27
Cabin Ella	6 hf ch	bro pek fans	420	27
Brownlow	12 hf ch	dust	960	28
Tarewera	*8 ch*	*hyson*	*760*	*35*
	8 do	*hyson No. 2*	*760*	*34*
	1 hf ch	*siftings*	*105*	*12*
Theresia	15 hf ch	bro or pek	822	50 bid
Coslanda	9 hf ch	bro pek	510	46 bid
	7 do	or pek	385	36
	6 ch	pek	600	31
	2 do	pek sou	200	27
Lameliere	8 ch	or pek	720	39
	6 hf ch	bro pek fans	420	27
E E E	1 ch	pek	90	27
Theresia	3 ch	sou	255	29
Warleigh	17 hf ch	bro or pek	932	withd'n
Waragalande	11 ch	pek sou	990	27 bid
	3 do	dust	300	26
W W	1 ch	bro mixed	110	26
Bowella	5 ch	bro pek	475	35 bid
	6 hf ch	bro pek No. 2	330	34
A A	7 ch	fans	861	23
Reading	2 hf ch	bro pek	106	33
	2 do	pek	100	27
	1 ch			
	1 hf ch	pek sou	145	26
	1 ch	bro or pek fans	70	25
	1 hf ch	pek fans	40	24
	1 box	dust	24	20
R E	5 ch	pek fans	635	23
B in est mark	4 ch	Ceylon pek dust	500	24
D in est mark	3 do	Ceylon pek dust	375	24
M R	8 hf ch	dust	720	27
W in est mark	6 hf ch	dust	504	26
C	1 ch	pek sou	82	24
	6 hf ch	dust	486	22
Morton	10 ch	pek sou	750	27
	3 do	dust	240	25
Salem	1 ch	dust	100	25

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Southwark	10 hf ch	fans	680	27
	8 do	dust	656	25
Selvawatte	8 ch	pek	720	29
	1 do	pek sou	105	26
	2 hf ch	fans	160	23
	1 do	dust	95	16
Dambagalla	10 hf ch	bro pek	530	35
	4 do	or pek	188	35
	3 ch	pek sou	240	withd'n
	1 hf ch	dust	85	24
	1 ch	bro mix	85	withd'n
Kituldeniya	7 ch	or pek	630	31 bid
	6 do	pek sou	450	27
	2 do	sou	152	26
	2 hf ch	dust	116	21
Kallebokka	2 ch	pek sou	220	37
	2 do	fans	250	26
Mincing Lane	10 ch	pek sou	900	34
	1 do	sou	100	26
	2 hf ch	fans	150	27
	2 do	dust	180	20
C W M	4 ch	pek sou	320	28
	5 hf ch	fans	375	27
Laxapanagalla	4 ch	pek	360	30
	2 do	pek fans	200	27
	1 do	dust	100	24
Polgahakande	5 ch	bro or pek	500	36
	6 do	pek sou	510	26
Blinkbonnie	4 ch	pek sou	340	23

	Pkgs.	Name.	lb.	c.
Hatdowa	4 do	bro or pek	400	28
	6 ch	pek sou	570	26
	2 do	fans	200	26
	3 hf ch	dust	240	26
D B G	4 ch	bro tea	360	20
	3 hf ch	dust	240	24
	1 ch	fans	100	25
G B	17 hf ch	dust	850	24
Paradise	9 ch	pek sou	810	26
	1 do	fans	110	25
	2 do	dust	280	25
P, in estate mark	4 ch	unas	400	26
	1 do	bro mix	105	21
	1 do	dust	142	19
Old Maddegama	6 ch	bro or pek	450	49
	9 ch	pek	720	37
	8 do	pek sou	640	30
	6 do	bro or pek fans	570	31
	1 do	dust	112	26
B & D	15 hf ch	bro pek fans	930	28
	7 do	dust	560	27
Farnham	5 ch	sou	385	27
	3 hf ch	dust	267	22
Walla Valley	17 hf ch	bro or pek	901	60 bid
H R W	*3 hf ch*	*siftings No 1*	*300*	*10*
	2 do	*young hyson fans*	*150*	*12*
Monte Christo	4 ch	fans	400	30
	6 hf ch	dust	510	27
Rayigam	*1 ch*	*hyson No 2*	*100*	*25*
	6 hf ch	*siftings*	*510*	*10*
T P N, in est mark	21 hf ch	pek sou	672	22
	1 do	dust	86	19
Cooroondcowatte	6 ch	bro pek	600	39
	8 do	pek	880	31
	6 do	pek sou	600	28
DMOG, in est mark	6 hf ch	dust	510	26
	8 do	fans	480	28
	3 ch	bro mix	255	22
Labuduwa	6 ch	bro pek	600	33
	6 do	pek	540	27
Richlands	2 hf ch	dust	180	26
	2 do	fans	140	29
Rambodde	11 hf ch	bro or pek	528	60
	18 hf ch	pek sou	810	28
	6 do	bro pek fans	390	30
	3 do	dust	240	26
Marigold	13 hf ch	pek sou No 2	663	28
	8 do	bro pek fans	504	36
	9 do	pek dust	675	28
Morantenne	16 hf ch	pek	800	27 bid
	11 do	pek sou	550	26 bid
	1 do	dust	80	24
A, in estate mark	5 ch	bro pek	497	27 bid
K E N	5 ch	pek sou	450	28
	1 do	bro pek fans	100	25
	3 do	pek fans	345	23
Theberton	1 ch	sou	85	26
	2 do	bro pek fans	200	27
	1 do	fans	100	26
Gangwariiy	12 ch	or pek	960	37
	2 hf ch	dust	170	23
B in estate mark	3 ch	Ceylon pek dust	375	16 bid
D in estate mark	3 ch	Ceylon pek dust	375	16 bid
E in estate Mark	2 ch	Ceylon pek dust	250	16 bid
Ferriby	10 ch	pek sou	800	27
	9 hf ch	fans	585	26
R K P	5 hf ch	dust	450	24
Neboda	3 ch	pek sou	270	28
	7 hf ch	dust	595	24
Warakamure	10 ch	pek sou	800	27
	2 hf ch	dust	180	22
Pindeni Oya	3 ch	fans	330	26
	1 do	dust	130	24
Oaklands	3 ch	bro or pek	360	26
	2 do	pek faus	220	25
	3 hf ch	dust	320	24
N P	3 ch	fans	360	25
	3 hf ch	dust	240	24
S in estate mark	1 ch	bro pek	80	28
	1 do	pek	75	27
	1 do	pek sou	101	25
	1 hf ch	dust	82	20
B S D	8 hf ch	bro pek fans	496	27
	4 do	dust	320	23
Avisawella	3 ch	souchong	240	26
	4 hf ch	fans	280	27

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Galleheria	10 ch	pek sou	900	29
Wattekelly	3 ch	pek sou	300	27
	2 hf ch	dust	160	26
Coldstream Group	4 ch	pek sou	320	27
	1 hf ch	bro pek fans	65	28
	1 do	dust	80	25

	Pkgs.	Name.	lb.	c.
Strathisla	6 ch	pek sou	480	27
	2 do	fans	250	27
	2 do	dust	170	22
Nillomally	3 ch	fans	300	30
Moray	22 hf ch	or pek	924	43
	6 do	dust	450	27
	3 do	bro pek fans	180	29
Great Valley, Ceylon, in est mark	7 ch	or pek	672	37
	8 do	bro pek	784	35
Nagaganga	7 ch	bro pek	336	27
	6 do	pek	312	25
	5 hf ch	pek sou	250	24
Ambanpitiya	2 ch	dust	250	24
Dewalakande	*14 hf ch*	*siftings*	*840*	*12*
	5 do	*green dust*	*375*	*12*
Tunisgalla	9 ch	pek sou	765	28
	6 hf ch	dust	570	27
Mahawale	3 hf ch	bro pek fans	180	29
	5 do	dust	400	26
C Y	3 hf ch	bro or pek No 1	165	56
	5 do	bro or pek No 2	250	52
	2 do	pek fans	129	32
L B	1 ch	bro or pek	100	40
	2 do	pek	180	31
Ruanwella	8 hf ch	dust	640	26
Dea Ella	18 hf ch	pek	900	30
	10 do	pek sou	500	27
	10 do	fans	700	26
Stafford	12 ch	pek	960	38
	2 do	fans	210	33
Torwood	3 ch	dust	390	23
Tor	4 ch	bro or pek	360	34
	4 do	bro pek	344	30
	7 do	pek	560	26
Hentleys	5 ch	pek sou	385	27
	4 hf ch	fans	280	26
	1 do	pek dust	98	24
Waitalawa	10 hf ch	dust	800	27
L N S, in est mark	1 hf ch	bro pek	57	31
	1 ch	pek	109	26
	3 do	pek sou	291	24
	2 do	dust	184	23
Rickarton	3 ch	fans	330	32
	4 do	dust	500	30
Drayton	6 ch	pek sou	480	33
Fetteresso	3 hf ch	bro pek	150	44 bid
	4 ch	pek	360	37
	2 do	pek sou	170	34
Harrow	5 hf ch	fans	400	26
Dehiowita	9 ch	or pek	810	withd'n
	11 ch	pek sou	935	
	5 do	dust	750	24
	3 do	bro pek No 2	300	31
	4 do	pek No 2	360	27
	1 do	pek sou No 2	85	26
Ganapalla	8 hf ch	dust	688	26
Seenagolla	11 hf ch	or pek	550	51
	4 do	pek sou	240	36
R S	12 hf ch	or pek	600	32
	17 do	pek	850	28
	10 do	pek sou	500	26
	13 do	bro tea	650	24
	2 do	dust	106	16
	4 do	bro mix	200	21
Munukettia, Ceylon, in est mark	8 hf ch	dust	656	26
Udapolla	*6 ch*	*young hyson*	*570*	*36*
	11 do	*hyson*	*935*	*34*
	7 do	*hyson No 2*	*560*	*34*
	2 hf ch	dust	150	9
V A	5 hf ch	dust	450	26
	1 ch	bro tea	100	17 bid
Hatton	3 ch	dust	420	27
Bellongalla	3 ch	or pek	255	36
	3 do	bro or pek	315	33
	1 do	dust	135	22
	3 do	bro or pek fans	360	25
Baddegama	5 ch	bro pek	500	35
	8 do	pek	680	30
	8 do	pek sou	640	27
	2 do	fans	240	27

	Pkgs.	Name.	lb.	c.
Walpita	3 ch	pek sou	240	27
F A W	1 ch	bro pek	100	26
	1 do	fans	125	25
	1 do	sou	95	25
	2 do	dust	280	23
Ardlaw & Wishford	8 ch	or pek	720	41
	4 do	fans	400	30
Yellangowrey	2 ch	pek sou	180	26
	5 hf ch	dust	400	26
Freds Ruhe	10 ch	pek	900	32 bid
Polatagama	7 ch	fans	700	27
	3 do	dust	450	23
Weoya	7 ch	bro pek fans	805	26
	3 do	dust	450	24
Hatherleigh	2 ch	bro pek	200	30
	8 do	pek	760	28
	3 do	pek sou	255	26
	1 hf ch	bro mix	40	22
	1 ch	dust	150	24
	2 do	red leaf	110	16
Kurulugalla	8 ch	pek sou	720	26
St Martins	19 hf ch	bro pek	760	36
	13 do	or pek	520	34
	12 do	pek sou	480	26
	15 do	fans	900	26
Gonapatiya	11 hf ch	pek sou	473	36
	12 do	pek fans	804	37
	7 do	dust	623	23
Good Hope	4 ch	pek fans	432	26
	10 hf ch	dust	800	24
B D W	1 ch	pek fans	85	26
	8 hf ch	dust	760	27
Good Hope	10 ch	pek sou	900	27
	4 do	pek fans	480	25
	1 do	bro pek fans	145	27
Wella	16 hf ch	pek	800	30 bid
	11 do	pek sou	550	27 bid
	4 do	dust	360	26
St Katelle	*2 ch*	*hyson No 2*	*240*	*37*
	3 do	*hyson siftings*	*510*	*10*
Hand Ford	10 ch	pek sou	950	28
	1 hf ch	sou	45	27
	2 ch	bro pek fans	220	26
	3 do	dust	315	23
Macaldenia	7 hf ch	bro pek	420	37
	7 do	pek	385	29
	1 do	pek sou	50	27
	1 do	fans	72	25
Castlereagh	7 ch	or pek	560	36
	9 do	pek	720	32
	8 do	pek sou	640	27
Lebanon Group	7 ch	sou	805	27
	7 hf ch	dust	595	26
Bandara Eliya	13 hf ch	bro or pek No 1	650	49 bid
Panawatte	2 ch	dust	300	26
W A	8 ch	pek sou	800	26
A, in estate mark	3 ch	pek dust	375	23 bid
Ookoowatte	2 ch	pek sou	160	26
	1 ch	pek fans	120	25
	2 hf ch	dust	200	23
Glencorse	5 hf ch	dust	425	25
C, in estate mark	4 ch	pek dust	500	24
G C	4 ch	bro pek	377	28
St Vigeans	3 hf ch	dust	255	23
D, in estate mark	7 ch	sou	525	26
	9 hf ch	fans	594	26
	4 do	pek dust	340	26
L B K	8 ch	sou	800	26
	7 do	bro pek fans	805	31
	4 do			
	1 do	pek fans	480	23
	6 do	dust No 1	780	25
	2 do			
	1 hf ch	bro mix	253	22
Talgaswela	4 hf ch	dust	310	22
Digdola	1 ch	bro or pek	100	41
	2 do	bro pek	190	34
	7 do	pek sou	560	26
Watawela	5 ch	pek sou	475	27
	7 hf ch	bro pek fans	525	30
	5 do	dust	450	26

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 48. COLOMBO, DECEMBER 10th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[28,451 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	12 ch	or pek	1080	41
	28 hf ch	bro pek	1680	49
	14 ch	pek	1190	38
	16 hf ch	dust	1280	27
Battalgalla	18 ch	or pek	1800	38
	15 do	pek	1275	35
Coodoogalla	40 hf ch	bro pek	2000	36
Old Haloya	22 ch	bro pek	2090	w'drwn
	38 do	pek	3420	
Battalgalla	14 ch	pek sou	1050	20 bid
Wahagapittia	10 do	bro or pek	1037	39 bid
Bunyan & Ovoca	32 hf ch	bro or pek	1760	53 bid
	35 do	or pek	1750	42
	17 ch	pek	1530	35
	17 do	pek sou	1530	35

Messrs. Keell and Waldock.

[75,132 lb.]

	Pkgs.	Name.	lb.	c.
Tillington	58 hf ch	bro pek	2050	37
	20 ch	pek	1700	28 bid
Dambe	13 do	bro pek	1183	27 bid
Galgedioya	12 ch	bro or pek	1200	31 bid
	14 do	pek	1260	28
St'D E	18 hf ch	dust	1530	25
P in est mark	10 ch	bro pek	1000	16 bid
Panilkande	20 hf ch	br or pek No. 1	1000	49 bid
	28 ch	bro or pek	2800	38
	16 do	pek	1440	31
Morabela	39 ch	bro or pek	2166	35
	56 do	bro pek	5600	38 bid
	29 do	or pek	3780	33
	42 do	pek	3780	28 bid
N Y K	16 hf ch	dust	1360	20 bid
Battalwatte	24 do	bro or pek	1200	38 bid
	17 ch	pek	1530	30 bid
	15 ch	pek sou	1350	27 bid
Wilpita	15 ch	bro or pek	1575	29
	13 do	or pek	1235	27
Gampai	34 hf ch	or pek	1598	32
	44 do	bro or pek	2376	36
	26 ch	pek	2600	28 bid
	18 do	pek sou	1368	27
G R	12 ch	dust	1704	20
A	24 hf ch	dust	1824	22
Bargany	34 do	bro or pek	2040	43
Fairlawn	62 hf ch	bro or pek	3720	54
	32 do	bro pek	1600	38 bid
	19 ch	pek	1520	33

Messrs. Somerville & Co.

[222,947 lb.]

	Pkgs.	Name.	lb	c.
Kurulugalle	18 ch	bro pek	1800	35
	19 do	pek	1710	32
Kurunegalle	25 hf ch	bro or pek	1375	36
	20 do	or pek	1000	33
	12 ch	pek	1020	29
Bodava	37 hf ch	bro pek	1850	37
	13 ch	pek	1170	30
	13 do	pek sou	1105	28
Ke'ani	28 ch	bro or pek	2800	38
	28 do	pek	2520	30
	16 do	pek sou	1280	28
Hanagama	10 ch	or pek	1000	34
	11 do	pek	1100	29
	15 do	pek sou	1425	28
Nyanza]	20 hf ch	bro or pek	1100	44
	12 ch	pek	1020	33
Glenanore	27 hf ch	bro or pek	1620	46
	14 ch	pek	1330	35
	12 do	pek sou	1200	31
Invery	25 hf ch	bro or pek	1825	54 bid
	33 ch	pek	3 68	38
	41 do	pek sou	3403	32
Lonach	29 hf ch	bro or pek	1624	38 bid
	20 ch	or pek	1700	36
	42 do	pek	3360	31
	17 do	pek sou	1360	29

	Pkgs.	Name.	lb.	c.
Roseneath	24 ch	bro pek	2400	34
	20 do	pek	1800	30
Oonanagalla	20 ch	or pek	1700	38
	21 do	bro or pek	2100	44 bid
	17 do	pek No. 1	1615	34 bid
	14 do	pek sou	1230	33 bid
Agra Elbedde	36 hf ch	bro or pek	1944	50
	41 do	or pek	2255	39
	32 do	pek	1536	36
Harrangalla	25 ch	bro pek	2375	31
	28 do	pek	2380	30
Laxpanagalla	19 ch	bro or pek	1900	36
	11 do	or pek	1045	30
Owilikande	15 ch	bro or pek	1500	36
	15 do	or pek	1275	33
	15 do	pek	1350	29
Hobart	30 hf ch	pek	1350	29
Ambalawa	27 ch	or pek	2295	20 bid
Cooroondoowatte	12 ch	pek	1080	31
Dalveen	36 ch	bro pek	3420	36
	32 do	pek	2560	30
	14 do	pek sou	1330	28
Mount Temple	17 ch	bro pek	1666	34
	24 do	pek	1824	29
	19 do	br or pek fan	1748	28
Kannattota	13 ch	bro pek	1170	32
	12 do	pek	1020	28
Simla	36 hf ch	bro pek	2232	50
	19 ch	pek	1824	38
	12 do	pek No. 2	1020	32
New Angamana	16 ch	bro or pek	1600	35 bid
	12 do	or pek	1080	34
	22 do	pek	1980	29 bid
Marle Land	26 ch	bro or pek	2678	36 bid
	60 do	bro or pek	6000	34
	40 do	pek	3360	30
	15 do	pek sou	1245	28
Monrovia	45 ch	bro pek	4500	34
	36 do	pek	3240	29
	15 hf ch	fans	1350	20 bid
Weygalla	12 ch	pek	1200	32
Ferndale	11 ch	bro or pek	1045	46
	22 do	pek	1980	31
	12 do	pek sou	1080	28
Columbia	17 ch	pek	1411	32 bid
Galphele	13 ch	bro or pek	1300	51
	16 do	or pek	1400	41
	13 do	bro pek No. 1	1300	39
	12 do	bro pek No. 2	1200	34
	30 do	pek	2700	34
Florida	16 ch	br pek	1680	31
	15 do	pek	1500	28
Yarrow	22 hf ch	bro or pek	1540	39
	17 do	or pek	1020	34
	20 do	pek	1160	30
	30 do	pek sou	1680	27
Ocnankande	27 hf ch	bro pek	1350	40
	39 do	pek	2145	31
Mousakande	23 hf ch	pebro or pek	1288	42
	12 ch	bro pek	1140	35
	14 do	pek	1372	30
	18 hf ch	fans	1368	28
C in estate mark	20 hf ch	bro or pek	1297	30
Dikmukalana	38 hf ch	bro pek	2090	34
	23 do	pek	1150	29
	20 do	or pek	1000	32
S R K	12 ch	pek	1200	30
Dalukoya	25 hf ch	or pek	1250	36
	25 do	pek sou	1250	28
Walla Valley	30 hf ch	bro or pek	1590	51 bid
	18 ch	or pek	1530	41
	29 do	pek	2465	36 bid
Waganila	11 ch	bro pek	1100	51
	21 do	pek	2058	34 bid
Laukka	21 ch	bro pek	2058	33
	30 do	pek	2400	27 bid
Monrovia	19 ch	pek	1621	23 bid

Messrs. E. John & Co.

[231,594 lb.]

	Pkgs.	Name.	lb.	c.
Osborne	22 ch	pek	1980	33
Natuwakelle	13 do	or pek	1170	34
	15 do	pek	1350	31
Waragalande	15 do	bro pek	1500	38 bid
	14 do	pek	1260	30 bid
Glassaugh	30 hf ch	bro or pek	1980	50
	31 do	or pek	1736	60
	17 ch	pek	1319	44 bid

	Pkgs.	Name.	lb.	c.
Orwell	16 ch	or pek	1440	33
	20 do	pek	1700	31
	14 hf ch	pek fans	1064	26
Shawlands	31 ch	bro pek	3100	38 bid
	20 do	pek	1800	30 bid
	11 do	unas	1045	26
Elston	22 ch	pek	1870	32 bid
	24 do	pek sou	2040	29 bid
Rondura	17 ch	bro pek	1700	38 bid
	24 do	or pek	2280	35
	21 do	pek	2100	34
	14 do	pek sou	1370	29
Navangama	10 ch	bro or pek	1000	38
Glentilt	32 hf ch	bro or pek	1760	57 bid
	17 ch	or pek	1615	43
	17 do	pek	1530	38 bid
Mocha	40 hf ch	bro or pek	2400	60
	20 ch	or pek	1800	43
	20 do	pek	1800	40
Templestowe	34 hf ch	bro or pek	1763	55
	18 do	bro pek	1026	44
	32 do	or pek	1376	43
	16 ch	pek	1312	35 bid
Ratwatte	35 ch	bro pek	3500	33
	18 do	pek	1620	29
Longville	22 ch	bro pek	2200	36
	13 do	pek	1300	31
St Johns	26 hf ch	bro or pek	1508	69 bid
	18 ch	pek	1710	41
Kelaneiya & Braemar	22 ch	bro or pek	2200	48 bid
	10 do	bro pek	1000	37
	33 do	pek	3135	32 bid
Agra Ouvah	62 hf ch	br or pek	3717	51 bid
	50 do	bro or pek	3000	54
	32 do	or pek	1728	40
	14 ch	pek	1288	38
Glasgow	25 hf ch	bro or pek	1450	66
	21 ch	bro pek	2100	45
	31 do	or pek	2883	39 bid
	14 do	pek	1330	41
Ben Nevis	27 hf ch	or pek	1350	42
	12 ch	pek sou	1080	31
Devon	25 hf ch	br or pek	1550	60
	21 ch	or pek	2205	46
	10 do	pek	1050	40
Ormidale	20 hf ch	br pek	1160	43 bid
	12 ch	pek	1104	33
Winwood	27 hf ch	bro or pek	[illegible]	48 bid
	20 ch	or pek	1900	35
	22 do	pek	1980	31 bid
	18 do	pek sou	1620	29
	12 hf ch	dust	1080	26
Ottery	14 ch	pek	1260	33
	15 do	pek	1350	33
O W	13 ch	bro pek	1144	31 bid
	22 do	pek	1672	27
Gangawatte	22 ch	bro or pek	2200	54 bid
	17 do	bro pek	1700	41
	33 do	pek	2970	35
	16 hf ch	fans	1040	34
Brownlow	19 hf ch	bro or pek	1064	53
	16 ch	or pek	1472	39
	26 do	pek	2106	29
Kandaloya	24 hf ch	bro pek	1200	34 bid
	50 hf ch	pek	2000	32
	25 hf ch	pek No 2	1000	30
Cloveland	10 ch			
	1 hf ch	bro pek	1058	30
	12 ch	pek	1200	27
Tismoda	22 hf ch	bro or pek	1100	45
	49 hf ch	bro pek	2450	37
	19 ch	pek	1520	32
A A	10 ch	dust	1000	25
Perth	20 ch	bro or pek	1900	38
	33 do	bro pek	2970	35
	37 do	or pek	2960	32
Mt Vernon	23 ch	pek	2070	39
Peru	10 ch	bro pek	1000	43
	12 do	pek	1000	34
Gonavy	36 hf ch	br or pek No. 1	2052	60
	15 ch	pek	1500	32
	53 hf ch	br or pek No 2	3021	33
	10 ch	or pek	1000	40
	39 hf ch	bro or pek	2145	44 bid
	27 ch	pek	2565	32
Myraganga	13 ch	or pek	1170	39
	14 do	bro or pk No 1	1400	46
	38 do	bro or pk No 2	3800	40
	13 do	pek No 1	1040	34
	13 do	pek No 2	1170	32 bid
Eversfield	16 ch	bro pek	1600	32
	15 do	pek	1500	28
	10 do	pek sou	1000	26
Kahagalla	19 hf ch	bro pek	1140	46 bid
Kehelwatte	43 ch	bro pek	4730	37 bid
	43 do	[illegible]	4085	31 bid
	18 do	pek sou	1710	28 bid

	Pkgs.	Name.	lb.	c.
Glassaugh	28 hf ch	or pek	1540	60
	25 hf ch	bro or pek	1650	53
	14 ch	pek	1484	43 bid
Mt Everest	39 hf ch	bro or pek	1947	withd'n
Elston	23 ch	pek	1840	33 bid
	20 do	pek sou	1600	30
Mabanilu	21 hf ch	or pek	1050	43
	14 ch	pek	1330	33 bid
Holbrook	19 ch	bro or pek	1805	33 bid

Messrs. Forbes & Walker.

[561,888 lb.]

	Pkgs.	Name.	lb.	c.
Great Valley, Ceylon in estate mark	24 ch	pek	2040	31
	15 do	pek sou	1170	29
	24 hf ch	bro or pek	1344	47
	13 do	dust	1040	27
N W D	17 hf ch	dust	1360	28
Laurawatte	21 ch	fans	2310	25 bid
Dunedin	*60 hf ch*	*young hyson*	*3000*	*38*
	26 ch	*hyson*	*2132*	*35*
	10 do	*hyson No 2*	*1000*	*34*
Poonagalla	12 ch	or pek	1140	43 bid
	48 do	bro pek	2880	56
	15 do	pek	1350	39 bid
Bowlana	14 ch	bro or pek	1470	29 bid
	20 do	pek	1800	32
	16 do	or pek	1520	38
Waldemar	17 ch	bro or pek	1953	withd'n
	13 do	pek	1141	38
Choisy	47 hf ch	bro or pek	2585	43
	21 ch	or pek	1806	35
	47 do	pek	4230	30
Avoca	16 ch	bro or pek	1680	57
	22 do	or pek	2200	40
	13 do	pek	1170	32 bid
Holton	39 hf ch	bro pek	2145	37
	40 ch	pek	1900	31
Dotala	13 ch	pek	1170	35
Broughton	20 ch	bro or pek	2100	54 bid
	20 do	pek	1900	33 bid
	53 do	or pek	2862	41
Pansalatenne	25 hf ch	bro pek	1250	33
Shrubs Hill	45 ch	bro pek	4725	33
	25 do	pek	2250	31
Erlsmere	33 hf ch	bro or pek	1818	57
	22 ch	bro pek	2112	42
	15 do	pek	1290	34 bid
Puspone	24 ch	bro pek	2520	35
	19 do	pek	1615	33
	21 do	pek sou	1680	29
	24 hf ch	fans	1800	27
Adisham	29 hf ch	bro or pek	1595	54
	11 ch	pek	1045	36 bid
Moray	35 hf ch	bro pek	1925	50
	17 ch	bro pek	1615	37
	31 do	pek	2489	34
	21 ch	pek No 2	1575	30
G K	19 hf-ch	dust	1425	25
Nillomally	14 ch	bro or pek	1400	43
	38 hf ch	pek	3344	33
	13 do	or pek	1476	41
	20 do	pek sou	1640	30
Nakiadenia	*22 hf ch*	*hyson*	*1056*	*25*
North Cove	18 hf ch	bro or pek	1008	71
	68 do	bro pek	3422	49
	22 do	pek	1950	43
Matale	52 hf ch	bro pek	3120	37
	25 ch	pek	2250	32
	14 do	pek fans	1260	30
Tunisgalla	22 hf ch	bro pek	1320	39
	28 do	or pek	1400	35
	14 ch	pek	1230	31
Madulkelle	18 ch	pek	1440	31
Sylvakandy	15 ch	bro or pek No 1	1500	38
	29 do	br or pek No 2	2900	36
	15 do	bro pek	1500	34
	14 do	or pek	1400	35
	28 do	pek	2800	31
St Heliers	27 hf ch	bro or pek	1485	41
	11 ch	pek	1023	32
Kirklees	44 hf ch	bro or pek	2640	46
	15 ch	or pek	1350	38
	20 do	pek	1600	33
	13 do	pek sou	1105	32
Gampaha	41 hf ch	bro or pek	2160	45
	26 do	bro pek	1560	43
	12 ch	or pek	1152	41
	41 do	pek	3740	36
Aberdeen	23 ch	bro pek	2116	34
	33 do	pek	2508	30

	Pkgs.	Name.	lb.	c.
Dunkeld	63 hf ch	bro or pek	3654	46
	19 ch	or pek	1710	38
	22 do	pek	1980	33 bid
Letchmey	15 hf ch	pek sou	1200	31
Ganapalla	16 ch	bro or pek	1488	37
	18 do	bro pek	1440	34
	22 do	pek	1716	31
New Peradeniya	17 hf ch	dust	1190	22
Maha Eliya	22 hf ch	bro or pek	1320	55 bid
	26 do	bro pek	1560	40
	12 ch	or pek	1080	43 bid
	24 do	pek	2160	38
	14 hf ch	pek fans	1120	29
Panmure	25 hf ch	bro or pek	1250	47 bid
	40 do	or pek	2000	37 bid
	24 ch	pek	2160	32
Forest Creek	13 ch	fans	1359	20
	43 do	pek dust	3268	29
Marlborough	57 hf ch	bro or pek	3135	44 bid
	14 ch	bro pek	1400	35
	20 do	pek	1660	31 bid
Tempo	11 ch	bro pek	1100	43
	15 do	or pek	1425	35
	21 do	pek	1785	31
	15 do	pek sou	1200	29
Nugagalla	25 hf ch	bro pek	1250	39
	46 do	pek	2300	31
Tembiligalla	10 ch	bro or pek	1000	35
	11 do	or pek	1045	33
	12 do	pek	1104	30
Vogan	29 ch	bro or pek	2900	44
	46 do	or pek	4140	34
	58 do	pek	5220	32
	28 do	pek sou	2380	29
K P W	52 hf ch	bro or pek	3120	36
	49 do	bro pek	2459	34
	24 do	or pek	1080	35
	82 do	pek	4100	30
Bopitiya	60 ch	bro pek	5700	36 bid
	18 do	pek	1620	30 bid
	20 do	pek sou	1800	29 bid
O B E C, Sindumallay	10 ch	bro or pek	1050	42
	22 do	or pek	1980	34
	24 do	pek	2040	31
	15 do	pek sou	1050	29
Dambagastalawa	17 ch	bro or pek	1785	62
	23 do	or pek	2316	38 bid
	17 do	pek	1530	36
Coreen	53 hf ch	bro pek	3180	43
	19 ch	or pek	1710	38
	14 do	pek	1260	36
M T P, in est mark	20 ch	fans	2000	20
Begahagodawatte	14 ch	bro pek	1302	35
Pansalatenne	26 ch	or pek	2210	35
	30 do	pek sou	2[illegible]0	29
Torwood	12 ch	br or pek	1104	40
	12 do	bro pek	1056	33
	25 do	pek	2000	30
Edward Hill	21 ch	bro pek	214[illegible]	37
	14 do	or pek	1148	34
	18 do	pek	1518	32
Monterey	12 ch	pek sou	1020	29
Devonford	20 hf ch	bro or pek	1080	72
	12 ch	pek	1104	43
Anningkande	25 ch	bro pek	2500	36 bid
W V R, A	22 hf ch	bro or pek	1100	44
Nabalma	14 ch	or pek	1316	35
	12 do	bro pek	1200	34
	16 do	pek	1536	30
	19 do	bro or pek	178[illegible]	33
	10 do	fans	1000	27
Ruanwella	16 ch	bro or pek	1680	40
	19 do	or pek	1710	34
	30 do	pek	2700	30
	16 do	pek sou	14[illegible]0	28
Hayes	19 ch	bro pek	1900	37
	40 do	pek	3600	30
Pallagodda	25 ch	bro or pek	2[illegible]00	35
	33 do	bro pek	3300	39
	29 do	or pek	2465	34
	26 do	pek	2080	31
	28 do	pek sou	1955	29
Hayes	20 ch	bro pek	2000	37
	18 do	or pek	1440	35
	36 do	pek	3420	30
	24 hf ch	pek dust	1800	24
Erracht	20 ch	bro or pek	2000	40
	15 do	or pek	1275	36
	42 do	pek	3360	32
	21 do	pek sou	1680	29
Robgill	30 ch	bro pek	2700	46 bid
	20 do	pek	1800	37
Fenrhos	28 hf ch	bro or pek	1568	45
	28 do	or pek	1316	38
	38 ch	pek	3116	32
Pine Hill	22 hf ch	bro or pek	1276	47
	17 ch	or pek	1615	37
	18 do	pek	16[illegible]0	32
Troy	*20 ch*	*young hyson*	*2200*	*38*
	24 do	*hyson*	*2280*	*34*
Mawiligangawatte	24 ch	bro pek	32[illegible]0	53
	24 do	pek sou	1800	29
Dromoland	28 hf ch	br or pek No 1	1624	46
	26 do	br or pek No 2	1300	35
	23 ch	pek	1955	31
Lochiel	13 ch	pek sou	1131	29
	7 do	dust	1050	28
Tonacombe	30 ch	or pek	2700	35
	37 do	bro pek	3700	43
	46 do	pek	3910	33
	15 do	pek sou	1200	29
	14 hf ch	dust	1190	27
Darrawella	35 hf ch	bro or pek	1925	53
	37 ch	bro pek	3700	41
	29 do	or pek	2320	39
	27 do	pek	2295	33
Preston	29 hf ch	bro or pek	1595	52 bid
	13 ch	pek	1010	38 bid
Laxapana	19 hf ch	dust	1710	25
Eastland	21 ch	bro or pek	2247	42
	35 do	or pek	2940	33 bid
Mahawale	14 ch	bro pek	1400	41
	20 do	or pek	1900	36
	27 do	pek	2430	31
	16 do	pek sou	1440	29
A E N	*50 hf ch*	*young hyson*	*2750*	*26 bid*
Clunes	17 ch	or pek	1530	35
	13 do	bro pek	1300	37
	33 do	pek	2967	31
	37 do	pek	3330	30
	11 do	bro pek fans	1210	27
Poonagalla	45 ch	bro pek	2700	56
	12 do	pek	1104	40
Great Valley, Ceylon in estate mark	25 hf ch	bro or pek	1423	with'n
Queensland	17 ch	bro pek	1700	43
	11 do			
	1 hf ch	or pek	1012	33 bid
	13 ch	pek	1040	35
Bandara Eliya	39 hf ch	or pek	1950	38
	22 do	br or pek No 1	1210	47 bid
	43 do	br or pek No 2	2683	40 bid
	60 do	pek	2760	34
Mousa Eliya	11 ch	bro or pek	1100	37
	22 do	bro pek	2200	35
	22 do	pek	2090	29
	15 ch	bro pek	1500	35
	15 do	pek	1425	29
Ingrogalla	18 ch	bro pek	1800	36
	18 do	pek	1620	31
Stockholm	37 ch	bro pek	3[illegible]05	38 bid
	14 do	pek	1190	34
Passara Group	30 hf ch	bro or pek	3000	4[illegible] bid
	22 ch	pek	2090	32
	14 hf ch	fans	1050	29
Harrow	36 ch	bro or pek	2016	48 bid
	10 do	or pek	1000	37
	17 do	pek	1632	33
B W	18 ch	dust	1602	26
Agraoya	23 hf ch	bro pek	1380	44
Middleton	19 hf ch	bro or pek	1045	66
	24 ch	bro pek	2400	41
	21 do	or pek	1785	37
	18 do	pek	1530	37
Algoolteune	19 hf ch	bro pek	1[illegible]07	50
	16 ch	bro pek	1310	52
	22 do	or pek	1760	33
	15 do	pek	1050	31
Good Hope	50 hf ch	bro or pek	2[illegible]00	36
	24 ch	or pek	1878	32
	11 do	pek sou	10[illegible]2	29
Anningkande	18 ch	pek	1710	30
Ambalangoda	13 ch	bro or pek	1300	37 bid
	15 do	or pek	1500	33 bid
	14 do	pek	1260	30
Swinton	13 ch	bro or pek	1300	38
	16 do	or pek	1600	34
	15 do	pek	1350	31
Kincora	7 ch	dust	1050	27
Yellangowrey	30 ch	pek	2697	31
Good Hope	15 ch	pek	1347	29
Delta	13 ch	bro or pek	1401	48

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Old Haloya	10 ch	bro or pek	900	withd'n
Battalgalla	5 hf ch	bro pek fans	375	30
H D in est mark	5 do	dust	4[illegible]0	26
D H	4 ch	bro pek fans	584	withd'n
	5 do	dust	805	withd'n
Bunyan & Ovoca	9 ch	pek No. 2	855	43

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Tillington	3 hf ch	fans	225	26
Dambe	2 do	bro or pek	130	39
	9 do	dust	720	23
Galgedioya	9 ch	bro pek	855	31
	6 do	pek sou	540	26
	4 hf ch	dust	320	25
	4 ch	fans	400	29
M	4 hf ch	dust	360	25
	3 do	bro mixed	270	24
St D E	5 do	pek fans	30	26
P in est. mark	3 ch	pek	237	17
	4 ch			
	1 hf ch	sou	320	12
Panilkande	10 ch	pek sou	900	28
	5 do	sou	450	27
Morahela	3 ch	sou	300	25
	6 hf ch	dust	540	24
H	3 ch	sou	285	10
Maragahanakare	2 hf ch	bro pek	108	27 bid
	2 ch			
	6 hf ch	pek sou	512	18 bid
Wilpita	9 ch	pek	900	24
	2 do	fans	230	24
	3 do	mixed	345	13
Ketadola	4 ch	bro or pek	355	31
	3 do	or pek	285	27
	6 do	pek	570	24
	1 do	sou	65	21
	1 do	red leaf	95	16
	2 do	bro mixed	200	20
	1 do	dust	88	22
	1 do	fans	57	24
Gampai	3 ch	dust	330	25
G R	6 ch	red leaf	426	15
Bargany	18 hf ch	bro pek	900	38
	4 ch	or pek	320	35
	12 ch	pek	960	32
	2 ch	pek sou	160	30
	2 hf ch	dust	170	26
Fairlawn	11 hf ch	or pek	495	37
	3 ch	pek sou	240	29
	8 hf ch	dust	680	26
Dalveen	7 ch	bro or pek	760	32
	2 do	dust	200	26
D V	*9 hf ch*	*young hyson*	*504*	*36*
	11 do	*hyson No 1*	*539*	*35*
	5 do	*hyson No 2*	*225*	*24*
	1 do	*siftings*	*85*	*10*
Dalukoya	14 hf ch	bro pek fans	840	33
	7 do	dust	420	26
H	*2 ch*	*Twanky*	*202*	*12*
Mount Temple	12 ch	pek sou	564	26
F A in estate mark	1 ch	pek sou	70	33
	2 hf ch	dust	150	26
Primston	5 ch	bro pek	500	32
	5 do	pek	500	27
	4 do	pek sou	380	24
	4 do	unas	360	24
	1 do	dust	100	18
Dambagalla	3 ch	pek sou	240	26
	1 do	bro mixed	85	20
Kannattota	4 ch	pek sou	320	25
Meeriatenne	14 hf ch	unas No. 1	700	30
	11 do	unas	495	28
	8 do	bro pek fans	496	28
	4 do	tea dust	340	27
Simla	1 ch	fans	72	26
	1 hf ch	dust	82	28
New Angamana	10 ch	pek sou	900	26 bid
	2 do	pek fans	230	27
	1 do	dust	140	26
Marie Land	4 do	dust	600	27
Monrovia	10 ch	pek sou	850	26
Weygalla	3 hf ch	dust	240	28
Rambodde	6 hf ch	bro or pek	294	58
	15 do	bro pek	750	39
	20 do	pek	960	31
	14 do	pek son	680	27
	3 do	fans	195	33
	2 do	dust	160	28
Columbia	15 hf ch	bro or pek	840	47 bid
	9 do	pek fans	630	29
	4 do	dust	280	25
Ravenoya	6 ch	pek s u	600	28
	1 do	sou	100	27
	3 do	dust	420	27
Florida	8 ch	pek sou	768	25
	6 do	bro fans	600	27
	1 do	dust	145	24
Yarrow	9 hf ch	bro or pek fans	742	32
	2 do	pek fans	160	26
Strathesla	3 ch	bro or pek	300	34
Oonankande	7 hf ch	pek sou	490	26
	6 do	dust	396	27
Mousakande	4 ch	pek sou	400	26
Dikmukalana	20 hf ch	pek sou	960	26
Donside	7 ch	sou	595	26
S R K	2 ch	dust	320	27
Kurulugalla	4 ch	bro pek	400	31 bid
	4 do	pek	360	28
	2 do	pek sou	180	25
Waganila	4 ch	pek sou	332	28
	2 do	dust	150	25
Laukka	4 ch	pek sou	320	25
	5 hf ch	dust	375	25
Talagalakande	5 ch	bro pek	525	26
	8 ch	pek	793	24
	2 do	pek sou	208	33
	2 do	fans	228	20

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
K H G A	1 ch	pek	98	28
	1 do	pek sou	90	26
H G A M	2 ch	pek sou	180	26
H V N D	1 ch	bro pek	100	26 bid
P M G D	1 ch	bro pek	110	26 bid
Kurulugalle	8 ch	pek sou	720	26
	1 do	or pek fans	100	27
Kurunegalle	8 ch	pek sou	640	26
	7 hf ch	dust	560	26
Bodava	1 hf ch	bro mix	44	14
	3 do	bro pek fans	225	25
Kelani	4 ch	dust	400	25
N C W T	1 hf ch	bro pek	61	30
K P W	2 ch	pek fans	150	26
C F N A	3 ch	pek sou	300	25
P P P	1 hf ch	fans	70	27
Hanagama	4 ch	bro or pek	432	39 bid
	8 do	sou	760	25
Glenanore]	7 ch	or pek	665	40
	6 do	bro mix	600	28
	5 hf ch	dust	400	27
C R D	3 hf ch	bro pek	180	29
N D A	2 ch	bro mix	170	16
O A F	*3 hf ch*	*Twanky*	*109*	withd'n
Invery	15 hf ch	or pek	750	43
Roseneath	2 hf ch	dust	200	22
	2 do	fans	160	24
Wilidale	9 ch	bro pek	900	29
	8 do	pek	800	27
	1 do	sou	100	24
	2 do	fans	200	18
Oonanagalla	2 hf ch	dust	180	26
	2 do	fans	140	26
Trial	8 hf ch	bro pek	400	28
	8 do	pek	400	24
	2 do	pek sou	100	22
	1 do	dust	50	out
B A	14 hf ch	pek fans	980	30
	4 do	dust	360	25
X X	3 hf ch	bro or pek fans	180	35
	2 hf do	pek dust	160	27
Laxpanagalla	4 ch	pek	360	28
	2 hf do	pek fans	200	26
	1 do	dust	100	25
Owilikande	6 ch	pek sou	540	26
	4 hf ch	dust	320	26
Hobart	10 ch	pek sou	730	26
Cooroondoowatte	7 ch	bro pek	700	39
	8 do	pek sou	720	26

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
W R P	3 ch	unas	328	26
Natuwakelle	9 ch	bro or pek	900	40
	7 do	pek sou	630	28
	2 do	fans	200	26
Waragalande	10 ch	pek sou	990	27
Kehelwatte	5 hf ch	dust	425	26
	2 ch	fans	220	27
Shawlands	6 ch	dust	780	25
	3 do	fans	300	26
Ranawella	2 ch	bro or pek	120	40
	2 do	bro pek	110	31
	6 do	or pek	330	33 bid
	8 do			
	1 hf ch	pek	305	31
Navangama	5 ch	pek	475	29
	6 do	pek sou	450	26
	1 do	dust	100	26
Templestowe	8 ch	pek sou	800	34
Ratwatte	4 hf ch	pek sou	320	25
	3 hf ch	dust	240	24
Longville	3 hf ch	dust	300	26
	7 hf ch	fans	560	29
G T	3 ch	bro pek	315	38
	7 do	pek	630	28
	6 hf ch	dust	579	25

	Pkgs.	Name.	lb.	c.
Devon	3 hf ch	dust	264	27
Vallepurem	2 ch	bro mixed	170	13
V G	1 ch	unassorted	63	26
Ottery	2 ch	bro pek	204	35
	4 do	bro or pek	440	47
	7 do	or pek	630	41
	4 do	pek sou	352	29 bid
	2 hf ch	dust	160	26
	2 ch	bro pek	192	35
	5 do	bro or pek	500	44
	9 do	or pek	810	40
	4 do	pek sou	324	30
	2 hf ch	dust	170	27
O W	4 ch	pek sou	280	25
	1 hf ch	dust	86	22
	8 hf ch	pek fans	544	26
Gangawatte	10 ch	pek sou	900	33
	6 hf ch	dust	510	29
Brownlow	9 hf ch	bro pek fans	711	33
Kandaloya	15 hf ch	pek sou	600	27
	8 do	fans	400	27
	6 do	dust	300	26
M F	2 hf ch	bro pek fans	170	28
	8 do	dust	760	22
G Ceyon in est mark	12 hf ch	fans	960	26
	8 do	dust	640	25
Cloveland	2 ch	pek sou	200	25
	3 do	fans	300	27
	1 do	bro mixed	100	16
	2 do	bro pek dust	280	26
Tismoda	9 ch	pek sou	720	28
	6 hf ch	fans	420	26
	5 do	dust	400	25
Melvilla	14 hf ch	bro pek	700	33
	12 do	pek	600	27 bid
	4 do	pek sou	200	25
Perth	13 ch	pek	975	29
	5 do	pek sou	350	26 bid
	4 do	fans	520	26
Peru	7 ch	pek sou	630	30
	1 ch			
	1 hf ch	bro pek fans	207	31
Gonavy	7 ch	or pek	700	39
	6 ch	pek sou	540	27
	1 do	fans	110	31
	2 hf ch	dust	180	27
Kahagalla	7 ch	pek	665	36
	7 do	pek sou	630	32
	2 hf ch	dust	168	27
K P	1 hf ch	pek fans	74	25
	2 ch	dust	200	25
	7 hf ch	fans	581	27
G	1 hf ch	bro or pek	44	47
P	1 ch	pek	68	28

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Great Valley, Ceylon in estate mark	9 ch	or pek	864	36
	8 do	bro pek	760	33
N W D	4 ch	pek sou	336	28
Dunedin	9 hf ch	fans	540	13
	2 do	dust	172	10
K B G	3 hf ch	dust	255	26
	1 do	pek	50	28
Bowlana	10 ch	pek sou	850	28
	8 do	fans	600	27
Avoca	7 ch	pek sou	672	30
	5 do	bro pek fans	670	34
Holton	5 ch	pek sou	425	28
	6 hf ch	pek fans	330	26
	4 do	dust	340	25
Dotala	12 hf ch	or pek	540	39
	18 do	bro or pek	990	56
	2 ch	pek fans	150	30
Broughton	4 ch	dust	340	23
Pansalatenne	9 hf ch	bro or pek	450	38
	10 do	pek	500	30
	7 do	pek sou	315	26
	2 do	dust	160	29
Erlsmere	2 ch	pek sou	170	31
	3 hf ch	dust	240	26
Moray	22 hf ch	or pek	924	41
	7 do	dust	525	27
	4 do	bro pek fans	240	29
P	4 ch	pek sou	320	30
	11 hf ch	fans	770	30
	7 do	dust	595	27
Arnaimallai	1 hf ch	dust	85	22
Strathisla	8 ch	fans	880	26
	6 do	dust	510	20
Arnaimallai	2 ch	bro pek	200	23
	2 hf ch	pek No 1	200	27
	1 do	pek sou	100	24

	Pkgs.	Name.	lb.	c.
G K	9 ch	pek sou	585	26
	1 hf ch	sou	65	24
	7 do	fans	630	25
Nillomally	4 hf ch	fans	400	25
	3 hf ch	dust	300	25
Nakiadeniya	*14 hf ch*	*young hyson A*	*854*	*37*
	1 hf ch	bro pek	50	41
	2 do	or pek	200	35
	3 do	pek	240	29
	2 do	pek sou	140	26
	1 do	bro tea	90	2[illegible]
Matale	3 hf ch	fans	210	28
	4 do	dust	320	27
	3 ch	sou	270	27
Tunisgalla	10 hf ch	bro or pek	550	50
	6 ch	pek sou	510	28
	2 hf ch	dust	190	27
Madulkelle	2 ch	fans	200	32
	1 do	dust	100	24
Sylvakandy	4 ch	dust	400	27
Kirklees	2 ch	pek fans	240	28
	4 hf ch	dust	360	26
Gampaha	9 ch	pek sou	810	32
Aberdeen	4 hf ch	bro pek fans	280	26
Letchmey	3 hf ch	sou	150	21
	4 do	bro or pek fans	280	30
	2 do	pek fans	120	28
	2 do	dust	180	26
Ganapalla	4 ch	bro pek fans	420	29
	3 hf ch	dust	249	26
Panmure	14 hf ch	bro or pek fans	770	36
	4 ch	pek sou	360	27
	6 hf ch	dust	450	27
Forest Creek	7 ch	sou	630	27
Tempo	8 ch	sou	600	26
	6 do	dust	720	26
Nugagalla	3 ch	dust	270	24
Tembiligalla	6 ch	pek sou	540	26
	2 do	pek fans	224	26
	2 do	pek dust	288	25
T B G	10 ch	bro mix	850	22
	1 do	dust	126	18
Vogan	10 hf ch	dust	800	27
	4 ch	pek fans	500	27
K P W	16 hf ch	pek sou	800	27
	6 do	pek fans	450	28
	3 do	dust	270	26
Bopitiya	4 ch	sou	360	26
Kelburne	3 ch	fans	300	29
Kelvin	3 ch	fans	330	28
	3 hf ch	dust	255	26
	2 ch	bro mix	140	24
OBEC, Sindumallay	8 ch	fans	960	26
	4 do	dust	600	22
Dambagastalawe	9 ch	pek sou	864	32
	6 do	bro pek fans	804	31
M T P in est mark	5 ch	dust	500	27
	2 do	sou	180	20
Bogahagedawatte	10 ch	pek	950	28
	5 do	pek sou	500	26
	1 do	fans	100	25
Pansalatenne	15 ch	bro or pek	900	43
K G, in est mark	10 ch	sou	900	25
	6 do	dust	900	26
Torwood	3 ch	bro pek fans	345	25
Edward Hill	4 ch	pek sou	400	26
	5 hf ch	dust	345	25
Monterey	3 ch	sou	270	23
	3 do	fans	300	28
	9 hf ch	dust	720	26
Devonford	7 ch	or pek	630	56
	7 do	pek sou	609	38
C R D	3 ch	sou	240	24
	1 do	red leaf	75	15
	6 do	dust	600	25
Nahalma	4 hf ch	dust	320	26
Wewawatte	11 hf ch	bro pek	726	29
	8 do	pek	448	26
S	9 hf ch	dust	720	30
	3 do	dust No 2	306	27
Ruanwella	9 ch	bro pek fans	900	27
Gabhela	5 hf ch	bro pek	305	31
	7 do	pek	350	28
	5 do	pek sou	275	24
Rohgill	16 do	bro or pek	8 0	60
Penrhos	7 ch	pek sou	518	27
	4 hf ch	fans	288	27
	2 hf ch	pek dust	186	25
Troy	*1 ch*	*hyson No 2*	*100*	*37*
Mawiligangawatte	3 ch	dust	360	24
Dromoland	6 hf ch	fans	378	29
Lochiel	11 do	dust	935	27
Wevekellie	5 do	dust	425	27
Preston	4 hf ch	fans	272	36
	3 do	unassorted	150	29
Augusta	2 ch	fans	240	26
	6 do	dust	570	26

	Pkgs.	Name.	lb.	c.
Eastland	3 ch	dust	258	27
Mahawale	5 hf ch	dust	200	27
Clunes	7 ch	pek sou	630	29
Kitulkande	2 hf ch	pek sou	60	22
Poonagalla	8 ch	fans	680	29
Mount	1 bf ch	dust	45	10
L L A	1 hf ch	dust	23	10
Petteresso	3 hf ch	bro pek	177	45
Mousa Eliya	8 ch	bro or pek	800	38
I N G, in est mark	5 ch	pek	425	29
Brough	10 ch	or pek	950	35 bid
Stockholm	4 ch	pek sou	340	31
	4 do	fans	397	28
	2 hf ch	dust	150	27
Passara Group	6 ch	pek sou	570	30
	4 hf ch	dust	360	26
Harrow	4 ch	pek sou	360	27
Wella	16 hf ch	pek	797	31
	11 do	pek sou	517	27
K B	3 ch	bro pek	285	25
	9 hf ch	dust	675	26
	3 ch	sou	255	25
B B, in est mark	4 ch	bro pek	360	out
	5 do	pek	400	out
Algooltenne	5 hf ch	fans	300	28
	4 do	dust	280	25
Good Hope	9 ch	pek	810	29
	3 do	pek fans	324	25
Anningkande	8 ch	pek sou	760	27
	1 do	bro pek fans	115	27
	2 do	dust	230	25
Ambalangoda	9 ch	pek sou	765	withd'n
	1 do	fans	100	26
	1 do	dust	110	23
Swinton	1 ch	fans	100	27
	1 do	dust	110	24
N	7 ch	pek fans	910	22
	4 do	sou	400	20
	3 do	bro tea	200	16

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Nov. 14th.

"Dardanus."—C T P Co. Rta Ratmalie, Ceylon, London B, 1 cask and 1 barrel sold at 91s 6d ; ditto C, 1 cask sold at 72s ; ditto P, 1 barrel sold at 74s ; ditto T, 1 barrel sold at 42s.

CEYLON COCOA SALES IN LONDON.

"Persia."—Pansalatenne 2, 3 bags sold at 51s 6d.

"Dardanus."—Wariapola, 2 bags sold at 56s ; 2 at 50s 6d ; 7 at 52s ; 7 at 37s 6d.

"Duke of Devonshire."—North Matale, Ceylon Cocoa, 1 bag (S D) sold at 55s.

CEYLON CARDAMOMS SALES IN LONDON.

"Talemachus."—Wariagala Mysore A, 5 cases sold at 1s 6d ; ditto D, 4 at 1s.

"Canton."—Mahanva O, 12 cases sold at 1s 9d ; ditto 1, 2 at 1s 6d ; ditto 3, 1 at 1s ; ditto S, 2 at 1s 1d.

"Benvorlich."—Gammadua 2, 4 cases sold at 1s 10d; ditto Seed, 2 at 1s 6d ; M E 1 Seeds Mysore, 3 cases sold at 1s 6d.

"Candia."—A L 1 Malabar, 4 cases sold at 1s 3d.

"Benlawers."—Kellie Cardamoms A, 3 cases sold at 1s 11d ; ditto B, 3 at 1s 7d ; ditto C, 2 at 1s 2d ; 2 at 1s 1d ; ditto D, 1 at 1s ; ditto A BS, 2 at 1s 4d ; ditto B BS, 2 at 1s 2d ; ditto C BS, 2 at 1s ; ditto D BS, 1 at 1s.

"Duke of Devonshire."—Yella Mullai O, 1 case sold at 2s 1d; ditto 1, 2 at 2s ; ditto 2, 3 at 1s 8d ; ditto No. 1 Seed, 2 at 1s 5d.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Nov. 19th.

"Sanuki Maru."—M A K in estate mark, 70 bags sold at 71s 6d.

"Cheshire."—I M M in estate mark, 65 bags sold at 53s.

"Sarpedon."—M M in estate mark, 41 bags sold at 51s.

"Austral."—O E C F in estate mark, Mahaberia Ceylon O, 31 bags sold at 70s ; F ditto 1, 40 at 59s 6d ; 14 at 59s ; C ditto 1, 2 at 58s ; C ditto 2, 15 at 48s 6d ; D ditto, 5 at 55s.

"Clan Menzies."—Katugastota, 10 bags sold at 60s ; 2 at 53s.

"Duke of Devonshire."—K M in estate mark, 51 bags sold at 51s 6d.

"Dardanus."—K M in estate mark, 68 bags sold at 52s.

"Austral."—Bandarapola 1, 13 bags sold at 53s 6d.

"Benvorlich."—Greenwood E, 1 bag sold at 46s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Nov. 21st.

"Shropshire."—G A Ouvah O, 1 barrel sold at 97s ; ditto 1, 1 cask sold at 97s ; ditto 3, 4 at 61s 6d ; ditto 1 P B, 4 casks sold at 85s ; ditto Triage, 1 cask sold at 46s ; 1 at 71s.

"Sanuki Maru."—Niabedda 2, 5 casks sold at 86s ; ditto S, 8 casks and 1 tierce, sold at 67s 6d ; ditto P B, 1 cask sold at 86s.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 49. COLOMBO, DECEMBER 17th, 1902. { PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[18,215 lb.]

	Pkgs.	Name.	lb.	c.
Yuillefield	26 hf ch	bro or pek	1440	42 bid
	21 ch	pek	1995	34
Hornsey	19 hf ch	bro pek	1140	47 bid
	15 ch	pek	1275	36
Coodoogalla	41 hf ch	pek	2050	30
Weemalle	10 ch	bro pek	1000	41 bid
	12 do	or pek	1020	31 bid
	12 do	pek	1020	32
Kinchin	19 hf ch	bro or pek	1140	}
	14 ch	or pek	1190	} w thd'n
	17 do	pek	1530	}

Messrs. Keell and Waldock.

[83,768 lb.]

	Pkgs.	Name.	lb.	c.
D	10 ch	bro pek	1000	29 bid
N W	11 ch			
	1 hf ch	bro or pek	1200	36 bid
	19 ch			
	1 hf ch	pek	1700	27
Graceland	19 hf ch	bro pek	1045	out
	13 ch	pek	1 35	23
Gonagalella	10 ch	bro or pek	1000	37 bid
	18 do	pek	1620	31 bid
	14 do	pek sou	1260	28 bid
Paniyakande	12 ch	bro pek	1200	28 bid
W	16 hf ch	dust	1280	26
G	40 ch	pek sou	3520	out
M	15 ch	fans	1245	23
B. Talawa	21 ch	bro or pek	2100	38 bid
Galgedioya	16 ch	pek	1440	28
Panilkande	31 ch	bro pek	3100	36 bid
	16 do	pek	1440	31 bid
Kottagodde	10 ch	bro or pek	1000	35 bid
Hangranoya	11 ch	bro or pek	1045	44 bid
	30 do	bro pek	3000	33 bid
	21 do	pek	1680	29
	14 do	bro tea	1120	23
Taprobana	54 hf ch	bro or pek	2700	36
	35 ch	pek	2800	31
Patiagama	35 hf ch	bro pek	1925	40 bid
X X X	3 ch			24 bid
	9 hf ch	dust	1250	40 bid
Brixworth	21 ch	bro or pek	2100	30 bid
	20 do	pek	2000	27 bid
	17 do	pek sou	1445	29 bid
M G A	15 ch	pek	1395	33
Woodend	33 ch	bro pek	3300	29
	31 do	pek	2790	28 bid
	34 do	pek	3507	27
L	*11 ch*	*hyson unas*	*1220*	*14 bid*
B	*8 ch*	*Twanky No. 1*	*1040*	*12*

Messrs. E. John & Co.

[274,739 lb.]

	Pkgs.	Name.	lb.	c.
Stubton	23 ch	bro pek	2300	33 bid
Castle Hill	12 ch	or pek	1200	27 bid
	14 do	pek	1260	27
	17 do	pek sou	15 0	withd'n
Poilakande	33 ch	bro or pek	2970	34
	20 do	bro pek	1800	30
	15 do	pek	1200	29
P K T	15 hf ch	dust	1200	24
Oonoogaloya	14 ch	or pek	1120	38
	17 do	bro or pek	1615	49
	18 do	pek	1620	34
Merrow	22 hf ch	bro pek	1232	37
	11 ch	pek	1045	31
Kandaloya	30 hf ch	bro pek	1500	37
	30 do	or pek	1200	39
	54 do	pek	2160	33
Bittacy	21 ch	bro pek	2038	42
	18 do	pek	1512	36
Agra Ouvah	47 hf ch	bro or pek	2820	51 bid
	31 do	or pek	1674	41
	14 ch	pek	1288	37 bid
	13 do	pek sou	1170	35
	31 hf ch	pek fans	2480	20

	Pkgs.	Name.	lb.	c.
Rookwood	18 ch	or pek	1728	41
	16 ch	pek	1440	34
Bowella	12 ch	pek	1020	30
Chemnitz	*29 hf ch*	*young hyson*	*1595*	*34 bid*
	21 hf ch	*hyson*	*1050*	*34*
Troup	12 ch	sou	1080	27
Nahavilla	26 ch	or pek	2340	35
	32 do	bro pek	3200	43
	21 do	pek	1890	33
	16 hf ch	dust	1280	25
Balado	14 ch	pek sou	1050	29
	13 hf ch	dust	1040	26
Ganasarapolla	22 do	dust	1760	26
Holbrook	69 hf ch	bro or pek	4140	43
	29 ch	or pek	2755	40
	15 do	pek	1350	37 bid
Orwell	12 ch	or pek	1080	24
	19 do	bro or pek	1007	42 bid
	12 do	pek	1020	30
Mocha	38 hf ch	bro or pek	2280	55 bid
	20 do	flwy or pek	1050	50 bid
	1 ch	pek	1170	45
Lameliere	15 ch	bro or pek	1500	42
	20 do	pek	1840	35
Kolapatna	20 hf ch	bro or pek	1120	54
	17 do	bro pek	1037	42
	20 do	or pek	1000	39
	11 ch	pek	1012	35
M L K, Ceylon	11 hf ch	fans	1708	19
Ormidale	31 hf ch	bro pek	1798	43
	16 ch	pek	1472	40
Kandana	21 hf ch	bro or pek	1176	46
	21 do	or pek	1113	39
	29 do	pek	1595	33
Dalhousie	20 hf ch	or pek	1000	40
	27 do	pek	1215	35
Callander	22 do	bro pek	1364	43
Rondura	12 ch	bro or pek	1230	49
	10 do	bro pek	1000	39
	12 do	or pek	1140	35
	23 do	pek	2300	33
Eila	53 ch	pek No. 1	4240	31
	27 ch	pek No 2	2160	29
	44 ch	pek sou	3080	27
Templestowe	35 hf ch	bro or pek	1820	51 bid
	19 do	bro pek	1015	44
	32 do	or pek	1576	42
	14 ch	pek	1120	36
	16 hf ch	fans	1120	36
Kelaneiya & Braemar	11 ch	bro or pek	1100	50
	22 do	pek	2090	32
Captains Garden	22 do	pek	1980	28
Lameliere	15 ch	bro or pek	1500	42
	20 do	pek	1840	35
Mt Vernon	24 ch	pek	2112	40
	25 do	pek sou	2125	35
	16 do	dust	1344	27
Gingranoya	10 ch	bro or pek	1000	44
	13 do	bro pek	1300	36
	12 do	or pek	1020	37
	27 do	pek	2160	32
Myraganga	12 ch	or pek	1080	38
	16 do	br or pek No.1	1600	46
	34 do	bro or pek No 2	3400	40
	12 do	pek No. 1	1020	33
Rondura	11 ch	bro pek	1100	39
	12 do	or pek	1140	35
	11 do	pek	1100	33
Glasgow	32 hf ch	bro or pek	1856	64
	27 ch	bro pek	2700	47
	33 ch	or pek	3069	42
	11 do	pek	1045	39
Mossend	17 hf ch	bro or pek	1020	55 bid
	29 do	or pek	1595	41 bid
	25 do	pek	1250	38
Glentilt	28 hf ch	bro or pek	1540	67
	22 ch	or pek	2090	44
	21 do	pek	1890	40
	21 do	fans	1680	32
Cleveland	25 hf ch	flwy or pek	1350	43
	48 do	pek	2592	34
Avington	21 ch	bro or pek	2100	36
	59 ch	pek	4720	29
	56 do	pek sou	3920	27
Westball	12 do	bro mixed	1140	26
Tarawera	*40 ch*	*young hyson*	*3800*	*37*
	38 do	*hyson*	*3610*	*33*
Elston	19 ch	pek	1620	33
	23 do	pek sou	1840	29
	25 do	dust	2250	26
	15 do	bro mix	1125	27
	24 ch	pek sou	2087	29

	Pkgs.	Name.	lb.	c.
Elemane	26 ch	bro pek	2600	45
	19 do	pek -	17 0	38
Ottery	14 ch	bro pek	1400	44 bid
	16 do	pek	1360	34
Higham	40 ch	bro pek	4000	35
	30 do	pek	2850	30
	19 do	pek sou	1710	27
Birnam	20 ch	pek sou	1400	40
Glassaugh	32 hf ch	or pek	1792	57 bid
	25 do	bro or pek	1650	46 bid
	16 ch	pek	1728	44

Messrs. Somerville & Co.

[351,084 lb.]

	Pkgs.	Name.	lb	c.
Citrus	13 ch	bro pek	1235	34
	38 do	pek	3230	29
Depedene	57 hf ch	bro pek	3420	32
	47 do	pek	2350	29
	55 do	pek sou	2750	28
Siriniwasa	19 ch	bro pek	1900	40
	37 do	pek	3515	30
	27 do	pek sou	2430	28
Nellicollaywatte	20 hf ch	bro pek	1140	39
Agra Tenne	23 ch	bro pek	2300	45
	12 do	pek	1020	34
Warakamure	21 ch	bro or pek	2100	35
	19 do	or pek	1520	33
	31 do	pek	2635	29
Ravenscraig	35 hf ch	bro or pek	1960	43 bid
	15 ch	pek	1350	31
Fairfield	18 ch	bro pek	18 0	43
Mount Temple	14 ch	bro pek	1372	35
	19 do	pek	1482	30
	14 do	br or pek fan	1302	28
Rothes	17 hf ch	bro pek	1020	48
Ambalawa	12 ch	pek	1020	29
Avisawella	20 hf ch	bro or pek	1000	47
	18 ch	pek	1620	30
	13 do	pek sou	1040	29
Ingeriya	10 ch	bro or pek	1000	38
Nikawella	12 ch	bro pek	12 0	36
Deville	10 ch	bro pek	1000	37
Mahawelle	12 ch	br pek	1200	36
Annandale	19 hf ch	or pek	1045	42 bid
	22 do	pek	1232	39
Rayigam	*26 ch*	*young hyson*	*2600*	*38*
	22 do	*hyson*	*2090*	*35*
Scarborough	12 ch	or pek	1140	36 bid
	12 do	pek	1140	34 bid
Monte Christo	27 ch	bro pek	2700	48
Bollagalla	27 ch	bro pek	2700	35
	18 do	pek	1440	30
	14 do	pek sou	1190	28
Narangoda	52 ch	bro pek	4940	33
	34 do	pek	3060	30
	20 do	pek sou	1800	28
Meddegodda	21 hf ch	bro or pek	1365	40
	28 do	pek	1540	30
	22 do	pek sou	1100	28
Beausejour	17 ch	bro pek	1645	35
	34 do	pek	2720	29
	13 do	bro or pek	1300	39 bid
Damblagolla	22 hf ch	bro pek	1320	33 bid
	16 do	pek sou	1200	28
I P	12 hf ch	dust	1080	25
Mora Ella	38 hf ch	bro or pek	1900	43
	26 ch	pek No. 1	2340	32
	13 do	pek	1170	30
	22 do	pek sou	1870	29
Mowbray	12 ch	bro pek	1200	39
	15 do	pek	1200	32
Jak Tree Hill	22 ch	bro pek	2250	38
	16 do	pek	1440	30 bid
Yarrow	*17 hf ch*	*hyson No 1*	*1122*	*35*
New Angamana	16 ch	bro or pek	1597	37 bid
	22 do	pek	1977	29 bid
Kallebokka	18 ch	bro or pek	1800	50 bid
	27 do	bro pek	2565	37
	24 do	pek	1920	31
St Andrews K	23 hf ch	bro pek	1380	35
Havilland	34 ch	bro or pek	3400	35 bid
	32 do	pek	2720	30
P K W	13 ch	pek	1168	30
Glenalla	*11 ch*	*young hyson*	*1045*	*38*
	23 do	*hyson*	*2185*	*34 bid*
Combe	18 ch	pek	1620	9) bid
Surrey	27 hf ch	or pek	1350	42 bid
Ferndale	20 ch	pek	1800	30
Yahalatenne	34 ch	bro pek	3400	40
	14 do	pek sou	1274	32
R K P	26 ch	bro or pek	2600	36
	26 do	pek	2340	30
	15 do	pek sou	1275	28

	Pkgs.	Name.	lb.	c.
Ellerslie	35 hf ch	bro or pek	1925	50
	18 ch	or pek	1440	38
	14 do	bro pek	1330	37
	15 do	pek	1200	31 bid
W K P	17 ch	bro pek	1785	38
	14 do	or pek	1260	34
	42 do	pek	3360	29
Hatdowa	16 ch	bro pek	1600	34
	12 do	pek	1140	30
	13 do	pek sou	1235	28
Murraythwaite	19 ch	bro pek	1900	36
	15 do	pek	1200	29
Dryburgh	18 hf ch	bro or pek	1008	37
	13 ch	or pek	1170	37
	22 do	pek	1804	29
Theberton	24 ch	bro pek	2160	36
	22 do	pek	1870	29
Cumbawella	13 ch	bro or pek	1300	36 bid
	17 ch	bro pek	1530	33 bid
	20 do	pek	1800	29 bid
	12 do	pek sou	1020	27 bid
Abbotsford	22 ch	pek	2200	39
	15 do	pek sou	1800	35
Abergeldie	37 hf ch	bro pek	2146	49
	29 ch	pek	2610	35
	15 do	pek sou	1275	30
Strathdon	57 hf ch	bro pek	3306	50
	47 ch	pek	4230	35
	26 do	pek sou	2210	31
Glenanore	30 hf ch	bro or pek	1800	48
	17 ch	pek sou	1615	31
California	11 ch	pek	1090	29
Warakamure	23 ch	or pek	2300	33
	19 do	bro pek	1520	35
	28 do	pek	2380	29
Highfields	18 hf ch	bro or pek	1008	46
	21 do	or pek	1008	39
	31 do	pek	1612	36
Guruberillewatte	13 ch	bro or pek	1317	37 bid
	19 do	pek (A)	1938	30
Deniyaya	43 ch	bro pek	4300	29
New Valley	28 ch	bro or pek	2800	48 bid
	16 do	or pek	1520	39
	19 do	pek	1805	33
Damblagolla	12 ch	pek	1020	28 bid
Mahagoda	12 ch	pek	1200	25
M L	16 ch			
	1 hf ch	bro pek	1660	29 bid
Walla Valley	26 hf ch	bro or pek	1378	63
	13 ch	or pek	1170	43
	26 do	pek	2210	38
B & D	18 hf ch	bro pek fans	1170	29
	15 ch	unast	1500	28
Harrangalla	42 ch	bro pek	3990	35
	42 do	pek	3570	29 bid
	23 do	pek sou	1955	28
	10 do	bro pek fans	1000	27 bid
Labugama	20 ch	pek	1700	30
Neboda	26 ch	bro or pek	2600	40
	18 do	or pek	1656	35
	39 do	pek	3900	30
Neuchatel	13 ch	bro or pek	1235	43
	44 do	or pek	3740	33
	29 do	pek	2320	30
	17 do	bro pek	1785	34
Grange Gardens	17 ch	bro or pek	1700	46
	12 do	or pek	1200	37
	18 do	pek	1710	33
Rahatungoda	20 hf ch	bro or pek	1120	51
	11 ch	or pek	1089	37 bid
	13 do	pek	1248	36
Charlie Hill	13 hf ch	bro pek	1000	38
	21 do	pek	1050	32
Mossville	10 ch	dust	1000	25

Messrs. Forbes & Walker.

[59,4305 lb.]

	Pkgs.	Name.	lb.	c.
Yogama	17 ch	bro or pek	1785	35
	12 do	or pek	1200	33
	33 do	pek	2770	30
	15 do	pek sou	1275	28
Lindupatna	23 ch	bro or pek	2415	61
	28 do	or pek	2912	40
	20 do	pek	1840	36
Great Valley, Ceylon in estate mark	28 ch	pek	2436	31
	17 do	pek sou	1292	28
	36 do	bro or pek	2076	43
Riverside	11 ch	bro pek	1155	39
	22 do	pek	1760	29
Lyegrove	12 ch	bro pek	1200	37
Nonatotam	11 ch	bro pek	1155	41
	13 ch	pek	1170	36

	Pkgs.	Name.	lb.	c.
New Peacock	28 hf ch	bro pek	1400	40
	36 do	pek fans	2520	27
Pansalatenne	14 ch	bro pek	1400	38
Ardlaw & Wisbford	9 ch			
	1 bf cb	bro or pek	1032	52
	13 ch	bro pek No 1	1404	43
	11 ch			
	7 hf ch	or pek	1035	40
	23 ch	pek	1440	35
Yelverton	16 ch	bro pek	1664	36 bid
	12 do	pek	1080	31 bid
Laurawatte	35 ch	bro pek	3500	35
	27 do	pek	2430	31
	15 do	pek sou	1350	29
Lebanon Group	29 ch	bro pek	3045	35
	40 do	pek	3400	36
	33 do	pek sou	2805	30
Mansfield	50 hf ch	bro pek	3000	46 bid
	14 ch	pek	1400	35
Drayton	33 hf ch	or pek	1650	43
	30 ch	pek	2550	35
Aldie	21 ch	bro pek	2100	56 bid
	19 do	pek	1615	41
Torwood	12 ch	bro or pek	1104	42
	13 do	or pek	1118	29
	15 do	pek	1200	27
Shrubs Hill	27 ch	bro pek	2835	38
	14 do	pek	1302	32
Pansalatenne	11 ch	or pek	1100	32
Weyungawatte	29 ch	bro pek	3045	34
	30 do	pek	2550	29
	14 do	pek sou	1120	27
Marlborough	64 hf ch	bro or pek	3520	45
	28 ch	or pek	2464	38
	15 do	bro pek	1500	36
	21 do	pek	1743	34
Tempo	10 ch	bro or pek	1000	40
	17 do	pek	1445	30
	10 do	bro pek fans	1000	35
Hentleys	13 ch	pek	1053	28
Temblegalla	12 ch	bro or pek	1140	32
	13 do	or pek	1235	32
	11 do	pek	1012	29
Parsloes	34 do	bro pek	3400	37
	28 do	pek	2520	31 bid
	18 do	pek sou	1440	28
Florence	15 ch	bro or pek	1500	69
	16 do	or pek	1520	53
	46 do	pek	4186	43
	31 bf ch	br or pek fans	2015	44
Munul ettia, Ceylon in estate mark	13 ch	or pek	1170	41
	33 bf ch	bro pek	1914	51
	29 ch	pek	2465	36
Battawatte	21 hf cb	bro or pek	1365	40
	36 ch	bro pek	3600	39
	27 do	pek	2700	33
Mahauva	10 cb	bro or pek	1100	44
	11 do	or pek	1100	41
	14 do	pek	1260	34
Lucky Land	32 hf cb	br or pek	1920	44
	24 do	bro pek	1320	41
	16 ch	pek	1360	34
Killarney	22 hf cb	bro or pek	1276	64
	37 do	bro pek	2220	49
	14 ch	or pek	1148	42
	14 do	or pek	1190	41
	19 do	pek	1615	36
Inverness	21 ch	bro or pek	2100	56
	15 do	or pek	1350	44
	20 do	pek	1700	39
Cloyne	18 ch	bro or pek	1003	44 bid
	10 do	bro pek	1000	41 bid
	15 do	or pek	1500	34 bid
	14 do	pek	1260	30 bid
Tymawr	33 hf cb	or pek	1815	42
	21 do	bro or pek	1260	51
	28 do	pek	1400	39
	19 do	fans	1330	32
Deaculla	21 bf cb	bro pek	1155	49
	21 ch	pek	1470	31 bid
Nabalma	13 ch	or pek	1274	34
	14 do	bro or pek	1400	39
	14 do	pek	1344	30 bid
S'Katele	*30 hf ch*	*young hyson*	*2885*	*33 bid*
	18 do	*hyson No 1*	*1080*	*35 bid*
Summer Hill	32 ch	bro or pek	1824	57
	18 do	bro pek	1080	47
	15 do	or pek	1290	44
	18 do	pek	1620	38
T P, in est mark	11 ch	fans	1155	29
Walpita	17 cb	bro pek	1700	36
	14 do	pek	1260	29
Vincit	16 ch	bro pek	1600	35
	28 do	pek	2520	29

	Pkgs.	Name.	lb.	c.
T C N	30 hf ch	dust	1950	24
Templehurst	22 ch	bro pek	2200	55
Tonacombe	29 ch	or pek	2610	37
	32 do	bro pek	3200	43
	40 do	pek	3400	33
	17 do	pek sou	1360	29
Sylvakandy	12 ch	br or pek No 1	1200	39
	24 do	br or pek No 2	2400	36
	12 do	bro pek	1200	34
	11 do	or pek	1100	34
	21 do	pek	2100	30
Kitulgalla	27 hf cb	bro or pek	1512	35
	12 ch	or pek	1020	32 bid
	12 do	pek	1020	29
Errolwood	22 hf ch	bro or pek	1320	47 bid
	12 ch	pek	1080	33
Stratbspey	11 do	or pek	1045	withd'n
	15 do	pek	1365	
Kotagaloya	23 ch	bro pek	2530	35
	26 do	pek	2470	28 bid
Leanguwatte	14 ch	bro pek	1400	32
	14 do	pek	1400	28
Nakiadeniya	*18 hf ch*	*young hyson*	*1098*	*37*
Rickarton	10 ch	bro or pek	1000	65
	13 do	or pek	1196	39
	34 do	pek	3060	36
	20 do	bro pek	2000	39
Purana	11 ch	bro pek	1100	38
	23 do	pek	1840	30 bid
H G M	24 bf ch	bro or pek	1440	38 bid
	18 ch	bro pek	1800	33 bid
	16 do	pek	1520	29 bid
	12 do	pek sou	1020	28
W G	29 ch	or pek	2465	27 bid
Aberdeen	20 ch	bro pek	1800	33
	21 do	pek	1617	25 bid
Polatagama	22 cb	bro or pek	2200	44
	25 do	bro pek	2375	38
	45 do	pek	4050	32 bid
	37 do	pek sou	3330	30
Dickbena	19 ch	bro or pek	2014	36 bid
	20 do	or pek	1960	32 bid
	30 do	pek	2580	29 bid
	13 do	pek sou	1105	28
Knavesmire	42 ch	bro pek	4110	36
	50 do	pek	4250	29 bid
	28 ch	pek sou	2240	23
Palmerston	18 bf cb	bro or pek	1080	68
	18 do	bro pek	1026	48
	17 ch	pek	1445	42
St Helliers	28 hf-cb	bro or pek	1540	43
	11 ch	pek	1045	34
Lebanon Group	12 ch	sou	1200	28
Mousakellie	23 ch	bro or pek	2300	48
	21 do	pek	1890	31
	19 do	or pek	1805	35
Attampettia	14 ch	bro pek	1470	52 bid
	15 do	or pek	1350	41 bid
	14 do	pek	1260	37 bid
Kincora	11 ch	bro or pek	1155	48
	22 do	pek	1980	34
Logie	30 bf ch	bro or pek	1500	50 bid
	19 ch	bro pek	1900	37 bid
	19 do	pek	1615	34
	20 do	pek No 2	1600	30 bid
Penrhos	20 hf ch	bro or pek	1080	45 bid
	24 ch	pek	1920	31
Waldemar	25 bf ch	bro or pek	1500	53
	25 cb	or pek	2300	40 bid
	12 do	bro pek	1344	44
	13 do	fans	1092	29
Dunbar	38 bf cb	bro pek	2128	52 bid
	18 ch	pek	1565	40
Preston	36 ch	bro or pek	1944	50
	22 bf ch	or pek	1012	43 bid
Maha Eliya	30 hf ch	bro or pek	1890	55 bid
	40 do	bro pek	2520	45
	25 ch	pek	2250	37
Vogan	19 cb	bro or pek	1900	43 bid
	28 do	or pek	2520	34
	33 do	pek	2970	31
	17 do	pek sou	1445	29
Castlereagh	53 hf cb	bro or pek	2650	46
Dickbena	16 hf ch	dust	1392	27
Yataderia	21 ch	bro or pek	2226	35 bid
	13 do	bro pek	1391	32 bid
	17 do	or pek	1668	32
	28 do	pek	2520	29
	18 do	pek sou	1530	27
T T	13 ch	pek sou	1157	26
	17 do	congou	1666	24
Yataderia	14 ch	bro or pek	1484	35 bid
	13 do	bro pek	1391	32 bid
	20 do	or pek	1900	32
	26 do	pek	2184	29 bid
	13 do	pek sou	1105	27

	Pkgs.	Name.	lb.	c.
Talgaswela	15 ch	bro or pek	1500	42
	13 do	or pek	1040	35
	19 do	pek	1520	31
	19 do	pek sou	1425	28
Coldstream Group	89 hf ch	bro pek	4450	40
	30 ch	pek	2400	32
Panawatte	30 ch	bro or pek	3302	44
	29 do	bro pek	2900	36
	32 do	pek	3200	31
	16 do	pek sou	1440	28
Naseby	30 hf ch	brk or pek	1800	73
	25 do	or pek	1175	59
	25 do	pek	1250	48
	12 do	dust	1140	30 bid
Queensland	20 hf ch	bro or pek	1000	63
	11 do	bro pek	1100	44
Y S P A	21 ch	pek sou	1785	29
	8 do	dust	1160	26
	9 do	fans	1143	29
Rajawatte	10 ch	bro or pek	1030	47
	11 do	or pek	1045	35
	11 do	pek	1045	32
Dammeria	12 ch	bro or pek	1200	37
	17 do	bro pek	1700	38
	23 do	or pek	2070	35
	19 do	pek	1710	32
	32 do	pek sou	2830	29
Inverness	18 ch	bro or pek	1800	62
	14 do	or pek	1260	53
	18 do	pek	1530	44
	12 hf ch	dust	1020	27
Morankande	27 hf ch	bro or pek	1512	37
	27 ch	or pek	2295	34
	29 do	pek	2610	29
Wella	29 hf ch	bro pek	1450	41
	31 do	pek	1333	32
Sirikandura	23 ch	bro pek	2300	35
	20 do	pek	1900	29
	22 do	pek sou	1870	28
North Matale	13 hf ch	dust	1040	26
Mcray	31 hf ch	bro or pek	1705	51
	22 ch	bro pek	2090	36
	29 do	pek	2310	33
	22 do	pek No 2	1650	30
Loolecondera	19 ch	bro or pek	2375	36
Great Valley, Ceylon in est mark	33 hf ch	bro or pek	1848	48 bid
	14 do	pek	1218	33
Freds Ruhe	12 ch	bro pek	1260	37
	12 do	pek sou	1140	28
Forest Creek	17 ch	bro or pek	1700	66
	37 do	bro pek	3700	42
	22 do	or pek	1936	40
	44 do	pek	3960	34
Yatiana	14 ch	or pek	1442	29
Knavesmire	16 ch	bro pek	1650	39
	28 do	pek	2380	29
Passara Group	25 ch	bro or pek	2500	40
	14 do	pek	1330	33
El Teb	12 hf ch	dust	1020	23
Ismalia	9 ch	dust	1260	26
High Forest	35 hf ch	or pek	1750	49 bid
	32 do	bro pek	1856	49
	26 do	or pek	1326	44
	38 do	pek	1748	41
Mousa Eliya	22 ch	bro pek	2197	34 bid
Pine Hill	27 hf ch	bro or pek	1620	45
	18 ch	or pek	1710	39
	23 do	pek	2070	33
	12 do	pek sou	1020	30
Algooltenne	16 ch	bro pek	1357	60
	15 do	bro or pek	1500	43 bid
Errolwood	16 ch	pek	1437	35

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	2 ch	pek sou	190	28
	2 hf ch	dust	160	27
Mawanella	3 hf ch	bro pek	156	36 bid
	4 hf ch	pek	200	29
	6 hf ch	pek sou	304	26
	1 hf ch	dust	50	25
Mapitigama	9 ch	br or pek	990	40
	11 do	or pek	990	31
Kinchin	2 ch	pek sou	150	withd'n
	3 hf ch	dust	255	withd'n

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
G	*6 hf ch*	*yng hyn fans*	*450*	13
	4 hf ch	dust	370	8 bid
	3 hf ch	*Twanky*	*255*	13
D	8 ch	pek	760	26
	8 do	pek sou	720	25
N W	8 ch			
	1 hf ch	bro pek	800	28
	3 ch	fans	286	23
Graceland	8 ch	pek sou	720	22
	1 do	congou	90	17
	10 hf ch	bro tea	600	21
	5 do	dust	375	21
Paniyakande	5 ch	pek	450	28 bid
	5 do	pek sou	450	23 bid
Moneragalla	12 ch	bro or pek	924	26
	10 do	or pek	690	40 bid
	12 do	pek No. 1	816	34 bid
	7 do	pek No. 2	469	31 bid
	13 do	pek sou	780	29 bid
	2 do	fans	212	27
	1 do	dust	103	28
W	8 hf ch	dust	640	26
S in est mark	7 ch	bro pek	672	27
	6 do	pek	516	29
Kurugalla	9 ch	bro pek	855	26 bid
	3 hf ch	bro or pek	150	34
	10 ch	pek	900	37 bid
	4 do	pek sou	360	28
Galgedioya	6 do	bro pek	570	27
	9 do	bro or pek	900	33
	4 do	pek sou	360	35
Panilkande	8 do	pek sou	720	26
	4 do	sou	360	27 bid
Kottagodde	7 ch	bro pek	630	25 bid
	12 do	pek	900	34
	4 do	pek sou	300	30
	7 hf ch	fans	455	26
Hangranoya	10 ch	or pek	800	27
S	5 do	pek sou	425	34
Taprobana	3 do	pek sou	240	26
	5 hf ch	or pek fans	325	27
Woodend	10 ch	pek sou	800	28
	1 ch	bro or pek fans	103	27
	2 do	dust	280	25
G	*6 hf ch*	*yng hyn fans*	*450*	*8 bid*
S	96 boxes	bro or pek	480	20 bid

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Horagalla	7 ch	bro pek	700	32
	5 do	or pek	450	30
	3 do	pek	241	30
	2 do	bro pek fans	216	27
	1 do	bro pek dust	78	25
Stubton	10 ch	pek	950	30
	8 do	pek sou	720	27
	1 do	bro pek fans	120	28
	1 do	pek dust	135	26
Castle Hill	5 ch	bro pek	500	34
	2 do	congou	180	19
	5 do	dust	500	27
P K T	5 ch	pek sou	400	26
Oonoogaloya	11 hf ch	fans	715	32
Merrow	9 hf ch	dust	783	25
Bittacy	6 hf ch	bro or pek	300	56 bid
	7 do	fans	420	36
	1 ch	pek sou	90	28
	3 hf ch	dust	252	27
Agra Ouvah	2 hf ch	dust	200	27
Rookwood	5 ch	bro pek	350	33 bid
	2 do	pek dust	176	32
Bowella	9 hf ch	bro pek	495	33
	2 ch	pek fans	180	27
	5 hf ch	dust	400	26
Chemnitz	*19 hf ch*	*hyson No 2*	*950*	*34*
	4 ch	*shiftings*	*524*	12
	2 ch	*gunpowder*	*212*	*34*
Alpalkande	7 ch	sou	602	24
Nahaville	5 hf ch	fans	350	30
G B	8 ch	bro pek	330	33
	3 do	pek	255	29
	7 do	sou	560	28
	9 hf ch	dust	765	28
	4 do	bro mixed	320	17
Holbrook	4 ch	pek fans	600	33
Orwell	11 ch	pek fans	825	28
Lameliere	8 ch	or pek	720	37
	5 hf ch	bro pek fans	350	30
	1 do	sou	85	27

	Pkgs.	Name.	lb.	c.
Craigingilt	11 hf ch	bro or pek	550	39 bid
	4 ch	or pek	380	34
	5 do	pek	400	30
	2 do	pek sou	150	28
	2 hf ch	or pek fans	130	28
	2 do	dust	170	26
Kolapatna	5 ch	pek sou	460	31
	4 hf ch	fans	272	30
	4 do	dust	332	28
Tenne	2 ch	bro pek	162	32
	4 do	pek	376	26
	1 do	pek sou	55	24
	4 do	fans	418	23
	4 do	pek dust	6 4	19
	3 do	red leaf	273	withd'n
	3 do	dust	252	17
G P F	6 hf ch	bro or pek	336	33
Ormidale	9 hf ch	bro pek fans	630	34
Z Z Z, Ceylon	4 hf ch	dust	360	27
	1 do	sou	51	20
Kandahar	6 hf ch	dust	360	27
Dalhousie	16 hf ch	bro pek	880	51 bid
	13 hf ch	pek sou	585	29
	6 do	bro pek fans	390	31
Callander	16 hf ch	or pek	880	49
	15 do	or pek	780	48
	8 do	pek	400	37
	3 do	pek sou	135	32
	6 do	fans	480	29
Eton	2 ch	bro or pek	200	35
	1 do	or pek	100	33
	2 do	pek sou	200	28
	4 do	sou	400	27
	1 hf ch	dust	90	26
Kelaneiya & Braemar	9 ch	bro pek	900	38
	5 do	pek sou	665	30
	6 do	fans	600	31
	4 hf ch	dust	320	27
Ganga	10 hf ch	dust	880	22
Captains Garden	11 hf ch	bro pek	550	35
	2 ch	pek sou	180	23
C X G	9 hf ch	pek dust	450	24
Lameliere	8 ch	or pek	720	37 bid
	5 hf ch	bro pek fans	350	30
	1 ch	sou	85	28
O F E	4 ch	bro or pek	400	36
	5 do	bropek	500	31
	4 do	pek	400	28
	5 do	pek sou	500	27
	5 do	sou	500	26
	1 do	bro or pek fans	75	27
Mt Vernon	9 hf ch	fans	630	31
	2 ch	bro mix	210	16
Danawkande	2 ch	bro pek	180	36
	2 ch	pek	140	28
	2 ch	pek sou	150	26
	1 hf ch	fans	50	26
Gingranoya	5 ch	bro or pek No 2	600	33
	2 ch	dust	260	27
Awliscombe	5 ch	bro pek	500	38
	6 do	pek	540	29
	3 do	pek sou	285	27
Myraganga	7 ch	pek No. 2	5 5	31 bid
	12 do	pek sou	900	27 bid
	4 do	bro mix	340	26
	1 do	dust	170	26
	6 do	pek fan	840	28
Mossend	2 hf ch	pek sou	100	33
	3 do	dust	180	28
G B, Ceylon	4 do	fans	240	17
	2 do	dust	150	18
Cleveland	10 hf ch	bro or pek	560	65 bid
	4 do	fans	320	28
Avington	4 hf ch	dust	480	27
Taraweva	*8 ch*	*hyson No 2*	*720*	34
Elemane	7 ch	pek sou	630	29
	2 ch	fans	200	31
Ottery	4 hf ch	dust	320	27
Weliwatte	*1 ch*	*young hyson*	*124*	*24 bid*
	4 ch	*hyson No. 2*	*360*	14
A Y	5 hf ch	dust	395	23
Higham	19 hf ch	bro or pek	950	42
	9 do	bro pek fans	675	23
	1 ch	sou	100	25
N	11 hf ch	dust	935	27
D	1 ch	fans	83	20
	4 hf ch	dust	384	17
Kosgalla	11 ch	bro pek	605	33
	9 do	pek	450	28
	8 do	pek sou	630	26
	2 do	br pk fans	310	26
	1 do	dust	70	19

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Moragalla	6 ch	bro pek No. 1	600	34
	7 do	bro pek No. 2	700	30
	6 do	pek	540	28
	8 do	pek sou	720	26
	2 do	fans	200	28
Citrus	6 ch	pek sou	480	27
	5 ch	bro pek fans	500	27
	1 do	dust	160	25
Deredene	11 hf ch	bro pek dust	880	26
Siriniwasa	6 ch	bro pek fans	600	29
	4 ch	dust	600	25
	11 ch	sou No 2	880	24
Nellicollaywatte	14 hf ch	bro or pek	784	44
	9 ch	pek	792	30
	4 ch	pek sou	312	27
	1 hf ch	dust	83	26
	3 do	bro or pek fans	222	31
Agra Tenne	12 ch	pek sou	960	28
	6 ch	dust	510	26
Ferriby	3 ch	sou	285	25
	5 hf ch	dust	400	25
Warakamure	10 ch	pek sou	890	27
	1 hf ch	dust	90	23
G	7 ch	red leaf	630	10
Ravenscraig	13 hf ch	bro pek	650	35
N S C in est mark	5 hf ch	bro pek fans	315	27
	6 hf ch	dust	480	27
F F	4 hf ch	dust	340	27
	2 ch	pek sou	200	26
Rothes	7 ch	pek	665	32
	1 hf ch	pek sou	52	28
Ambalawa	9 ch	pek sou	765	27
	6 do	sou	510	25
H J S	4 hf ch	pek	240	29
	15 do	pek sou	900	28
Avisawella	6 hf ch	dust	450	26
Ingeriya	11 ch	bro pek	990	34
	11 do	pek	990	30
	8 do	pek sou	720	28
Nikawella	10 ch	pek	900	29
	6 do	pek sou	540	27
	2 hf ch	dust	160	26
Deville	8 ch	pek	720	29
	5 do	pek sou	450	27
	1 hf ch	dust	80	25
Mahawelle	10 ch	pek	900	29
	5 do	pek sou	450	27
Rayigam	*1 ch*	*hyson No 2*	*100*	*34*
	8 hf ch	*siftings*	*680*	*11*
Monte Christo	11 ch	pek	990	31
	6 ch	bro tea	570	25
Bollagalla	6 hf ch	fans	420	26
Meddegodda	13 hf ch	or pek	715	37
	4 hf ch	dust	300	26
	2 hf ch	sou	100	24
Beausejour	12 ch	pek sou	920	26
	1 do	fans	110	26
D B G	4 ch	bro tea	360	18
I P	5 ch	pek sou	380	27 bid
	1 do	bro tea	100	24
Mora Ella	17 hf ch	bro pek	935	35 bid
	8 hf ch	or pek	336	38
	14 hf ch	bro or pek fans	938	20
	4 do	dust	336	27
Evalgolla	16 hf ch	pek sou	880	28
	5 do	dust	375	26
	2 do	sou	100	26
	6 do	bro pek fans	330	27
Mowbray	6 ch	pek sou	480	28
Jak Tree Hill	2 ch	pek sou	172	27 bid
	1 do	fans	122	27 bid
	1 do	dust	152	25
Yarrow	*13 hf ch*	*young hyson*	*936*	[illegible]
	3 hf ch	*hyson No 2*	*204*	[illegible]
	4 do	*siftings*	*400*	[illegible]
Yarrow	3 ch	fans	282	25
	4 do			
	1 hf ch	pek dust	517	26
New Angamana	10 ch	pek sou	897	27
Manangoda	5 ch	bro pek	494	28
St Andrew's K	13 hf ch	pek	650	32
	2 hf ch	pek sou	100	27
	1 do	dust	86	24
Havilland	10 ch	or pek	840	33 bid
	5 do	pek sou	391	27
	2 do	dust	212	25
	7 do	fans	606	21
	1 do	bro mix	106	23
P K W	8 ch	bro or pek	536	35 bid
	4 do	or pek	381	34 bid
	3 do	pek sou	255	28
	1 hf ch	dust	67	23
	1 do	pek fans	113	26
	1 do	fans A	42	23

	Pkgs.	Name.	lb.	c.
Glenalla	*3 oh*	*fans*	*312*	*12*
	1 do	*dust*	*140*	*11*
Combe	10 ch	pek sou	900	26 bid
Wyaita	6 ch	pek sou	510	27 bid
R K P	5 ch	dust	500	25
W K P	10 ch	pek sou	750	27
	3 ch	sou	228	25
	2 do			
	1 hf ch	dust	187	24
Monrovia	7 ch	bro pek	700	34
	7 ch	pek	630	29
	2 do	pek sou	170	26
	4 do	fans	400	24
	2 do	unassorted	190	25
	1 do	pek dust	155	20
Hatdowa	5 hf ch	dust	375	29
Murraythwaite	4 ch	pek sou	320	27
	1 do	dust	175	22
	2 do	bro pek fans	270	26
Dryburgh	4 ch	pek sou	320	26
	5 hf ch	fans	370	26
Theberton	2 ch	bro pek fans	200	27
	2 do	pek fans	200	26
Cumbawella	3 ch	pek fans	330	25 bid
	2 do	dust	310	24
A	5 hf ch	dust	470	26
	6 do	sou	300	24
S	7 hf ch	dust	560	26
	10 do	sou	500	24
Glenanore	10 ch	or pek	900	42
	11 do	pek	990	36
	7 do	bro mixed	700	27
	5 hf ch	dust	400	27
California	6 ch	bro pek	600	34
	8 do	pek sou	800	24
	1 do	pek dust	129	23
Warakamure	10 ch	pek sou	800	26
	1 hf ch	dust	90	22
Guruberillewatte	8 ch	or pek	744	34
	11 do	pek (B)	913	28
	2 do	dust	204	26
Deniyaya	5 ch	sou	450	26
	3 do	pek fans	300	26
New Valley	4 ch	pek sou	360	29
	1 hf ch	dust	90	26
	9 ch	pek No. 2	855	28 bid
F, in est mark	2 ch	pek sou	186	32
	5 hf ch	dust	375	27
B, in estate mark	1 ch	bro or pek	100	33
	2 do	pek	164	28
	1 hf ch	fans	81	23
Mahagoda	6 ch	bro pek	630	23
B and D	12 hf ch	dust	960	26
	8 do	bro pek fans	496	30
	4 do	dust	320	27
Harangalla	10 hf ch	dust	800	26
Labugama	14 hf ch	bro or pek	840	35
	5 ch	or pek	425	34
	4 do	pek sou	320	26
	3 hf ch	fans	210	27
	2 do	dust	160	26
Neboda	4 ch	pek fans	400	27
	5 do	pek sou	500	26
	6 hf ch	dust	510	26
Neuchatel	3 ch	dust	435	26
St Leys	1 ch	red leaf	90	25
Grange Gardens	4 ch	pek sou	380	29
	3 do	fans	300	31
	2 hf ch	dust	170	27
Galata	6 hf ch	bro pek fans	450	27
	2 ch	sou	180	22
Charlie Hill	17 hf ch	pek sou	850	29
	2 do	congou	100	25
	1 do	dust	80	26
C F N A	3 ch	pek sou	297	24

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Yogama	3 ch	dust	450	26
Lower Kanaka	5 ch	bro pek	550	34
	5 do	pek	500	37
	2 do	pek sou	190	33
Lindupatna	9 ch	pek sou	900	33
	7 do	bro pek fans	938	32
Horagaskelle	6 hf ch	bro pek	392	35
	5 do	pek	286	27
	7 do	pek sou	412	25
Great Valley, Ceylon in estate mark	8 ch	or pek	768	35
	5 do	bro pek	475	35
	3 do	sou	225	22
	5 do	dust	400	27
Riverside	7 ch	or pek	630	31
	5 do	pek sou	375	27
	2 do	sou	152	24
	1 hf ch	dust	78	23

	Pkgs.	Name.	lb.	c.
Lyegrove	8 ch	pek	680	33
	3 do	pek sou	240	28
	1 hf ch	fans	100	29
H B L	12 hf ch	bro pek	672	36
	9 do	bro or pek	495	38
	7 ch	pek	588	29
	3 do	pek sou	225	26
	1 hf ch	dust	80	25
	2 do	fans	148	29
Nonatotam	1 ch	bro pek No 2	85	34
	1 do	pek sou	75	29
	1 do	bro pek fans	115	31
New Peacock	19 hf ch	bro mix	950	23
Pansalatenne	6 hf ch	bro or pek	300	38
	10 ch	pek	950	29
	8 do	pek sou	720	26
	1 do	sou	100	23
	4 hf ch	bro pek fans	300	27
Ardlaw & Wishford	9 ch	bro pek No 2	900	40
	4 do	fans	400	33
Yelverton	5 ch	pek sou	400	28
	1 hf ch	dust	90	24
Laurawatte	8 hf ch	fans	592	27
V O A	3 hf ch	bro or pek fans	210	33
	5 do	dust	450	27
Mansfield	6 ch	pek sou	570	29
Drayton	11 ch	pek sou	880	33
Mimosawatte	*3 ch*	*young hyson*	*315*	34
	4 do	*hyson No 1*	*400*	32
	6 do	*hyson No 2*	*570*	32
	2 hf ch	*twankey*	*130*	11
Aldie	8 hf ch	bro pek fans	560	35
Kelburne	5 hf ch	dust	400	26
K B	7 ch	red leaf	630	23
Torwood	11 ch	bro pek	968	34
	3 do	dust	405	26
Shrubs Hill	5 ch	pek sou	475	27
	8 do	bro pek fans	680	27
Pansalatenne	8 ch	bro pek	800	38
	6 do	bro or pek	630	39
	7 do	pek	700	28
	7 do	pek sou	665	26
Weyungawatte	1 ch	sou	80	26
	3 hf ch	dust	255	27
Marlborough	1 ch	pek sou	90	29
	10 hf ch	pek fans	700	31
Tempo	9 ch	or pek	810	35
	8 do	pek sou	640	27
	3 do	dust	330	26
Hentleys	15 hf ch	bro pek	750	36
	1 do	pek sou	32	26
	4 do	fans	240	27
	1 do	pek dust	76	23
Templegalla	3 ch	pek sou	270	26
	2 do	pek fans	234	28
	1 do	pek dust	150	25
Parsloes	2 hf ch	dust	180	25
Eriacolla	*6 ch*	*young hyson*	*600*	37
	9 do	*hyson*	*810*	35
	1 do	*hyson No 2*	*90*	34
	1 do	*siftings*	*60*	12
	1 do	*green dust*	*80*	10
Battawatte	10 ch	pek sou	900	28
	2 do	dust	200	27
Lucky Land	7 ch	or pek	672	42
	7 do	pek sou	630	29
Killarney	8 hf ch	fans	600	27
Glaslyn	5 ch	pek	475	35
	1 do	pek sou	70	32
Cloyne	5 ch	pek sou	450	27
	3 do	dust	435	23
	4 do	bro tea	424	28
Tymawr	8 hf ch	dust	720	27
Nahalma	8 ch	fans	784	28
	4 hf ch	dust	300	26
St Katelle	*4 ch*	*hyson No 2*	*240*	35 bid
	4 do	*yng hyn siftings*	*400*	10
A W, in est mark	11 ch	pek	880	29 bid
Bramley	16 hf ch	pek	736	35 bid
Dewalakande	*7 hf ch*	*siftings*	*420*	15
	2 do	*green dust*	*160*	20
	1 ch	pek	70	27
	1 do	pek sou	85	25
	2 hf ch	dust	160	23
	1 do	dust	75	23
M T P, in est mark	5 ch	sou	475	24
	8 do	dust	840	26
Walpita	4 ch	pek sou	320	27
	1 do	sou	85	25
Vincit	2 ch	sou	180	25
	4 do	fans	500	28
	1 do	dust	150	23
B B B, in est mark	5 ch	dust	400	27
Templehurst	9 ch	pek	810	38
	4 do	pek sou	320	34

	Pkgs.	Name.	lb.	c.
Sylvakandy	5 ch	pek sou	600	28
	3 do	dust	300	26
Pansalatenne	6 hf ch	bro or pek fans	450	28
Debatgama	*17 hf ch*	*young hyson*	*935*	*37*
	10 ch	*hyson*	*800*	*34*
	2 do	*hyson No 2*	*190*	*33*
	2 hf ch	*young hyson fans*	*130*	*11*
	1 ch	*hyson No 2 fans*	*50*	*28*
	1 hf ch	dust	60	29
Kitulgalla	4 hf ch	dust	320	23
	4 do	bro or pek fans	4:0	28
Errolwood	7 ch	or pek	665	38
Kalupahana	16 hf ch	bro pek	800	32
	3 ch	pek	285	27
	3 do	pek sou	270	25
	2 do	bro pek fans	220	22
	1 do	dust	166	16
Strathspey	5 ch	bro or pek	500	withd'n
	6 do	bro pek	600	withd'n
	2 do	dust	216	withd'n
Kotagaloya	6 hf ch	fans	360	27
	11 do	dust	880	26
Rickarton	7 ch	pek sou	630	27
	3 do	dust	375	29
	2 do	fans	220	32
Purana	12 ch	pek sou	864	27
	3 hf ch	dust	240	26
	3 ch	fans	300	31
	2 do	unassorted	160	28
St. Martins	9 hf ch	bro or pek	360	35
	15 do	or pek	600	32
	15 do	pek	600	30
	5 do	pek sou	200	27
	7 do	fans	420	28
Aberdeen	8 ch	sou	600	26
Polatagama	6 ch	fans	600	26
	4 do	dust	600	25
I G A	6 ch	pek sou	540	28
	8 do	bro tea	680	out
S G	1 ch	pek	105	26
	1 do	pek fans	120	28
R S	1 ch	pek sou	100	27
St. Heliers	5 hf ch	dust	4:0	23
Lebanon Group	8 hf ch	dust	610	28
Mousakellie	4 hf ch	dust	300	35
	8 do	bro pek fans	520	27
Attampettia	4 ch	pe sou	320	31
	3 do	fans	405	28
	7 do	dust	700	26
Logie	6 hf ch	dust	480	26
Penrhos	13 hf ch	or pek	611	38
	1 do	pe sou	45	27
	3 do	fans	186	27
Dunbar	3 ch	bro pek fans	402	30
	5 do	pe sou	370	33
Ugieside	6 ch	fans	5 0	25
D, in est mark	4 ch	sou	300	24
Preston	12 ch	pek	960	39 bid
	2 hf ch	bro or pek fans	1:6	37
St. Margarets	3 ch	bro or pek fans	204	23
R	36 ch	dust	360	32
Vogan	7 hf ch	dust	560	26
	2 ch	pe fans	250	27
Castlereagh	7 ch	bro pek	665	36
	11 do	or pek	830	34 bid
	10 do	pek	800	31
Talgaswela	15 hf ch	bro pek No 2	900	30
Nagaganga	4 hf ch	bro pek	224	33
	4 do	pek	208	28
	4 do	pek sou	200	25
	1 do	sou	50	24
	1 do	fans	64	24
Coldstream Group	7 ch	pek sou	560	28
	5 hf ch	bro pek fans	325	28
	3 do	dust	240	27
Panawatte	4 ch	dust	500	26
	1 do	fans	110	27
Velana	10 hf ch	bro or pek	500	40
	3 ch	or pek	285	34
	5 do	pek	400	29
	3 do	pek sou	225	28
	1 hf ch	dust	85	25
	3 do	or pek fans	195	28
Queen's Land	1 ch	bro pek No. 2	100	30
	1 do	pek	80	26
	4 hf ch	dust	390	28
Rajawatte	6 hf ch	fans	360	31
Dammeria	7 ch	bro pek fans	700	28
	7 do	dust	840	26
Morankande	12 ch	pek sou	840	27
	5 hf ch	bro or pek fans	3 0	36
	2 do	dust	180	25
Wella	10 hf ch	pek sou	430	29
	2 do	dust	172	26
I K V	2 ch	sou	170	23
	6 do	pek fans	720	26
Sirikandura	1 ch	bro pek fans	192	27
	1 do	fans	91	23
	3 do	bro pek dust	368	27
Moray	18 hf ch	or pek	756	43
	7 ch	dust	525	27
	4 hf ch	bro pek fans	220	31
S G	8 ch	pek	720	28
	2 do	pek sou	160	26
New Galway	3 hf ch	bro pek	180	58
	3 ch	pek	165	40
	1 hf ch	pek sou	50	36
Halbarawa	4 ch			
	1 hf ch	bro or pek	462	34
	5 ch			
	1 hf ch	or pek	523	35
	9 ch	pek	810	28
	7 do	pek sou	560	26
	1 do	bro pek fans	109	28
	1 do	dust	157	25
Kondesalle	1 hf ch	or pek	40	35
B M	1 ch	pek sou	74	23
Freds Ruhe	8 ch	pek	8 0	30
W A	4 ch	bro pek	440	28
	5 do	pek sou	500	25
	3 do	dust	480	26
	3 do	bro mix	320	21
M T P, in est mark	4 ch	bro pek	357	25
Yatiana	2 ch	bro pek	196	26
	3 do	pek	250	24
Knavesmire	10 ch	bro or pek	900	36
	8 hf ch	bro pek fans	720	26
Passara Group	5 ch	pek sou	475	30
El Teb	6 ch	pek sou	570	27
Ismalle	4 ch	bro pek fans	500	26
Pine Hill	5 hf ch	dust	425	26

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, Nov. 28th.

"Clan Farquhar."—G A Ouvah 3, 2 casks and 1 tierce sold at 61s 6d ; ditto 1 P B, 1 tierce sold at 75s ; ditto Triage, 2 tierce sold at 37s 6d ; 1 bag sold at 61s.

CEYLON COCOA SALES IN LONDON.

"Dardanus."—I M M in estate mark, 130 bags sold at 52s.

"Clan Urquhart."—K K in estate mark, 81 bags sold at 52s.

"Sanuki Maru."—I M A K in estate mark, 64 bags sold at 54s 6d.*

CEYLON CARDAMOMS SALES IN LONDON.

"Austral."—Kobo 1, 8 cases sold at 1s 10d ; 4 at 1s 11d ; 1 at 2s ; ditto O O Splits, 2 cases sold at 2s 4d ; ditto O O Brown, 3 cases sold at 1s 8d ; ditto 1 Splits, 5 cases sold at 1s 3d.

"Canton."—Kobo Brown, 1 case sold at 1s 3d ; N M, 1 case sold at 1s.

"Sanuki Maru."—Dromoland No. 1, 3 cases sold at 2s 3d ; ditto No. 2, 5 at 1s 7d ; ditto No. 3, 2 at 1s ; 2 at 1s 1d.

"Duke of Devonshire."—Midlands O, 2 cases sold at 1s 9d ; 1 at 1s 7d ; ditto 1, 4 at 1s 5d ; 4 at 1s 6d ; ditto 2, 3 at 1s ; B & S, 2 at 1s 8d ; Elkadua O, 2 cases sold at 1s 10d ; ditto 1, 4 at 1s 3d ; ditto 2, 1 at 1s ; ditto B & S, 1 at 11d.

"Scindia."—Hoolo Group 1, 2 cases sold at 1s 6d ; ditto 2, 1 at 1s ; ditto 3, 1 at 1s 7d.

"Canton."—Mahanva 2, 4 cases sold at 1s 1d ; ditto B, 3 at 1s 1d ; 2 at 1s 2d.

CEYLON CINNAMON SALES IN LONDON.

"Alcinous."—C P I, 276 in estate mark, 11 bales sold at 8d; 3 at 8d ; 14 at 7d ; 10 at 6d.

"Dardanus."—M in estate mark, Plantation, 4 bales sold at 8d ; 4 at 7½d ; 4 at 6d.

* Our contemporary's correspondent notes 170 bags fair red rather small Palli—no bid—bought in at 75s.

"Duke of Devonshire."—D B & C, 608 in estate mark, Ekelle Plantation, 20 bales sold at 10½d; 18 at 9½d; 12 at 9d; 14 at 9d; 8 at 9½d.

"Benvorlich."—C H de S Salawa, 5 bales sold at 11½d; 9 at 10d; 6 at 9½d; 1 at 9d; 3 at 8d; C H de S Innegaltuduwa, 1 bale sold at 10d; 1 at 9d; C H de S Hiripittiya, 2 bales sold at 8d; C H de S Mattegodde, 1 bale sold at 10d; 1 at 9½d; 1 at 8d; C H de S, B K, O in estate, 1 bale sold at 10d; 1 at 9d

"Oopack."—C H de S Kuruwitte, 4 bales sold at 1s; 13 at 10d; 10 at 9½d; 3 at 8d.

"Teenkai."—C H de S, T P W in estate mark, 1 bale sold at 1s; 7 at 9½d; 6 at 9d; 3 at 8½d; 4 at 8d; C H de S Ratmalana, 2 bales sold at 1s; 8 at 10d; 6 at 9½d; 2 at 8d.

"Alcinous."—C H de S Rustoom, 2 bales sold at 1s; 6 at 10d; 8 at 9½d; 14 at 9d; 4 at 8d; C H de S Koottariavalle, 2 bales sold at 1s; 20 at 9d; 4 at 7d.

"Clan Fraser."—C H de S Kandevalle, 4 bales sold at 1s; 16 at 9½d; 12 at 9d; 2 at 7½d; C H de S B K, O in estate mark, 1 bale sold at 1s; 2 at 10d; C H de S Innegaltuduwe, 1 bale sold at 1s; 2 at 9½d; 1 at 9d; 1 at 7½d.

"Hakata Maru."—HSGP, in estate mark, Kadirane, 6 bales sold at 1s 9d; 30 at 1s 8d; 26 at 1s 5d; 6 at 1s 6d; 10 at 1s 4d; 17 at 11½d; 16 at 10½d; 6 at 8d; 13 at 7½d; 1 at 6½d; 1 box at 9d, 11 bags at 9½d.

"Duke of Devonshire."—FSWS, in estate mark, North Kadirane, 6 bales sold at 1s 7d; 2 at 1s 6d; 10 at 1s 5d; 2 at 1s 4d; 3 at 1s 2d; 1 at 1s; 7 at 8d; 5 at 7½d; 1 bag at 9d; 1 box at 9d; 34 at 3½d; FSWS, in estate mark, Kadirane, 3 bales sold at 1s 7d; 3 at 1s 5d; 3 at 1s 2d; 2 at 1s 1d; 2 at 8½d; 2 at 7½d; 1 box at 9d; 4 bags at 9d; 1 bag at 6½d; 39 at 3½d.

"Ceylon."—FSK, Kadirane, 6 bales sold at 1s 6d; 9 at 1s 4d; 6 at 1s 5d; 7 at 1s 2d; 3 at 9d; 6 at 8d; 2 at 8½d; 13 at 7d; 1 parcel at 7d; 1 box and 4 bags at 9d.

"Antenor."—TAJ, in estate mark, Ekelle Plantation, 6 bales sold at 9d; 9 at 8½d; 65 at 8d; 66 at 7½d; 13 at 7d; 9 at 6½d.

"Alcinous."—DBM 1, 1 bale sold at 7d; ditto 2 2 at 6½d; ditto 3, 2 at 5½d; ditto 4, 2 at 5d.

"Persia."—DBM, Ekelle Plantation 3, D, 2 bales sold at 7½d; ditto 4, 1 at 6d.

"Telemachus."—M in estate mark, Plantation 1, 3 bales sold at 7½d; ditto 2, 6 at 7½d; ditto 3, 2 at 6½d; ditto 4, 4 at 6½d.

"Jumna."—C C F W in estate mark, Ekelle Plantation 2, 12 bales sold at 8½d; 38 at 9d; ditto 3, 26 at 8½d; ditto 4, 4 at 7½d.

"Clan Ranold."—3 G O F W in estate mark. Ekelle Plantation 2, 50 bales sold at 9d; ditto 3, 20 at 8d.

"Sado Maru."—F O W G 5 Ekelle Plantation 2, 50 bales sold at 9d; ditto 3, 18 at 8½d; 8 at 8d; ditto 4, 4 at 7d.

"Duke of Devonshire."—G H Ekelle Plantation 1902 1, 21 bales sold at 1s.

CEYLON RUBBER SALES IN LONDON.

"Telemachus" at Ceylon.—Palli Rubber No. 1, 10 bags 100 lb. and 6 bags sold today, November 28th, 1902, at 2s 7½d per lb.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 50. COLOMBO, DECEMBER 19th, 1902. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

LARGE LOTS.

Messrs. E. Benham & Co.

[14,840 lb.]

	Pkgs.	Name.	lb.	c.
Kinchin	19 hf ch	bro or pek	1140	46
	14 ch	or pek	1180	34
	17 do	pek	1530	30
Bunyan & Ovoca	28 hf ch	bro or pek	1540	54 bid
	27 do	or pek	1350	41 bid
	14 ch	pek	1260	37
	13 do	pek sou	1170	33 bid
	19 hf ch	fans	1235	32

Messrs. Keell and Waldock.

[26,043 lb.]

	Pkgs.	Name.	lb.	c.
Aigburth	19 hf ch	bro or pek	1045	43
	10 ch	or pek	1000	37
	26 do	pek	2080	30
Galla	28 ch	bro pek	2800	34 bid
	13 do	pek	1170	30 bid
Brecon	24 hf ch	bro pek	1440	35 bid
	22 do	pek	1100	30 bid
Katugastota	13 ch	bro pek	1365	34 bid
	22 do	pek	1760	28 bid
Cottesbrooke	39 hf ch	bro or pek	2145	37 bid
	19 ch	pek	1710	31
	14 do	pek sou	1260	28
C B	4 ch			
	14 hf ch	bro or pek	1200	26 bid

Messrs. E. John & Co.

[68,825 lb.]

	Pkgs.	Name.	lb.	c.
Dubena	11 ch	pek	1100	26 bid
Mahanilu	14 ch	pek	1327	36
Gangawatte	18 ch	bro or pek	1800	53 bid
	14 do	bro pek	1400	39
	25 do	pek	2250	36
M L W	16 ch	bro pek	1520	33 bid
Agra Ouvah	62 hf ch	bro or pek	3714	60 bid
Cocoawatte	30 ch	bro pek	3150	36
	11 do	pek	1100	30
	13 do	pek sou	1235	28
O W	12 ch	bro pek	1020	31 bid
	15 do	pek	1170	28
	16 do	pek fans	1040	26
Mahanilu	20 ch	bro or pek	1000	50 bid
	29 hf ch	or pek	1450	42
	16 ch	pek	1520	37
Agra Ouvah	51 hf ch	bro or pek	3060	52
	32 do	or pek	1728	42
	12 ch	pek	1104	40
Mocha	14 ch	or pek	1327	44
Mt Vernon	21 ch	pek	1848	39
Pallakanda	21 ch	bro or pek	1890	34
	26 do	bro pek	2340	30
	18 do	pek	1440	28
Laurawatte	10 ch	br or pek	1000	31
Detala	23 hf ch	br or pek	1265	54 bid
	20 ch	pek	1800	35
Galkanda	14 ch	br or pek	1300	40 bid
	15 do	pek	1275	26 bid

Messrs. Somerville & Co.

[99,835 lb.]

	Pkgs.	Name.	lb	c.
Oolapane	16 hf ch	fans	1040	28
	14 do	dust	1120	26
Mahatenne	10 ch	bro or pek	1000	39 bid
Lonach	28 hf ch	bro or pek	1568	41
	19 ch	or pek	1653	35
	37 do	pek	2960	31
	23 do	pek sou	1840	29
Mary Hill	27 hf ch	bro pek	1350	37
	30 do	pek	1550	30
Laxapanagalla	15 ch	bro or pek	1425	36
Farnham	20 hf ch	bro pek	1000	41
	13 ch	or pek	1040	34
	13 do	pek	1170	30
	12 do	pek sou	1020	28
Salawa	19 ch	bro pek	1900	37
	14 do	pek	1260	29
	15 do	pek sou	1275	28
Paradise	10 ch	bro pek	1050	33
Marigold	31 hf ch	bro or pek	1550	60
	26 do	or pek	1692	41
Allacollawewa	20 hf ch	bro or pek	1000	49
	26 do	or pek	1222	40
Southwold	*20 ch*	*hyson No 2*	*1500*	withd'n
Hobart	15 ch	bro or pek	1500	33
M	11 ch	bro pek	1155	37
Scarborough	20 hf ch	bro or pek	1080	49
	11 ch	or pek	1045	39
	12 do	pek	1140	35
Owilikande	18 ch	or pek	1800	31
	15 do	br pek	1279	32
	18 do	pek	1800	28
Hanagama	11 ch	bro or pek	1090	38
	33 do	or pek	3309	31 bid
	26 do	pek	2600	29
	16 do	pek sou	1520	27
St. Catherine	30 hf ch	bro or pek	1503	withd'n
	16 ch	pek	1[illegible]63	
Annandale	19 hf ch	or pek	1026	42 bid
	18 do	pek	1008	36 bid
Weygalla	19 hf ch	bro or pek	1020	60
Fairfield	23 hf ch	bro or pek	1150	68
	16 ch	or pek	1280	45
	21 do	bro pek	2100	43
	24 do	pek sou	2280	35
Kurunegalle	20 hf ch	bro or pek	1200	36
	21 do	or pek	1050	34
Raglan	18 ch	bro pek	1800	29
	29 do	pek	2755	27

Messrs. Forbes & Walker.

[316,334 lb.]

	Pkgs.	Name.	lb.	c.
Dunny Brook	18 hf ch	bro or pek	1008	45
Roeberry, S	52 ch	pek	4784	32
	71 do	bro pek	7100	37 bid
	27 do	bro or pek	2700	52
	40 do	pek	3680	32
	19 do	bro pek	1900	39 bid
	11 do	br or pek	1100	52
	18 do	pek sou	1620	30
	10 do	fans	1000	29
Wattakelle	22 ch	bro pek	2200	35
	12 do	br or pek	1200	46 bid
	13 do	or pek	1040	36
	19 do	pek	1710	30
Yogama	17 ch	bro pek	1785	38
	25 do	pek	2125	30
	20 do	or pek	2000	34
	13 do	pek sou	1010	28
Koundasala	5 ch	pek	1206	31
Galleheria	12 ch	pek sou	1080	33
	22 do	pek	1870	36
	11 do	br or pek	1100	54
	13 do	or pek	1040	40
Clarendon, Dimbula	45 hf ch	bro pek	2520	54
	32 ch	pek	2688	41
	23 do	pek sou	1725	34
High Forest	35 hf ch	or pek No 1	1750	62
	32 do	bro pek	1856	51
	25 do	or pek	1275	44
	22 do	pek	1012	39
	25 do	pek sou	1125	34
Dunkeld	54 hf ch	bro or pek	3132	47
	16 ch	or pek	1440	36 bid
	20 do	pek	1800	33
St Vigeans	16 hf ch	bro or pek	1008	52
Killarney	25 hf ch	bro pek	1850	49
	18 ch	pek	1530	38
Seenagolla	17 hf ch	bro or pek	1020	56
	20 do	pek	1040	42
High Forest	25 hf ch	or pek No 1	1200	51
	23 do	bro pek	1334	51
	24 do	or pek	1200	43
Kirklees	50 hf ch	bro or pek	2750	44
	17 ch	or pek	1530	37
	26 do	pek	2210	34
Gampaha	31 hf ch	bro or pek	1860	47
	22 do	bro pek	1330	41
	16 do	pek	1360	36
Poonagalla	13 ch	or pek	1209	45
	46 hf ch	bro pek	2760	56
	14 ch	pek	1288	40
Marlborough	55 hf ch	bro or pek	2970	44
	12 do	bro pek	1200	35
	16 do	pek	1392	33

	Pkgs.		Name.	lb.	c.
Bramley	21	hf ch	bro pek No 2	1176	60 bid
	24	do	or pek	1152	48 bid
Ireby	50	hf ch	bro pek	3000	45
	23	ch	pek	1955	39
Glendon	13	ch	bro pek	1235	withdrawn
	18	do	or pek	38 0	withdrawn
	41	do	pek	369	withdrawn
	14	do	pek sou	1260	withdrawn
Madulkelle	12	ch	bro or pek	1200	45
	18	do	or pek	1040	39
	17	do	pek No 1	1530	36
Erlsmere	31	hf ch	bro pek	1736	51
	21	ch	bro pek	1974	43
	12	do	pek	1132	38
Dunedin	*39*	*hf ch*	*young hyson*	*2028*	*38*
	17	*ch*	*hyson*	*1394*	*35*
Putupaula	10	ch	bro pek	1050	55 bid
	54	do	or pek	4590	35 bid
	45	do	pek	3600	32 bid
Delta	14	ch	or pek	1540	49 bid
	43	do	bro pek	4085	36
	40	do	pek	3320	31
	20	do	pek sou	1600	29
Middleton	17	hf ch	bro or pek	1020	61 bid
	24	ch	bro pek	2400	43
	24	do	or pek	2040	38
	22	do	pek	1870	36
	25	hf ch	pek dust	1200	27
Good Hope	19	ch	bro or pek	1805	35
Gonapatiya	41	hf ch	or pek	2050	46
	36	do	bro pek	2016	54
	54	do	pek	2538	39
Algooltenne	12	ch	bro pek	1020	57
	14	do	or pek	1120	39
	23	do	pek	1610	32
Agra Oya	19	hf ch	bro or pek	1045	51
	43	do	or pek	2150	39
	19	do	bro pek	1140	45
	19	ch	pek	1710	34
Monkswood	22	hf ch	bro or pek	1320	63
	4	ch	or pek	2200	51
	43	do	pek	4085	48
Bobgill	10	ch	pek	1597	25 bid
Glencorse	10	ch	bro pek	1000	40
	13	do	or pek	1170	36
	15	do	pek	1080	32
	18	do	pek No 2	1440	30
	1	do	pek sou	1275	29
Matale	37	hf ch	bro pek	2220	37
	15	ch	pek	1350	31
	12	do	pek sou	1020	28
Galapitakande	14	ch	bro pek	1400	41
	12	do	or pek	1200	40
	22	do	pek	1980	33
H G M	36	hf ch	bro or pek	1980	40
	18	ch	pek	1710	30
Bandara Eliya	42	hf ch	or pek	2100	39
	28	do	br or pek No 1	1540	51
	70	do	br or pek No 2	4000	45
	9	do	pek	4166	38
	24	do	pek fans	1680	30
C	12	ch	sou	1140	21 bid
Polatagama	15	ch	bro or pek	1500	41
	17	do	bro pek	1615	37
	47	do	pek	4230	30 bid
Puspone	26	ch	or pek	2600	33
	23	do	bro pek	3465	36
	15	do	pek	1275	31
	17	do	pek sou	1360	28
Amblakande	20	ch	bro pek	1000	38
	25	ch	pek	2125	30
	14	do	pek sou	1120	28
Nillomally	19	ch	bro or pek	1900	43
	28	do	pek	2464	34
	25	do	pek sou	2050	30
	13	do	or pek	1066	38
Irex	20	ch	bro or pek	2000	40
	14	do	bro pek	1120	32
	13	do	pek	1170	30
Deacolla	21	hf ch	bro pek	1155	60
	10	ch	pek	1400	34
Tymawr	22	hf ch	or pek	1012	42
	16	do	pek	1800	37
	17	do	pek sou	1350	32
Nahalma	16	ch	bro or pek	1600	39
	16	do	or pek	1248	34
	11	do	bro pek	1100	31 bid
	17	do	pek	1632	31
Troy	*27*	*ch*	*young hyson*	*2835*	*37*
	53	*do*	*hyson*	*4982*	*35*
Bowlana	24	ch	bro or pek	2520	39
	28	do	or pek	2185	36
	24	do	pek	2640	32
	16	do	pek sou	1020	30
Walton	21	ch	bro pek	2205	38
	12	do	or pek	1080	31

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Kinghin	2	ch	pek sou	150	28
	3	hf ch	dust	255	26
Coodoogalla	9	hf ch	dust	720	26
Haputalewella	15	hf ch	bro pek	825	36
	15	do	pek	675	29
	12	do	pek sou	480	23
	6	do	pek No 2	270	28
H D in est. mark	3	hf ch	dust	270	24
Bunyan & Ovoca	8	hf ch	dust	630	25
	1	ch	red leaf	100	16

Messrs. Keell and Waldock.

	Pkgs.		Name.	lb.	c.
Aigburth	5	ch	pek sou	375	27
	3	hf ch	bro or pek fans	210	29
B R	3	ch	sou	225	25
Galla	4	ch	pek sou	340	26 bid
	2	do	fans	250	27
	1	do	dust	135	24
Breeza	2	hf ch	pek sou	100	27
	2	do	fans	150	27
	2	do	dust	200	28
W	4	hf ch	bro or pek	240	32
	5	do	or pek	319	26
	4	ch	or pek dust	455	22
Katugastota	8	ch	or pek	720	32 bid
	9	do	pek sou	675	27
	3	do	sou	228	26
	2	hf ch	dust	130	24
Weligatta	1	ch	red leaf	110	14
	3	do	dust	375	16
	2	do	pek dust	270	18
N in est mark	1	ch	pek	85	21
S	2	ch	pekoe souchong	1 4	22
D Y S	2	ch	pek	184	24
	1	do	pekoe sou	88	21

[Messrs. E. John & Co.]

	Pkgs.		Name.	lb.	c.
W E L	3	ch	bro pek	300	33
	2	do	pek	190	27
	2	do	pek sou	190	26
	1	do	br pek No 2	100	34
Dubena	8	ch	bro pek	800	30
	8	do	pek sou	760	25
	2	do	fans	260	24
	1	do	dust	140	18
	2	do	congou	180	24
	6	do	bro pek	600	39
	6	do	pek	600	27
	5	do	pek sou	475	25
	1	do	dust	96	18
Awlescombe	1	ch	dust	95	24
Gangawatte	8	ch	pek sou	720	31
	6	ch	sou	540	28
	9	hf ch	fans	585	32
M L W	9	ch	pek	765	29
	8	do	pek sou	560	27
	4	hf ch	dust	300	26
W in estate mark	5	hf ch	dust	420	26
M G	9	hf ch	fans	675	23
Koslande	11	hf ch	bro pek	660	46
	6	ch	pek	600	31
	1	do	pek sou	100	29
	1	hf ch	fans	75	27
	1	hf ch	dust	90	21
B M	*2*	*hf ch*	*hyson No 2*	*76*	*19*
	8	*hf ch*	*hyson No 3*	*368*	*12*
Cocoawatte	5	ch	fans	475	26
O W	3	ch	pek sou	216	26
	3	ch	dust	249	25
Mahanilu	2	hf ch	dust	170	26
	4	ch	fans	280	32
Kehelwatte	5	hf ch	dust	425	25
	3	ch	fans	330	28
Yapame	3	hf ch	dust	285	25
	3	do	fans	285	26
The Farm	9	hf ch	fans	630	26
	4	do	dust	340	21
Coslanda	11	hf ch	bro pek	660	45 bid
	6	ch	pek	600	31
	1	ch	pek sou	100	23
	1	hf ch	fans	75	27
	1	do	dust	90	26
Ranawella	2	ch	bro or pek	255	35 bid
	2	ch	bro pek	170	28
	5	do	or pek	475	30 bid
	1	hf ch	dust	80	26

	Pkgs.	Name.	lb.	c.
Laurawatte	8 hf ch	pek fans	568	29
	8 hf ch	dust	615	27
Dotala	16 hf ch	or pek	720	40
	3 hf ch	pek fans	225	28 bid
A T	2 ch	bro pek faus	210	26
	3 do	or pek	155	26
	3 do	dust	360	22
	2 do	bro mixed	168	14
Galkanda	5 ch	pek sou	450	26
	2 do	bro pek fans	210	26

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Kudaganga	9 ch	bro pek	900	35
	9 do	pek	810	30
	6 do	pek sou	480	27
	3 do	fans	240	26
	2 do	pek dust	220	25
W S M	3 hf ch	bro pek	150	35
	2 do	pek	100	29
	1 do	pek sou	50	26
	2 do	unasorted	106	25
	1 do	dust	70	25
Citrus	5 ch	bro pek	475	33
	5 do	pek	425	28
	2 do	pek sou	180	26
	1 do	bro pek fans	100	26
Mahatenne	9 ch	pek No. 1	855	31
	10 do	pek No. 2	880	29
	2 do	fans	290	26
Moragalla	1 ch	bro pek	102	32
	2 do	pek	204	28
	5 do	pek sou	510	26
	1 do	fans	102	27
	1 do	dust	102	24
	2 do	red leaf	157	23
Mary Hill	5 hf ch	bro or pek	250	48
	6 do	bro pek fans	390	33
	2 do	dust	160	26
Kallebokka	11 ch	or pek	825	36
	2 do	pek sou	220	27
	2 do	fans	250	27
Laxpanagalla	8 ch	or pek	760	31
	3 do	pek	270	28
	1 do	pek fans	100	26
Farnham	16 hf ch	bro pek fans	992	28
Salawa	3 ch	pek fans	384	30
	1 do	dust	167	25
Paradise	5 ch	pek	475	28
	3 do	pek sou	285	26
	1 hf ch	fans	87	26
	1 ch	dust	121	25
Allacollawewa	8 hf ch	bro pek No. 2	448	41
Marigold	12 hf ch	br pek No. 2	672	44
	18 do	pek	882	38
	17 do	pek sou	833	34
Allacollawewa	12 hf ch	pek	588	36
	13 do	pek souc	637	32
	7 do	br pek fans	441	34
Southwold	*8 ch*	*siftings*	*800*	*10 bid*
Hobart	10 ch	bro or pek	900	30
	3 do	or pek	255	30
M	6 ch	pek	558	30
	1 do	pek sou	95	27
	2 do	bro pek fans	170	26
Owilikande	6 ch	pek sou	540	26
	3 hf ch	dust	240	25
Hanagama	10 ch	souchong	940	26
	7 do	fans	770	26
	5 do	dust	710	24
St. Catherine	3 hf ch	or pek fans	213	withd'n
Annandale	15 hf ch	bro or pek	900	61
Wewebedde	7 ch	pek sou	630	30
	2 do	fans	200	27
Weygalla	9 hf ch	bro pek	540	37
	7 ch	pek	700	31
	5 do	pek sou	485	28
Kurunegalle	9 ch	pek	765	29
	2 do	pek sou	160	27
	4 hf ch	dust	320	26
Raglan	1 ch	fans	93	25
	1 do	dust	141	22
S in estate mark	1 hf ch	broken pekoe	70	34
	1 hf ch	pekoe	57	29
	1 ch	pek souchong	73	26
	1 hf ch	dust	65	24
	1 box	*green tea*	25	12

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
O F, in estate mark	3 ch	bro pek	252	32
	4 do	pek	347	28
	2 do	pek sou	146	26
	1 hf ch	pek dust	76	23
	1 do	*hyson*	*46*	*32*
Dunny Brook	5 ch	or pek	475	39
	11 do	pek	990	35
Wattakelle	2 ch	sou	200	27
	3 hf ch	bro pek fans	240	27
T C	1 hf ch	or pek	89	38
	4 do	pek	360	31
G	1 hf ch	or pek	61	30
	1 do	pek	55	28
	1 do	pek sou	54	27
	1 do	dust	83	26
Yogama	3 ch	dust	450	25
Koundasala	7 ch	bro pek	700	38
	7 do	pek sou	504	27
	1 do	fans	100	30
	1 do	dust	80	26
Clarendon, Dimbula	2 ch	sou	150	31
	2 hf ch	pek dust	160	30
Kirrimettia	*12 hf ch*	*siftings*	*840*	*12*
St. Vigeans	7 ch	or pek	651	42
	6 do	pek sou	609	30 bid
S	10 hf ch	dust	800	28
Gampaha	9 ch	or pek	864	41
	9 hf ch	pek sou	810	32
Poonagalla	2 ch	pek sou	184	33
	7 hf ch	fans	588	31
C R S	7 hf ch	bro pek	350	29
	1 do	dust	51	25
Ambanpitiya	1 ch	dust	166	24
Ireby	9 ch	pek sou	765	30
Madulkelle	2 ch	dust	200	27
Erlsmere	2 ch	pek sou	176	30
	2 hf ch	dust	160	27
Dunedin	*11 ch*	*hyson No 2*	*990*	*34*
	8 hf ch	fans	496	14
	2 do	dust	176	10
M T F, in est mark	6 ch	fans	600	28
	1 do	dust	120	24
Putupaula	5 ch	bro pek fans	625	out
	2 do	bro tea	160	21 bid
Delta	7 ch	fans	840	28
	7 hf ch	dust	595	25
Good Hope	6 ch	or pek	510	32
	5 do	pek	475	29
	5 do	pek sou	450	27
	3 do	pek sou No. 2	276	26
	1 do	bro pek fans	108	26
	1 do	pek fans	114	26
	3 do	dust	378	25
Gonapitiya	15 hf ch	pek sou	675	35
Algooltenne	12 hf ch	bro or pek	636	56
	10 do	bro pek No. 1	250	73
North Cove	1 ch	pek sou	98	30
	6 hf ch	dust	510	27
	4 do	fans	320	31
	2 do	sou	190	27
	2 hf ch	bro mix	118	28
B D W	6 ch	bro or pek	550	32
Monkswood	9 ch	pek sou	720	38
	6 hf ch	fans	420	37
	2 do	dust	180	27
Matale	3 ch	dust	210	24
Galapitakande	7 ch	pek sou	665	28
	6 do	bro pek	600	52
	4 hf ch	dust	320	27
Bandara Eliya	7 hf ch	pek sou	294	29
	9 do	dust	720	25
G	6 ch	fans	600	23
Pingarawe	6 hf ch	dust	540	27
Polatagama	2 ch	dust	300	24
I S	7 ch	bro pek	700	33 bid
	9 do	pek	765	29
Amblakande	3 ch	dust	300	26
Nillomally	4 ch	fans	400	30
Irex	5 ch	pek sou	400	28
	2 do	fans	220	26
	1 hf ch	dust	85	22
Ookoowatte	1 ch	pek sou	80	26
	1 hf ch	dust	100	24
Nahalma	9 ch	fans	882	26
	4 hf ch	dust	320	25
Troy	*2 ch*	*hyson No. 2*	*234*	*25*
	2 do	*dust*	*290*	*10*
	2 do	*siftings*	*220*	*12*
Bowlana	5 hf ch	dust	425	26
	5 do	fans	350	29
Walton	10 ch	pek	900	29
	2 do	sou	180	27
C	1 ch	sou	95	27

No. 1. COLOMBO, JANUARY 6th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

LARGE LOTS.

Messrs. E. Benham & Co.

[37,226 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	27 ch	or pek	2565	29
	25 do	pek	2125	36
L H O	27 ch	pek sou	2530	23
	11 do	fans	1233	29
Yuillefield	20 hf ch	bro or pek	1100	47 bid
	16 ch	pek	1520	35
M T S in est. mark	13 ch	bro pek	1300	10 bid
	14 do	pek	1260	out
	35 do	sou	2800	out
	16 hf ch	pek fans	1040	out
	25 do	pek dust	2125	out
Hornsey	12 ch	or pek	1080	43
	33 hf ch	bro pek	1980	53
	22 ch	pek	1980	39
Coodcogalla	40 hf ch	bro pek	2000	35
M	24 hf ch	dust	1920	26
Kenilstone	*11 ch*	*young hyson*	*1100*	*38*

Messrs. Keell and Waldock.

[111,306 lb.]

	Pkgs.	Name.	lb.	c.
Shepperton	23 hf ch	bro or pek	1265	58
	30 ch	pek	2700	31
	18 do	pek sou	1620	28 bid
Oodoowerra	12 ch	bro pek	1272	38
	25 do	pek	2250	31
Hyde	32 hf ch	bro or pek	1760	47
	14 ch	or pek	1148	40
	24 do	pek	2160	33
Mutu eliya	46 hf ch	bro or pek	2530	35 bid
	18 ch	pek	1620	29 bid
	14 do	pek sou	1260	27 bid
Maldeniya	24 ch	bro or pek	2400	36 bid
	25 do	pek	2250	30
	18 do	or pek	1800	32 bid
Dunnottar	29 hf ch	bro or pek	1459	44 bid
	23 do	bro or pek	1150	45
	16 ch	pek	1360	33
	12 do	pek sou	1080	29
I V Y	41 ch	pek	3400	32
Hangranoya	23 ch	bro pek	2300	35
	14 do	pek	1120	28
Dambagalla	16 hf ch	bro or pek	1024	36
	21 do	pek	1029	29 bid
	13 ch	sou	1040	27
M P S	36 hf ch	bro pek dust	3240	26
	30 do	bro pek fans	1950	26
Etteheria	40 hf ch	bro or pek	2200	34 bid
	19 ch	pek	1710	30
	15 do	pek sou	1350	28
Woodend	25 ch	bro pek	2500	36
	23 do	pek	2070	29
Ovitta	20 ch	bro or pek	2000	37
	12 do	pek	1056	30
Uprassoya	26 ch	bro pek	2600	32 bid
	17 do	pek	1551	29
	39 do	fans	2769	26
	20 do	pek sou	1800	27
Woodend	29 ch	bro pek	2900	36
	25 do	pek	2250	29 bid
Morahela	9 ch	bro or pek	1026	34
	27 do	bro pek	2700	37 bid
	19 do	or pek	1786	32 bid
	19 do	pek	1710	30
Nawanagalla	20 hf ch	bro pek	1100	36 bid
Galgedioya	17 ch	bro pek	1700	34
	15 do	pek	1350	29
	12 do	pek sou	1080	28
Taprobana	24 hf ch	bro or pek	1200	39

Messrs. E. John & Co.

[301,657 lb.]

	Pkgs.	Name.	lb.	c.
Eila	14 ch	bro pek	1260	36
	48 do	pek No 2	3440	28 bid
	13 do	dust	1560	24
Elbedde	19 hf ch	dust	1710	26
Mocha	31 hf ch	bro or pek	1860	60
Mocha	26 ch	or pek	2340	48
	13 do	pek	1170	48
Arnhall	13 ch	bro pek	1300	41
Galloola	27 ch	bro pek	2700	43
	35 do	pek	3150	34
	23 do	pek sou	1840	32
Warleigh	14 ch	or pek	1358	38 bid
	20 do	pek	1700	35
Natuwakelle	15 ch	bro or pek	1500	43
	19 do	or pek	1710	35
	17 do	pek	1530	30
Winwood	19 hf ch	bro or pek	1045	43
	14 ch	or pek	1330	37
	18 do	pek	1620	33
	12 do	sou	1080	30
Mt Everest	34 hf ch	bro or pek	1700	52 bid
	29 hf ch	or pek	1450	45
	38 ch	pek	3800	37
Devon	16 hf ch	bro or pek	1024	56 bid
	13 ch	or pek	1365	42
Theresia	19 hf ch	bro or pek	1045	51 bid
	18 ch	or pek	1440	44
	26 do	pek	2080	37
Woodstock	15 ch	bro or pek	1500	34 bid
Eila	12 ch	bro pek	1080	35
	101 do	pek sou	7070	27 bid
St Johns	15 ch	or pek	1350	44 bid
	15 do	pek	1425	29
Templestowe	27 hf ch	bro or pek	1404	55
	19 do	bro pek	1045	45
	24 do	or pek	1008	45
	13 ch	pek	1014	37
Rookwood	26 hf ch	fly bro or pek	1586	49 bid
	29 do	fly or pek	1682	45
	20 ch	pek	1920	37
	20 do	pek sou	1800	32 bid
Oonoogaloya	16 ch	or pek	1250	40
	20 do	bro or pek	1900	50
	21 do	pek	1890	34
Kandahar	20 hf ch	bro or pek	1170	48
	19 do	or pek	1007	withd'n
	27 do	pek	1485	33
Rookwood	19 ch	or pek	1824	38
	16 do	pek	1440	33
Glassaugh	20 hf ch	bro or pek	1320	66
	24 hf ch	or pek	1320	61
	11 ch	pek	1177	46
Brownlow	22 hf ch	bro or pek	1232	56
	25 ch	or pek	2275	38 bid
	19 hf ch	bro pek	1064	39
	21 ch	pek	1764	32
Ratwatte	30 ch	bro pek	3000	33
	15 ch	pek	1350	28
Chemnitz	*47 ch*	*young hyson*	*3760*	*37*
	38 ch	*hyson*	*2850*	*36*
	24 do	*hyson No 2*	*1800*	*35*
Brownlow	20 hf ch	bro or pek	1120	57
	21 ch	or pek	1890	38 bid
	19 hf ch	bro pek	1064	42
	17 ch	pek	1479	34
Elston	20 ch	pek	1600	31 bid
	25 ch	pek sou	2000	29
Kadienlena	25 hf ch	bro or pek fans	1875	27
	19 ch	sou	1425	24
Cabin Ella	22 hf ch	bro or pek	1320	41
	14 ch	bro pek	1330	38
	18 ch	pek	1530	34
Bowella	20 hf ch	bro pek	1000	33
	12 ch	pek	1020	29
Perth	18 ch	bro or pek	1710	40
	23 do	bro pek	20 0	36
	28 do	or pek	2240	32
Glasgow	22 hf ch	bro or pek	1276	64
	14 ch	bro pek	1400	46
	22 do	or pek	2046	42
	11 do	pek	1045	40
	20 hf ch	or pek fans	1400	33
Agra Ouvah	43 hf ch	bro or pek	2580	53
	29 do	or pek	1163	40 bid
	11 ch	pek	1012	39
Roeadura	11 ch	bro or pek	1155	47
	11 do	bro pek	1100	38
	12 do	or pek	1140	36
	18 do	pek	1800	31 bid
	11 do	pek sou	1045	29 bid
	10 do	fans	1050	28
	8 do	dust	1240	26
Glasgow	31 hf ch	bro or pek	1798	66
	26 ch	bro pek	2600	48
	29 do	or pek	2697	42
	13 do	pek	1235	41
Waragalande	13 ch	bro or pek	1300	40
	15 do	pek	1350	32

	Pkgs.	Name.	lb.	c.
Mocha	38 hf ch	bro or pek	2273	with'n
	21 do	fly or pek	1047	
T G	23 hf ch	bro or pek	1265	40 bid
	21 do	or pek	1008	34 bid
	45 do	pek	2025	30 bid
Templestowe	35 hf ch	bro or pek	1817	with'n
Kandaloya	21 hf ch	bro pek	1050	36 bid
	25 do	or pek	1000	38
	41 do	pek	1640	30 bid
	26 do	bro or pek	1170	51
	51 do	pek	2040	31 bid
Balado	15 ch	pek	1350	32
	18 do	pek sou	1440	29
Elston	25 ch	pek	2125	32 bid
	29 do	pek sou	2465	29
Balado	13 hf ch	dust	1040	27
Tarawewa	*39 ch*	*young hyson*	*3705*	39
	29 do	*hyson*	*2755*	36
Chemnitz	*60 ch*	*young hyson*	*4800*	38
	45 do	*hyson*	*3375*	25
	35 do	*hyson No 2*	*2625*	35
Gonavy	15 ch	pek sou	1275	29
	30 hf ch	bro pek	1500	43
	28 ch	pek	2520	32
Galpotta	35 hf ch	fans	2275	9 bid
Wanarajah	21 hf ch	bro pek fans	1533	28
Mt Vernon	25 ch	pek	2200	29
	26 do	pek	2340	38 bid
	20 do	pek	1800	39
M K	9 ch	dust	1350	24
Pallakanda	23 ch	bro or pek	2070	34
	25 do	bro pek	2250	30
	32 do	pek	2560	28
Gangawatte	21 ch	bro or pek	2100	49 bid
	15 do	bro pek	1500	38
	27 do	pek	2430	34
Westhall	12 ch	bro mixed	1200	24
	12 do	dust	1560	25
Rendura	10 ch	bro or pek	1050	49
	15 do	bro pek	1500	39
	14 do	or pek	1330	35 bid
	17 do	pek	1700	32 bid
St Andrew's	12 hf ch	dust	1020	27
Doonhinda	29 ch	bro pek	2900	51
	29 ch	pek	2900	38
Elston	16 ch	pek	1360	33
	20 ch	pek sou	1700	30
Navangama	12 ch	bro or pek	1200	41
Glentilt	47 hf ch	bro or pek	2585	65
	25 ch	or pek	2375	44
	21 ch	pek	1890	42
Kelaniya & Braemar	16 ch	bro or pek	1600	44 bid
	10 do	bro pek	1000	36
	26 do	pek	2470	36

Messrs. Somerville & Co.

[325,851 lb.]

	Pkgs.	Name.	lb	c.
H G L	17 hf ch	dust	1360	25
Cooroondoowatte	15 ch	pek	1350	30
Neuchatel	11 ch	bro or pek	1045	42
	30 do	or pek	2550	31 bid
	18 do	pek	1440	29
	12 do	bro pek	1260	36
Nehoda	27 ch	bro or pek	2700	40
	19 do	or pek	1748	35
	35 do	pek	3500	30
Southwark	55 ch	bro pek	4950	32 bid
	14 do	pek	1120	29
Monrovia	13 do	bro pek	1300	34
Warakamure	18 ch	bro or pek	1800	35
	16 do	or pek	1280	33
	34 do	pek	2890	28
	13 do	pek sou	1040	26
Theberton	13 ch	bro pek	1235	27
Polgahakande	10 ch	bro pek	1000	35
	14 do	pek	1120	29
Pindenioya	13 ch	pek sou	1170	28
Nyanza	16 ch	or pek	1280	37
	20 hf ch	bro or pek	1100	47
	24 ch	pek	2280	33
Highfields	21 hf ch	pek	1050	33 bid
Walla Valley	24 hf ch	bro or pek	1320	58
	13 ch	or pek	1170	41 bid
	27 do	pek	2295	36 bid
M D F in estate mark	18 ch	pek	1476	30
	13 do	pek sou	1076	28
Invery	34 hf ch	bro or pek	2074	65
	21 do	or pek	1092	45
	44 ch	pek	4136	37
	19 do	pek sou	1596	32
Pindenioya	17 ch	pek	1360	29

	Pkgs.	Name.	lb.	c.
Karangalla	21 ch	bro or pek	2100	36
	16 do	pek	1360	29
Bodava	37 hf ch	bro pek	1850	36
	13 ch	pek	1170	29
	12 do	pek sou	1020	28
St. Catherine	30 hf ch	bro or pek	1503	39
	16 ch	pek	1363	33
Elchico	23 ch	bro or pek	2300	38 bid
	17 do	or pek	1615	32
	23 do	pek	2185	30
Munangalla	21 hf ch	bro pek	1050	37
	30 do	pek	1500	30
Avisawella	24 hf ch	bro or pek	1200	47
	15 ch	or pek	1425	35 bid
	19 do	pek	1710	31
	15 do	bro pek	1200	28
Maragalla	16 ch	bro pek	1680	38 bid
Kituldeniya	11 ch	bro pek	1155	36
	21 do	pek	1680	28 bid
Forest Hill	15 ch	bro pek	1395	35 bid
	13 do	pek	1079	30
Oonankande	22 hf ch	bro pek	1100	42
Gangwarily	14 ch	or pek	1120	37
	52 do	bro pek	5200	36
	27 do	pek	2295	30
Glenalla	*12 ch*	*young hyson*	*1140*	*39*
	22 do	*hyson*	*2090*	*35 bid*
G A	46 hf ch	bro or pek	2530	33
Mt. Temple	25 ch	bro pek	2375	34
	30 do	pek	2280	30
	15 do	pek sou	1050	29
	27 do	bro or pek fans	2565	30
Owilikande	18 ch	bro or pek	1800	34
	13 do	or pek	1105	32
	16 do	pek	1440	28
Walla Valley	28 hf ch	bro or pek	1484	61 bid
	22 ch	pek	1870	38
Harrangalla	25 ch	bro pek	2375	36
	36 ch	pek	3060	29
Oaklands	10 ch	bro or pek	1000	35 bid
Laxapanagalla	28 do	bro or pek	2660	37
	14 do	or pek	1330	30
Cooroondoowatte	10 ch	bro pek	1000	41
	10 ch	pek	1000	31
Highfields	19 hf ch	bro or pek	1026	46
	22 do	or pek	1012	38 bid
	24 do	pek	1200	37
W	8 ch	pek fans	1000	26
Marie Land	20 ch	bro or pek	1120	41
	42 do	bro pek	4200	35
	26 ch	pek	2184	29 bid
Evalgolla	29 hf ch	bro or pek	1885	withd'n
	39 do	pek	2145	
	25 do	pek sou	1250	
Richlands	15 ch	or pek	1275	37 bid
	15 do	bro or pek	1425	44 bid
	13 do	pek No. 1	1235	35
	17 do	pek No 2	1360	33
Hanagama	23 do	or pek	2300	34
	20 do	pek	2000	29
Kinross	12 do	bro or pek	1320	48
	26 do	or pek	2600	35 bid
	12 do	pek	1152	31
M	21 hf ch	dust	1680	26
Depedene	57 do	bro pek	3420	34 bid
	54 do	pek	2700	28 bid
	58 do	pek sou	2900	27
Cooroondoowatte	20 ch	pek sou	2000	28
Laukka	25 do	br pek	2500	31 bid
	31 do	pek	2480	28
Walla Valley	29 hf ch	bro or pek	1595	59 bid
	39 ch	pek	3315	41
Murraythwaite	17 do	bro pek	1700	37
	31 do	pek	1040	29
R K P	34 ch	bro or pek	3400	36
	25 do	pek	2250	29
	13 do	pek sou	1040	28
Monte Christo	24 do	bro pek	2400	43 bid
	23 do	pek	2070	32
G T	16 hf ch	bro tea	1040	28
Rayigam	*34 ch*	*young hyson*	*3230*	*39*
	22 do	*hyson*	*2090*	*36*
Rambodde	24 hf ch	bro pek	1248	46
	36 do	pek	1680	35
Hobart	19 ch	bro or pek	1900	35
	21 do	bro pek	1890	30
Mahatenne	10 do	bro or pek	1000	39
Jak Tree Hill	22 do	bro pek	2247	35 bid
Avaisawella	30 hf ch	bro or pek	1500	49
	18 ch	or pek	1710	36
	23 do	pek	2070	31
	18 do	pek sou	1440	29 bid
Glenalmond	18 ch	pek	1620	30 bid
Ferndale	14 ch	bro or pek	1400	43
	17 do	pek	1530	31
Yahalatenne	38 ch	bro pek	3800	41
	21 do	pek	1932	33

	Pkgs.	Name.	lb.	c.
Ravenscraig	13 ch	pek	1170	30 bid
Cooroondoowatte	10 ch	bro pek	1000	42
	14 do	pek	1400	31
	11 do	pek sou	1100	29
Deniyaya	17 ch	pek	1615	30 bid
	18 do	pek sou	1620	29
	11 do	sou	1015	27
Warakamure	27 ch	bro or pek	2700	35
	18 do	or pek	1440	33
	32 do	pek	2720	28 bid
	15 do	pek sou	1200	28
Mahavilla	20 hf ch	or pek	1020	37
	21 do	bro or pek	1197	37
	27 do	pek	1431	30
	20 do	pek sou	1030	29
Citrus	*13 ch*	*hyson*	*1166*	35
Hatherleigh	25 ch	bro or pek	2500	38
	22 ch	pek	1870	31

Messrs. Forbes & Walker.

[689,912 lb.]

	Pkgs.	Name.	lb.	c.
Haputelewella	22 hf ch	bro pek	1210	38
Munukettia, Ceylon in est. mark	45 do	bro or pek	2475	46
	18 do	pek	1440	35
Great Valley Ceylon in est. mark	31 ch	bro or pek	1767	48
	22 do	pek	1930	34
New Market	42 hf ch	bro or pek	2310	48 bid
	36 ch	bro pek	3708	38
	19 ch	pek	1710	35 bid
	12 do	pek sou	1044	32
Glencorse	13 ch	bro pek	1300	41
	12 do	or pek	1080	37
	12 do	pek	1020	31
	15 do	pek sou	1050	29
Moray	21 hf ch	bro or pek	1155	52
	16 ch	bro pek	1520	40
	28 do	pek	2380	35
	18 do	pek No 2	1476	30
Beverley	23 ch	br or pek	1150	40
	35 ch	or pek	1750	36
	33 do	pek	1485	31
G K	16 hf ch	dust	1280	25
Darrawalla	47 hf ch	bro or pek	2585	52 bid
	20 ch	bro pek	2000	43
	22 do	or pek	1804	38
	38 do	pek	3230	33
	32 hf ch	fans	2400	28
Karawkettia	17 ch	bro pek	1789	29 bid
	10 do	pek	1003	27
Loolecondera	8 ch	pek fans	1160	28
	6 do	dust	1020	26
Belton	37 hf ch	or pek	2035	45 bid
	31 hf ch	pek	1550	35
Waitalawa	78 hf ch	bro pek	3900	44
	100 do	pek	5000	32
	33 do	pek sou	1650	29
Digdola	10 ch	bro or pek	1000	withd'n
	10 do	bro pek	1000	
K P W	28 hf ch	bro or pek	1680	38
Waldemar	18 hf ch	bro or pek	1116	58
	10 ch	bro pek	1120	47
	12 do	or pek	1104	42
	12 do	pek	1080	38
R G	12 ch	dust	1920	26
	18 do	bro pek fans	2340	28
Clunes	12 ch	bro pek	12 0	43
	13 do	or pek	1170	36
	33 do	pek	2970	30
Hayes	16 ch	bro pek	1600	42
	15 do	or pek	1275	36
	44 do	pek	3960	29 bid
	18 do	pek sou	1440	28
	16 hf ch	br or pek fans	1040	40
High Forest	30 hf ch	or pek No 1	1410	50 bid
	26 do	bro pek	1456	54
	28 do	or pek	1260	41
	39 do	pek dust	2003	35
Pallagodda	23 ch	bro or pek	2300	38
	30 do	br or pek	3000	39
	27 do	or pek	2430	34 bid
	21 do	pek	1680	31
	19 do	pek sou	1615	29
Maha Uva	10 ch	bro pek	1000	45
	10 do	or pek	1000	43
	17 do	pek	1530	36
Dea Ella	34 hf ch	bro or pek	1870	40
	27 do	or pek	1485	34
	27 do	pek	1350	30
Ruanwella	11 ch	bro or pek	1155	37
	13 do	or pek	1170	35
	31 do	pek	2790	30

	Pkgs.	Name.	lb.	c.
Erracht	17 ch	bro or pek	1700	40
	23 do	or pek	2070	35
	54 do	pek	4320	31
	13 do	pek sou	1040	29
Montery	14 ch	sou	1260	27
Tunisgalla	23 hf ch	bro pek	1380	42
	27 do	or pek	1350	36
	14 ch	pek	1260	33
Sylvakandy	13 ch	br or pek No 1	1300	46
	22 do	br or pek No 2	2200	38
	11 do	bro pek	1100	34
	12 do	or pek	1200	37
	20 do	pek	2000	32
Macaldenia	27 hf ch	bro or pek	1566	41
	18 hf ch	bro pek	1044	41
	21 do	pek	1155	33
Digdola	10 ch	bro or pek	1000	40
	13 do	bro pek	1300	33
	14 do	pek	1120	31
Castlereagh	61 hf ch	bro or pek	2440	48
Roeberry S	35 ch	bro pek	3500	38 bid
	36 do	bro pek	3600	38 bid
Palmerston	17 hf ch	bro or pek	1020	61
	12 ch	pek	1020	42
Y S P A	16 ch	pek sou	1360	29
Poonagalla	28 do	bro pek	3080	53 bid
	15 do	pek	1350	42
Kumaradola	10 ch	bro pek	1050	38
Laurawatte	13 hf ch	fans	1404	27 bid
Ninfield	18 ch	pek	1440	30
Nillomally	20 ch	pek	1760	34
	21 do	pek sou	1722	30
	16 do	bro or pek	1600	47
	13 do	or pek	1066	42
Bopitiya	45 do	bro pek	4275	38
	18 do	pek	1620	31 bid
	12 do	pek sou	1080	29
K	28 hf ch	dust	2380	26
Tempo	18 ch	bro or pek	1710	42
	21 do	or pek	1890	34
	26 do	pek	2210	30
	13 do	pek sou	1040	29
	15 do	sou	1050	27
	11 do	bro pek fans	1045	30
Tembiligalla	13 ch	br or pek	1300	34
	11 ch	or pek	1056	35
	12 ch	pek	1128	30
Stamford Hill	19 hf ch	bro or pek	1102	57
	36 do	bro pek	2160	43
	36 do	or pek	1800	42
	30 ch	pek	2700	35
K P W	35 hf ch	bro or pek	2100	38
	50 do	bro pek	2500	35
	100 do	pek	5000	31
Nakiadenia	*10 ch*	*young hyson*	*1050*	*39*
	15 do	*hyson*	*1275*	*36*
Ingrogalla	15 ch	bro pek	1500	39
	12 ch	pek	1080	31
Yataderia	37 do	bro or pek	3922	36
	12 do	or pek	1152	32
	26 ch	pek	2258	30
	15 do	pek sou	1275	28
Poonagalla	12 ch	or pek	1116	44 bid
	25 do	bro pek	2750	58
	15 do	pek	1380	42
Atgalla	13 ch	dust	1365	26 bid
Dunedin	*60 hf ch*	*young hyson*	*3180*	*40*
	21 ch	*hyson*	*1722*	*36*
	13 do	*hyson No 2*	*1196*	*34*
	43 hf ch	*young hyson*	*2150*	*40*
	26 ch	*hyson*	*2132*	*36*
Wyamitha	10 ch	bro pek	1000	40
	12 do	pek	1080	31
O B E C, Sindumally	11 ch	bro or pek	1100	46 bid
	13 do	br or pek No 2	1365	37
	20 do	or pek	1800	37 bid
	34 do	pek	2890	31
	16 do	pek sou	1120	29
Battawatte	17 hf ch	bro or pek	1105	42
	30 ch	bro pek	3000	40
	18 do	pek	1800	32
Hayes	15 ch	bro pek	1500	41
	24 do	pek	2160	30 bid
	18 hf ch	pek dust	1350	26
Weoya	30 ch	bro or pek	3150	39 bid
	77 do	bro pek	7315	36 bid
	47 do	pek	3995	30 bid
	19 do	pek sou	1520	28 bid
	9 do	bro pek fans	1035	26
Non Pareil	48 hf ch	bro or pek	2688	39
Ganapalla	19 ch	bro or pek	1767	38
	15 do	or pek	1140	37 bid
	19 do	bro pek	1520	35
	32 do	pek	2464	31 bid
	15 do	bro pek fans	1575	30
Massena	56 hf ch	bro or pek	2800	41

	Pkgs.	Name.	lb.	c.
Massena	30 hf ch	bro pek	1350	36 bid
	27 do	pek	1215	31
New Peradeniya	15 hf ch	dust	1050	25
Kincora	11 ch	bro or pek	1210	47
	17 do	or pek	1530	39
	20 do	pek	1700	33
Cloyne	21 hf ch	bro or pek	1176	47
	10 ch	bro pek	1000	41
	14 do	or pek	1400	34
	15 do	pek	1350	31
Ambalangoda	16 ch	bro or pek	1600	39
	16 do	or pek	1600	34
	12 do	pek	1080	30
Swinton	17 ch	bro or pek	1700	39
	16 do	or pek	1600	34
Mahawale	13 ch	bro pek	1300	37
	23 do	or pek	2185	34
	24 do	pek	2160	31
	12 do	pek sou	1080	29
Vogan	24 ch	bro or pek	2400	47
	39 do	or pek	3510	34
	44 do	pek	3960	31
	22 do	pek sou	1870	29
Mansfield	47 hf ch	bro pek	2726	53
	15 ch	pek	1400	38
Tembiligalla	12 ch	bro or pek	1200	36
	14 do	or pek	1400	34 bid
	13 do	pek	1235	30
Glendon	13 ch	bro pek	1235	49
	38 do	or pek	3800	35
	41 do	pek	3690	30
	14 do	pek sou	1260	28
Broughton	18 ch	bro or pek	1890	64 bid
	14 do	pek No 1	1372	41 bid
	40 hf ch	or pek	2160	42 bid
	18 ch	pek	1710	39
Bowlana	12 ch	bro or pek	1260	45
	12 do	pek	1080	32
	12 do	or pek	1080	37
Shrubs Hill	51 ch	bro pek	5106	38
	23 do	pek	2070	30
Sylvakandy	14 ch	br or pek No 1	1400	46
	26 do	br or pek No 2	2600	38
	13 ch	bro pek	1300	34
	15 do	or pek	1500	38
	24 do	pek	2400	32
Tunisgalla	22 hf ch	bro pek	1320	40
Monterey	12 ch	pek sou	1030	27
Torwood	22 ch	br or pek	2024	44
	15 do	bro pek	1320	34
	18 do	or pek	1548	32
	39 ch	pek	3120	30
Marlborough	51 hf ch	bro or pek	2805	51
	27 ch	bro pek	2700	41
	93 do	pek	8928	36
	14 do	pek sou	1190	33
Harrow	22 hf ch	bro or pek	2912	50
	20 ch	or pek	2000	38
	24 do	pek	2304	34
Dunbar	41 hf ch	bro pek	2378	54
	19 ch	pek	1691	45
Drayton	27 hf ch	or pek	1350	42
	30 ch	pek	2550	37
St Heliers	30 hf ch	bro or pek	1650	46
[illegible]	11 ch	pek No 1	1045	34
G B E	32 ch	bro pek	3080	30 bid
Middleton	31 hf ch	bro or pek	1705	58
	41 ch	or pek	3485	38
	52 do	bro pek	5200	45
	41 do	pek	3485	37
W V R	20 hf ch	bro or pek	1000	44
Yelatenne	13 ch	bro pek	1404	42
	15 do	pek	1500	31 bid
	10 do	pek sou	1000	29
Handford	24 ch	bro pek	2400	36
	21 do	pek	1995	30
Delta	28 hf ch	bro or pek	1680	49
	36 ch	bro pek	3420	35
	26 do	pek	2952	33
	14 do	pek sou	1120	31
Ardlaw & Wishford	11 ch	bro or pek	1188	59
	10 do	bro pek No 1	1100	46
	12 do	or pek	1080	41
	10 do	pek	1640	34
Adisham	31 hf ch	bro or pek	1705	60
	13 ch	bro pek	1300	42
	11 do	pek	1045	39
Florence	35 hf ch	bro or pek	1925	71
	24 ch	or pek	2184	55
	47 do	pek	4136	41
	12 do	pek sou	1032	38
	13 do	sou	1144	36
	15 hf ch	dust	1215	29
Pallagodde	25 ch	bro or pek	2500	37
	32 do	bro pek	3200	38 bid
	28 ch	or pek	2520	35
	24 do	pek	1920	31
Pallagodde	19 ch	pek sou	1710	29
Gampaha	17 ch	bro or pek	1870	43 bid
	32 do	bro pek	3200	41
	26 do	pek	2210	33 bid
High Forest	24 hf ch	or pek No 1	1152	61
	23 do	bro pek	1288	56
	31 do	or pek	1550	44
Dunkeld	51 hf ch	bro or pek	2958	50
	15 ch	or pek	1350	39
	18 do	pek	1620	37
Inverness	26 ch	bro or pek	2600	61
Inverness	18 hc	or pek	1620	49 bid
	26 do	pek	2210	45
Pine Hill	34 hf ch	bro or pek	2040	47
	19 ch	or pek	1805	37
	23 do	pek	2070	32
Talgaswela	13 ch	bro or pek	1300	43
	13 do	or pek	1049	35
	15 do	pek	1200	31
	15 do	pek sou	1125	29
Bulugolla	10 ch	bro or pek	1000	39
Nahalma	11 ch	or pek	1056	34
	16 do	bro or pek	1504	42
	15 do	pek	1440	31
Dickhena	22 ch	bro or pek	2332	35
	13 do	bro pek	1378	33
	20 do	or pek	1900	33
	26 do	pek	2184	29
	15 do	pek sou	1290	28
	30 do	br or pek No 2	3000	36
	24 do	or pek	2280	33
	27 do	pek	2376	29
	25 do	bro or pek	2575	36
	18 do	or pek	1638	33
Baddegama	11 ch	bro or pek	1100	41
	16 do	or pek	1440	36
Freds Ruhe	16 ch	bro pek	1680	36
	12 do	pek	1140	30
	13 do	pek sou	1235	28
N S A	11 hf ch	dust	1100	24
S'Katalle	*22 ch*	*young hysen*	*2200*	*36 bid*
	15 do	*hyson No 1*	*1500*	*35*
Putupaula	54 ch	or pek	4587	33 bid
	48 do	pek	3597	31 bid
Nona Totam	12 ch	pek	1080	40

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	12 ch	pek sou	930	31
L H O	8 hf ch	dust	640	24
Vuillefield	1 hf ch	dust	80	26
Battalgalla	5 hf ch	bro pek fans	372	28 bid
M	2 ch	or pek	144	36
	9 hf ch	dust	657	26
	2 do	dust	180	25
Kenilstone	*10 ch*	*hyson*	*850*	*32*
	8 do	*hyson No 2*	*640*	*34*
	3 do	*Twanky*	*300*	*11*
Mapitigama	2 ch	bro or pek	200	35
	4 do	or pek	350	32
	11 do	pek	968	29
	3 do	pek sou	270	27
	4 do	bro or p k fa	410	28
	3 ch	bro pek	254	30
	2 do	pek	140	26
	2 hf ch	dust	162	18
	1 ch	bro tea	60	22

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Assaddumawatte	17 hf ch	bro pek	285	31
	6 do	pek	288	27
	2 do	pek sou	80	25
	1 do	dust	75	19
Kitulakande	16 hf ch	bro pek	896	33
	16 do	pek	800	29
	20 do	pek sou	960	27
	1 do	or pek	50	30
	3 do	bro pek fans	163	37
	1 do	dust	90	21 bid
A W A	4 ch	bro pek	420	26
	4 do	sou	400	25
	2 do	congou	200	25
Oodoowerra	1 ch	dust	116	25
Hyde	4 ch	pek sou	352	29
	8 hf ch	bro pek fans	528	32
	6 do	pek dust	498	26

	Pkgs.	Name.	lb.	c.
Maldeniya	9 ch	pek sou	765	28
	5 do	dust	750	26
Dunnottar	2 hf ch	bro or pek fans	150	28
	2 ch	bro mix	190	23
P D	13 ch	br. or pek	780	32 bid
	4 do	bro pek	200	32
	13 do	pek	585	29
	15 do	pek sou	7.0	27
Dambagalla	6 hf ch	or pek	288	34
	12 do	bro pek	636	36
	2 ch	bro mixed	170	23
	1 hf ch	dust	85	24
T Y	6 ch	bro pek	600	31
	1 do	dust	123	25
Woodend	7 ch	pek sou	660	27
	2 do	dust	280	25
	2 do	bro pek fans	202	30
Ovitta	10 ch	pek sou	850	27
	1 do	bro tea	70	20
	2 hf ch	dust	140	25
Kitgalla	16 hf ch	or pek	880	26
Woodend	10 ch	pek sou	800	27
	2 do	dust	280	25
	3 do	bro pek fans	270	30
O O R in est. mark	1 ch	bro pek	93	32
	2 do	pek	170	25
	1 do	pek sou	75	24
	1 do	bro tea	69	24
	1 hf ch	pek fans	51	23
Morabela	3 hf ch	dust	231	25
Nawanagalla	7 ch	pek	630	30
	3 do	pek sou	285	27
	1 hf ch	dust	90	23
R H E	3 ch	bro or pek	3 0	35
	6 do	pek	270	29
	2 do	pek sou	180	27
Galgediyaya	7 ch	bro or pek	665	37
	8 hf ch	dust	640	26
	8 ch	fans	800	28
	2 do	bro mix	200	28
Taprobana	12 ch	pek	960	31
	6 hf ch	or pek fans	300	28
A	*7 hf ch*	*hyson No 3*	*394*	*out*
	1 hf ch	dust	97	13
D	3 hf ch	sou	171	13
Ketadola	4 ch			
	1 hf ch	br or pek	450	30
	4 ch	or pek	380	27
	7 do	pek	604	23
	1 do	dust	115	23
	1 do	sou	100	24

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
W R P	2 ch	unassorted	228	27
Horagalla	3 ch	bro or pek	321	35
	4 do	pek	376	30
	1 do	pek sou	90	27
	1 do	bro or pek dust	63	24
Elbedde	5 hf ch	dust	450	24
Mocha	10 hf ch	fans	800	33
Arnhall	9 ch	pek	810	33
	1 do	pek sou	100	28
	1 hf ch	dust	80	22
Galloola	3 ch	dust	360	26
	4 do	fans	400	33
Warleigh	15 hf ch	bro or pek	825	68
	5 do	fans	315	28 bid
Natuwakelle	10 ch	pek sou	900	28
	2 do	dust	210	26
Wiuwood	6 hf ch	bro pek	300	32
	10 do	fans	600	32
Theresia	3 ch	bro pek fans	301	31
	4 hf ch	dust	3.0	26
Woodstock	8 ch	pek	720	32 bid
Lawrence	8 hf ch	dust	628	withd'n
	6 do	fans	372	withd'n
Templestowe	9 ch	dust	810	27
Kandaloya	1 hf ch	pek	57	24
Oonoogaloya	12 hf ch	bro or pek No 2	840	32
	10 do	dust	850	26
Kandahar	3 hf ch	dust	180	withd n
Rookwood	7 hf ch	bro pek	490	34
Ratwatte	4 ch	pek sou	320	26
	3 hf ch	dust	240	23
Hunnoocotua	6 ch	bro mix	415	21
Cat in Ella	7 hf ch	bro pek fans	490	29
Chapelton	7 hf ch	dust No 1	560	26
	1 do	bro pek dust	65	26
	2 ch	sou (H)	180	27
S	5 ch	unassorted	400	25
Bowella	1 ch	pek fans	92	22
	2 hf ch	dust	160	24
R E	3 ch	bro pek sou	269	23

	Pkgs.	Name.	lb.	c.
Perth	7 ch	pek	525	29
	3 do	pek sou	210	28
	3 do	pek fans	390	27
C L	2 hf ch	red leaf	120	20
Eton	3 ch	bro or pek	301	35
	6 ch	or pek	600	30
	2 ch	pek sou	200	27
	2 ch	sou	200	26
	1 hf ch	dust	90	25
Waragalande	7 ch	pek sou	630	27
	3 ch	dust	200	24
T G	4 hf ch	dust	180	26
Kandaloya	7 do	pek sou chong	280	28
	8 do	fans	400	26
	5 do	dust	350	26
	17 do	pek No. 3	680	29 bid
Warriapola	10 ch	souch ng	700	17
	3 do	pek fans	375	20
Tarawewa	*5 ch*	*hyson No 2*	*475*	*25*
	7 ch	*hyson fanings*	*770*	*14*
	8 hf ch	*hyson shiftings*	*680*	*9*
Gonavy	10 hf ch	fans	620	31
	4 ch	dust	300	26
	12 do	or pek	984	38
Eversfield	9 ch	bro pek	900	2
	6 do	pek	600	28
	3 do	pek sou	300	27
Wanarajah	1 hf ch	pek sou	53	31
	9 do	dust	783	26
Taunton	3 ch	fans	300	26
	3 hf ch	dust	270	26
M K	9 ch	pek fans	900	27
	6 do	sou	5.0	26
	1 do	bro mixed	110	22
Y K	7 do	pek fans	700	29
	7 do	sou	700	23
H G H	5 ch	bro or pek	500	46 bid
	10 do	bro pek	950	29 bid
Horagalla	4 ch	bro or pek	390	34
	2 do	bro pek	166	31
	3 do	pek	276	29
	1 do	bro pek dust	70	22
Gangawatte	7 ch	pek sou	630	21
	7 hf ch	dust	595	27
	9 do	fans	585	27
Randura	1 ch	fans	110	28
	1 ch	dust	170	26
St Andrew's	10 ch	pek sou	750	28
Deonhinda	6 do	pek sou	690	32
	3 do	dust	309	28
Ramesgill	2 ch	bro pek fans	160	16
	1 hf ch	sou	56	15
	4 do	dust	300	24
Ranawella	11 hf ch	or pek	550	32
	6 do	bro or pek	300	26
Navangama	6 ch	pek	540	26 bid
	7 do	pek sou	630	20
	1 do	dust	100	16
H F D	7 do	dust	700	25

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
H G L	2 ch	sou	200	24
Neuchatel	4 ch	dust	606	26
Neboda	2 ch	pek sou	180	27
	5 hf ch	dust	425	26
Monrovia	10 ch	pek	950	29
	2 do	pek sou	180	27
	1 do	unassorted	95	25
	3 do	fans	300	25
	1 do	pek dust	153	22
Warakamure	1 hf ch	dust	50	21
Theberton	11 ch	pek	990	31
	2 do	bro or pek fans	200	28
Manangoda	7 ch	bro pek	789	29
	3 do	pek	355	26
	2 do	pek sou	190	23
	2 do	mixed	198	23
	3 do	fans	300	21
	2 do	red leaf	204	20
Dikbedde	4 ch	bro pek	386	29
	6 do	pek	603	27
	1 do	pek sou	100	25
	1 do	sou	93	19
	1 do	bro pek fans	105	24
Kurulugalla	7 ch	bro pek	665	35
	7 do	pek	630	29
	3 do	pek sou	270	27
	2 do	bro pek fans	200	23
	3 do	pek dust	390	24
Arandara	3 ch	pek sou	540	27
Kabatagalla	7 ch	bro or pek	700	38
	7 do	pek	6 0	30
	5 do	pek sou	405	25

	Pkgs.	Name.	lb.	c.
Nyanza	6 ch	pek sou	640	30
	9 hf ch	fans	585	29
	6 do	dust	375	26
Highfields	15 hf ch	bro or pek	840	46
	16 do	or pek	736	38 bid
Torbay	5 hf ch	pek sou	210	23
	6 do	br or pek fan	350	33
	5 do	fans	350	29
	2 ch	dust	180	27
M D F in est mark	13 hf ch	bro or pek	741	48
	6 ch	or pek	435	34
Pindeni Oya	11 ch	bro or pek	990	38
	9 do	or pek	792	31
	7 ch	pek sou	595	27
	2 do	fans	240	25
Karang lla	4 ch	pek sou	344	27
	3 hf ch	dust	240	25
Allakolla	4 hf ch	dust	400	26
Bedava	3 hf ch	bro pek fans	225	26
	1 do	bro mixed	41	19
St Catherine	3 hf ch	bro or pek fans	213	28
Munangalla	10 hf ch	pek sou	500	27
	8 do	fans	400	30
	4 do	dust	200	26
Avisawella	5 hf ch	dust	375	26
Maragalla	10 ch	or pek	900	33
	7 do	pek	630	30
	2 do	pek sou	160	28
Kituldeniya	7 ch	or pek	630	33
	7 do	pek sou	525	27
	4 do	sou	304	26
	1 do	dust	67	22
Lalaluwa	5 ch	bro pek	500	34
	4 do	pek	360	28
	12 do	pek sou	960	26
Oonankanle	7 ch	pek	490	28
	6 hf ch	dust	396	28
Gangwarily	2 hf ch	dust	170	25
Glenalla	1 hf ch	gunpowder	53	34
	3 ch	fans	291	14
	1 do	dust	164	9
Mt Temple	9 ch	sou	680	26
Owilikande	4 ch	pek sou	360	26
	4 do	dust	320	25
Walla Valley	11 ch	or pek	935	45
Oaklands	11 ch	bro pek	990	33
	9 do	or pek	810	33
	1 do			
	2 hf ch	dust	310	26
	1 ch	fans	110	62
N P	6 ch	bro pek	540	34
	4 do	pek	320	28
Laxapanagalla	7 ch	pek	630	28
	3 do	pek fans	300	27
	1 do	dust	150	24
G A	9 ch	pek sou	810	27
	8 do	sou	584	26
	11 hf ch	dust	880	24
Paragahakande	5 ch	bro pek	500	31
	5 do	pek	475	27
	3 do	pek sou	270	26
	1 do	congou	95	24
S R K	9 ch	pek	900	34
	2 do	dust	320	26
W	6 ch	pek sou	570	28
	4 do	sou	340	27
	4 do	dust	660	25
Marie Land	5 ch	pek sou	415	27
	2 do	dust	168	25
Evalgolla	16 hf ch	or pek	880	withd'n
	3 do	dust	225	withd'n
	2 do	sou	100	withd'n
	6 do	bro pek fans	320	withd'n
Hanagama	7 ch	bro or pek	700	41
Kinross	1 ch	pek sou	96	27
	1 do	bro tea	130	27
	1 do	bro or pek fans	120	29
	1 do	dust	160	24
Beausejour	6 ch	dust	510	25
G B	14 hf ch	dust	700	26
Depedene	3 hf ch	bro pek fans	165	27
	8 do	dust	640	25
Cooroondoowatte	6 ch	bro pek	600	42
	6 do	pek fans	630	27
	2 do	dust	254	24
	3 do	congou	300	26
Laukka	4 ch	pek sou	320	26
	4 hf ch	dust	320	25
Walla Valley	11 ch	or pek	935	41
R K P	7 ch	dust	700	26
Monte Christo	7 ch	pek sou	665	29
	2 do	fans	200	28
	4 hf ch	dust	340	26
F A in estate mark	1 hf ch	pek sou	42	32
	1 do	dust	88	26
M in estate mark	1 hf ch	bro pek	60	30
G T	4 hf ch	dust	352	26
	6 do	fans	456	27

	Pkgs.	Name.	lb.	c.
G T	5 hf ch	bro mixed	395	26
Rayigam	*1 ch*	*hyson No 2*	*100*	*35*
	6 hf ch	*siftings*	*480*	*19*
Rambodde	15 do	bro or pek	750	52 bid
	18 hf ch	pek sou	810	31
	5 do	bro pek fans	325	31
	3 do	dust	240	23
Avisawella	5 hf ch	fans	350	26
A	1 ch	bro tea	58	23
Deniyaya	3 hf ch	dust	235	24
	2 ch	unasorted	200	33
	4 do	pek fans	400	26
D M R	4 ch	unasorted	400	33
	3 do	sou	285	27
Warakamure	1 hf ch	dust	90	22
Citrus	6 ch	pek	510	29
Citrus	*10 ch*	*young hyson*	*950*	*39*
	3 do	*hyson No 2*	*238*	*35*
	2 do	*hyson fans*	*200*	*30*
D Y	*5 hf ch*	*young hyson*	*260*	*withd'n*
	3 do	*hyson No 1*	*129*	*withd'n*
	4 do	*hyson*	*160*	*withd'n*
Hatherleigh	6 ch	pek sou	450	28

Messrs. Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Haputalewella	19 hf ch	pek	855	32
	16 do	pek sou	800	30
	2 do	fans	160	27
Beverley	6 hf ch	bro or pek	390	34
	5 do	pek sou	225	29
	4 do	dust	320	26
Great Valley Ceylon in est mark	11 ch	pek sou	946	31
M	12 ch	pek	960	28
	4 do	dust	600	25
Lyegrove	8 ch	bro pek	800	39
	7 do	pek	595	32
	5 do	pek sou	400	29
	4 hf ch	dust	320	26
Moray	23 hf ch	or pek	966	43
	8 do	dust	600	27
G K	11 ch	pek sou	715	29
	1 do	sou	65	27
	7 do	fans	665	26
Bellongalla	4 ch	or pek	340	37
	10 do	pek	900	30
	7 do	bro or pek	700	35
	1 ch	dust	150	16
	2 do	bro or pek fans	220	28
Beverley	6 ch	bro pek fans	390	34
	3 do	dust	240	26
Belton	4 hf ch	dust	240	26
Pannapitiya	8 ch	bro pek	760	24
	4 do	or pek	400	34
	11 do	pek	990	29
	8 do	pek sou	640	27
Galagoda	2 ch	bro pek	190	32
	2 do	pek	180	27
	4 do	pek sou	340	26
Waitalawa	7 hf ch	dust	600	27
K P W	10 hf ch	or pek	450	34
	6 do	pek	450	26
Richmond	12 hf ch	bro pek	744	56
	6 ch	or pek	552	44
	4 do	pek	360	38
	1 hf ch	fans	75	27
Clunes	5 ch	pek sou	450	27
P D	3 ch	bro mix	207	27
Ruanwella	6 ch	pek sou	540	28
	6 do	bro pek fans	600	30
	5 hf ch	dust	400	25
Erracht	5 ch	dust	690	26
Monterey	4 ch	fans	400	28
	7 hf ch	dust	560	25
Tunisgalla	6 hf ch	bro or pek	330	62
	9 ch	pek sou	765	29
	2 ch	sou	160	27
	4 hf ch	dust	280	26
Sylvakandy	4 ch	dust	400	26
Macaldenia	17 hf ch	pek	935	33
	3 do	pek sou	165	29
	2 do	fans	140	27
Digdola	8 ch	pek sou	600	28
	1 do	bro pek fans	110	27
	11 hf ch	dust	855	26
Pansalatenne	6 ch	bro pek	600	36
	5 do			
	1 hf ch	bro or pek	615	3
	7 ch	pek	700	2
	6 do	or pek	600	33
	2 ch			
	1 do	pek sou	275	27
	2 hf ch			
	1 do	bro or pek fans	223	24

	Pkgs.	Name.	lb.	c.
Castlereagh	6 ch	bro pek	574	37
	12 do	or pek	990	36
	11 do	pek	380	32
	11 hf ch	fans	715	28
Y S P A	9 ch	pek	720	31
	5 do	dust	700	26
Poonagalla	4 hf ch	fans	328	31
Kumaradola	6 ch	or pek	540	32
	5 do	pek	475	30
	1 do	pek sou	80	27
	1 do	dust	120	24
V O A	3 hf ch	bro or pek fans	210	32
	5 do	dust	450	26
	1 ch	bro tea	120	21
M R	1 ch	pek	105	30
Ninfield	6 ch	bro or pek	600	35
	6 do	bro pek	570	34
	10 do	or pek	850	33
	6 do	pek sou	450	27
	2 do	dust	180	26
Killennally	5 ch	fans	500	23
Bopitiya	4 do	sou	360	27
	5 hf ch	dust	400	26
Kelvin	2 ch	pek sou	190	26
	2 do	fans	210	28
	2 hf ch	dust	170	26
Tempo	7 ch	dust	700	26
Tembiligalla	5 ch	pek sou	470	28
	2 do	pek fans	208	28
	2 do	pek dust	230	25
Stamford Hill	8 ch	pek sou	720	34
	7 hf ch	dust	630	27
Ingrogalla	4 ch	fans	400	28
	3 do	bro pek dust	420	26
	2 do	sou	160	26
Weveketlie	9 hf ch	dust	765	26
N W D	1 hf ch	bro or pek	49	41
	1 box	or pek	16	34
E P D	1 hf ch	bro or pek	58	with'n
	1 ch	or pek	89	31
Dunedin	8 hf ch	fans	520	14
	2 do	dust	174	9
	9 ch	*hyson No 2*	*828*	24
	6 hf ch	fans	390	16
	2 do	dust	170	9
Devitura	6 ch	fans	720	25
Wyamitha	8 ch	pek sou	680	31
	1 hf ch	dust	90	26
	2 do	bro pek fans	144	21
Udabage	2 hf ch	bro pek	100	34
	2 do	pek	100	30
	1 do	pek sou	50	27
Battawatte	8 ch	pek sou	720	29
	1 do	dust	100	26
Hayes	10 ch	or pek	800	26
Weya	2 ch	dust	300	24
Nonpareil	15 hf ch	or pek	840	33
	13 do	pek	784	31
	5 do	pek sou	280	29
	5 do	fans	300	30
	3 do	dust	240	26
Dunugalla	3 hf ch	dust	255	24
	3 ch	bro pek	285	24
	2 hf ch	bro pek fans	130	28
	5 ch	sou	400	25
North Matale	9 hf ch	dust	720	27
Amblangoda	9 ch	pek sou	765	26
Bullugolla	2 ch	fans	200	25
	2 do	dust	220	24
	3 do	fans	300	25
	3 do	dust	330	24
Cleyne	3 ch	pek sou	270	28
	3 do	bro tea	318	28
	2 do	dust	280	23
Amblangoda	6 ch	pek sou	510	26
	2 do	fans	200	27
	2 do	dust	200	24
Swinton	11 ch	pek	990	30
	6 do	pek sou	510	28
	2 do	fans	200	27
	2 do	dust	220	25
	10 do	pek sou	850	27
Mahawale	7 hf ch	bro pek fans	420	28
	5 do	bro mix	425	26
Vogan	3 ch	pek fans	375	26
	8 hf ch	dust	640	26
Trewardena	6 ch	bro pek	500	34
	5 do	pek	500	29
	5 do	pek sou	500	28
	3 do	sou	300	26
	2 do	fans	200	25
Mansfield	6 ch	pek sou	510	25
	5 hf ch	dust	450	27
Tembiligalla	5 ch	pek sou	480	27
	4 do	fans	440	28
	1 do	dust	150	25
Pansalatenne	1 ch	or pek	72	34

	Pkgs.	Name.	lb.	c.
Pansalatenne	1 ch	sou	81	26
	4 do	bro or pek	240	41
	7 do	or pek	595	35
	12 do	pek sou	900	29
	8 do	sou	560	27
	3 do	pek fans	375	29
Broughton	9 ch	pek sou	765	36
	4 hf ch	dust	340	27
Bowlana	5 ch	pek sou	400	29
Sylva andy	3 ch	dust	300	26
Tunisgalla	10 ch	pek	900	30
	6 do	pek sou	510	28
	8 hf ch	bro mix	440	50
	2 do	dust	190	27
Monterey	2 ch	sou	180	26
	2 do	fans	200	29
	6 do	pek	600	24
Torwood	3 ch	sou	240	26
	2 do	bro pek fans	276	26
	4 do	dust	540	22
Tor	3 ch	bro or pek	270	37
	3 do	bro pek	278	31
	6 do	pek	480	28
D, in estate mark	10 ch	pek sou	80	with'n
	2 do	red leaf	120	with'n
Aldie	10 hf ch	dust	700	27
Harrow	7 hf ch	fans	560	28
W, in estate mark	1 ch	bro pek	110	38
Dunbar	4 ch	bro pek fans	524	31
	4 do	pek sou	328	37
Drayton	7 ch	pek sou	560	24
St Helier's	5 ch	pek	525	30
W V R, A	8 hf ch	fans	640	22
Yatlatenne	2 hf ch	dust	174	26
C R D	2 ch	sou	160	25
	4 do	dust	400	26
B D W, P	7 ch	bro or pek	770	36
	2 do	pek fans No 1	190	26
Handford	9 ch	pek sou	855	27
	1 do	sou	85	25
	2 do	bro pek fans	210	26
	3 do	dust	345	26
W V R, A	13 hf ch	bro or pek	650	42
	4 do	fans	320	22
Gampaha	9 ch	pek sou	810	30
S	9 hf ch	dust No 1	738	27
Talgaswela	2 hf ch	dust	170	24
Bulugolla	9 ch	or pek	900	33
	7 do	pek	630	29
	4 do	pek sou	340	23
	1 do	fans	100	26
	1 do	dust	110	24
Nahalma	7 ch	fans	672	26
	3 do	dust	240	24
Pickhena	9 ch	pek sou	738	27
Baddegama	6 ch	bro pek	600	35
	9 do	pek	765	31
	9 do	pek sou	720	29
	3 do	fans	345	23
W A	9 ch	pek sou	900	27
Kotuagoda	*3 hf ch*	*hyson No. 1*	*168*	*out*
	5 do	*young hyson*	*250*	*out*
	3 do	*hyson*	*150*	*out*
	1 do	*hyson dust*	*50*	*out*
U S A	9 hf ch	pek fans	765	26
D	5 ch	sou	385	24
	8 hf ch	fans	528	26
	6 do	pek dust	494	23
	9 ch	sou	648	24
K H L	2 hf ch	pek fans	260	27
	2 ch	dust	320	24
Augusta	2 ch	pek fans	270	25
	5 do	dust	725	23
L B K	9 ch	sou	855	25
	6 do	bro pek fans	720	33
	8 do	pek fans	840	29
	6 do	dust No 1	780	26
	3 do	dust No 2	450	24
	6 hf ch	bro mix	600	23
Deengalla	4 ch	pek fans	400	30
	3 do	dust	290	26
Memerakande	3 ch	pek fans	610	26
	2 do	dust	200	25
S'Katali	*2 hf ch*	*hyson No 2*	*150*	*34* bid
	4 do	*hyson siftings*	*200*	*9*
Nona Totam	7 hf ch	fans	625	31
	3 do	bro pek fans	210	33
C and L	1 ch	bro or tea	118	38

CEYLON COCOA SALES IN LONDON.

MINCING LANE, DEC. 4th.

"Awa Marn."—Middlemarch Forestero No. 1, 8 bags sold at 57s; ditto No. 2, 10 at 54s.

"Austral."- Beredewelle C O C, Ex. No. T, 2 bags

sold at 45s ; ditto B, 2 at 25s.

"Tactician."—Beredewelle C O C, Ex. No. 1, 13 bags sold at 59s ; ditto T, 1 at 36s.

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, DEC. 5th.

"Awa Maru."—Gonamotawa S, 3 casks sold at 58s ; ditto P B, 1 cask and 1 barrel sold at 40s ; Gonamotawa, 1 bag sold at 54s ; C M in estate mark, 4 bags sold at 52s.

"Shropshire."—Beragalla 1, 1 barrel sold at 60s ; ditto 2, 1 at 60s ; ditto S, 1 at 60s ; B G T in estate mark, 1 barrel sold at 40s.

CEYLON CARDAMOMS SALES IN LONDON.

MINCING LANE, DEC. 12th.

"Candia."—Wariagalla, Mysore A, 2 cases sold at 10d ; ditto A, 4 at 11d ; ditto B, 2 at 9d ; 2 at 10d ; ditto C, 1 at 8d ; 1 at 8½d ; ditto D, 4 at 8½d.

"Duke of Westminster."—Telba Mallai 1, 3 cases sold at 2s ; ditto 2, 3 at 1s 7d ; ditto 3, 5 at 1s 1d ; ditto seed 1, 1 at 1s 6d ; ditto seed III, 1 at 1s.

"Dardanus."—Katooloya, Cardamoms B, 2 cases sold at 1s ; ditto C, 3 at 11d.

"Awa Maru."—Vedehette, Cardamoms AA, 4 cases sold at 1s 9d ; ditto A, 4 at 1s 2d ; ditto D, 1 at 1s 5d.

"Tactician."—Kandaloya, Cardamoms A1, 2 cases sold at 1s 3d ; ditto A2, 3 at 1s 1d.

"Sinai."—Delpotonoya, 2 cases sold at 1s 10d ; 3 at 1s 7d ; 1 at 1s 8d ; 6 at 1s 1d ; 3 at 1s ; 2 at 1s 3d.

"Yorkshire."—N S in estate mark, C O, 4 cases sold at 1s 1d ; M in estate mark, C S, 3 at 1s 6d.

"Awa Maru."—New Peacock, 1 bag sold at 1s 6d ; 1 at 1s 2d ; 1 case at 11d ; 1 case and 1 bag at 10d ; 1 bag at 1s 5d.

"Sinai."—P in estate mark, B Mysore, S B, 3 cases sold at 11d ; R in estate mark, 6 at 7d.

"Arabia."—Vicartons A, 2 cases sold at 1s 8d ; ditto B, 4 at 1s 2d ; ditto C, 1 at 1s ; ditto D, 1 at 11d.

"Sinai."—Forest Hill 2, 3 cases sold at 1s 9d ; ditto 3, 4 at 1s 2d ; 2 at 1s 3d ; A L Dryburgh, O, 4 at 2s 3d ; ditto Split, 1 at 1s 1d.

"Kamakura Maru."—S M A 1, 1 case sold at 2s 5d ; 2 at 2s 4d ; ditto O, 2 at 1s 10d ; ditto 2, 3 at 1s ; ditto S, 4 at 1s ; ditto A O O, 2 at 1s 10d.

"Kamakura Maru."—Riverdale B, 3 cases sold at 1s ; ditto A seed B, 1 at 1s 6d ; ditto E, 1 pocket at 6d ; ditto S, 1 at 1s 1d.

"Yorkshire."—Kobo O O, 1 case sold at 2s 11d ; ditto 3, 1 at 11d ; ditto Splits 1, 6 at 1s 5d ; ditto Browns, 4 at 1s 6d ; 3 at 1s 5d.

"Sinai."—Maragalla seed, 1 case sold at 1s 6d.

"Awa Maru."—Midlands O, 2 cases sold at 1s 9d ; ditto B and S, 2 at 11d ; ditto Seeds, 1 at 1s 4d.

"Tactician."—Elkadua 1, 8 cases sold at 1s 3d ; ditto 2, 1 at 11d ; ditto B and S, 1 at 11d ; Seed 1, 1 at 1s 5d ; ditto 2, 1 at 1s ; Upper Haloya E X, 1 at 2s 5d ; ditto A A, 3 at 1s 9d ; ditto A, 2 at 1s 3d ; ditto B, 2 at 1s ; ditto C, 1 at 11d.

CEYLON COCOA SALES IN LONDON.

"Clan Robertson."—Palli London T, 3 bags sold at 52s ; Kaduwella, 1 bag sold at 45s.

"Canada"—J J V & Co., V N in estate mark, 1 bag sold at 48s.

"Ophir."—T & H Coodoogalla, No. 1, 35 bags sold at 70s ; T & H, 11 bags sold at 65s ; Ingurugalla A, 1 bag sold at 54s ; T, 2 bags sold at 35s 6d.

"Awa Maru."—Kahawatte 2, 1 bag sold at 40s.

"Yorkshire."—A 2, Yattawatte, 10 bags sold at 50s 6d ; B 1, 7 bags sold at 53s 6d ; A, broken, 1 bag sold at 51s.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, DEC. 19th.

"Sinai."—1 (* M A K in estate mark, 103 bags sold at 52s ; 79 at 53s ; K M in estate mark S, 2 bags sold at 45s ; North Matale Ceylon Cocoa, 4 bags sold at 52s.

"Clan Macpherson."—Kepitigalla, 26 bags sold at 57s.

"Ophir."—Katugastota, 12 bags sold at 57s 6d.

"Omrah."—Bandarapola, 2 bags sold at 26s.

"Ophir."—Pondappe London No. 2, 3 bags sold at 55s 6d ; ditto T, 2 at 40s.

"Workman."—Armagh London 2, 3 bags sold at 56s ; ditto T, 5 at 42s 6d ; Udapolla A, 77 bags sold at 60s ; ditto B, 2 at 50s 6d ; ditto G, 8 at 47s 6d.

"Omrah."—Beredewelle C O C Ex. No. 1, 18 bags sold at 76s 6d ; ditto 1, 8 at 15s 6d ; ditto B, 2 at 35s 6d ; ditto T, 2 at 49s.

"Duke of Westminster."—Wiharagama T, 2 bags sold at 51s 6d.

"Candia."—Meegama 1, 7 bags sold at 56s 6d ; B, 3 at 50s ; B 1, 1 at 30, ditto 1, 9 at 56s 6d ; B, 4 at 50s ; B 1, 1 at 30s.

"Clan Robertson."—H K 2, 3 bags sold at 54s ; 1 at 42s ; ditto T, 2 at 47s.

"Sinai."—V M in estate mark, London Estate Cocoa No. 1, 9 bags sold at 60s ; 1 at 50s.

"Workman."—O B E C in estate mark F, Kondesalle Ceylon 1, 12 bags sold 5 at 6s.

OBSERVER PRINTING WORKS.

No. 2. COLOMBO, JANUARY 14th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[38,868 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	20 ch	or pek	2000	41
	18 do	pek	1530	37
Coodoogalla	23 hf ch	pek	1150	32
Battalgalla	20 ch	or pek	2000	42
	18 do	pek	1530	37
	16 do	pek sou	1280	32
Vuillefield	21 hf ch	bro or pek	1155	52
	18 ch	pek	1710	39
Gondanawella	18 ch	pek sou	1620	28
	16 hf ch	fans	1200	24
Navalakanda	22 ch	sou	1980	24
Hornsey	23 hf ch	bro pek	1380	57
	20 ch	pek	1900	42
Wahagapittia	16 ch	bro or pek	1648	45 bid
	32 do	bro pek	3200	36
	18 do	pek	1548	32 bid
Bunyan & Ovoca	30 hf ch	bro or pek	1650	58
	26 do	or pek	1300	45
	13 ch	pek	1170	39
	12 do	pek sou	1080	37
Kenilstone	*12 ch*	*young hyson*	*1200*	*out*
	12 do	*hyson No 2*	*1080*	*33*
U W	12 hf ch	dust	1020	10 bid

Messrs. Keell and Waldock.

[82,792 lb.]

	Pkgs.	Name.	lb.	c.
B, Talawa	15 ch	bro or pek	1500	40 bid
Orion	27 ch	bro pek	2700	36 bid
	19 do	pek	1710	30 bid
	18 do	pek sou	1530	26 bid
Tillington	43 hf ch	bro pek	2365	36 bid
H O A	12 ch			
	13 hf ch	pek	1754	30
Panilkande	20 hf ch	bro or pk No.1	1000	52 bid
	30 do	bro or pek	3000	37 bid
	14 ch	pek	1260	33
	19 hf ch	dust	1520	26
Paniyakande	19 ch	bro pek	1900	35 bid
G	16 ch	dust	1216	26
B R D	27 hf ch	bro or pek	1485	33 bid
Wilpita	10 ch	bro or pek	1000	31
	15 do	or pek	1425	28
Waduhena	17 ch	pek	1530	30 bid
	12 do	pek sou	1080	29
A	11 ch	dust	1045	26
Brecon	18 hf ch	bro pek	1080	39 bid
Aigburth	25 hf ch	bro or pek	1375	48
	15 ch	or pek	1470	37
	22 do	pek	2560	31
Dunnottar	45 hf ch	bro or pek	2250	48
	21 do	bro pek	1155	40
Hangranoya	14 ch	bro or pek	1330	47
	14 do	or pek	1120	36
	21 do	bro pek	2100	35
	16 do	pek	1280	30
	18 hf ch	dust	1440	25
Meath	19 hf ch	bro or pek	1007	withd'n
	10 ch	or pek	1000	withd'n
F S	34 ch	pek sou	2890	27 bid
Glenfern	41 hf ch	bro pek	2050	36
	34 do	pek	1360	31
G	28 ch	pek sou	2380	27 bid

Messrs. E. John & Co.

[284,058 lb.]

	Pkgs.	Name.	lb.	c.
Stubton	12 ch	bro pek	1200	35 bid
Salem	14 ch	bro or pek	1400	39
	17 ch	pek	1700	30
Tismoda	36 hf ch	bro or pek	1800	42
	83 do	bro pek	4150	38
	35 ch	pek	2800	34
Bowella	23 hf ch	bro pek	1150	32 bid
	12 ch	pek	1020	30
Kandahar	19 hf ch	or pek	1007	39
Poilakande	15 ch	bro or pek	1650	35
	33 do	bro pek	2970	31
	22 do	pek	1760	28

	Pkgs.	Name.	lb.	c.
P K T	16 ch	pek sou	1275	27
	13 hf ch	dust	1015	26
Eila	85 ch	pek No 2	6800	28
	17 do	or pek	1360	35 bid
	17 do	bro pek	1530	36
Ormidale	21 hf ch	or pek	1050	72 bid
	36 ch	bro pek	2088	46
	20 do	bro pek	1157	46
	20 ch	pek	1840	40
Orwell	12 ch	or pek	1080	34
	23 ch	pek	2024	31
Glassaugh	44 hf ch	bro or pek	2948	65
	50 do	or pek	2800	46 bid
	26 ch	pek	2808	53
O W	23 ch	bro pek	2070	33 bid
	28 do	pek	2156	28 bid
Dickapitiya	22 ch	bro pek	2200	39
	18 do	pek	1710	31 bid
	35 do	pek sou	3325	30
Ganasarapolla	17 hf ch	dust	1275	25
Chemnitz	*67 ch*	*young hyson*	*5360*	*38*
	49 ch	*hyson*	*3675*	*35 bid*
	37 do	*hyson No 2*	*2775*	*35*
Binnam	21 ch	pek sou	1470	41
	30 hf ch	dust	2520	27
	38 do	fans	2584	38
Kehelwatte	15 ch	bro or pek	1650	45 bid
	28 do	bro pek	3080	35 bid
	35 do	pek	3325	33 bid
	12 do	pek sou	1140	29 bid
Ottery	16 ch	bro or pek	1600	48 bid
	16 do	pek	1440	32 bid
Woodstock	15 do	bro or pek	1497	34 bid
Bowhill	15 do	bro or pek	1500	46 bid
	18 do	bro pek	1800	39
	20 do	pek	1800	33
Merrow	33 hf ch	bro pek	1848	38
	18 ch	pek	1728	34
Devon	21 hf ch	bro or pek	1323	64
	20 ch	or pek	2100	46
	15 ch	pek	1620	42
Natuakelle	12 do	bro or pek	1200	44
	19 do	or pek	1710	36
	17 do	pek	1530	32
	12 do	pek sou	1080	30
Eila	43 ch	pek No. 2	3437	withd'n
Myraganga	12 do	or pek	1080	38
	13 do	br or pek No 1	1300	51
	34 do	br or pek No 2	3400	42
Mocha	38 hf ch	bro or pek	2273	60
	21 do	fly or pek	1017	48 bid
Peru	12 ch	bro pek	1260	41
Taunton	28 ch	bro or pek	2800	30 bid
	13 do	pek	1105	28 bid
Yahalakelle	28 ch	bro pek	2800	33
	15 do	pek	1275	31
	15 do	pek sou	1200	30
Cleveland	25 hf ch	flwy or pek	1400	49
	45 do	pek	2565	40
Temp'estowe	35 do	bro or pek	1814	54
Kolapatna	27 hf ch	bro or pek	1512	61
	28 do	bro pek	1708	45
	28 do	or pek	1400	42
	15 ch	pek	1380	38
M L K Ceylon	11 ch	bro pek	1034	28
Captains Garden	25 ch	pek	2450	28
Glensek	17 do	pek	1428	28 bid
Longville	24 do	bro pek	2400	37
	15 do	pek	1500	32
	10 do	pek sou	1000	29
Holbrook	57 hf ch	bro or pek	3420	54 bid
	21 ch	or pek	2100	47 bid
	29 do	pek	2755	42 bid
	13 hf ch	dust	1040	27
Ratwatte	38 ch	bro pek	3800	34 bid
	*21 do	pek	1890	29 bid
Glassaugh	18 hf ch	dust	1656	28
Agra Ouvah	75 hf ch	bro or pek	4500	58
	51 hf ch	or pek	2754	43
	21 ch	pek	1932	41
Glasgow	50 hf ch	bro or pek	3000	67
	43 ch	bro pek	4300	53
	57 ch	or pek	5301	44
	28 do	pek	2660	42
Rondura	15 do	bro pek	1500	39
	16 do	or pek	1520	36
	22 do	pek	2200	34
Genavy	35 hf ch	bro or pek	1750	43
	32 ch	pek	2720	34
Theresia	28 hf ch	bro or pek	1540	62
	35 ch	pek	2800	38
	20 ch	pek sou	1700	35

	Pkgs.		Name.	lb.	c.
Kandaloya	24	hf ch	bro or pek	1080	47 bid
	26	do	bro pek	1300	36
	26	do	or pek	1040	37 bid
	32	do	pek	1280	32
G W	11	ch	pek sou	1056	34
	9	do	dust	1395	27
	52	hf ch	dust	4120	29
Templestowe	40	do	bro or pek	2100	56
	29	do	bro pek	1624	47
	40	do	or pek	1720	45
	23	do	pek	1909	41
	17	ch	pek sou	1530	39
	21	do	fans	1470	23

Messrs. Somerville & Co.

[329,896 lb.]

	Pkgs.		Name.	lb.	c.
Kurulugalla	19	ch	bro pek	1805	39
	18	do	pek	1620	32
Carney	30	hf ch	bro pek	1500	38
	26	do	pek	1300	31
	32	do	pek sou	1440	28
Siriniwasa	27	ch	bro pek	2700	40
	48	do	pek	4560	32
	20	do	pek sou	1800	28
Ellerslie	55	hf ch	bro or pek	3025	49
	21	ch	or pek	1785	38
	13	do	bro pek	1235	39
	13	do	pek	1040	34
Hanagama	12	ch	or pek	1200	33
	16	do	pek	1600	31
	11	do	pek sou	1045	29
Kelani	34	ch	bro or pek	3400	38 bid
	24	do	pek	2160	32
	13	do	pek sou	1010	29
Theberton	23	ch	bro pek	2070	38
	24	do	pek	2160	32
Lyndhurst	26	hf ch	bro pek	1430	39
	30	do	pek	1350	31 bid
	30	do	pek sou	1260	28 bid
Narangoda	38	ch	bro pek	3610	34
	27	do	pek	2430	30
	21	do	pek sou	1890	28
Oolapane	15	ch	bro pek	1500	40
Oonanagalla	37	hf ch	bro or pek	1850	51
	26	ch	pek No. 1	2470	37
	15	do	pek No 2	1200	35
Charlie Hill	23	hf ch	or pek	1150	34
Scarborough	12	ch	or pek	1020	42 bid
	12	do	pek	1140	35 bid
New Valley	45	ch	bro or pek	4500	53
	24	do	or pek	2280	41
	30	do	pek	2850	38
D M O G in est mark	24	hf ch	bro pek	1320	41
	20	do	or pek	1000	38
	17	ch	pek	1360	32
	18	do	pek sou	1350	29
Bollagalla	17	ch	bro pek	1700	37
	15	do	pek	1200	30
	12	do	pek sou	1020	29
Gwernet	17	ch	bro pek	1615	44
	22	do	pek	1760	35
Laxapanagalla	22	ch	bro or pek	2090	37
Monrovia	11	ch	bro pek	1100	35
Ambalawa	12	ch	bro or pek	1200	35
	17	do	or pek	1445	35
	19	do	pek	1520	33
	11	do	pek sou	1120	28
Yarrow	*37*	*hf ch*	*young hyson*	*2590*	*38*
	45	*do*	*hyson*	*2820*	*26*
Mary Hill	34	hf ch	bro pek	1768	38
	29	do	pek	1450	33
	38	do	pek sou	1710	28 bid
Dalukoya	20	hf ch	bro or pek	1100	49
	25	do	or pek	1250	36
	25	do	pek	1250	33
Mount Temple	21	ch	bro pek	2100	35
	27	do	pek	2160	32
	21	do	bro or pek fan	2100	31
	15	hf ch	dust	1260	27
Yahalatenne	17	ch	bro pek	1700	43
	11	do	pek sou	1001	33
Kurunegalla	23	hf ch	bro or pek	1725	37
	24	do	or pek	1584	35
	12	ch	pek	1140	31
Jak Tree Hill	22	ch	bro pek	2200	37 bid
	16	do	pek	1440	32
Hobart	15	ch	bro or pek	1500	33 bid
	25	do	pek	1900	29
Kallebokka	20	ch	bro or pek	2000	52
	28	do	bro pek	2660	37
	25	do	pek	2000	34

	Pkgs.		Name.	lb.	c.
Ravenscraig	22	hf ch	bro or pek	1100	43
	25	do	bro pek	1400	48
	21	do	or pek	1050	36 bid
	18	do	pek	1620	33
Harrangalla	16	ch	bro pek	1520	35
Monte Christo	25	ch	bro pek	2500	45
	42	do	pek	3780	34
Warakamure	22	ch	bro or pek	2200	35
	21	do	or pek	1680	33
	30	do	pek	2550	29
P T N in estate mark	18	hf ch	bro pek	1008	26 bid
Avaisawella	28	hf ch	bro or pek	1400	49
	19	ch	or pek	1805	37
	25	do	pek	2250	33
	18	do	pek sou	1440	30
Mousakande	10	ch	bro pek	1000	37
	13	do	pek sou	1183	28
Oonankande	33	hf ch	pek	1815	withd'n
Murraythwaite	22	ch	bro pek	2200	36 bid
	16	do	pek	1258	30
Old Maddegama	30	hf ch	bro or pek	1650	50
	28	ch	pek	2240	35
Homelea	*10*	*ch*	*young hyson*	*1147*	*38*
	14	*do*	*foong mee*	*1260*	
Yahalatenne	19	ch	bro pek	1900	43
	16	do	pek	1472	35
	12	hf ch	dust	1003	26
Weygalla	23	ch	pek	2300	37
Narangoda	23	ch	bro pek	3135	35
	24	do	pek	2120	31
	18	do	pek sou	1620	23
	17	hf ch	dust	1479	26
Galphele	15	ch	bro or pek	1425	54
	16	do	or pek	1440	40
	11	do	bro pek No 1	1100	42
	11	do	bro pek No 2	1100	37
	33	do	pek	2970	34
Meddegodda	25	hf ch	pek	1375	32
Neboda	26	ch	bro or pek	2600	42
	21	do	or pek	1932	36
	48	do	pek	4800	32
Neuchatel	12	ch	bro or pek	1140	48
	41	do	or pek	3485	34
	19	do	pek	1520	30
	14	do	bro pek	1470	35
California	11	ch	pek	1100	28
Beausejour	18	ch	bro pek	1800	35
	16	do	pek	1280	30
	11	do	bro or pek	1100	40
Richlands	15	ch	bro or pek	1422	47
	15	do	or pek	1272	40
Owilikande	19	ch	bro or pek	1900	34
	15	do	or pek	1275	31
	17	do	pek	1530	29
Highfields	21	hf ch	pek	1047	36
Fairfield	24	hf ch	bro or pek	1260	71 bid
	22	ch	bro pek No. 1	1980	50
	47	do	bro pek No. 2	4660	49
	25	do	or pek	2000	48
	15	do	pek No 2	1435	44
	36	do	pek sou	3420	38
Walla Valley	13	ch	or pek	1167	43
	27	do	pek	2292	39
Maragalla	16	ch	bro pek	1677	33 bid
Rayigam	*39*	*ch*	*young hyson*	*3705*	*39*
	38	*do*	*hyson No 2*	*3610*	*35*
Mahavilla	23	hf ch	or pek	1173	38
	30	do	pek	1590	33
	39	do	pek sou	2106	30
Ferriby	30	hf ch	bro or pek	1650	38
	18	ch	or pek	1620	35
	34	do	pek	3060	31
	23	do	pek sou	1955	28

Messrs. Forbes & Walker.

[582,318 lb.]

	Pkgs.		Name.	lb.	c.
Panawatte	23	ch	bro or pek	3080	50
	26	do	bro pek	2730	39
	34	do	pek	3 00	34
	15	do	pek sou	1425	30
Naseby	22	hf ch	bro or pek	1320	76
	23	do	or pek	1081	61
	22	do	pek	1100	56
Moray	27	hf ch	or pek	1188	44
	31	do	bro or pek	1705	53
	17	ch	bro pek	1700	41
	29	do	pek	2465	37
Nillomally	27	ch	pek	2376	35
	23	do	pek sou	1886	31
	15	do	bro or pek	1500	47
Forest Creek	15	ch	bro or pek	1500	72
	37	do	or pek	3700	45
	19	do	bro pek	1672	42 bid
	39	do	pek	3568	37

	Pkgs.	Name.	lb.	c.
Nakiadeniya	*31 hf ch*	*young hyson*	*1891*	*38*
	19 do	*hyson*	*1615*	*35 bid*
Sylvakandy	16 ch	br or pek No 2	1600	40
	14 do	pek	1400	35
Dammeria	16 ch	bro pek	1600	41
	22 do	or pek	1980	35
	17 do	pek	1530	34
	27 do	pek sou	2430	31
Ruanwella	16 ch	bro or pek	1600	38
	20 do	pek	1800	30
High Forest	33 hf ch	or pek No 1	1584	55
	39 do	bro pek	1624	57
	21 do	or pek	1050	49
	30 do	pek	1380	44
Kirklees	58 hf ch	bro or pek	3190	45 bid
	13 ch	or pek	1170	37 bid
	20 do	pek	1700	34
Morankande	21 hf ch	bro or pek	1176	59
	20 ch	or pek	1700	34
	23 do	pek	2070	30
Aberdeen	13 ch	bro pek No 1	1118	39
	12 do	bro pek No 2	1140	33
	28 do	pek	[illegible]	31
U A	53 hf ch	bro or pek	3074	53 bid
	43 do	pek	1978	37 bid
Troy	*15 ch*	*young hyson*	*1500*	*39*
	22 do	*hyson*	*2090*	*36*
Dunedin	*46 hf ch*	*young hyson*	*2300*	*39*
	25 ch	*hyson*	*2000*	*35 bid*
Templehurst	18 ch	bro pek	1800	56
Poonagalla	25 ch	bro pek	2750	54 bid
	17 do	pek	1564	40
Ardlaw and Wishford	17 ch	bro or pek	1932	65
	20 do	bro pek No 1	2200	52
	21 do	bro pek No 2	2100	47
	25 do			
	1 hf ch	or pek	2365	45
	31 ch	pek	2604	40
Tonacombe	22 ch	or pek	1980	40
	24 do	bro pek	2400	47
	32 do	pek	2720	34
	22 do	pek sou	1760	29
	22 do	or pek	1980	39
	26 do	bro pek	2600	46 bid
	38 do	pek	3230	36
	22 do	pek sou	1760	30
Glendon	11 ch	bro pek	1100	54
	35 do	or pek	3325	35
	40 do	pek	2600	32
	20 do	pek sou	1800	29
	7 ch	dust	1050	25
Court Lodge	13 ch	bro or pek	1482	60
	12 do	or pek	1116	53
	16 do	pek	1472	45
New Peacock	25 hf ch	bro pek	1250	46
	35 do	pek fans	2450	28
Ingrogalla	22 ch	bro pek	2200	37 bid
	21 do	pek	1890	31 bid
Rickarton	10 ch	bro or pek	1000	60
	20 do	or pek	2000	38
	11 do	bro pek	1210	40
	24 do	pek	2400	35
Erlsmere	27 hf ch	bro or pek	1458	61
	21 ch	bro pek	1974	48
	12 do	pek	1032	39
Puspone	22 ch	or pek	2090	32 bid
	26 do	bro pek	2730	40
	20 do	pek	1800	30
Knavesmire	30 ch	bro pek	3150	39
	34 do	pek	2890	31
	21 do	pek sou	1680	29
Culloden	*38 ch*	*young hyson*	*1976*	*38 bid*
	17 do	*hyson*	*1666*	*35*
Ambalawa	13 ch	pek	1040	29 bid
Vogan	23 ch	bro or pek	2300	60
	44 do	or pek	3960	36
	45 do	pek	4050	32
	22 do	pek sou	1870	29
Penrhos	35 hf ch	bro or pek	1925	48
	25 do	or pek	1175	39
	35 ch	pek	2800	33
Nugagalla	27 hf ch	bro pek	1350	41
[illegible]	39 do	pek	1950	31
Robgil	32 ch	bro pek	2880	44
	25 do	pek	2000	38
	23 ch	bro pek	2070	51
	20 ch	pek	1600	41
	15 do	pek sou	1200	37
Pine Hill	20 hf ch	bro or pek	1160	49
	17 ch	or pek	1615	38
	18 do	pek	1620	33
H G M	33 hf ch	bro or pek	1815	44
	13 ch	bro pek	1300	35
	22 do	pek	1980	30 bid
	14 hf ch	dust	1260	26
Ireby	56 hf ch	bro pek	3360	52
	29 ch	pek	2465	41

	Pkgs.	Name.	lb.	c.
Deaculla	23 hf ch	bro pek	1265	49
	25 ch	pek	1750	36
	20 do	pek sou	1400	31
Karagaha	34 hf ch	bro pek	1870	51
	35 ch	pek	2450	39
Kitulgalla	30 hf ch	bro or pek	1650	35
	12 ch	or pek	1056	33
	12 do	pek	1020	31
Good Hope	30 ch	bro or pek	2700	39
	30 do	or pek	2700	33
	19 do	pek	1710	30
Hanwella	*22 ch*	*young hyson*	*2200*	*36*
	13 do	*hyson No 1*	*1300*	*35*
Tymawr	25 hf ch	or pek	1375	45
	20 do	bro or pek	1100	56
	34 do	pek	1700	42
Darrawella	41 hf ch	bro or pek	2296	58
	26 ch	bro pek	2730	42
	26 do	or pek	2236	40
	49 do	pek	4312	33
	25 do	pek sou	2000	31
Panapitiya	13 ch	pek sou	1040	23
Coreen	76 hf ch	bro pek	4560	48
	28 ch	or pek	2520	41
	17 do	pek	1530	38
Walpita	30 ch	bro pek	3000	36
	24 do	pek	2160	29
Siriwatte	22 hf-ch	bro or pek	1232	35
	15 ch	pek	1200	33
Great Valley, Ceylon in estate mark	50 hf ch	bro or pek	3000	55
	24 do	or pek	1344	37
	45 do	pek	4140	34
Munukettia, Ceylon in estate mark	12 ch	or pek	1020	42
	32 hf ch	bro pek	1920	53
	23 ch	pek	1840	36
Agra Oya	15 hf ch	fans	1125	29
Hanwella	*21 ch*			
	1 hf ch	*young hyson*	*2155*	*36*
	15 ch			
	1 hf ch	*hyson No 1*	*1555*	*35*
K P W	35 hf ch	bro or pek	2100	39
	35 do	bro pek	1750	37
	27 do	or pek	1215	35
	40 do	pek	2000	32
	25 do	pek sou	1250	28
Adisham	28 hf ch	bro or pek	1540	65
	14 ch	bro pek	1400	48
	13 do	pek	1235	43
Yataderia	29 ch	bro or pek	2957	36
	25 do	bro pek	2500	32
	13 do	or pek	1170	33
	20 do	pek	1700	28 bid
	13 do	pek sou	1079	27 bid
Marlborough	20 hf ch	bro or pek	1100	54
	13 do	bro pek	1300	46
	37 do	pek	3626	38
Laurawatte	37 ch	bro pek	3700	37 bid
	25 do	pek	2250	31
	14 do	pek sou	1260	32
Mawiligangawatte	42 ch	bro pek	4032	34
	23 do	pek sou	1748	28
Laurawatte	16 ch	bro pek	1600	39
	12 do	pek	1080	33
	19 hf ch	fans	1482	28
Sylvakandy	17 ch	br or pek No 2	1700	39
	15 do	pek	1500	33
Monterey	15 hf ch	sou	1350	27
	10 ch	dust	1000	26
D V N	36 hf ch	bro or pek	2160	33
Poonagalla	28 ch	bro pek	3077	51 bid
Snowdon Range	21 hf ch	unassorted	1050	40
Naseby	17 hf ch	fans	1309	42
Hillwatte	32 hf ch	bro mix	2880	out
Dunkeld	34 hf ch	bro or pek	2010	40 bid
W K D	15 ch	bro or pek	1275	31 bid
Ford	14 ch	bro pek	1260	34
Talgaswela	28 ch	bro or pek	2800	42
	26 do	or pek	2080	35
	36 do	pek	2880	33
	37 do	pek sou	2775	30
	17 hf ch	bro pek No 2	1020	30
Bandara Eliya	29 hf ch	or pek	1450	42
	43 do	bro or pek	2439	46
	56 do	pek	2658	38
Palmerston	31 hf ch	bro or pek	1860	65
	20 do	bro pek	1160	48
	21 ch	pek	1785	45
Macaldenia	20 hf ch	bro pek	1160	44
	19 do	pek	1045	37
Nillomally	33 ch	pek	2901	32 bid
Puspone	17 ch	pek sou	1581	28
Bellongalla	28 ch	pek	2360	30
Detengalla	11 ch	or pek	1012	41
	17 do	pek	1700	37

	Pkgs.	Name.	lb.	c.
Bogahagodawatte	11 ch	bro pek	1045	36
	11 do	pek	1100	29
Weyungawatte	27 ch	bro pek	2835	35
	26 do	pek	2210	30
Torwood	13 ch	bro or pek	1193	40
	25 do	bro pek	2150	33
	20 do	pek	2400	29
Edward Hill	33 ch	bro pek	3300	40
	21 do	or pek	1803	35
	23 do	pek	1955	32
Bandara Eliya	22 hf ch	br or pek No 1	1207	53
	48 do	br or pek No 2	2685	43
Hayes	11 ch	bro pek	1100	
	28 do	pek	2520	31
Aberdeen	19 ch	bro pek	1748	36
	21 do	pek	1680	30
Ganapalla	20 ch	bro or pek	1920	39
	24 do	bro pek	1968	35 bid
	20 do	pek	1600	32
Polatagama	23 ch	bro or pek	2300	40 bid
	25 do	bro pek	2250	37 bid
	76 do	pek	6840	31 bid
	20 do	pek sou	1600	28 bid
	12 do	fans	1200	26
Inverness	28 ch	bro or pek	2800	59
	20 do	or pek	1800	56
	28 do	pek	2380	48
	14 do	pek sou	1400	45
	23 hf ch	fans	1495	35
	12 do	dust	1020	27
Lindoola	19 hf ch	bro pek	1140	34 bid
	19 do	pek sou	1425	out
	16 do	duet	1360	26
Beverley	32 hf ch	or pek	1824	withd'n
	31 do	pek	1612	withd'n
Holton	51 ch	bro pek	2805	39
	42 do	pek	2016	32
Devonford	12 ch	or pek	1056	55
	13 do	pek	1656	49
Purna	10 ch	bro pek	1000	39
	24 do	pek	1920	31

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Rasagalla	1 ch	or pek	100	33 bid
Vuillefield	4 ch	pek sou	380	30
	2 hf ch	dust	160	26
Wahagapittia	1 ch	pek sou	106	27
	3 do	dust	480	25
	3 do	bro or pek fans	321	28
Kenilstone	*8 ch*	*hyson*	*720*	*34*
	2 do	*twanky*	*190*	*9*
Y Z	1 bf ch	dust No. 1	94	15
Q R	1 hf ch	bro tea	45	18
B C	2 hf ch	bro mix	86	10
F G	1 hf ch	bro pek	57	27
	1 do	bro pek fans	52	20
W X	1 ch	pek dust	122	12
Y P	1 ch	fans No. 2	93	10
R O	4 ch	bro pek fans	531	out

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Graceland	17 hf ch	bro pek	850	30
	9 do	pek	450	27
	10 do	pek sou	500	26
	4 do	pek fans	240	23
	1 do	congou	45	25
	7 do	dust	525	20
Orion	50 box	pek	900	31 bid
	4 ch	fans	440	27
Kelvin	3 ch	dust	255	25
Panilkande	11 ch	pek sou	990	30
	5 do	sou	450	27
Paniyakande	7 ch	pek	630	31
	7 do	pek sou	630	28
K R G	7 ch	dust	560	26
A A	5 ch	bro pek	500	31
	3 do	pek	294	28
	3 do	fans	372	25
	1 do	dust	152	24
Ranali	3 hf ch	dust	216	15 bid
Wilpita	10 ch	pek	950	27
	4 do	bro or pek fans	420	26
	3 do	sou	300	25
	2 do	bro mix	210	24
Kitulakande	11 hf ch	bro pek	616	33
	13 do	pek	650	29 bid
	18 do	pek sou	810	27
F C T	3 ch			
	1 hf ch	bro pek	315	28
	4 ch	pek	338	27
Waduhena	17 hf ch	bro or pek	935	40 bid
G O W	2 ch	bro pek	200	35
	5 do	dust	500	25
Aigburth	7 ch	pek sou	560	28
	2 hf ch	dust	180	24
	5 do	bro or pek fans	325	28
Dunnottar	3 hf ch	bro or pek fans	225	32
Hangranoya	10 ch	sou	800	27
	4 do	bro tea	320	25
Meath	6 ch	pek	600	withd'n
	2 hf ch	dust	156	withd'n
A	3 ch	red leaf	219	18
W	6 hf ch	bro pek	330	35
	5 ch	pek sou	400	26
	2 do	bro tea	160	20
Galgedioya	9 ch	bro pek	852	31
	9 do	bro pek	853	21
Dollawelle	6 ch	bro pek	582	34
	2 do	pek	200	29
	3 do	bro pek fans	351	28
	5 do	dust	710	25
	2 do	sou	146	14
L P	6 ch			
	1 hf ch	bro pek	650	35
	4 ch	pek	340	28
	6 do	pek sou	486	24
	4 do	pek fans	528	24
Glenfern	17 hf ch	pek sou	680	28

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
P P P	2 ch	bro pek	200	33
	2 ch	pek	190	29
	2 do	pek sou	170	27
	1 do	fans	90	25
Stubton	6 ch	pek	600	30
	4 ch	pek sou	380	28
	1 ch	pek dust	140	22
Salem	1 ch	dust	100	26
Tismoda	7 do	pek sou	560	30
	3 hf ch	fans	210	26
	3 do	dust	270	26
Kandahar	3 hf ch	dust	180	27
Ormidale	6 do	bro pek fans	420	33
Orwell	11 do	pek fans	814	27
C D	3 ch	bro pek	300	40
	3 do	pek	300	30
Talawakelle	6 ch	pek sou	510	26
	1 hf ch	dust	51	24
Meeriabedde	9 ch	sou	900	21
Kebelwatte	5 hf ch	dust	425	27
	3 ch	fans	330	31
Shawlands	4 do	fans	500	28
Ottery	2 hf ch	dust	166	27
Woodstock	8 ch	pek	717	29 bid
Bowhill	6 do	or pek	540	40
	4 do	dust	400	25
Merrow	4 ch	pek sou	400	27
Bagatodowa	8 do	bro pek	720	35
	10 do	pek	800	29
	6 do	pek sou	480	26
	5 hf ch	pek dust	325	25
Devon	3 do	dust	252	28
Natuakelle	2 ch	dust	200	26
Peru	9 ch	pek	810	26
	3 do	pek sou	285	29
	2 do	bro pek fans	270	29
Taunton	4 ch	pek sou	320	27
	1 do	fans	120	26
	2 hf ch	dust	180	24
Eladuwa	1 ch	unassorted	120	24
	2 do	dust	320	23
Yahalakelle	7 ch	pek fans	693	32
Cleveland	10 hf ch	bro or pek	560	73
	3 do	fans	240	29
Kolapatna	5 ch	pek sou	460	33
	9 hf ch	fans	612	33
	4 do	dust	332	27
M L K, Ceylon	5 ch	fans	610	24
	4 hf ch	dust	372	15
	3 bags	fluff	231	17
Captains Garden	7 ch	bro pek	700	33
	1 do	pek sou	90	24
G	4 hf ch	pek sou	228	26
	3 do	bro pek fans	218	33
Melvilla	15 do	bro pek	750	35
	13 do	pek	650	30
	3 do	pek sou	150	27
	1 do	congou	50	26
Longville	1 do	sou	60	26
	2 do	dust	200	25
	5 do	fans	400	27

	Pkgs.	Name.	lb.	c.
Holbrook	13 do	fans	910	57
H B K	9 ch	bro pek	990	32
	11 do	pek	990	28
Alplakande	8 do	sou	688	26
Batwatte	4 do	pek sou	320	26
	4 hf ch	dust	320	22
Glassaugh	17 ch	or pek	952	73
	13 ch	bro or pek	938	67
	9 ch	pek	972	54
	6 ch	pek sou	630	47
	10 hf ch	fans	750	37
	2 do	bro mix	240	25
Eton	2 ch	bro or pek	200	36
	2 do	or pek	200	34
	2 do	pek sou	200	28
	2 ch	souchong	200	27
Dalhousie	16 hf ch	or pek	800	38
	12 hf ch	bro pek	660	51 bid
	20 do	pek	900	34
	11 hf ch	pek sou	495	31
	5 do	bro pek fans	300	33
Rondura	4 ch	bro or pek	440	48
	10 do	pek sou	950	28 bid
	2 do	fans	230	29
	3 do	dust	435	26
Gonavy	13 hf ch	bro or pek No 2	728	41
	8 ch	or pek	656	43
	9 do	pek sou	675	29
	1 do	pek sou	64	28
	12 hf ch	fans	720	34
	5 do	dust	425	26
Theresia	11 ch	or pek	880	48
	2 do	sou	180	29
	3 ch	bro pek fans	300	37
	4 hf ch	dust	320	26
Kandaloya	14 do	pek No. 2	560	29
	7 do	pek sou	280	28
	3 do	fans	150	26
	5 do	dust	250	25
Templestowe	8 ch	unassorted	840	38
	3 do	dust	288	27

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
Kurulugalla	7 ch	pek sou	630	27
	2 do	bro pek fans	160	29
	3 do	pek dust	300	26
Carney	10 hf ch	bro pek fans	500	28
R G, Ceylon	4 ch	bro pek	440	33
	4 do	pek	340	28
	1 hf ch	fans	65	23
Siripiwasa	5 ch	bro pek fans	525	29
D in estate mark	1 hf ch	or pek	50	33
	2 do	pek	100	27
	1 do	pek fans	80	24
Ellerslie	1 ch	pek sou	86	27
Hanagama	3 ch	bro or pek	354	45
	7 do	sou	665	26
	2 do	fans	212	28
Kelani	7 ch	dust	710	25
Theberton	2 ch	sou	160	28
	3 do	bro pek fans	300	28
	2 do	pek fans	200	25
	2 do	dust	200	24
U K	6 ch	sou	600	25
Oolapane	9 ch	pek	810	35
	2 hf ch	pek sou	110	28
	6 do	dust	510	26
	2 do	fans	150	28
Oonanagalla	3 hf ch	dust	255	27
	4 do	fans	280	28
D Y	*5 hf ch*	*young hyson*	*260*	38
	3 do	*hyson No 1*	*129*	36
	4 do	*hyson*	*160*	25
Charlie Hill	17 hf ch	bro pek	935	38
	16 do	pek	800	30
	6 do	pek sou	300	27
	1 do	dust	90	24
Ahamed	15 hf ch	bro pek	750	33
	9 do	pek	450	28
	1 do	dust	70	25
New Valley	4 ch	pek sou	360	33
	9 do	pek No. 2	900	31
	2 hf ch	dust	180	26
D M O G in est mark	2 hf ch	dust	170	26
	3 do	fans	180	26
	2 ch	bro mix	170	25
Bollagalla	5 hf ch	dust	450	26
	8 do	fans	560	26
Gwernet	7 ch	pek sou	560	29
	1 hf ch	dust No 1	89	28
	2 do	dust	210	26
C in estate mark	1 hf ch	pek sou	47	26
	1 do	dust	63	24

	Pkgs.	Name.	lb.	c.
Carriglea	8 hf ch	bro pek fans	560	28
	2 ch	pek No. 1	200	39
	1 do	pek No. 2	100	35
	1 do	pek sou	95	28
	3 hf ch	dust	225	26
Monrovia	8 ch	pek	720	30
	1 do	pek sou	90	28
	1 do	unas	95	28
	3 do	fans	300	26
Ambalawa	9 ch	bro pek	900	33
San Cio	3 hf ch	dust	210	27
	6 ch	sou	438	27
Mary Hill	9 hf ch	bro or pek	450	53
	6 do	bro pek fans	390	34
	3 do	dust	255	26
Mount Temple	9 ch	pek sou	675	28
S W	1 ch	bro pek	105	25
	1 hf ch	pek	50	24
	1 do	dust	80	20
Kurunegalle	2 ch	pek sou	190	27
	6 hf ch	dust	588	26
Jak Tree Hill	4 ch	pek sou	348	28 bid
	1 do	fans	97	27
	2 do	dust	280	24 bid
G B	12 hf ch	dust	600	26
Attabahena	5 do	bro pek	280	34
	5 do	pek	250	26
Scarborough	10 ch	or pek	950	38 bid
Beausejour	9 ch	br or pek	895	39
Kallebokka	2 ch	pek sou	220	30
	2 do	fans	250	27
Ravenscraig	3 hf ch	bro pek fans	189	30
	5 do	dust	425	25
Monte Christo	10 ch	pek sou	900	30
	2 do	sou	200	27
	2 ch			
	1 hf ch	fans	260	30
	4 hf ch	dust	340	26
	4 ch	bro tea	380	26
Warakamure	10 ch	pek sou	800	26
	2 hf ch	dust	170	22
P T N in est mark	12 hf ch	pek sou	672	25
	1 do	dust	85	23
Avisawella	4 ch	sou	320	26
	7 hf ch	dust	525	27
St Andrews, K	13 hf ch	bro pek	780	39
	8 do	pek	440	31
	1 do	pek sou	52	28
	1 do	dust	86	25
Oonankande	14 hf ch	bro pek	700	withd'n
	4 do	pek sou	280	
	4 do	dust	234	
Murraythwaite	5 ch	pek sou	376	28
	2 do	bro pek fans	280	27
	1 do	dust	175	19
Old Maddegama	9 ch	or pek	720	38
	7 do	pek sou	595	30
	5 do	bro or pek fans	500	29
	2 hf ch	dust	180	26
Homelea	2 ch	twanky	200	13
Yahalatenne	11 ch	pek sou	968	32
Weygalla	15 hf ch	bro or pek	795	60 bid
	14 do	bro pek	840	40
	7 ch	pek sou	700	32
	3 hf ch	dust	220	30
Narangoda	3 ch	sou	270	25
	2 do	unasorted	128	24
Raven Oya	7 ch	pek sou	700	28
	1 do	sou	80	27
	3 do	fans	450	26
Meddegodda	14 hf ch	bro or pek	910	40
	10 do	or pek	500	38
	13 do	pek sou	650	27
Nebcda	3 ch	pek fans	200	28
	4 do	pek sou	416	27
	6 hf ch	dust	510	24
	2 bags	tea fluff	149	6 bid
Neuchatel	4 ch	dust	580	26
	1 do	bro mixed	80	25
California	5 ch	bro pek	500	35
	7 do	pek sou	700	26
	1 do	dust	150	24
Beausejour	5 ch	pek sou	375	26
B F	4 hf ch	dust	360	26
A	1 hf ch	bro or pek	60	38
	1 do	bro pek	60	32
	1 do	pek	50	28
Coorondoowatte	2 ch	bro pek	200	40
	6 do	pek	600	33
	8 do	pek sou	800	28
	3 do	pek fans	360	26
	1 do	dust	112	23
Owilikande	7 ch	pek sou	630	26
	3 hf ch	dust	240	24
Highfields	16 hf ch	or pek	733	39

	Pkgs.	Name.	lb.	c.
F F	8 hf ch	dust	680	27
	4 ch	pek sou No 1	360	33
	2 do	pek sou No 2	200	27
Rayigam	*2 ch*	*hyson No 2*	*200*	35
	10 hf ch	*siftings*	*800*	10 bid
Southwold	11 ch			
	1 hf ch	siftings	854	12
Mahavilla	14 hf ch	bro or pek	798	36
	4 do	sou	204	26
	8 do	dust	640	27
Ferriby	4 ch	sou	360	27
	11 hf ch	fans	660	29
	8 do	dust	640	26

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Loolecondera	4 ch	bro mix	320	24
Aruaimallai	5 ch	bro pek	500	30
	3 do	pek	300	28
	2 do	pek sou	200	26
	1 hf ch	dust	85	25
Panawatte	10 ch	or pek	900	36
	4 do	dust	600	26
	1 do	fans	110	28
Moray	11 ch	pek No 2	902	32
	7 hf ch	dust	525	27
T C L, in est mark	1 ch	pek fans	100	27
	2 hf ch	bro pek dust	140	26
Wewewatte	8 ch	bro pek	544	35
	9 do	pek	522	29
	1 do	dust	79	25
E D P	9 ch	sou	720	27
Theberton	3 ch	pek	255	30
A B C	9 ch	bro or pek	924	37
D E	5 ch	pek sou	425	27
Uddpola	*5 ch*	*young hyson*	*475*	37
	9 do	*hyson*	*720*	35
	6 do	*hyson No 2*	*480*	*35*
	2 hf ch	dust	159	10
Udapola	4 ch	bro pek	380	37
	5 do	pek	425	29
	3 d	pek sou	225	28
Nakiadenia	*7 ch*	*hyson No 2*	*595*	*35*
Glaslyn	5 ch	pek	475	34 bid
	1 do	pek sou	90	30 bid
	3 do	fans	390	27 bid
Syvakandy	8 ch	bro or pek No 1	800	38
	7 do	bro pek	700	47
	8 do	or pek	800	27
	3 do	pek sou	285	29
	2 do	dust	200	26
Dammeria	5 ch	bro or pek	500	38
	3 do	bro pek fans	330	29
	2 do	dust	260	24
Ruanwella	10 ch	or pek	900	84
	7 do	pek sou	630	27
	6 do	pek fans	630	29
	3 hf ch	dust	240	25
Morankande	11 ch	pek sou	770	23
	4 hf ch	bro or pek fans	280	27
	2 do	dust	180	25
Aberdeen	7 hf ch	bro pek fans	511	26
Kalupahana	7 ch	bro pek	700	35
	4 do	pek	380	27
	3 do	bro pek fans	315	26
	3 do	pek sou	270	26
	1 do	fans	81	22
	1 hf ch	dust	85	22
Dewalakande	4 hf ch	siftings	220	14
	4 do	green dust	300	10
Troy	*1 ch*	*hyson No 2*	*115*	35
	2 do	*siftings*	*210*	13
	1 do	dust	145	9
Dunedin	*7 ch*	*hyson No 2*	*644*	35
	6 hf ch	fans	384	14
	2 do	dust	168	10
Templehurst	6 ch	pek	540	40
	3 do	pek sou	240	36
Poonagalla	8 ch	fans	672	29
Kabragalla	3 hf ch	dust	255	25
	5 do	pek fans	300	26
V O A	4 hf ch	dust	252	27
Ardlaw and Wishford	7 ch			
	1 hf ch	fans	768	31
	2 ch	dust	200	26
S W	1 ch	bro pek	102	38
	1 do			
	1 hf ch	pek	123	28
	2 ch	pek sou	170	27
Fetteresso	11 hf ch	dust	990	28
Tonacombe	7 hf ch	dust	595	26
Glendon	13 hf ch	bro pek fans	910	24
New Peacock	12 hf ch	bro mixed	600	27
M K	7 ch	red leaf	511	wi hd'n

	Pkgs.	Name.	lb.	c.
Rickarton	5 ch	pek sou	500	30
	3 do	bro pek fans	360	36
	2 do	fans	240	29
	3 do	dust	375	20
Erlsmere	2 ch	pek sou	164	36
	3 hf ch	dust	240	27
Culloden	*4 ch*	*hyson No 2*	*440*	35
	1 do	*hyson No 2*	*52*	35
	5 do	*siftings*	*360*	10
Vogan	3 ch	pek fans	375	27
	8 hf ch	dust	640	26
Penrhcs	4 hf ch	fans	240	28
	2 do	pek dust	144	24
Nugagalla	4 hf ch	dust	360	26
Roigill	18 hf ch	br or pek	900	60 bid
	8 hf ch	bro or pek fans	496	31
	7 do	dust	560	27
H G M	2 ch	sou	170	25
Swinton	11 ch	pek	990	31
Ireby	10 ch	pek sou	850	36
	4 hf ch	dust	280	35
	7 do	pek	595	27
Kitulgalla	5 hf ch	dust	400	26
	3 ch	bro or pek fans	345	27
Good Hope	0 hf ch	pek sou No 2	330	27
	5 do	fans	350	26
Ookoowatte	1 ch	pek fans	120	23
	1 do	pek sou	80	27
	1 hf ch	dust	100	22
Hanwella	*4 hf ch*	*hyson No 2*	*260*	35
	4 do	*hyson siftings*	*380*	10
Panapitiya	7 ch	bro pek	665	24
	4 do	or pek	400	34
	9 do	pek	810	30
	1 do	pek sou	71	27
Bloompark	7 ch	siftings	595	14
Galagoda	1 ch	bro pek	112	30
	1 do	pek	104	27
	2 do	pek sou	166	26
Nyangodde	5 hf ch	br or pek fans	375	26
K	*9 hf ch*	*young hyson*	*504*	36
	7 do	*hyson*	*665*	24
	2 hf ch	*yng hyn siftings*	*126*	13
	2 ch	sou	182	15 bid
	1 hf ch	dust	81	10
	1 do	dust	30	8
Coreen	12 hf ch	pek fans	840	32
	4 do	dust	340	26
Walpita	7 ch	pek sou	560	27
	3 do	sou	255	26
	3 do	dust	435	25
Siriwatte	6 ch	or pek	510	35
	11 do	bro pek sou	990	28
	6 do	bro pek fans	420	31
	5 do	fans	400	27
Great Valley, Ceylon in estate mark	10 hf ch	pek sou	820	31
	3 do	sou	243	27
	11 do	dust	880	27
	1 do	bro pek	90	33
Munukettia, Ceylon in estate mark	8 hf ch	dust	640	27
K W D, in est mark	7 hf ch	bro or pek fans	490	33
	1 ch	dust	120	26
C R, D	3 ch	sou	240	27
	1 do	red leaf	80	18
	6 do	dust	600	26
	2 do	pek	170	28
Agra Oya	2 hf ch	pek	106	30
	2 ch	bro pek	200	34
	8 hf ch	dust	760	26
Hanwella	*4 hf ch*	*hyson No 2*	*276*	24
	5 hf ch	*hyson siftings*	*450*	10
B B in est. mark	3 ch	bro pek	270	31
	3 do	pek	240	26
Illagolla	10 ch	pek sou	800	27
	2 do	red leaf	120	22
K P W	6 hf ch	pek fans	450	28
	3 do	dust	270	26
Adisham	4 ch	pek sou	340	40
Laurawatte	5 hf ch	fans	540	26
Mawiligangawatte	4 ch	dust	480	26
Laurawatae	8 ch	pek sou	720	30
Eorbes	10 hf ch	pek	540	38
	3 do	red leaf	153	25
Sylvakandy	9 ch	bro or pek No 1	900	48
	8 do	bro pek	800	38
	1 do	pek sou	100	38
	2 ch	dust	200	30
Monterey	4 ch	fans	400	27
	6 hf ch	dust	480	26
	11 ch	pek souc	990	28
	4 ch	sou	360	26
	3 ch	fans	300	34
A O H	12 hf ch	bro or pek	708	36
Snowdon Range	11 hf ch	bro pek	630	44

	Pkgs.	Name.	lb.	c.
Naseby	13 hf ch	bro or pek	780	76
	10 do	or pek	470	65
	13 do	pek	650	55
	8 hf ch	pek sou	400	43
	4 hf ch	dust	390	31
I K Y	1 ch	sou	105	27
	4 ch	dust	480	27
	1 ch	pek fans	106	27
K P W	8 hf ch	pek sou	400	28
Bowella	2 ch	pek fans	180	27
Talgaswela	6 hf ch	dust	498	23
G A M	11 ch	pek sou	957	26
Palmerston	11 ch	pek sou	825	41
	9 hf ch	dust No 1	765	28
	9 do	pek fans	630	34
S R	3 ch	dust	450	26
Bellongalla	8 ch	or pek	720	36
	9 do	bro or pek	945	37
	1 do	dust	155	24
	3 ch	bro or pek fans	345	29
M M W	*1 hf ch*	*young hyson*	*55*	31
	1 do	*hyson No 1*	*45*	31
	1 do	*twanky*	*57*	10
	1 do	*siftings*	*70*	8
	3 ch	*green tea*	*240*	12
Detenagalla	8 ch	bro pek	496	42
	9 do	pek sou	900	30 bid
	4 do	fans	320	27
	16 do	bro or pek	980	49 bid
Bogahagodawatte	7 ch	pek sou	700	27
	1 do	fans	125	26
Weyungawatte	12 ch	pek sou	960	28
	1 do	sou	80	26
	2 hf ch	dust	170	25
Torwood	2 ch	dust	232	23
Edward Hill	5 hf ch	dust	355	24
Aberdeen	9 ch	or pek	738	35
	6 do	sou	450	27
	2 hf ch	bro pek fans	140	26
Polatagama	2 ch	dust	300	24
T B	4 hf ch	dust	300	26
	4 do	fans	240	27
	2 do	bro mix	160	24
Lindoola	9 ch	pek	900	31
New Galway	7 hf ch	bro pek	420	55
	7 do	pek	335	43
	2 do	pek sou	100	29
Glenorchy	1 ch	unassorted	42	30
	6 do	fans	420	35
W E	1 ch	red leaf	93	16
	6 do	bro mix	600	26
	1 do	fans	130	7
Beverley	5 hf ch	pek sou	235	28
	12 do	bro or pek fans	804	33
	5 do	dust	430	26
	15 hf ch	bro or pek	900	withdn
	2 do	bro or pek fans	140	withdn
Holton	6 hf ch	pek sou	270	29
	6 do	fans	330	30
	4 do	dust	340	24
Lower Kananka	6 ch	bro pek	575	35
	8 do	pek	800	20
	3 do	pek sou	275	26
	1 do	dust	155	23
Devonford	13 hf ch	bro or pek	741	77
	8 ch	pek sou	664	43
	2 hf ch	bro mix	126	39
	5 do	dust	585	20
Parna	11 ch	pek sou	792	28
	2 hf ch	dust	170	26
	2 do	fans	180	25
	1 do	unassorted	51	26
	1 do	bro mix	70	27

No. 3. COLOMBO, JANUARY 21st, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[32,501 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	18 ch	or pek	1800	42
	20 do	pek	1700	37
Coodoogalla	47 hf ch	bro pek	2350	36
Hornsey	21 ch	pek sou	1575	31
	2 hf ch	dust	1020	27
O H O	26 ch	pek sou	2340	26
	10 do	fans	1120	29
Bunyan & Ovoca	44 hf ch	bro or pek	2420	54 bid
	42 do	or pek	2100	41 bid
	20 ch	pek	1800	37 bid
	14 do	pek No. 2	1330	39 bid
	20 do	pek sou	1790	34 bid
	17 hf ch	pek fans	1105	30 bid
Mapitigama	*13 ch*	*young hyson*	*1430*	*38*
	12 do	*hyson No 1*	*1296*	*35*

Messrs. Keell and Waldock.

[106,945 lb.]

	Pkgs.	Name.	lb.	c.
Galla	28 ch	bro pek	2800	34 bid
Meath	19 hf ch	bro or pek	1007	41 bid
	10 ch	pek	1000	34 bid
Maldeniya	27 ch	bro or pek	2700	40
	30 do	pek	2700	30
	24 do	or pek	2400	35
Hyde	18 ch	or pek	1476	41
	55 hf ch	bro or pek	3025	46 bid
	34 ch	pek	2958	35
Galgedioya	24 ch	bro pek	2400	37
	35 do	pek	3150	28 bid
	25 do	pek sou	2250	26 bid
Dunnottar	19 ch	pek	1615	34
Woodend	27 ch	bro pek	2700	36
	25 do	pek	2250	28 bid
H	17 ch	bro or pek	1870	32 bid
Alpha	19 ch			
	1 hf ch	bro pek	1860	34
	16 ch	pek	1280	29
P K E	13 hf ch	dust	1144	22 bid
Gampai	36 hf ch	or pek	1692	32 bid
	52 do	bro or pek	2808	34 bid
	29 ch	pek	2320	28 bid
	21 do	pek sou	1824	26 bid
Taprobana	20 hf ch	bro or pek	1000	40
Totakande	*11 ch*	*hyson No 1*	*1056*	*35*
	10 do	*hyson No 2*	*1000*	*34*
Dollawelle	11 ch	pek	1034	23 bid
Panilkande	26 ch	bro or pek	2600	37 bid
	14 do	pek	1260	32
Morahela	29 ch	bro pek	2900	38 bid
	20 do	or pek	1880	34
	19 do	pek	1710	27 bid
Anning Kande	24 ch	bro pek	2400	35 bid
	20 do	pek	1900	30
X V	16 ch	bro pek	1680	26 bid
B P L	19 ch	bro pek	2525	26 bid
A in est. mark	19 ch	bro tea	1590	14 bid
Battalawatte	44 hf ch	bro or pek	2420	38
	20 ch	pek	1800	30
	16 do	pek sou	1440	27 bid
G K in est. mark	18 hf ch	bro pek	1080	54
Battalawatte	27 hf ch	bro or pek	1485	37

Messrs. Somerville & Co.

[261,665 lb.]

	Pkgs.	Name.	lb.	c.
Dartry	26 hf ch	fans	1924	25
Maligatenne	11 ch	bro pek	1100	32
	14 do	pek	1148	28
Dodantella	17 ch	bro pek	1700	36
	27 do	pek	2160	23 bid
Karangalla	17 ch	bro pek	1700	36
	16 do	pek	1280	30
Nyanza	26 hf ch	bro or pek	1430	49
	22 ch	pek	2090	36
Kabatungoda	22 hf ch	bro or pek	1232	50
	13 ch	or pek	1287	37 bid
	14 do	pek	1344	36
	16 hf ch	bro pek	1104	30
Walla Valley	22 ch	bro or pek	12[illegible]0	60
	15 do	or pek	1350	45
	58 do	pek	2880	42
B and D	12 ch	unassorted	1080	30
Southwark	51 ch	bro pek	4845	24
	16 do	pek	1280	30
	12 hf ch	dust	1044	25
Grange Garden	17 ch	bro or pek	1700	49
	15 do	or pek	1500	37 bid
	25 do	pek	2375	36
Oonankande	33 hf ch	pek	1815	33
Mowbray	13 ch	bro pek	1300	41
Ingeriya	15 ch	bro or pek	1500	36
	15 do	bro pek	1350	34
	18 do	pek	1800	31
	16 do	pek sou	1440	28
	12 do	sou	1200	26
Siriniwasa	12 ch	pek	1140	30
	24 do	pek sou	2160	27
Elchico	20 ch	bro or pek	2000	42
	15 do	or pek	1350	33
	12 do	pek	1140	30
	12 do	pek sou	1080	27
Kallebokka	14 ch	or pek	1050	38 bid
X Z	20 hf ch	pek fans	1700	28
Theberton	22 ch	bro pek	1980	37
	26 do	pek	2340	31
Wattemulle	23 hf ch	bro pek	1380	37 bid
	15 ch	pek	1350	32
Hanagama	19 ch	or pek	1900	33
	25 do	pek	2500	29 bid
S R K	10 ch	pek	1000	37
Agra Elbedde	49 hf ch	bro or pek	2744	53
	42 do	or pek	2310	42
	34 do	pek	1584	40
Eilandhu	16 ch	pek	1440	28
Kudaganga	10 ch	bro pek	1000	35
Damblagolla	12 ch	or pek	1080	35
	21 hf ch	bro pek	1260	34 bid
	16 ch	pek	1360	29 bid
	13 do	pek sou	1040	27 bid
Walla Valley, X	29 hf ch	bro or pek	1595	61
	13 ch	or pek	1170	46
	33 do	pek	2805	42
Farnham	13 ch	pek	1170	29 bid
Farnham	*14 ch*	*young hyson*	*1484*	*26 bid*
Scarborough	26 hf ch	bro or pek	1456	50 bid
	15 ch	or pek	1350	39 bid
	24 do	pek	2280	36
	17 hf ch	fans	1122	29 bid
Mora Ella	29 hf ch	bro or pek	1450	45
	22 ch	pek No 1	2040	31 bid
Annandale	27 hf ch	or pek	1404	44
	21 do	or pek	1176	41
	36 do	pek	1980	39
Kannattota	11 ch	bro pek	1045	23 bid
Cooroondoowatte	12 ch	pek	1200	31
	11 do	pek sou	1100	27
Laxapanagalla	12 ch	bro or pek	1200	38
	26 do	or pek	2444	30
Labugama	26 ch	pek	2210	29
	17 hf ch	bro or pek	1020	36
St Catherine	18 hf c	bro or pek	1000	39
	12 ch	pek	1083	33
Selvawatte	34 hf ch	bro pek	1870	34
	10 ch	pek	1000	28
Ferndale	10 ch	bro or pek	1000	50
	18 do	pek	1820	36
	11 do	pek sou	1001	31
Bodava	45 hf ch	bro pek	2250	37
	15 ch	pek	1350	30
	15 do	pek sou	1275	27
Homeleo	*17 ch*	*foong mee*	*1530*	*35 bid*
Blinkbonnie	40 hf ch	bro or pek	2400	56
	14 ch	or pek	1260	46
	18 ch	pek	1656	44
Mahatenne	13 ch	bro or pek	1300	38
	20 do	or pek	1900	34
	20 do	pek	1800	31
Avaisawella	21 hf ch	bro or pek	1050	49
	15 ch	or pek	1425	36
	19 do	pek	1710	33
	14 do	pek sou	1120	27
Harrangalla	41 ch	bro or pek	3690	36
	29 do	bro pek	2900	38 bid
	65 do	pek	5525	30
	21 do	pek sou	1920	26 bid
Columbia	15 ch			
	1 hf ch	bro or pek	1555	49
	25 ch	pek	2375	36
	15 ch	pek sou	1275	33

	Pkgs.	Name.	lb.	c.
Highfields	20 hf ch	bro or pek	1100	44
	22 do	or pek	1056	40
	28 do	pek	1400	36
Pindeni Oya	10 ch	bro or pek	1000	39
	16 do	or pek	1440	34
	24 do	pek	2040	31
	17 do	pek sou	1445	26 bid
Roseneath	21 ch	bro pek	2100	34 bid
	19 do	pek	1710	28 bid

Messrs. E. John & Co.

[322,407 lb.]

	Pkgs.	Name.	lb.	c.
Galkanda	12 ch	bro or pek	1140	29 bid
	13 do	pek	1105	26 bid
Cloveland	15 ch	bro pek	1500	31 bid
	13 do	pek	1300	27
Kandaloya	51 hf ch	pek	2037	w'drawn
S J	12 ch	pek	1020	27 bid
Glentilt	58 hf ch	bro or pek	3190	61 bid
	36 ch	or pek	3240	48
	35 do	pek	3150	44
	13 hf ch	fans	1040	34
Mocha	47 hf ch	bro or pek	2820	60
	28 ch	or pek	2520	48
	32 hf ch	fly or pek	1600	56
	28 ch	pek	2576	45
Eila	33 ch	pek No. 1	2475	29
	16 do	or pek	1280	36
Fordyce	29 hf ch	dust	2610	26
Morton	26 ch	bro or pek	2700	34 bid
	20 do	or pek	1700	34
	24 do	pek	1920	28
Bittacy	21 do	bro pek	2058	44
	16 ch	pek	1344	39
Chemnitz	*59 ch*	*young hyson*	*4720*	37
	40 ch	*hyson*	*3000*	35
	30 do	*hyson No 2*	*2250*	35
	31 do	*siftings*	*3720*	13
Elston	33 ch	pek	2640	31 bid
	46 do	pek sou	3910	28 bid
	24 hf ch	dust	2040	26
	16 do	bro mixed	1120	27
Higham	40 ch	bro pek	4000	38
	30 ch	pek	2850	31
	18 ch	pek sou	1620	26 bid
Nahavilla	24 ch	or pek	2160	36 bid
	32 do	bro pek	3200	41 bid
	17 do	pek	1530	30 bid
	20 do	pek sou	1600	28 bid
G B	24 hf ch	fans	1680	29
M L W	13 ch	bro pek	1300	38 bid
Lameliere	49 ch	bro or pek	2940	44
	16 ch	or pek	1440	37 bid
	41 do	pek	3772	34 bid
Eila	*27 ch*	*young hyson*	2700	38
Agra Ouvah	39 hf ch	bro or pek	2340	61 bid
	27 do	or pek	1458	43
	11 ch	pek	1012	42
	13 do	pek sou	1170	36
	26 hf ch	pek fans	2080	29
Glasgow	24 hf ch	bro or pek	1440	67 bid
	21 ch	bro pek	2100	50
	30 do	or pek	2790	45
	17 do	pek	1700	44
	27 hf ch	pek fans	1917	33
Villa	46 do	pek	2166	37 bid
Oonoogaloya	21 ch	or pek	1680	40
	16 do	bro or pek	1520	54
	31 do	pek	2790	36
Gingranoya	10 ch	bro or pek	1000	45
	37 do	pek	2960	34
Ottery	17 do	bro or pek	1700	50
	22 do	pek	2002	33 bid
R	11 ch	unassorted	1045	28 bid
Glasgow	16 do	bro pek	1600	40 bid
Wargalande	23 do	bro or pek	2300	41 bid
	22 do	pek	1980	31
St Johns	15 do	or pek	1347	45 bid
Mt Vernon	39 ch	pek	3510	39
	26 do	pek sou	2197	38
	18 hf ch	dust	1476	27
Lameliere	49 hf ch	bro or pek	2940	45
	16 ch	or pek	1440	39
	41 ch	pek	3772	36
Mt Vernon	25 ch	pek	2200	40
Mossend	17 hf ch	bro or pek	1020	56 bid
	27 do	or pek	1485	46 bid
	24 do	pek	1200	44
K V	27 ch	bro or pek	2700	30 bid

	Pkgs.	Name.	lb.	c.
Myraganga	14 ch	or pek	1260	37
	11 do	br or pek No 1	1100	47 bid
	30 do	br or pek No 2	3000	42
	16 do	pek	1360	35
	17 do	bro pek	1445	38
	11 do	br or pek No 1	1100	47 bid
	43 hf ch	br or pek No 2	4300	41
	17 ch	pek	1360	35
T in est mark	20 hf ch	bro pek	1320	26 bid
Galloola	20 ch	bro pek	2000	47
	25 do	pek	2250	38
	22 do	pek sou	1760	32
Rondura	10 ch	bro pek	1000	39
	11 do	or pek	1045	39
	13 do	pek	1300	34
O W	27 do	bro pek	2484	35
	28 do	pek	2240	27 bid
	21 do	pek fans	1365	27
Ohiya	23 ch	or pek	2231	45
	31 hf ch	bro pek	1705	50 bid
	24 ch	pek	2016	39
Mahanilu	42 hf ch	or pek	2100	45
	28 do	bro or pek	1288	55
	41 ch	pek	3936	37
Glassaugh	32 hf ch	or pek	1792	63
	29 do	bro or pek	2001	55
	19 ch	pek	1995	47
Brownlow	36 hf ch	bro or pek	2016	54 bid
	36 ch	or pek	3420	39
	21 do	bro pek	1764	43
	44 do	pek	3696	34
	19 do	pek sou	1520	29
G T	15 ch	pek	1350	27 bid
Balado	12 ch	pek	1080	28 bid
	29 do	pek sou	2175	28
Kelaniya & Braemar	16 ch	bro or pek	1600	50
	13 do	bro pek	1300	40
	35 do	pek	3325	35
Winwood	25 hf ch	bro or pek	1375	48
	27 ch	or pek	2565	37 bid
	24 do	pek	2160	34
	17 do	pek sou	1530	31
	22 do	or pek No 2	1210	41
Natuakelle	14 ch	bro or pek	1400	44
	19 do	or pek	1710	34
	19 do	pek	1710	31 bid
Gangawatte	27 ch	bro or pek	2700	53
	22 do	bro pek	2200	40
	38 do	pek	3420	36

Messrs. Forbes & Walker.

[691,343 lb.]

	Pkgs.	Name.	lb.	c.
N	11 ch	pek fans	1430	25
M P	18 hf ch	sou	1440	25
Panawatte	14 ch	bro or pek	1510	46
	21 do	bro pek	2205	39
	37 do	pek	3700	33
	24 do	pek sou	2280	31
	8 do	dust	1200	26
Coldstream Group	40 hf ch	bro or pek	2200	46
	88 do	bro pek	4400	38
	49 ch	pek	3920	33
	14 do	pek sou	1120	27 bid
Irex	23 ch	or pek	2300	39
	15 do	or pek	1200	37
	16 do	pek	1440	30
Walton	23 ch	bro pek	2415	39
	15 do	or pek	1275	34
Norfock	14 ch	pek	1260	33
Castlereagh	80 hf ch	bro or pek	3600	50
	19 ch	bro pek	1900	40
	17 do	or pek	1360	37
	17 do	pek	1360	36
Glengariffe	33 hf ch	bro or pek	1914	47
	30 ch	pek	2730	33
	34 do	or pek	2890	38
	13 hf ch	dust	1040	27
Mousakelle	23 ch	bro or pek	2300	49
	22 do	pek	1980	35
	20 do	or pek	1900	38
Dunkeld	55 hf ch	bro or pek	3190	51
	17 ch	or pek	1530	41
	22 do	pek	1980	38
	22 hf ch	pek fans	1494	32
	15 do	dust	1350	26
Seenagolla	22 hf ch	bro or pek	1320	62
	21 do	pek	1134	45
Clunes	20 ch	bro pek	2000	38
	23 do	or pek	2070	35
	52 do	pek	4680	30
Ruanwella	18 ch	bro or pek	1800	36 bid
	16 do	or pek	1440	34
	26 do	pek	2340	29

	Pkgs.	Name.	lb.	c.
Polatagama	18 ch	bro or pek	1800	44
	20 do	bro pek	1900	37 bid
	70 do	pek	6650	30 bid
	25 do	pek sou	2375	27 bid
Putupaula	10 ch	bro or pek	1000	51 bid
	54 do	or pek	4590	33 bid
	54 do	pek	4050	29 bid
Matale	49 hf ch	bro pek	2695	42
	21 ch	pek	1890	30 bid
	15 do	pek sou	1275	28
Vincit	20 ch	bro pek	2000	36
	25 do	pek	2250	29
Sirikandure	20 ch	bro pek	2000	39
	22 do	pek	2090	31
	19 do	pek sou	1615	26
Choisy	35 hf-ch	bro or pek	1925	47
	15 ch	or pek	1275	36 bid
	29 do	pek	2610	31
	30 hf ch	bro or pek	1650	47
	12 ch	or pek	1020	36 bid
	27 do	pek	2430	30 bid
Glencorse	21 ch	bro pek	2205	40
	18 do	or pek	1800	38
	14 do	pek	1260	32
	16 do	pek No 2	1250	29
	14 hf ch	pek sou	1050	28
	12 ch	dust	1020	26
Kirrimettia	*42 ch*	*young hyson*	*3780*	58
	63 do	*hyson No 1*	*5670*	35
	12 do	*hyson No 2*	*1020*	35
	16 hf ch	*siftings*	*1120*	14
Dromoland	24 hf ch	br or pek No 1	1392	46
	11 ch	br or pek No 2	1001	38
	12 do	pek	1000	29 bid
N W D	18 hf ch	dust	1118	27
Summerville	13 ch	bro or pek	1560	56
	13 do	pek	1170	42
S V, in est mark	12 ch	pek sou	1080	30
Wallaha	21 ch	bro tea	2100	27
E H	22 hf ch	dust	2134	23
Madulkelle	23 ch	pek No 1	2070	33
	21 do	pek	1680	30
	24 do	sou	1800	28
Bowlana	52 hf ch	bro or pek	3120	45
	24 ch	or pek	2160	36
	31 do	pek	2720	31
Udaveria	34 hf ch	bro or pek	2040	68
	56 do	br or pek No 1	3360	61
	27 ch	or pek	2484	46
	19 do	pek	1615	42
Knavesmire	32 ch	bro pek	3360	38
	35 do	pek	2975	31
Erracht	20 ch	bro or pek	2000	40
	21 do	or pek	1890	34 bid
	50 do	pek	3750	29
B W	*15 hf ch*	*twanky No 1*	*1140*	12
	60 do	*twanky No 2*	*3000*	11
High Forest	49 hf ch	or pek No 1	2352	56
	54 do	bro pek	2836	58
	32 do	or pek	1600	51
	24 do	pek	1104	47
	59 do	pek dust	2925	33
Waldemar	17 hf ch	bro or pek	1020	51 bid
	10 ch	bro pek	1150	46
	20 do	or pek	1900	42
Yogan	21 ch	bro or pek	2100	59
	35 do	or pek	3150	35
	45 do	pek	4050	31
	21 do	pek sou	1785	27 bid
Penrhos	19 hf ch	bro or pek	1045	48
	34 ch	pek	2822	30 bid
Tempo	18 ch	bro or pek	1620	39 bid
	24 do	or pek	2040	33
	23 do	pek	1840	30
	13 do	pek sou	1014	27
	11 do	bro pek fans	1100	31
Rickarton	10 ch	bro or pek	1000	56 bid
	20 do	or pek	2000	38
	10 do	bro pek	1000	42
	20 do	pek	2000	35
Nakiadeniya	*22 hf ch*	*young hyson*	*1342*	38
	14 ch	*hyson*	*1190*	35
Florence	24 hf ch	bro or pek	1340	72
	20 ch	or pek	1900	51
	48 do	pek	4224	44
Panmure	32 hf ch	bro or pek	1600	52 bid
	56 do	or pek	2800	38
	40 ch	pek	3600	32 bid
	18 hf ch	br or pek fans	1080	35 bid
Errollwood	23 hf ch	bro or pek	1380	43 bid
	12 ch	pek	1140	32 bid
	15 do	pek sou	1650	18
Monkswood	25 hf ch	bro or pek	1500	78
	54 do	or pek	2700	52 bid
	52 ch	pek	4784	46

	Pkgs.	Name.	lb.	c.
Middleton	22 hf ch	bro or pek	1320	85
	43 ch	bro pek	4300	55
	38 do	or pek	3230	47
	32 do	pek	2720	45
Handford	21 ch	bro pek	2100	39
	14 do	pek	1330	30
Mousa Eliya	19 ch	bro or pek	1850	39
	35 do	bro pek	3477	36
	33 do	pek	3135	30
Queensland	24 hf ch	bro or pek	1200	62 bid
	21 ch	bro pek	2100	50
	15 do	pek	1200	38
Y S P A	19 ch	pek	1900	29 bid
St Heliers	28 hf ch	bro or pek	1568	44
	12 ch	pek	1140	36
Carlabeck	25 ch	pek	2300	36
	14 do	pek sou	1372	34
	9 do	bro pek fans	1206	32
C B	15 ch	bro pek	1650	28
	15 do	pek	1500	27
Rajawatte	10 ch	bro or pek	1050	53
	11 do	or pek	1045	37
	12 do	pek	1080	33
Eastlands	12 ch	bro or pek	1200	48
	21 do	or pek	1722	33 bid
Poonagalla	15 ch	or pek	1410	45
	34 do	bro pek	3740	54
	23 do	pek	2116	40
Marlborough	36 hf ch	bro or pek	1980	55
	17 ch	bro pek	1700	45
	67	pek	55[illegible]6	36
Maha Uva	33 hf ch	bro or pek	1980	43 bid
	18 ch	or pek	1800	43
	32 do	pek	2880	36
	20 do	pek sou	1600	30 bid
Dickhena	32 ch	bro or pek	3200	35
	22 do	bro pek	2200	31 bid
	19 do	or pek	1743	31 bid
	12 de	pek	1020	27
	17 do	pek sou	1445	26
Yataderia	23 ch	bro or pek	2392	35
	35 do	or pek	3220	31 bid
	32 do	pek	2560	27
	14 do	pek sou	1120	26
Dickhena	26 ch	bro or pek	2[illegible]04	34 bid
	25 do	or pek	2300	31 bid
	31 do	pek	24[illegible]0	27
Avoca	18 ch	bro or pek	1872	62
	24 do	or pek	2400	42
	17 do	pek	1530	36
Hatton	41 ch	bro pek	4100	55
	36 do	pek	3[illegible]40	40
Vatiana	16 do	or pek	1648	29
Tembiligalla	30 ch	br or pek No 1	3000	37
	20 do	br or pek No 2	2120	34
	23 do	pek	2254	30
	11 do	pek sou	1078	29
O B E C, Sindumally	11 ch	bro or pek	1100	48
	20 do	or pek	1900	38
	36 do	pek	3060	31
	19 do	pek sou	1425	29
Dunbar	31 hf ch	bro pek	1798	55
	15 ch	pek	1350	43
Clarendon, Dimbula	36 hf ch	bro pek	2160	38 bid
	28 ch	pek	2436	43 bid
	25 do	pek sou	1975	34 bid
Pungetty	24 ch	bro or pek	2592	54
	29 do	or pek	2[illegible]58	44
Amblakande	12 ch	bro pek	1200	40
	27 do	pek	2495	29
Cloyne	20 hf ch	bro or pek	1120	50
	10 ch	bro pek	1004	42
	16 do	or pek	1680	35
	24 do	pek	2160	30
Ambragalla	23 hf ch	bro or pek	1288	42 bid
	13 do	pek	1040	32 bid
Attabage	13 ch	bro mix	1430	withd'n
M L	15 do	bro pek	1650	27
Moray	28 hf ch	br or pek	1585	56
	26 do	or pek	1144	45
	15 ch	bro pek	1575	39
	29 do	pek	2523	38
	14 do	pek No 2	1148	33
Pine Hill	19 hf ch	br or pek	1102	49
	17 ch	or pek	1615	38
	21 do	pek	1890	33
	12 do	pek sou	1020	29
H G M	30 hf ch	bro or pek	1800	41 bid
	24 ch	bro pek	2400	34 bid
	18 do	pek	1800	30 bid
	12 do	pek sou	1020	27
	17 hf ch	fans	1190	28
Maha Eliya	34 hf ch	bro or pek	2040	60
	48 do	bro pek	2880	48
	12 ch	or pek	1080	44 bid
	30 do	pek	2700	40
	13 hf ch	pek fans	1040	29

	Pkgs.	Name.	lb.	c.
K B	14 hf ch	dust	1050	withd'n
Nillomallay	23 ch	or pek	1883	45
	20 do	bro or pek	2000	48
	26 do	pek	2288	25
	18 do	pek sou	1476	30
Drayton	44 hf ch	or pek	2200	43
	32 ch	pek	2720	39
	13 do	pek sou	1040	37
C N N	24 ch	pek sou	2208	34
Middleton	18 hf ch	bro or pek	1020	91
	21 ch	bro pek	2100	58
	19 do	or pek	1615	48
	18 do	pek	1530	47
Agra Oya	20 ch	pek	1800	35
	38 hf ch	bro pek	2280	45
	45 do	or pek	2250	38
	19 do	bro or pek	1045	50
Good Hope	51 ch	bro or pek	5100	38
	17 do	pek	1615	29
	27 do	pek sou	2430	27
	12 hf ch	dust	1104	25
Sylvakandy	11 ch	bro pek	1100	38
	12 do	or pek	1200	37
	19 do	pek	1900	32
	14 do	br or pek No 1	1400	48
	23 do	or pek No 2	2300	43
Passara Group	71 ch	bro or pek	7100	38 bid
	42 do	pek	3990	33
	13 do	pek sou	1209	29 bid
	14 hf ch	fans	1008	28
Parslees	28 ch	bro pek	2800	38
	26 do	pek	2340	30
	20 do	pek sou	1600	26 bid
Stamford Hill	36 hf ch	bro pek No 2	2160	44
	39 do	or pek	1950	45
	41 ch	pek	3690	36
Hentleys	20 hf ch	bro pek	1000	37
	16 ch	pek	1232	28
G B E	32 ch	bro pek	3080	29 bid
St Vigeand	44 hf ch	bro or pek	2728	55
	13 ch	or pek	1222	41
	16 do	pek	13 0	38
Carfax	23 ch	or pek	2070	40
Killarney	44 hf ch	bro or pek	2552	68
	53 do	bro pek	3180	46
	26 ch	or pek	2210	43
	35 ch			
	1 hf ch	pek	3027	39
C	17 ch	dust	2380	28
Ganapalla	21 ch	or pek	1638	37
	21 do	pek	1620	30
	15 do	bro pek fans	1590	31
	15 hf ch	dust	1260	25
Weoya	24 ch	bro or pek	2520	40
	27 do	bro pek	2700	36 bid
	16 do	pek	1440	32
	21 do	pek sou	1785	27 bid
Dea Ella	20 hf ch	bro or pek No 1	1100	40
	29 do	or pek	1595	33 bid
Preston	70 hf ch	bro or pek	3780	54
	42 do	or pek	1932	46
	18 ch	pek	1440	42
Ugieside	17 ch	bro tea	136	26
L	10 ch	bro pek	1000	27
Ingrogalla	21 ch	pek	1827	30 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	12 ch	pek sou	960	33
	14 hf ch	bro pek fans	980	29
H D in est. mark	5 hf ch	dust	425	28
Coodoogalla	3 hf ch	pek sou	135	27
	5 do	dust	400	26
Mawanella	3 hf ch			
	1 box	bro pek	187	40
	5 hf ch	pek	250	28
	7 do	pek sou	352	26
	1 do	dust	53	24
O H O	3 hf ch	dust	240	23 bid
M	4 hf ch	dust	320	25
	3 do	dust	270	25
	6 do	dust	510	26
	8 do	sou	418	30
Bunvan & Ovoca	12 ch	dust	996	27
	1 do	red leaf	114	24
Mapitigama	*3 ch*	*siftings*	*321*	13
P P	1 ch	bro or pek	90	out
	1 do			
	1 hf ch	bro pek fans	194	out
A B C	1 ch	bro pek fans	110	out

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
K G	6 ch	pek sou	552	25
Galla	9 ch	pek	810	28 bid
	4 do	pek sou	340	26 bid
	2 do	bro pek fans	230	27
	1 do	dust	110	24
Meath	6 ch	pek	600	32
	2 hf ch	dust	156	25
Hyde	6 ch	pek sou	516	29
	13 hf ch	bro or pek fans	845	30
	5 do	dust	400	26
Minna	8 hf ch	fans	600	28
	5 do	dust	425	26
F C T	6 ch	or pek	630	32
N	5 ch	bro pek	475	34
	3 do	or pek	295	30
	1 do	pek sou	86	26
Galgedioya	6 hf ch	dust	480	26
	3 ch	fans	300	27
	1 do	bro mix	100	26
Dunnottar	8 hf ch	bro pek	440	38
	13 do	pek sou	650	30 bid
Woodend	10 ch	pek sou	850	26 bid
	2 do	fans	204	27
	2 do	dust	280	25
Alpha	8 ch	pek sou	640	26 bid
	3 hf ch	fans	225	26
	1 ch	dust	95	23
Highfields	20 hf ch	pek	997	31 bid
K B	2 hf ch	red leaf	172	13
	1 do	dust	62	23
L P	2 ch	unassorted	200	24
M C	*4 ch*	*siftings*	*400*	10
Gampai	3 ch	dust	330	25
Taprobana	12 ch	pek	960	31
	2 do	pek sou	160	27
	3 hf ch	dust	210	23
	1 do	or pek fans	600	28
Totakande	*3 ch*	*young hyson*	*312*	*37*
	1 hf ch	*hyson No 3*	*46*	*29*
	5 ch	sou	455	9 bid
	2 do	dust	280	9 bid
K W	7 hf ch	dust	611	9
M C	1 hf ch	dust	56	8
Dellawella	1 ch	bro pek	71	33
	2 do	fans	280	24
	7 do	red leaf	615	16
	3 hf ch	dust	213	out
Panil Kande	11 ch	pek sou	990	27 bid
Morahela	8 ch	bro or pek	912	33 bid
	2 do	sou	180	25
	2 hf ch	dust	164	24
Anning Kande	8 ch	pek sou	760	26 bid
	2 do	pek fans	200	30
	2 do	dust	230	25
K W	*1 hf ch*	*young hyson dust*	*66*	*9*
	1 do	*hyson dust*	*94*	*8*
	1 ch	*young hyson dust*	*700*	*8*
	1 ch	dust	112	8
	1 do	dust	120	8
	1 hf ch	*young hyson dust*	*75*	*8*
	1 do	*young hyson dust*	*95*	*8*
	1 do	*hyson dust*	*95*	*8*
M C	1 hf ch	dust	68	8
T W	1 box	dust	28	7
K M	*1 hf ch*	*hyson No 2*	*46*	*33*
	1 do	*siftings*	*85*	*9*
	2 do	*siftings*	*230*	*9*
	1 box	*siftings*	*28*	*8*
P in est. mark	7 ch	dust	700	out
G K in est. mark	11 hf ch	or pek	583	44
	15 do	pek	810	37
	10 do	pek sou	480	34

[Messrs. Somerville & Co.]

	Pkgs.	Name.	lb.	c.
T C A	3 ch	red leaf	270	24
Deville	5 ch	bro pek	500	25
	5 do	pek	450	29
	4 do	pek sou	360	26
	1 hf ch	dust	80	22
	1 ch	sou	100	22
A I in estate mark	6 hf ch	or pek	300	36
	4 do	pek	410	31
Dartry	1 ch	bro pek	100	35
	2 hf ch	sou	83	25
	10 ch	pek sou	850	28
	8 hf ch	dust	768	22
	1 ch	bro tea	81	25
O H S	3 ch	bro pek	320	32
	6 do	pek	570	26
	2 do	pek sou	195	25
	1 do	fans	105	21 bid

	Pkgs.	Name.	lb.	c.
Donside	8 hf ch	sou	680	25
	6 do	dust	480	24
	5 do	fans	300	25
Galata	4 ch	sou	340	25
	8 hf ch	bro pek fans	640	27
Maligatenne	2 hf ch	fine or pek	100	42
	6 do	bro or pek	330	37
	5 ch	pek sou	435	26
	2 hf ch	dust	134	24
	2 do	bro mix	118	10
L E in estate mark	2 hf ch	bro pek	126	23
	1 do	pek	50	25
Dodantella	5 ch	pek sou	420	26
	1 hf ch	dust	80	23
Karangalla	4 ch	pek sou	360	27
	1 do	sou	91	25
	2 hf ch	dust	160	25
Nyanza	10 ch			
	1 hf ch	or pek	845	40
	3 ch			
	1 hf ch	pek sou	320	30
	5 do	fans	325	20
	3 d	dust	240	26
Rahatungoda	9 hf ch	dust	765	26
B and D	9 hf ch	bro pek fans	585	27
	11 hf ch	dust	902	30
Southwark	2 h	pek sou	128	30
	13 hf ch	fans	780	29
	2 do	bro tea	170	22
Grange Gardens	5 ch	pek sou	475	29
	4 do	fans	400	32
	2 hf ch	dust	170	20
Oonankande	14 hf ch	bro pek	700	41
	4 do	pek sou	280	27
	4 do	dust	264	26
Mowbray	11 ch	pek	880	30
	8 ch	pek sou	680	34 bid
	8 do	sou	640	27
	1 do	dust	140	24
	1 do	dust No 2	170	22
	3 do	bro pek fans	315	26
Ingeriya	7 ch	dust	980	26
Siriniwasa	6 ch	bro pek	600	30
	3 do	fans	300	29
	4 do	dust	600	24
	3 do	sou	320	24
X Z	1 ch	red leaf	90	21
Theberton	2 ch	sou	170	27
	4 do	bro pek fans	400	28
	2 hf ch	pek fans	160	25
	2 ch	dust	200	24
	2 do	bro tea	170	24
Wattumulle	9 ch	pek sou	720	27
	7 hf ch	dust	560	25
Hanagama	7 ch	bro or pek	770	43
	8 do	pek sou	760	27
	7 do	sou	649	27
	2 do	fans	212	28
	3 do			
	1 hf ch	dust	496	23
Rothes	16 hf ch	bro pek	992	49
	7 ch	pek	700	37
	1 hf ch	dust	90	26
Nellicollaywatte	9 ch	bro pek	945	38
	11 hf ch	bro or pek	627	48
	7 ch	pek	630	32 bid
	4 do	pek sou	340	28 bid
	hf ch	dust	83	24
	3 do	bro or pek fans	210	28
S R K	2 ch	dust	320	26
	6 do	bro tea	409	32
Manangoda	5 ch	bro pek	503	28
	8 do	pek	800	24
	3 do	sou	300	23
	3 do	fans	301	22
	3 do	red leaf	288	17
Dikbedde	2 ch			
	1 hf ch	bro pek	260	31
	1 ch	pek sou	106	23
	6 do	pek	570	27
	2 do	bro pek fans	212	18
	1 do	unassorted	100	22
	2 do	red leaf	150	14
X X	8 hf ch	bro or pek fans	560	30
	3 do	dust	240	25
Donside	12 hf ch	bro or pek fans	720	31
Eilandhu	9 ch	bro pek	855	35
	6 do	pek sou	540	26
	6 do	bro tea	540	25
	2 do	bro mix	180	20
	1 do	bro pek dust	130	24
	1 do	dust	125	22
Kudaganga	10 ch	pek	800	29
	6 do	pek sou	480	26
	2 do	fans	200	27
	2 do	pek dust	220	26

	Pkgs.	Name.	lb.	c.
Damblagolla	2 ch	fans	200	28
	1 hf ch	dust	80	24
B and D	2 hf ch	bro pek fans	130	30
	2 do	dust	164	26
	3 ch	unassorted	270	29
Farnham	12 hf ch	bro pek	600	40
	6 ch	or pek	510	35
	8 do	pek sou	680	27
	4 do	sou	344	25
	2 hf ch	dust	180	24
	6 do	bro or pek	396	31
Farnham	*11 ch*	*hyson No 1*	*990*	*out*
	4 do	*hyson No 2*	*376*	*34*
	4 do	*hyson fans*	*272*	*13*
Scarborough	9 hf ch	dust	765	27
Mora Ella	8 ch	pek sou	680	27 bid
	13 hf ch	br pek	715	37
	1 do	dust	80	26
	5 ch	pek	450	30
	10 hf ch	or pek	450	34
	6 do	br or pek fans	390	31
Annandale	15 hf ch	bro or pek	900	61 bid
	11 do	bro pek fans	726	33
	7 do	dust	595	27
St John's wood	14 hf ch	bro or pek	714	39
	8 ch	pek	672	31
	2 do	pek sou	190	28 bid
	1 box	dust	26	25
	2 hf ch	bro or pek fans	130	29
F A in estate mark	1 hf ch	pek sou	53	34
	1 do	dust	90	27
F in estate mark	1 ch	pek sou	90	33
	3 hf ch	dust	159	26
Kannattota	8 ch	pek	640	28
	7 do	pek sou	560	23
	1 do	dust	155	25
Waganila	6 ch	bro pek	600	50 bid
	5 do	pek	490	38
	2 do	pek sou	172	32
	1 hf ch	dust	75	26
Cooroondoowatte	7 ch	bro pek	700	39
G	2 hf ch	dust	140	19 bid
	8 ch	bro tea	688	22
Laxapanagalla	10 ch	pek	900	28 bid
	3 do	pek fans	285	26
	2 do	dust	218	26
Labugama	6 ch	or pek	480	38
	6 do	pek sou	480	26
	3 hf ch	dust	240	24
St Catherine	18 hf ch	bro or pek	990	37
	1 ch	bro pek fans	120	27
Selvawatte	1 hf ch	pek sou	55	24
	2 do	dust	160	24
Ankande	10 hf ch	dust	800	24
	2 ch	sou	200	22
Ferndale	6 ch	dust	720	26
Bodava	1 hf ch	bro mix	52	22
	5 do	bro pek fan	300	26
Homelea	*5 ch*	*young hyson*	575	35
	3 do	*Twanky*	295	13
	1 do	*gunpowder*	100	25
G T	2 hf ch	bro tea	130	30
	2 do	fans	140	29
	1 do	bro mix	79	26
Blinkbonnie	7 ch	pek sou	595	38
	12 hf ch	fans	861	33
	9 do	dust	825	16
Mahatenne	2 ch	dust	300	24
	2 do	fans	210	28
Avisawella	4 hf ch	dust	300	26
Harrangalla	5 hf ch	dust	400	27
	8 ch	bro pek fans	800	27
Columbia	5 hf ch	pek dust	375	27
T B P	11 ch	red leaf	990	20
Pindeni Oya	3 ch	fans	375	26
Roseneath	4 ch	dust	400	23
	4 hf ch	fans	312	23

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
P H J	2 hf ch	bro pek	106	31
P P P	2 ch	bro pek	213	30
	1 do	pek	100	31
	1 do	pek sou	100	27
A T	4 do	bro pek fans	410	28
	3 do	bro pek dust	360	24
Galkanda	3 do	pek sou	255	28
	1 do	bro pek fans	110	18
	1 do	dust	120	24
Cleveland	4 do	pek sou	403	25
	2 do	bro pek fans	200	27
	2 do	bro mix	200	24
	2 ch	pek dust	310	17
J	5 do	bro pek	500	29 bid

	Pkgs.	Name.	lb.	c,
	7 hf cb	dust	602	25
Eila	5 ch	bro or pek	500	33
	6 do	dust	600	24
	5 do	bro pek	425	30
	2 do	fans	190	20
	2 do	dust	180	18
Morton	10 ch	pek sou	720	26
	2 hf ch	dust	160	24
Ullandapitiya	2 hf ch	bro or pek	110	39
	2 do	bro pek	100	35
	2 do	pek	80	30
	3 do	sou	120	27
Bittacy	8 hf ch	bro or pek	400	54 bid
	7 do	fans	420	35
	ch	pek sou	70	33
	2 bf cb	dust	168	26
Chemnitz	*7 ch*	*gun powder*	*525*	33
M G	10 hf cb	fans	730	29
Avington	4 ch	bro or pek	400	33
	1 do	or pekoe	65	35
	5 do	bro pek	425	30
	6 do	pek	480	27
	8 do			
	1 bf ch	pek sou	560	25
	1 do	dust	90	18
Higham	17 hf cb	bro or pek	935	46
	1 cb	sou	95	25
	1 hf ch	dust	95	25
	6 do	bro pek fans	420	28
Nahavilla	7 do	dust	560	26
	7 do	fans	490	32
G B	3 ch	pek sou	300	33
S	5 cb	sou	425	27
	3 do			
	1 hf ch	bro mix	325	22
	1 ch	unassorted	52	24
M L W	10 ch	pek	900	31
	9 do	pek sou	675	28
	2 hf cb	dust	150	26
	4 do	fans	280	28
Lameliere	10 ch	bro pek fans	700	30
	1 do	sou	85	30
Eila	*8 ch*	*hyson*	760	35
	5 do	*hyson No 1*	475	35
	3 do	*hyson No 2*	300	34
	2 do	*green fans*	210	16
	2 do	*green dust*	220	12
Agra Ouvah	8 hf ch	bro or pek fans	560	36
	3 do	dust	258	27
Eton	3 ch	bro or pek	300	33
	4 do	or pek	400	34
	4 do	pek sou	400	27
	1 do	sou	100	26
	1 hf ch	dust	90	22
M in est mark	4 do	bro pek	260	37
	9 do	pek	495	34
Oonoogaloya	2 ch	pek sou	180	33
	4 bf ch	dust	340	25
	10 do	fans	650	31
	4 do	bro or pek No 2	280	36
W	*2 hf ch*	*young hyson*	119	40
	2 ch	*hyson*	252	37
	1 hf ch			
	2 do	*imperial*	110	38 bid
M	7 hf ch	bro pekoe fans	367	24 bid
Gingranoya	11 ch	orange pekoe	990	40
	9 do	bro pek	945	37
	3 do	fans	342	27
	1 do	dust	150	27
R S T	1 hf ch	dust	175	22
	2 do	pek sou	184	25
	1 bf ch	red leaf	47	23
B K	3 ch	bro pek	261	35
	2 do	pek	162	28
	3 do	fans	278	22
	3 do	bro tea	300	22
D	1 do	bro or pek	67	30
Ottery	1 hf ch	bro orange pek	53	45
	3 do	dust	252	26
R S	1 bf ch	unassorted	52	27
	1 do	dust	57	23
Gonavy	1 ch	or pek	82	34
Glasgow	15 bf ch	bro orange pek	870	60 bid
Waragalande	8 ch	pek sou	720	28
	2 do	dust	200	24
Mt Vernon	9 bf ch	fans	630	34
	3 ch	broken mixed	308	25
Lameliere	10 bf ch	bro pek fans	700	30
	1 ch	souchong	85	30
Hiralouvah	9 ch	pek sou	720	27
	3 hf ch	dust	240	25
	3 do	broken pek No 2	153	34
	1 ch	pekoe No 2	90	31
	1 hf ch	pek sou No 2	46	25
W R S	3 boxes	dust	198	out
Mossend	3 bf ch	pek sou	150	36
	2 do	bro or pek fans	120	31

	Pkgs.	Name.	lb.	c.
G				
	do	bro pek	300	24
	2 do	dust	140	20
Myraganga	8 ch	pek sou	600	28
	7 do	pek sou	525	29
	3 do	broken mixed	240	27
	2 do	dust	360	26
	3 hf ch	pek sou	420	27
Galloola	4 ch	dust	400	26
	5 do	fans	500	34
H G H	10 ch	bro pek	947	3
Eton	2 ch	br or pek	200	35
	3 do	or pek	300	33
	1 do	pek sou	100	28
	1 do	sou	100	26
H O	*8 hf ch*	*young hyson*	520	35
	5 ch	*hyson*	500	36
	1 hf ch	*hyson*	60	36
	2 ch	*hyson No 2*	190	36
H O W	*14 hf ch*	*young hyson*	840	38
	9 ch	*hyson*	900	37
	4 do	*hyson No 2*	380	36
	5 hf ch	*young hyson sfgs*	375	15
	2 do	*green tea sfgs*	100	13
	4 do	*green tea dust*	340	8
O W	8 ch	pek sou	560	25
	2 do	dust	150	23
Stonyhurst	15 ch	pek fans	945	33
	4 do	pek sou	360	26
Ohiya	8 ch	pek sou	672	34
	12 hf ch	fans	756	33
	6 do	dust	480	26
H	2 hf ch	red leaf dust	270	13
Mahanilu	5 hf ch	dust	375	23
	6 do	fans	420	31
Ohiya	1 bf cb	bro or pek	58	35
Brownlow	9 ch			
	1 hf ch	sou	680	29
	11 do	bro pek fans	836	27
	8 ch	dust	800	26
G T	7 ch	bro pek	735	27 bid
N	10 hf ch	dust	850	26
K P	2 bf cb	dust	180	25
	3 do	fans	225	27
	2 ch	bro mix	200	26
Balado	3 cb	pek No 2	225	28
	7 hf ch	dust	560	26
Alad	1 hf ch	bro tea	45	22
Kelaniya & Braemar	7 cb	pek sou	665	31
	8 do	fans	800	34
	5 do	dust	400	27
Winwood	6 do	sou	540	26
	8 bf ch	fans	480	30
	7 do	dust	630	26
	4 ch	red leaf	360	22
Natuakelle	6 ch	pek sou	540	27
	2 do	dust	200	25
Gangawatte	10 ch	pek sou	900	33
	3 hf ch	sou	270	29
	4 do	dust	340	26
	10 do	fans	650	32
Kahagalla	15 bf cb	bro pek	900	43
	5 cb	pek	475	34
	7 cb	pek sou	630	30
	2 hf ch	dust	168	27
K K K	1 ch	unas	100	25

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
N	9 ch	sou	900	34
	6 do	bro tea	600	22
M P	3 cb	dust	420	24
	7 do	bro pek fans	840	26
	3 do	dust No 2	510	20
Nagaganga	5 hf cb	bro pek	280	33
	6 do	pek	312	27
	5 do	pek sou	250	25
	2 do	sou	100	25
	2 do	fans	134	26
	1 do	dust	86	22
Panawatte	4 ch	or pek	400	38
	4 do	fans	400	28
Coldstream Group	7 bf ch	bro or pek fans	455	30
	3 do	dust	240	27
Irex	6 ch	pek sou	480	27
	4 do	fans	440	29
	3 do	dust	255	23
Eriacolla	*5 ch*	*young hyson*	*450*	39
	do	*hyson*	*510*	35
	1 do	*hyson No 2*	*95*	35
	1 do	*siftings*	*60*	16
	1 do	*green dust*	*73*	10
Walton	11 ch	pek	990	29
	4 do	sou	280	26
	1 do	dust	150	23

	Pkgs.	Name.	lb.	c.
Norfock	5 ch	bro or pek	525	42
	9 do	bro pek	990	38
	7 do	pek sou	595	28
	4 hf ch	fans	300	27
	5 do	dust	450	26
Castlereagh	9 ch	pek sou	720	33
	9 hf ch	fans	630	27
Dehiowita	3 ch	dust	450	25
Glengariff	12 ch	pek sou	984	31
	13 hf ch	pek fans	910	32
Mousakellie	1 ch	pek sou	90	29
	4 hf ch	dust	300	26
	7 do	bro pek fans	455	32
Seenegolla	18 hf ch	pek	864	51
	10 do	pek sou	560	35
	4 ch	dust	340	27
Dunkeld	5 ch	pek sou	500	30
Clunes	5 ch	pek fans	500	28
	6 do	dust	840	20
Ruanwella	6 ch	pek sou	540	27
	4 do	bro pek fans	420	29
	2 do	dust	180	26
Pelatagama	7 ch	bro mixed	630	24
	5 do	fans	500	21
	4 do	dust	600	23
Putupaula	8 ch	bro pek fans	920	26
	6 do	pek sou	480	27 bid
	3 do	dust	435	26
Matale	3 hf ch	fans	210	32
	3 do	dust	240	26
	4 ch	sou	320	27
Vincit	11 ch	pek sou	990	26
	5 do	fans	600	29
	1 do	dust	170	24
R	2 ch	sou	160	25 bid
	2 do	dust	220	30
Sirikandure	1 ch	bro pek fans	66	29
	1 do	fans	62	26
	3 do	bro pek dust	387	28
	2 do	dust	331	23
	3 do	red leaf	270	22
M	5 hf ch	dust	300	24
Glencorse	5 ch	br or pek	525	38
	2 do	or pek	200	36
	2 do	pek	180	31
	1 do	pek No. 2	80	28
	3 do	pek sou	225	26
C B L	2 ch	bro or pek	200	32 bid
	1 do	pek	90	29
	1 hf ch	sou	45	26
	2 do	fans	150	26
Dromoland	2 hf ch	fans	140	28
	5 do	dust	450	26
N W D	5 ch	pek sou	450	34
Summerville	7 ch	or pek	728	43
S V, in estate mark	10 hf ch	dust	800	26
	10 do	pek fans	650	32
	2 ch	bro tea	200	28
	1 do	pek	104	32
Wallaba	7 ch	bro or pek fans	798	28
E H	4 ch	sou	400	30
M C, in estate mark	5 hf ch	unassorted	321	30
Scrubs	5 hf ch	fans	340	24
	4 do	dust	336	28
	4 do	bro tea No 1	240	33
	2 do	bro tea No 2	110	32
C R S	5 ch	bro pek	425	32
	1 hf ch	dust	70	24
V O A	4 hf ch	dust	392	27
	2 ch	bro tea	200	22
Ardross	2 ch	sou	180	26
S F D	1 ch	unassorted	70	22
Madulkelle	8 ch	bro or pek	800	51
	11 do	or pek	880	89
	1 do	dust	100	25
	1 do	fans	100	28
Horagaskelle	6 hf ch	bro pek	377	33
	4 do	pek	236	29
	7 do	pek sou	420	28
	1 do	bro mix	71	21
Bowlana	12 ch	pek sou	960	28
	1 do	pek sou	75	27
	9 hf ch	dust	720	26
	8 do	fans	560	29
Udaveria	7 hf ch	bro or pek fans	490	36
	6 do	fans	480	28
Dickoya	3 hf ch	bro pek	168	33
	1 ch	pek	100	27
	3 hf ch	dust	240	26
Knavesmire	18 hf ch	bro pek No 2	900	32
Erracht	11 ch	pek sou	935	27
	5 ch	dust	675	25
High Forest	20 hf ch	pek sou	900	41
	1 do	bro mix	70	27
Waldemar	10 ch	pek	900	40
	8 do	pek sou	704	37
	5 hf ch	fans	420	27
Vogan	5 ch	pek fans	625	27
	8 hf ch	dust	610	26
Penrhos	14 hf ch	or pek	672	40
	1 ch	pek sou	80	27
	5 hf ch	fans	310	27
	1 do	pek dust	84	26
Tempo	6 ch	sou	432	25
	3 do	dust	300	25
Rickarton	2 ch	pek sou	200	30
	2 do	bro pek fans	240	28
	3 do	fans	360	27
	2 do	dust	250	26
Nakiadeniya	3 hf ch	siftings	270	10
Udapola	*6 ch*	*young hyson*	570	36
	8 do	*hyson*	640	35
	7 do	*hyson No 2*	560	34
Udapola	1 hf ch	fans	65	18
	2 do	dust	160	10
Panmure	6 ch	pek sou	540	30 bid
	12 hf ch	dust	840	28
Erroll wood	8 ch	or pek	720	37
	6 hf ch	or pek fans	420	30
	4 do	dust	360	26
Monkswood	7 ch	pek sou	560	42
	9 hf ch	fans	639	40
	7 do	dust	497	27
Middleton	11 hf ch	dust	880	27
Handford	4 ch	pek sou	350	28
	2 do	dust	200	25
Deviturai	7 ch	fans	840	26
W F, in estate mark	20 hf ch	congou	976	34
	9 do	pek fans	640	30
Lauriston	8 hf ch	bro tea	416	24
	8 do	dust	7 0	26
Mousa Eliya	4 ch	pek sou	400	27
	8 do	dust	784	25
Queensland	7 ch	or pek	616	43
	13 do	pek sou	975	33
	3 do	bro pek No 2	300	31
	2 do			
	1 hf ch	pek No. 2	217	26
	1 ch	sou	100	32
	4 hf ch	bro pek dust	300	27
Y S P A	6 ch	pek dust	870	26
	1 do	bro mix	109	24
St Heliers	4 hf ch	bro or pek fans	340	27
Campion	4 hf ch	dust	320	28
C	3 ch	sou	270	24
C B	5 ch	pek sou	500	25
	2 do	bro pek fans	280	26
Pingarawatte	2 hf ch	dust	180	26
B	4 ch	bro pek	420	29
	2 do	pek	170	29
	2 do	pek sou	160	26
H	4 do	bro pek	420	30
	1 do	pek	95	26
	1 do	pek sou	80	25
Rajawatte	8 ch	pek sou	720	31
	5 hf ch	dust	475	25
Poonngalla	3 ch	pek sou	276	36
	8 do	fans	480	28
Marlborough	1 ch	or pek	99	37
	9 do	pek sou	791	34
	13 hf ch	bro pek fans	845	32
	3 ch	bro tea	240	15
Dewalakande	5 hf ch	siftings	300	12 bid
	6 do	green dust	480	10 bid
N P	4 ch	bro mix	400	22
Oakoowatte	1 ch			
	1 hf ch	bro or pek	161	31
	1 ch	pek No 1	61	28
	1 do			
	2 hf ch	pek fans	264	27
	1 ch	pek sou	90	25
	1 hf ch	dust	100	24
	1 do	pek No 2	60	28
Maha Uva	9 hf ch	dust	720	27
	2 do	pek fans	140	31
Marlborough	2 ch	bro pek	200	37
S G	5 do	pek	450	29
	2 do	pek sou	160	27
Aveca	6 do	pek sou	570	34
	6 do	bro pek fans	804	32
Hatton	5 do	pek sou	425	36
	2 do	dust	300	27
Yatiana	1 do	bro pek	100	26
	3 do	pek	288	24
	1 do	pek sou	105	22
	1 do	dust	132	18
Temtiligalla	2 do	fans	210	29
	3 do	dust	402	24
Eagles land	8 do	sou	960	13
Udapolla	4 do	bro pek	380	33
	4 do	pek	340	29
	3 do	pek sou	210	27
	1 hf ch	dust	71	28
M K	7 ch	red leaf	511	22

	Pkgs.	Name.	lb.	c.
Dunbar	3 do	pek sou	243	37
	2 do	bro pek fans	278	31
Clarendon, Dimbula	1 do	sou	80	33
	1 hf ch	pek dust	83	27
H B L	7 ch	bro pek	721	23
	7 hf ch	bro or pek	385	40
	7 ch	pek	583	29
	4 do	pek sou	316	27
	1 hf ch	dust	82	23
	2 do	bro or pek fans	140	27
Pungetty	3 do	pek fans	255	27
Amblakande	2 ch	bro or pek	200	20
	7 do	pek sou	560	27
	2 do	dust	200	24
Cloyne	2 do	pek sou	160	23
	1 do	bro tea	114	26
	1 do	dust	150	26
Ambragalla	18 hf ch	or pek	834	49
	12 ch	pek sou	936	30
	4 hf ch	dust	264	25
	1 do	pek fans	35	18
M	4 hf ch	coarse leaf	215	12
A	2 ch	pek	200	26
	2 do	pek	242	26
	2 do	pek	194	26
	1 hf ch	pek	58	23
Paddawala	4 ch	bro pek	400	30
	7 do	pek	700	26
	7 do	pek sou	700	24
	2 do	congo	200	21
G O., in estate mark	5 hf ch	dust	370	26
Attabage	3 hf ch	dust	285	withd'n
Halbarawa	6 ch	bro or pek	572	35
	4 do	or pek	400	34
	10 do	pek	896	29
	12 do	pek sou	970	25
	1 do	fans	118	29
	2 do	dust	266	25
North Matale	5 hf ch	dust	400	26
Moray	6 hf ch	bro or pek No 1	370	42
	8 ch	pek dust	600	27
Pine Hill	5 hf ch	dust	425	26
	4 do	bro pek fans	280	27
estate mark	4 ch	sou	380	25
K B	2 ch	fans	100	
	1 ch			withd'n
	1 hf ch	sou	131	
Nillomally	8 ch	fans	800	30
	5 ch	dust	475	26
C N N	4 hf ch	dust	332	26
Agra Oya	1 hf ch	dust	50	26
	1 do	bro mixed	25	26
Good Hope	7 ch	or pek	630	31
	1 hf ch	fans	50	25
Sylvakandy	3 ch	dust	300	26
Passara Group	3 hf ch	dust	249	26
Parsloes	6 hf ch	fans	420	28
	3 do	dust	270	26
Melrose	3 ch	bro pek	250	37
	2 do	pek	180	29
	1 do	pek sou	80	26
K P W	10 hf ch	bro or pek	600	36
	10 do	bro pek	500	35
	19 do	pek	950	29
	5 do	pek sou	250	27
	1 do	pek fans	75	26
	1 do	dust	90	24
Stamford Hill	14 hf ch	bro or pek	812	61 bid
	11 ch	pek sou	990	33
	8 hf ch	dust	688	27
Hentleys	3 hf ch	fans	201	26
	1 do	pek dust	80	23
St Vigeand	8 ch	pek sou	800	25
	5 hf ch	dust	425	27
Killarney	6 ch	pek sou	576	22
	8 hf ch	fans	576	28
	5 do	dust	450	27
C	2 ch	dust No 2	286	25
	1 do	dust No 2	144	25
S	7 hf ch	dust No 1	560	27
	3 do	dust No 2	303	27
	1 ch	pek	75	36
Ganapalla	5 ch	bro or pek	480	39
	11 do	bro pek	902	34 bid
	10 do	pek	790	31
Weoya	4 ch	bro pek fans	480	27
	3 do	dust	421	25
Dea Ella	19 hf ch	pek	950	30
	9 ch	pek sou	432	27
	11 do	fans	715	27
Preston	6 hf ch	bro pek	300	46
	12 do	bro or pek fans	816	35
	4 do	fans	200	31
	2 do	bro mixed	140	28
Ugeside	10 ch	fans	950	29
	10 hf ch	dust	800	24
Uragalla	1 ch	bro pek	100	33
	2 do	pek	190	29
	2 do	pek sou	182	26
L in estate mark	11 ch	pek	968	26
	2 do	dust	320	22
K H L	2 ch	fans	270	26 bid
	2 do	dust	320	25
T C L in est mark	2 ch	pek fans	200	26
	5 hf ch	bro pek dust	350	26
	2 do	pek dust	140	25
Berragalla	4 ch	desiccator swp'g	360	27
Amblakande	1 ch	dust	100	24
Middleton	1 hf ch	bro or pek	60	55

CEYLON RUBBER SALES IN LONDON.

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" Yorkshire."—Kepitigalla A1, 1 case sold at 3s 11½d

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No. 4. COLOMBO, JANUARY 28th, 1903. PRICE :—12½ cents each, 3 copies 30 cents ; 6 copies ½ rupee.

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Messrs. E. Benham & Co.

[10,830 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	30 hf ch	bro pek	1870	50 bid
	15 ch	or pek	1275	40 bid
	19 do	pek	1805	40 bid
Battalgalla	24 ch	or pek	2200	42
	16 do	pek	1360	29

Messrs. Keell and Waldock.

[89,416 lb.]

	Pkgs.	Name.	lb.	c.
Fairlawn	67 hf ch	bro or pek	3685	52
	50 do	bro pek	2500	41
	20 ch	pek	1600	36
Moneragalla	17 ch	bro or pek	1309	42 bid
	15 do	or pek	1020	39
	21 do	pek	1470	30 bid
Gampai	33 hf ch	or pek	1504	30 bid
	45 do	bro or pek	2430	36
	30 ch	pek	2400	30
	24 do	pek sou	1824	26 bid
Brixworth	30 ch	bro or pek	3000	38 bid
Woodend	29 ch	bro pek	2900	35 bid
	30 do 1 hf ch	pek	2771	29 bid
	13 ch 1 hf ch	pek sou	1105	26 bid
Panilkande	21 ch	bro or pek	2100	38 bid
	13 do	pek sou	1170	31 bid
Glenwood	22 ch	bro pek	2200	31 bid
	21 do	or pek	1806	32 bid
	14 do	pek	1400	29 bid
B	46 hf ch	dust	3220	26
Malsa	13 ch	bro pek	1300	37
	20 do	pek	1600	29
Bargany	32 hf ch	bro or pek	1760	45 bid
	23 do	bro pek	1150	41
Hangranoya	18 ch	bro pek	1800	35
	13 do	pek	1040	29 bid
Katugastota	13 ch	bro pek	1365	36 bid
	25 do	pek	2000	27 bid
G	21 hf ch	dust	1785	25 bid
B, Talawa	12 ch	bro or pek	1200	56
	17 do	pek	1530	35
	15 do	pek sou	1350	29 bid
M	46 hf ch	bro or pek	2484	36
	21 ch	pek	1785	30

Messrs. Somerville & Co.

[218,795 lb.]

	Pkgs.	Name.	lb.	c.
Polgahakande	12 ch	bro or pek	1140	35
	19 do	or pek	1520	34
	15 do	bro pek	1500	33
	19 do	pek	1520	28
Dalveen	11 ch	bro or pek	1100	35 bid
Meeriatenne	21 hf ch	bro pek	1155	47
	30 do	pek	1350	36 bid
	26 do	pek sou	1170	33
	24 do	bro pek No 1	1320	45 bid
	23 do	pek No 1	1058	36 bid
	26 do	pek sou No 1	1144	32 bid
Paradise	14 ch	bro pek	1470	33
W K P	24 ch	bro pek	2520	38 bid
	15 do	or pek	1350	34 bid
	48 do	pek	3840	28 bid
Glenanore	25 hf ch	bro or pek	1500	51 bid
	17 ch	or pek	1530	38 bid
	18 ch	pek	1620	38
L	20 hf ch	dust	1700	25
	18 ch	bro mix	1530	24
Citrus	18 ch	bro pek	1710	35
	13 do	pek	1150	28
Labaduwa	15 ch	pek sou	1200	27
C W M	29 hf ch	bro pek	1595	42 bid
	18 ch	pek	1440	32 bid
Hatdowa	15 ch	bro pek	1500	35
Monrovia	*20 ch*	*young hyson*	*2000*	36
	15 do	*hyson*	*1550*	35
Glenalmond	15 ch	bro pek	1500	38
	17 do	pek	1530	29 bid
Walla Valley	36 hf ch	bro or pek	1980	62 bid
	21 ch	or pek	1890	46
	39 do	pek	3315	44
Warakamure	24 ch	bro or pek	2400	35
	22 do	or pek	1760	33
	26 do	pek	2210	28
Mount Temple	19 ch	bro pek	1900	35
	30 do	or pek	2400	31 bid
	21 do	br or pek fans	2100	30 bid
Kurulugalla	19 ch	bro pek	1805	34
Agratenne	23 ch	bro pek	2300	42 bid
	27 do	pek	2430	36
I P	14 ch	pek sou	1064	28
	18 hf ch	dust	1584	26
Maragalla	17 ch	bro pek	1785	36 bid
Vilgoda	16 ch	bro pek	1600	33 bid
Theberton	13 ch	bro pek	1300	37
	16 do	pek	1440	30
Hobart	14 ch	bro or pek	1400	34
Richlands	13 ch	bro or pek	1300	47
	11 do	pek	1012	35
Oonanagalla	21 ch	or pek	1785	39
	13 do	bro or pek	1300	52
	14 do	pek No 1	1330	36
	12 do	pek No 2	1020	33
	15 do	pek sou	1350	31
Kituldeniya	13 ch	bro pek	1365	38
	26 do	pek	2080	27 bid
Abbotsford	20 hf ch	bro mix	1120	29
	13 do	dust	1170	26
Varlat	23 ch	bro or pek	2300	31 bid
	37 hf ch	bro or pek fans	2516	27 bid
Deniyaya	29 ch	bro pek	2900	35 bid
	12 do	pek	1140	32 bid
	30 do	bro pek	3000	35 bid
	13 do	pek	1235	31 bid
	12 do	pek sou	1140	28
Rambodda	25 hf ch	pek	1200	33
New Angamana	34 ch	bro or pek	3400	37
	49 do	bro pek	4400	33
	67 do	pek	6030	28 bid
	24 do	pek sou	1920	26 bid
Havilland	*22 ch*	*young hyson*	*2200*	37 bid
	17 do	*hyson No 1*	*1530*	35 bid
Forest Hill	15 ch	pek	1290	29
	13 do	pek sou	1040	27 bid
Glenalla	*14 ch*	*young hyson*	1330	38
	36 do	*hyson*	3420	35
Neboda	24 ch	bro or pek	2400	39 bid
	17 do	or pek	1564	34
	30 do	pek	3000	31
Raglan	18 ch	bro pek	1800	30
	15 do	pek	1425	26
Rahatungoda	13 ch	or pek	1284	38
Kallebokka	14 ch	or pek	1047	38 bid
New Valley	45 ch	bro or pek	4500	47 bid
	22 do	or pek	2090	40
	25 do	pek	2375	34 bid

Messrs. E. John & Co.

[238,959 lb.]

	Pkgs.	Name.	lb.	c.
Harrisland	29 ch	pek	2320	28
Castle Hill	11 ch	bro pek	1100	33
	16 do	or pek	1600	31
	21 ch	pek	1890	27
	22 do	pek sou	1980	25
	12 do	congou	1080	24
	10 ch	dust	1000	26
Poilakande	15 do	bro or pek	1350	33 bid
	23 do	bro pek	2070	39 bid
	19 do	pek	1520	27
Tismoda	58 hf ch	bro pek	2900	37 bid
	24 ch	pek	1920	32
Kandaloya	26 hf ch	or pek	1040	37
	33 do	pek	1320	30 bid
Tarawewa	*15 ch*	*young hyson*	*1425*	38
	16 do	*hyson*	*1520*	35
Kadienlena	24 hf ch	br or pek fans	1800	27
Cabin Ella	17 ch	bro pek	1700	42
	13 do	pek	1105	35
Agra Ouvah	61 hf ch	bro or pek	3660	60 bid
	39 do	or pek	2106	43
	16 ch	pek	1472	42
St Johns	25 hf ch	bro or pek	1450	57
	11 ch	or pek	1012	49
	16 do	pek	1520	42
	15 hf ch	pek fans	1020	30

	Pkgs.	Name.	lb.	c.
Mocha	30 bf ch	hro or pek	1650	60
	23 ch	or pek	2139	48
	27 do	pek	2511	42 bid
	15 hf ch	fans	1140	32
Mt Everest	37 hf ch	bro or pek	1850	56
	35 do	or pek	1750	46
	39 ch	pek	3900	38
	19 hf ch	hr pek fans	1330	32
Arnhall	19 ch	bro pek	1900	37
	13 do	pek	1170	32
Ashburton	14 ch	hro or pek	1428	46 bid
	26 do	bro pek	2678	38
	17 do	pek	1530	33
Koslande	38 hf ch	bro pek	2280	43 bid
	25 ch	pek	2500	34
Kandaloya	24 bf ch	bro or pek	1077	47
	26 do	or pek	1037	40
Theresia	22 hf ch	hro or pek	1210	51 bid
	27 ch	pek	2160	39 bid
Mt Vernon	23 ch	pek	2070	41
Glenesk	12 ch	hro or pek	1272	34 bid
	22 do	bro pek	2266	34 bid
	25 do	pek	2100	28
	19 do	pek sou	1824	26
27 in est mark	40 ch	bro pek	4000	31 bid
Perth	*16 ch*	*young hyson*	1600	37
	17 do	*hyson*	1360	35
Cocoawatte	10 ch	bro pek	1050	37
C K	12 ch	pek	1080	34 bid
	12 do	pek sou	1080	31 bid
Delpotonoya	17 hf ch	dust	1190	26
Bowella	26 hf ch	bro pek	1300	32 bid
	12 ch	pek	1020	30
B B in est mark	15 ch	pek	1380	33 bid
	13 do	pek sou	1258	31 bid
Mulwatte	52 ch	pek	4680	33 bid
Kehelwatte	28 do	bro pek	3077	36
	35 do	pek	3322	30 bid
Brownlow	22 hf ch	bro or pek	1232	57 bid
	17 ch	or pek	1598	41
	16 do	pek	1344	36
Orwell	14 ch	or pek	1330	33 bid
	18 do	pek	1530	28 bid
	20 hf ch	pek fans	1400	27
Dickapitiya	23 ch	bro pek	2300	38
	18 do	pek	1710	31 bid
	30 do	pek sou	2700	27 bid
Holbrook	57 hf ch	hro or pek	3417	53 bid
	21 ch	or pek	2097	44 bid
	29 do	pek	2752	41 bid
Yapame	38 ch	bro pek	3990	38
	20 do	pek	2000	30 bid
	17 do	pek sou	1700	28
Glassaugh	24 hf ch	or pek	1344	61 bid
	22 do	hro or pek	1474	54 bid
	13 ch	pek	1404	50 bid
A A	9 ch	fans	1098	24
	16 do	dust	1440	20 bid
Mahanilu	27 hf ch	or pek	1296	46
	12 ch	pek	1152	38
Tarawera	*63 ch*	*young hyson*	5985	38
	54 do	*hyson*	5130	35
	19 do	*hyson No 2*	1805	35
Birnam	24 ch	pek sou	1680	38
Vavunia	15 ch	pek	1335	33
V in est mark	16 do	bro pek	1680	out
Glentilt	57 ch	bro or pek	3135	61 bid
	30 do	or pek	2760	47
	31 do	pek	2790	43
D L	19 ch	bro pek	2525	22 bid
W T W	25 ch	bro pek	2150	32 bid
	17 do	pek	1360	31 bid
Myraganga	12 ch	or pek	1080	37
	11 do	hr or pek No 1	1100	46 bid
	28 do	br or pek No 2	2800	40 bid
S J	12 ch	pek	1077	26
Morton	26 do	bro or pek	2597	withd'
Elston	36 ch	pek	3060	33
	36 do	pek sou	2880	29
Eversfield	19 do	hro pek	1816	33
	16 do	pek	1442	27 bid
Dotala	22 hf ch	hro or pek	1210	54 bid
	18 ch	pek	1620	37 bid
Kandahar	26 hf ch	bro pek	1430	43
	37 do	pek	2035	34
Y	17 ch	red leaf	1195	14
Bennevis	32 hf ch	bro pek	1920	40
	37 do	or pek	1850	44
	33 ch	pek	2970	35 bid
	12 do	pek sou	1080	31 bid

Messrs. Forbes & Walker.

[577,913 lb.]

	Pkgs.	Name.	lb.	c.
Choisy	46 hf ch	bro or pek	2530	45

	Pkgs.	Name.	lb.	c.
	24 ch	or pek	2040	35
	42 do	pek	3780	31
Kotagaloya	36 ch	bro pek	3780	35
	42 do	pek	3780	29
	14 do	pek sou	1260	27
Galkande	28 hf ch	or pek	1400	41
	27 ch	pek	2430	38
G, in estat mark	34 ch	sou	3060	26
K B	14 hf ch	dust	1050	26
Tunisgalla	29 hf ch	bro pek	1740	39
	57 do	or pek	2850	35
	19 ch	or pek	1710	30
Ardlaw and Wishford	10 ch	bro or pek	1100	68
	10 do	bro pek	1100	54
	12 do	or pek	1080	47
	16 do	pek	1344	41
Stafford	12 ch	or pek	1200	41
Bopitiya	40 ch	bro pek	4000	38
	18 do	pek	1620	32
	12 do	pek sou	1080	27
Chesterford	*36 ch*	*young hyson*	*3240*	37 bid
	24 do	*hyson*	*2160*	35
	12 do	*hyson No 2*	*1080*	34 bid
Dambagastalawe	18 ch	bro or pek	1908	63
	28 do	or pek	2856	41
	21 do	pek	1932	37
	13 do	pek sou	1222	33
Ambalangoda	15 ch	bro or pek	1500	41 bid
	12 do	or pek	1200	33 bid
	12 do	pek	1080	29 bid
Kincora	12 ch	bro or pek	1200	54
	14 do	or pek	1260	41
	22 do	pek	1980	36
Galapitakande	13 ch	or pek	1300	35 bid
	15 do	bro pek	1500	40 bid
	23 do	pek	2070	32
Badulu Oya	16 ch	bro pek	1664	37 bid
	20 do	pek	1800	32
Lebanon Group	17 ch	pek sou	1700	28
	65 do	bro pek	6500	38 bid
	61 do	pek	5185	33
	14 do	pek sou	1190	30
	31 do	pek sou	2635	30
Fredsruhe	30 ch	bro pek	3000	36
	21 do	pek	2100	29
	10 do	pek sou	1000	27
Erlsmere	22 hf ch	hro or pek	1210	61
	21 ch	hro pek	2016	51
Puspone	19 ch	or pek	1900	32 bid
	26 do	bro pek	2860	38
	22 ch	pek	1980	30
	25 do	pek sou	2125	28
	14 do	fans	1120	26
Harrrow	18 hf ch	hro or pek	1080	60
	11 ch	or pek	1045	40
	27 do	pek	2700	37
Marlborough	42 hf ch	hro or pek	2184	58
	23 ch	bro pek	2300	44
	47 do	pek	4606	37
Yataderia	45 ch	hro or pek	4680	30
	29 do	or pek	2668	34
	21 do	pek	1701	27
	16 do	pek sou	1280	26
Dickhena	40 ch	bro or pek	4120	35
	35 do	or pek	3220	30
	23 do	pek	1863	27
	17 do	pek sou	1360	26
Yelverton	17 ch	hro pek	1768	39
	24 do	pek	2160	31
T K	17 hf ch	dust	1717	26
Troy	*22 ch*	*young hyson*	*2310*	38
	15 do	*hyson*	*1470*	34
M T P, in est mark	10 ch	fans	1050	30
Pansalatenne	12 ch	pek	1020	29
	15 do	pek sou	1200	26 bid
	12 do	br or pek	1200	43
	27 do	bro pek	2565	36 bid
	30 do	pek	2550	30
	18 do	pek sou	1410	27
Ismalle	29 ch	sou	2610	25
	14 do	hro pek fans	1820	25
Shrubs Hill	28 ch	hro pek	3080	38 bid
	19 do	pek	1805	29 bid
Mahawale	17 ch	bro pek	1700	41
	26 do	or pek	2470	34
	33 do	pek	2970	30
	19 do	pek sou	1710	27 bid
Deaculla	21 bf ch	bro pek	1218	47
	18 do	pek	1260	33
	23 do	pek sou	1656	30
Kitulgalla	22 ch	bro or pek	2200	35
	12 do	or pek	1104	32
	12 do	pek	1032	28 bid
Wella	41 hf ch	bro pek	2132	39 bid
	do	pek	1276	32

	Pkgs.	Name.	lb.	c.
Tymawr	30 hf ch	or pek	1650	48
	18 do	bro or pek	1080	63
	53 do	pek	2650	42
	23 do	pek sou	1150	39
	20 do	fans	1300	35
North Cove	18 hfch	bro or pek	1044	68 bid
	66 do	bro pek	3960	51 bid
	22 ch	pek	2046	43
Battawatte	22 hf ch	bro or pek	1430	41
	42 ch	bro pek	4200	33 bid
	27 do	pek	2700	34
Dammeria	31 ch	or pek	2790	33 bid
	36 do	bro pek	3600	37 bid
	45 do	pek	4050	30 bid
	28 do			
	1 hf ch	pek sou	2575	29
Gampaha	49 hf ch	bro or pek	2940	41 bid
	42 do	bro pek	2100	43
	23 ch	or pek	2208	41
	16 do	pek	1360	36
	22 hf ch	pek fans	1980	27
Lucky Land	34 hf ch	bro or pek	2040	46
	21 do	bro pek	1050	43 bid
	27 ch	pek	2295	36
Narangalla	14 ch	pek	1190	29
Blarney Watte	11 ch	bro pek	1100	51
A G S	14 hf ch	dust	1260	25
Forest Creek	17 ch	bro or pek	1734	68 bid
	37 do	bro pek	3774	44
	21 do	or pek	1890	42
	40 do	pek	4000	37
Bellongalla	20 ch	pek	1800	28
	13 do	bro or pek	1365	33
Waitalawa	74 hf ch	bro pek	3700	42
	86 do	pek	4300	31
	29 do	pek sou	1450	29
Nugagalla	25 hf ch	bro pek	1250	39 bid
	37 do	pek	1850	30
K P W	19 hf ch	bro or pek	1140	37
Yataderia	22 ch	bro or pek	2244	34 bid
	19 do	bro pek	1957	30 bid
	23 do	or pek	2185	29
	16 do	pek	1344	27
Dunedin	*60 hf ch*	*young hyson*	3000	39
	21 ch	*hyson*	1680	35
Mudamana	*26 ch*	*hyson No 2*	1950	34
	20 do	fans	1900	14
	32 do	fan No 2	2400	15
Yogama	19 ch	bro pek	1995	39
	22 do	or pek	2200	34 bid
	38 do	pek	3230	30
	21 do	pek sou	1680	28
Middleton	18 ch	bro or pek	1800	56
	18 do	or pek	1530	49
	16 do	pek	1360	45
Hanwella	*22 ch*	*young hyson*	2200	37
	13 do	*hyson No 1*	1300	35
Bandara Eliya	34 hf ch	br or pek	2040	47 bid
	62 do	pek	3100	36 bid
	42 do	bro or pek No 2	2520	42
	87 do	pek	4350	36 bid
Dunedin	*60 hf ch*	*young hyson*	3000	39
	14 ch	*hyson No 2*	1288	35
Nahalma	17 ch	or pek	1632	34
	15 do	bro pek	1499	36
	30 do	pek	2880	30
	19 do	bro or pek	1900	40 bid
	14 do	fans	1370	27
W V R	28 hf ch	bro or pek	1400	44 bid
G K	18 hf ch	dust	1440	26
Summerhill	46 ch	pek sou	3588	38
	23 do	fans	1610	40
Castlereagh	55 hf ch	bro or pek	2475	51
	10 ch	bro pek	1000	39 bid
K C E	11 ch	bro pek	1100	31
Relugas	9 ch	dust	1424	25
Pallagodde	21 ch	bro or pek	2100	34 bid
	32 do	bro pek	3200	37 bid
	31 do	or pek	2790	33
	28 do	pek	2380	29
	29 do	pek sou	2610	28
	19 do	sou	1615	26
	32 hf ch	dust	2720	26
Inverness	38 ch	bro or pek	3800	58 bid
	30 do	or pek	2700	51 bid
	37 do	pek	3145	45
Hayes	17 ch	bro pek	1700	38
	16 do	or pek	1360	37
	29 do	pek	2610	29 bid
	38 do	pek	3420	32
Gonapatiya	46 hf ch	or pek	2346	46
	22 do	bro pek	1320	53 bid
	49 do	pek	2352	39
	19 do	pek fans	1273	35
Dumblane	35 ch	bro or pek	1925	60
	18 do	bro pek	1800	47 bid
	12 do	pek	1200	42

	Pkgs.	Name.	lb.	c.
Ben Nevis	32 hf ch	bro pek	1920	withd'n
	37 do	or pek	1850	
	33 ch	pek	2970	
	12 do	pek sou	1080	
Ganapalla	13 ch	or pek	1001	37
	13 do	bro or pek	1248	39
	15 do	bro pek	1200	34
	34 do	bro pek	2652	30
Attampettia	17 ch	bro pek	1819	53 bid
	17 do	or pek	1530	41 bid
	15 do	pek	1350	37
Bullugolla	*68 ch*	*young hyson*	*6800*	37
	52 do	*hyson*	*4420*	35
	34 do	*hyson No 2*	*2250*	34 bid
Roseberry, U	70 ch	pek	5600	30 bid
	61 do	bro pek	5612	37 bid
	23 do	bro or pek	2300	54
	24 do	pek sou	2160	29 bid
Roeberry, V	22 ch	pek	2156	33 bid
	23 do	bro pek	2116.	40 bid
	14 do	dust	1400	out
Polatagama	20 ch	bro pek	1897	36 bid
	70 do	pek	6647	30 bid
	25 do	pek sou	2372	27 bid
Putupaula	54 ch	or pek	4590	32 bid
	54 do	or pek	4590	32 bid
Eastlands	21 ch	or pek	1719	withd'n
Clarendon, Dimbula	25 ch	pek sou	1972	37
Roeberry, V	02 hf ch	fans	1400	29

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	11 ch	pek sou	880	33
Weemalle	4 ch	bro pek	400	39 bid
	4 do	or pek	340	39
	7 do	pek	595	33
	1 do	pek sou	90	27
	1 do	bro tea	85	24

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
B R	3 ch	bro pek	291	30
	3 do	pek	255	26
	3 do	pek sou	255	25
	3 do	dust	345	22
Godakela	2 ch	bro pek	204	34
	7 do	pek	630	27
Fairlawn	8 ch	or pek	640	41
	2 do	pek sou	100	31
	6 hf ch	dust	540	28
Moneraalla	14 ch	pek sou	854	27 bid
	3 do	fans	321	26 bid
	3 do	red leaf	192	21 bid
Gampai	6 hf ch	dust	350	26
Kerenvilla	7 ch	bro pek	700	29 bid
	8 do	pek	800	26
	4 do	pek sou	400	25
	1 do	fans	100	22
	1 do	dust	125	22
Woodend	2 ch			
	1 hf ch	dust	376	24
	2 ch	bro pek fans	184	27
Lowlands	4 ch	bro pek	380	33
	3 do	pek	255	28
	4 ch	pek sou	310	26
	1 hf ch	unassorted	65	24
	1 ch	dust	80	24
	1 bag	red leaf	20	13
Panilkande	9 hf ch	bro or pek No 1	450	55
	11 ch	pek	990	34
	1 hf ch	dust	70	29
	3 do	pek fans	180	29
Glenwood	9 ch	pek sou	675	26 bid
Malsa	4 ch	or pek	360	36
	8 do	pek sou	600	27
	2 do	dust	180	25
Bargany	4 ch	pek	320	38
	11 do	pek	880	34
	2 do	pek sou	140	30
	2 hf ch	dust	180	29
J H in est mark	2 ch	bro pek	202	29
	5 do	pek	450	26
	4 do	pek sou	320	23
	3 do	pek sou No 2	327	22

	Pkgs.	Name.	lb.	c.
Katugastota	7 ch	or pek	630	32 bid
	5 do	pek sou	375	27
	2 do	sou	152	25
	2 hf ch	dust	100	24
M	10 hf ch	pek fans	730	28 bid
L P	*1 hf ch*	*young hyson*	*28*	out
	2 do	*hyson*	*74*	out
	1 hf ch	fans	23	out

Messrs. Somerville & Co.

	Pkgs.	Name.	b.	c.
St Leys	1 hf ch	red leaf	60	25
S	17 hf ch	sou	850	24
	7 do	dust	560	26
A	12 hf ch	sou	600	24
	4 do	dust	320	26
Pieter s Hill	2 ch	bro pek	210	36
	3 do	pek	285	29
	1 do	pek sou	95	26
Polghakande	7 ch	pek sou	630	26
	2 do	pek sou No 2	166	24
	3 do	dust	390	23
Dalveen	10 ch	pek	850	30
	4 do	pek sou	320	20
	1 do	sou	134	24
Meeriatenne	5 hf ch	or pek	205	43
	15 do	pek No. 2	675	33 bid
	4 do	dust	320	26
Paradisi	6 ch	pek	570	29
	4 do	pek sou	360	26
	2 do	fans	216	26
	2 do	dust	276	25
P in estate mark	3 ch	unassorted	300	25
	1 do	bro mix	104	22
W K P	12	pek sou	900	26
	7 do	sou	532	25
	3 hf ch	dust	216	26
Glenanore	5 ch	pek sou	450	31
	5 do	bro mix	500	29
	4 hf ch	dust	320	26
Moragalla	7 ch	bro pek	700	35
	5 do	pek	450	28
	8 do	pek sou	720	26
	2 do	fans	200	26
	1 do	dust	115	22
	2 bag	bro tea	191	24
Citrus	5 ch	pek sou	434	26
	2 do	bro pek fans	200	24
	1 do	dust	126	22
Labaduwa	5 ch	bro pek	500	34
	8 do	pek	630	28
C W M	5 ch	pek souc	475	29
	4 hf ch	pek fans	320	27
	1 box	unassorted	35	25
Hatdowa	10 ch	pek	950	28
	7 do	pek sou	665	26
	5 hf ch	dust	375	27
H J S	15 hf ch	bro pek	900	34
Monrovia	*4 ch*	*hyson No 2*	360	34
	5 do	*hyson fans*	475	18
	1 do	*Green tea dust*	123	08
Glenalmond	3 ch	pek sou	270	27 bid
	1 do	fans	100	27
	2 hf ch	dust	160	25
Lochnagar	2 ch	sou	220	25
	6 hf ch	dust	540	26
Mincing Lane	1 ch	sou	100	25
	10 hf ch	pek fans	750	29
	5 do	dust	450	26
Warakamure	10 ch	pek sou	800	26
	1 hf ch	dust	90	23
Highfields	13 hf ch	bro or pek	728	39 bid
	7 do	or pek	336	36
	15 do	pek	750	35
Torbay	7 hf ch	bro or pek fans	490	30
	9 do	fans	630	27
	2 do	dust	180	25
	7 do	pek sou	280	27
B A	14 hf ch	pek fans	910	28
	5 do	dust	450	26
	1 ch	pek sou	80	25
	2 do	bro tea	200	23
Kurulugalla	11 ch	pek	990	29
	5 do	pek sou	450	26
	1 do	pek dust	100	25
Leyton	6 hf ch	bro or pek	336	36
	8 do	or pek	300	35
	14 do	pek	588	28
	11 do	pek sou	462	26
Tenne	6 hf ch	dust	480	26
	10 hf ch	dust	800	26
	6 ch	bro pek	570	33 bid
	5 do	pek	375	27
	2 hf ch	fans	140	26

	Pkgs.	Name.	lb.	
Oaklands	2 ch			
	1 hf ch	bro pek	245	31 bid
	2 do	fans	120	26
	6 do	dust	400	25
Atheherton	1 ch	bro tea	95	22
	2 hf ch	fans	146	27
	2 do	dust	166	25
Homelea	*1 ch*	*young hyson*	115	35
	9 do	*foong mee*	810	35
	3 do	*foong mee No 2*	300	13
Maragalla	11 ch	or pek	935	32
	9 do	pek	810	27 bid
	3 do	pek sou	210	27
	1 do	dust	150	24
G C	1 ch	bro pek	74	37
	1 do	pek	74	31
	1 hf ch	pek sou	40	27
Vilgoda	10 ch	pek	945	withd'n
	4 do	pek sou	380	withd'n
Theberton	1 ch	sou	85	27
	2 do	bro pek fans	200	26
Dryburgh	7 hf ch	bro or pek		withd'
	3 ch	or pek		withd'
	6 do	pek		withd'
	2 hf ch	fans		withd'
Richlands	6 ch	pek sou	570	31
Oonangalla	2 ch	unassorted	190	30
	3 hf ch	dust	255	26
	5 do	fans	350	29
Kituldeniya	10 ch	or pek	900	33
	4 do	pek sou	600	26
	1 do	sou	76	25
	1 hf ch	dust	70	23
Meddegodda	10 hf ch	bro or pek	650	39
	8 do	or pek	440	39
	7 do	pek	385	30
	1 do	pek sou	50	30
	3 do	dust	225	24
	1 do	sou	50	26
	3 do	bro pek fans	165	27
Rambodda	10 hf ch	bro or pek	500	50bid
	17 hf ch	bro pek	884	39 bid
	12 do	pek sou	540	28
	3 do	bro pek fans	195	28
	2 do	dust	160	26
New Angamana	6 ch	pek fans	750	26
	3 do	dust	450	25
Havilland	*8 ch*	*hyson No 2*	680	35
	3 do	*siftings*	360	13
Glenalla	*4 ch*	*siftings*	480	15
Neboda	3 ch	pek sou	276	26
	5 hf ch	dust	425	25
Raglan	2 ch	dust	287	20
	2 do	fans	221	23
Mowbray	11 ch	pek	877	31 bid
	8 do	pek sou	677	27 bid
Primston	7 ch	bro pek	700	33
	7 do	pek	700	28
	6 do	pek sou	570	26
	3 do	unassorted	285	23
	1 do	congou	80	22
Newvalley	4 ch	pek sou	360	33
	2 do	dust	180	26

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
MAY in est mark	12 hf ch	br or pek	600	36
	10 do	or pek	500	32
Ramsgill	2 do	bro pek	116	20
	2 ch	pek	136	21
	1 hf ch	fans	35	12
	3 do	dust No 1	240	20
	1 do	dust No 2	80	17
Harrisland	17 hf ch	bro or pek	918	43
	13 do	or pek	611	37
	1 do	pek sou	52	26
	4 do	fans	292	25
	1 do	pek dust	100	21
Taraweuwa	*3 ch*	*hyson No 2*	*285*	36
	2 do	*hyson fanings*	*200*	16
Westhall	5 ch	bro mix	500	19
U	4 ch	pek sou	340	31
Cabin Ella	8 hf ch	bro pek fans	560	29
	2 do	pek dust	180	26
S T V	4 ch	bro pek	436	24
St Johns	11 ch	pek sou	946	24
Tismoda	3 ch	dust	267	25
Mt Everest	7 hf ch	dust	700	26
Casle Hill	6 ch	pek sou	560	24
Arnhall	3 ch	pek sou	300	27
	2 hf ch	dust	160	26
Ashburton	9 ch			
	1 hf ch	pek sou	818	30
	3 ch	fans	333	27
	2 do	dust	296	25

	Pkgs.	Name.	lb.	c.
Koslande	5 ch	pek sou	600	30
	2 do	fans	218	29
	2 hf ch	dust	180	26
Theresia	9 ch	pek sou	765	36
	3 hf ch	dust	240	27
	3 ch	bro pek fans	300	38
Craigingilt	9 hf ch	bro or pek	495	50
	5 ch	or pok	475	37
	4 ch	pek No. 1	370	33
	4 do	pek No 2	300	31
	2 hf ch	or pe oe fans	130	31
Oakwell	8 do	pek sou	704	29
	8 hf ch	fans	480	27
	3 ch	dust	255	26
Taunton	7 ch	pek sou	560	26
	2 do	sou	180	25
	2 do	fans	240	23
	3 hf ch	dust	270	24
Glenesk	10 ch	or pek	900	33
Perth	*1 hf ch*	*hyson No 2*	*80*	34
	1 do	*Twanky*	*136*	12
Cocoawatte	3 ch	pek	300	28
	5 do	pek sou	475	27
	2 do	fans	190	26
Orweli	16 hf ch	bro or pek	864	43
	2 ch	pek sou	180	26
Shawlands	7 ch	sou	560	24
	8 do	dust	960	26
	3 do	fans	336	27
Diekapitiya	10 hf ch	dust	760	26
Yapame	1 ch	dust H	95	24
	1 do	fans H	95	26
E T	7 ch	bro pek	700	28
	7 do	pek	700	31
Tarawera	*11 hf ch*	*hyson siftings*	*935*	13
Y	6 ch	red leaf	540	16
Gangawatte	1 ch	bro or pek	100	52
Vavunia	3 ch	bro pek	273	25
	5 hf ch	dust	450	17 bid
D	7 ch	sou	588	12
A	5 do	sou	455	10
S J	8 do	bro pek	797	28
Eversfield	6 ch	pek sou	546	27
	1 do	dust	132	26
Dotala	13 hf ch	or pek	585	44
	8 ch	pek sou	760	32 bid
	4 do	pek fans	300	27
Kandahar	3 hf ch	dust	168	26
Ben Nevis	18 hf ch	bro or pek	767	58
	6 do	dust	493	26

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Rockside	2 ch	bro pek fans	240	38
	5 do	dust	675	26
	1 do	dust No 2	175	24
Lyegrove	9 ch	bro pek	900	39
	6 do	pek	540	34
	2 do	pek sou	160	27
	2 do	red leaf	170	24
	1 hf ch	dust	80	26
Kotagaloya	5 hf ch	fans	325	27
	9 do	dust	720	26
	10 do	bro mix	400	21
E D P	2 ch	sou	170	26
G, in estate mark	5 ch	congou	450	24
K B	2 ch	fans	206	23
	1 do			
	1 hf ch	sou	131	25
Strathisla	9 ch	fans	990	27
	5 hf ch	dust	425	22
Tunisgalla	8 hf ch	bro or pek	440	57
	10 ch	pek sou	850	28
	1 do	sou	80	26
	4 hf ch	dust	380	25
Nyangodde	5 hf ch	dust	450	20
Nona Totam	1 ch	bro pek	80	38
	2 do	or pek	180	37
	4 do	pek	340	29
	2 do	pek sou	1 0	27
	7 hf ch	dust	630	26
	2 do	bro pek fans	140	33
	2 do	fans	150	28
Katooloya	7 hf ch	dust	595	25
Kelburne	6 hf ch	dust	480	25
Kelvin	4 hf ch	fans	280	29
	1 do	dust	85	25
	1 ch	bro mix	90	25
Pingarawa	2 hf ch	dust	180	26
Stafford	9 ch	bro or pek	990	54
	10 do	pek	800	36
	2 do	dust	280	26
	2 do	fans	280	32
Bopitiya	2 ch	sou	190	26
	4 hf ch	dust	396	24

	Pkgs.	Name.	lb.	c.
Chesterford	6 ch	gunpowder	600	24
	2 do	siftings	200	9
Dam' agastalawe	7 ch	bro pek fans	938	30
D G T	2 ch	bro pek	172	35
	3 do	pek	306	30
	1 do	bro pek fans	142	28
Ambalangoda	6 ch	pek sou	510	27
	2 do	fans	200	26
	2 do	dust	220	24
	1 do	unassorted	101	28
Kincora	5 hf ch	bro pek fans	300	31
	9 do	pek sou	720	28
	9 hf ch	dust	720	27
Galapitakande	7 ch	pek sou	630	29
	8 do	bro pek No 1	720	55
	5 do	dust	400	25
Badulu Oya	5 ch	pek sou	425	27
Bullugolla	1 ch	or pek	100	32
	1 do	pek sou	85	26
	1 do	fans	100	26
	1 do	unassorted	80	27
Lebanon Group	12 hf ch	cust	960	28
Haputelewella	9 hf ch	bro pek	495	38
	6 do	pek	270	26
	4 do	pek son	160	26
	4 do	fans	320	25
W A	3 ch	dust	450	24
K B	1 ch	red leaf	85	25
Kelburne	5 hf ch	fans	400	28
Erlsmere	10 ch	pek	860	41
	2 do	pek sou	160	35
	3 hf ch	dust	225	27
Harrow	6 ch	pek sou	585	34
El Teb	2 ch	pek sou	190	33 bid
	11 hf ch	dust	913	27
Adams Peak	2 ch	pek	183	29
	1 do	or pek	90	34
Asgeria	5 ch	bro tea	490	25
	1 do	dust	164	25
Dickhena	3 ch	fans	318	18
Yelverton	4 ch	pek sou	340	27
Ingurugalla	6 ch	pek sou	540	27
	7 do	bro tea	595	26
T K	7 ch	bro mixed	734	27
	1 hf ch	bro mixed	47	26
Wevekellie	7 ch	bro tea	700	26
	3 hf ch	dust	255	26
	1 do	dust	80	25
Troy	*5 ch*	*hyson No 2*	*475*	34
	3 do	siftings	315	13
	1 do	dust	145	10
M T P, in est mark	8 ch	sou	720	24
	3 do	dust	360	25
Weoya	1 ch	bro mix	121	24
Pansalatenne	4 ch	bro or pek	400	42
	5 do	bro pek	475	36
	3 do	bro pek No 2	300	34
	6 do	bro or pek fans	750	29
	1 do	dust	150	24
Ambanpitiya	3 ch	dust	375	24
Donnybrook	13 hf ch	bro or pek	754	47
	5 ch	or pek	470	41
	9 do	pek	810	36
	4 hf ch	or pek fans	300	31
	2 do	dust	182	25
Shrubs Hill	3 ch	pek sou	300	27
	11 hf ch	bro pek fans	902	26
Mahawale	5 ch	bro mix	425	25
	3 do	dust	354	25
Amherst	10 hf ch	dust	900	26
	5 do	fans	350	31
Deaculla	2 ch	red leaf	142	22
Kitulgalla	2 ch	dust	300	24
	3 do	bro or pek fans	330	27
Wella	17 hf ch	pek sou	731	30
	4 do	dust	344	26
Tymawr	6 hf ch	dust	510	27
H M	1 ch	bro mix	100	20
Memorakande	7 ch	pek fans	518	26
	2 do	dust	200	24
Glaslyn	3 ch	fans	386	24 bid
Battawatte	11 ch	pek sou	990	29
	2 do	dust	200	26
Dammeria	7 ch	bro or pek	700	33
	1 hf ch	dust	100	23
	2 do	bro pek fans	160	27
	1 do	fans	91	27
	1 ch	bro pek	100	35
	1 do	or pek	90	33
	1 do	mix tea	100	24
	1 do			
	1 hf ch	unassorted	140	22
B	3 hf ch	bro or pek	195	30
	2 ch	bro pek	220	29
	2 do	pek	180	27
	2 do	pek sou	128	26
	1 hf ch	dust	75	24

	Pkgs.	Name.	lb.	c.
Gampaha	8 ch	bro pek	300	44
	7 do	pek sou	630	31
Letchmey	12 ch	pek sou	960	27
	1 hf ch	pek sou	39	26
	5 do	bro or pek fans	325	27
	2 do	sou	100	23
	3 do	dust	255	20
Ducky Land	8 cb	pek sou	720	32
	10 hf ch	bro or pek fans	750	28
Narangalla	6 ch	bro pek	600	35
	7 do	or pek	630	31
	4 do	pek sou	340	26
	5 bf ch	dust	400	24
	2 do	sou	170	25
Blarney Watte	11 ch	pek	990	38
	5 do	pek sou	425	32
	3 hf ch	dust	240	27
Elfindale	7 ch	fans	630	22
A G S	2 hf ch	dust No 2	220	20
	2 do	red leaf	110	22
K W A	8 ch	bro pek	800	33
	5 do	pek	450	27
	2 do	pek son	160	25
	1 hf ch	dust	64	22
Bellongalla	4 ch	or pek	400	35
	8 do	bro or pek fans	345	28
Waitalawa	5 hf ch	dust	450	26
Nugagalla	3 hf ch	dust	270	26
K P W	18 hf ch	bro pek	900	36
	11 do	or pek	495	36
	13 do	pek	650	29
Dunedin	*9 ch*	*hyson No 2*	*828*	34
	4 hf ch	fans	248	15
	3 do	dust	255	10
Mudamana	*9 ch*	*hyson*	*765*	34
	5 do	dust	700	10
Yogama	3 ch	dust	408	23
H H	1 ch	dust	95	20
Hanwella	*8 hf ch*	*hyson No 2*	*480*	35
	2 do	*hyson siftings*	*130*	9
Bandara Eliya	15 hf ch	or pek	720	43
	18 do	bro or pek No 1	9[illegible]	52
M	3 hf ch	coarse leaf	150	13
Dunedin	*12 ch*	*hyson*	*960*	35
	4 hf ch	fans	260	17
	2 do	dust	170	10
Nahalma	6 hf ch	dust	480	26
W V A	6 hf ch	fans	432	25
G K	7 ch	pek sou	490	27
	1 do	sou	70	26
	8 do	fans	720	25
X	1 ch	or pek	70	30
	2 hf ch	pek	100	28
	1 do	fan	50	26
	4 do	dust	280	24
Summerhill	8 ch	dust	728	28
Allagalla	5 hf ch	dust	475	26
	6 do	fans	360	27
Castlereagh	9 ch	or pek	720	38
	10 do	pek	800	38
K C E	7 ch	pek	639	29
	4 do	pek sou	320	26
	4 do	fans	400	25
	2 do	congou	180	24
	2 do	dust	300	19
Augusta	2 ch	bro mix	150	22
	2 do	dust	300	22
D	4 ch	sou	307	26
	9 do	bro pek fans	612	27
	3 do	dust	255	23
L B K	4 ch	sou	400	27
	3 do	fans	300	32
	1 do	pek fans	110	26
	3 do	dust	405	26
Relugas	3 ch	sou	210	24
K C E	1 ch	dust	150	out
O	3 bgs	coarse leaf	216	12
Pallagodde	1 ch	bro pek	74	35
	1 do	or pek	89	32
	1 do	pek	83	28
	1 hf ch	sou	48	25
Condia	10 hf ch	dust	750	withd'n
Springwell	1 hf ch	pek	53	33
	1 do	dust	69	26
H J M W	2 ch	bro pek	170	29
	8 do	pek	233	25
	2 do	bro unas	168	24
	7 do	unas	595	24
Hayes	9 ch	pek sou	720	27
	5 hf ch	bro or pek fans	300	38
	10 do	pek dust	750	24
	3 cb	red leaf	270	22
Gonapatiya	12 hf ch	pek sou	528	35
	8 do	dust	688	28
I N G in est mark	2 ch	bro pek	180	38
	1 do	pek	90	30
	1 do	sou	80	26
	1 do	pek fans	108	27
	1 do	dust	145	26
Dumblane	4 ch	pek sou	360	37
Ben Nevis	13 hf ch	bro or pek	767	withd'n
	6 do	dust	498	withd'n
Wattawella	8 hf ch	bro pek fans	560	32
	6 do	dust	510	26
	5 ch	pek sou	475	28
Attampettia	4 ch	pek sou	336	32
	1 do	fans	130	28
	1 hf ch	dust	95	22 bid
Bullugolla	8 ch	siftings	880	12
Roeberry V	8 ch	bro or pek	880	51
	8 do	pek sou	800	29

CEYLON COCOA SALES IN LONDON.

Mincing Lane, Jan. 9th.

"Socotra."—Strathisla Ceylon Cocoa A, 31 bags sold at 71s 6d; ditto B, 1 at 45s; ditto C, 6 at 50s.

"Dalmatia."—Wiharagama 1, 4 bags sold at 50s; T, 2 at 44s.

"Kamakura Maru."—Meegama B, 8 bags sold at 48s 6d.

"Clan Macpherson."—Warriapolla, 13 bags sold at 75s; 1 at 54s; 5 at 56s; 2 at 50s; 15 at 51s 6d.

"Socotra."—Suduganga, 2 bags sold at 54s; 4 at 51s 6d; 11 at 48s 6d; Bandarapola T, 1 bag sold at 35s.

"Menelaus."—North Matale Ceylon Cocoa C, 20 bags sold at 74s; 22 at 73s; 4 at 55s; ditto F, 8 at 51s 6d.

"Warwickshire."—Pondappe London No. 1, 17 bags sold at 65s; 1 at 45s; ditto No. 2, 10 at 49s 6d; Cocoa Pieces, 1 bag sold at 53s 6d; Maryland London No. 1, 1 bag sold at 43s 6d; ditto No. 2, 2 at 40s 6d; Cocoa Pieces, 1 bag sold at 53s 6d.

"Clan Macpherson."—Katugastota, 26 bags sold at 60s.

"Inaba Maru."—Broken, 2 bags sold at 45s.

"Statesman."—Goonambil, 7 bags sold at 48s; 1 at 40s; 24 at 61s; 13 at 45s; 6 at 47s 6d; 2 at 40s.

"Warwickshire."—Rockhill AA, 20 bags sold at 69s 6d; 20 at 70s; 9 at 69s; Lower Haloya, 1 bag sold at 44s; ES Rajah Totam, 16 bags sold at 68s.

"Benlarig."—1 Yatawattee, 17 bags sold at 64s; 2 ditto, 5 at 40s; 1 ditto, 2 at 48s.

"Omrah."—HV 672 in estate mark, No. 3, 1 bag sold at 30s; ditto No. 4, 1 at 41s.

"Inaba Maru."—Hylton 1, 2 bags sold at 52s; ditto 1 O, 24 at 74s 6d; 2 at 52s; ditto 1 X, 1 bag sold at 52s.

CEYLON CARDAMOMS SALES IN LONDON.

"Yorkshire."—Ravenswood, U V A No. 1, 3 cases sold at 1s 11d; ditto No. 2, 2 at 1s 3d; 3 at 1s 2d.

"Cheshire."—Hoolo Group, 3 cases sold at 1s 2d; 2 ditto, 1 at 1s; 3 ditto seed, 2 at 1s 4d; 1 ditto A, 2 at 1s; 3 at 11d; 2 ditto A, 3 at 1s 1d; 3 ditto A, 2 at 1s 5d; ditto seed, 1 at 1s 4d.

"Warwickshire."—Gammaduwa 1, 1 case sold at 2s 3d; Seed, 2 at 1s 4d.

"Inaba Maru."—Winchfield Park AA, 1 case sold at 3s; AA 1, 1 at 2s 8d; Gallantenne Cardamoms B, 3 at 1s 3d.

"Glenshiel."—Kelvin Cardamoms C, 1 case sold at 11d; D, 1 at 1s 5d.

"Warwickshire."—Katooloya Cardamoms EX, 3 cases sold at 11d.

"Omrah."—Kirinde Ella Cardamoms 2, 11 cases sold at 1s; ditto S, 2 at 1s; 2 at 11d.

"Gorman."—Ratnatenna Cardamoms B, 2 cases sold at 1s; ditto C, 1 at 11d; D, 1 at 1s 5d.

"Tactician."—Kandaloya A 3, 3 cases sold at 11d.

"Clan Macpherson."—Delpotonoya, 2 cases sold at 1s 10d; 4 at 1s 6d; 4 at 1s 1d; 1 at 11d; 1 at 1s 2d; 1 at 1s 1d; 1 at 1s; 1 at 11d.

"Workman."—Midlands B & S C, 2 cases sold at 1s.

"Clan Macpherson."—Kabragalla, 1 case sold at 10½d; D, at 1s 1d.

"Cheshire."—Dromoland No. O, 1 case sold at 2s 11d; No. 1, 2 at 2s 2d; No. 2, 4 at 1s 7d; No. 4, 2 at 11d.

"Java."—OBEC, in estate mark, Nillomally Mysore 3, 1 case sold at 11d; B & S, 4 at 1½d; seeds, 1 at 1s 4d; OBEC, in estate mark, Naranghena AAA, 2 at 1s 10d; AA, 2 at 1s 5d; B, 2 at 11½d; seed, 1 at 1s 4d.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 5. COLOMBO, FEBRUARY 4th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[32,042 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	27 ch	or pek	2700	42
	18 do	pek	1530	39
	17 do	pek sou	1360	35
Wahagapittia	10 cb	bro or pek	1000	43 bid
	13 do	bro pek	1300	36
	12 do	pek	1020	34
Yuillefield	23 hf ch	or pek	1150	43
	22 ch	pek	2090	38
Hornsey	21 hf ch	bro pek	1260	51
	15 ch	pek	1425	41
Kenilstone	*10 ch*	*young hyson*	*1000*	*34*
	13 do	*hyson*	*1300*	*32 bid*
M	20 hf ch	dust	1800	out
	15 ch	sou	1200	20
Bunyan & Ovoca	33 hf ch	bro or pek	1815	55
	35 do	or pek	1750	40 bid
	18 ch	pek	1620	37
	12 do	pek No. 2	11-0	41 bid
	15 do	pek sou	1350	35 bid

Messrs. Keell and Waldock.

[61,616 lb.]

	Pkgs.	Name.	lb.	c.
B W	15 ch	pek	1407	39 bid
Cottesbrooke	25 hf ch	bro or pek	1375	41 bid
	20 ch	pek	1800	36
Aigburth	11 ch	or pek	1045	37
	28 do	pek	2240	31
Galgedioya	17 ch	bro pek	1700	33
	20 do	pek	1800	29
	19 do	pek sou	1710	27
Oricn	17 ch	bro or pek	1700	41
	14 do	or pek	1260	36
	12 do	pek No 2	1080	34
	12 do	pek sou	1020	30
Paniyakande	15 ch	bro pek	1500	37
Anningkande	24 hf ch	bro pek	2350	38 bid
	18 ch			
	1 hf ch	pek	1785	30 bid
Maldeniya	15 ch	bro or pek	1575	33 bid
	10 do	bro pek	1000	35
	14 do	pek	1260	31
Moneragalla	17 ch	bro or pek	1306	42 bid
	21 do	pek	1767	32 bid
Brixworth	30 ch	bro or pek	2997	38 bid
N in est. mark	22 ch	pek	2200	35 bid
	13 hf ch	dust	1036	12 bid
V	26 ch	bro pek	2600	30 bid
	35 do	pek	3.50	27 bid
	17 do	pek sou	1445	26 bid
Gonagalella	21 ch	bro or pek	2100	40 bid
	10 do	pek	1000	38

Messrs. E. John & Co.

[155,001 lb.]

	Pkgs.	Name.	lb.	c.
A A	10 ch	dust	1000	26
Kosgalla	22 hf ch	bro pek	1210	33
Gingranoya	10 ch	bro or pek	1050	45 bid
Warleigh	24 hf ch	bro or pek	1344	59 bid
	21 cb	or pek	2037	42
	32 do	pek	2720	39
Kelaneiya & Braemar	18 ch	bro or pek	1800	53
	15 ch	bro pek	1500	39
	36 do	pek	3420	37
Perth	18 ch	bro or pek	1702	40
	32 cn			
	2 hf ch	bro pek	2991	35
	40 ch			
	1 hf ch	or pek	3250	32
Templestowe	26 hf ch	bro or pek	1404	57
	23 do	bro pek	1288	48
	31 do	or pek	1364	45
	17 ch	pek	1394	41
Lameliere	15 do	bro or pek	1500	48
	18 do	pek	1620	38
Kandaloya	22 hf ch	bro pek	1100	35
	31 do	pek	1240	31
	23 do	bro or pek	1035	42 bid

	Pkgs.	Name.	lb.	c.
	46 do	pek	1840	31
Devon	26 hf ch	bro or pek	1638	59
	22 ch	or pek	2398	48
	11 do	pek	1232	44
Natuwakellie	13 ch	bro or pek	1300	45
	18 do	or pek	1620	36
	14 do	pek	1260	33
Brownlow	25 hf ch	bro or pek	1400	54
	16 ch	or pek	1440	41
	19 hf ch	bro pek	1064	43
	21 ch	pek	1764	39
G B	12 hf ch	dust	1020	26
Avington	*39 ch*	*young hyson*	*3900*	*37*
	13 ch	*hyson*	*1235*	*35*
	14 do	*hyson No 1*	*1330*	*34 bid*
Ratwatte	32 ch	bro pek	3200	34
	16 do	pek	1440	30
Gangawatte	32 do	bro or pek	2200	56
	16 do	bro pek	1600	42
	30 do	pek	2700	37
Peru	11 cb	bro pek	1155	41
Callander	20 hf ch	bro or pek	1100	53
	21 do	or pek	1113	40
	35 do	bro pek	2170	43
Ottery	15 ch	bro or pek	1500	43 bid
	20 do	pek	1800	34
Bandara Eliya	29 hf ch	or pek	1450	40
C B	8 ch	or pek fans	1080	28 bid
Wanarajah	22 hf ch	bro pek fans	1606	28
Lameliere	15 ch	bro or pek	1500	49
	18 do	pek	1620	38
Mt. Vernon	30 cb	pek	2700	42
Agra Ouvah	52 hf ch	bro or pek	3120	58 bid
	61 do	bro or pek	3657	58 bid
	38 do	or pek	2052	42
	13 cb	pek	1196	40
Kandalla	28 ch	or pek	2764	36 bid
Poilakande	21 ch	bro or pek	1890	33 bid
	29 do	bro pek	2610	30
	17 do	pek	1360	27
S. P.	19 ch	pek	1900	28 bid
Glentilt	57 do	bro or pek	3132	59 bid
O. W.	24 do	bro pek	2208	34
	28 do	pek	2296	28
Glassaugh	30 hf ch	or pek	1680	66
	25 do	bro or pek	1675	68
	17 ch	pek	1836	53
Elston	33 ch	pek	2640	34
	31 do	pek sou	2635	29
Tismoda	56 hf ch	bro pek	2800	37
	31 ch	pek	2480	33

Messrs. Somerville & Co.

[234,511 lb.]

	Pkgs.	Name.	lb.	c.
R T in estate mark	10 ch	pek sou	1050	26
	58 hf ch	fans	4060	28
	14 do	dust	1260	26
Gona	36 hf ch	br or pek fans	1980	28 bid
Dryburgh	15 ch	pek	1230	28 bid
Dikmukulana	40 hf ch	bro pek	2200	35
	40 do	pek	2000	27 bid
Ellerslie	43 hf ch	bro or pek	2365	47
	17 ch	or pek	1445	38
	15 do	bro pek	1425	37
Walahanduwa	25 ch	bro or pek	2375	36
	25 do	or pek	2125	33
	39 do	pek	3510	29
Avisawella	20 hf ch	bro or pek	1000	48
	16 cb	or pek	1520	36
	18 ch	pek	1620	31
	14 do	pek sou	1120	28
Carney	33 hf ch	pek	1560	36
	26 do	pek sou	1300	30
Hobart	13 ch	or pek	1040	33
Florida	17 ch	bro pek	1768	33
	17 do	pek	1666	28
Welgampola	27 hf ch	bro or pek	1674	35
	27 do	pek	1485	29
Salawa	12 ch	bro pek	1200	37
Hapugasmulle	14 ch	unassorted	1316	28
Beausejour	22 cb	pek	1760	29
Hanagama	27 ch	or pek	2700	33 bid
	30 do	pek	3000	30
	11 do	pek sou	1045	27
Owillikande	17 ch	bro or pek	1700	34
	13 do	or pek	1105	34
	18 do	pek	1620	30
Harrangalla	20 cb	bro or pek	1800	36
	18 do	bro pek	1800	33 bid
	27 do	pek	2160	31

	Pkgs.		Name.	lb.	c.
Yarrow	*47*	*hf ch*	*young hyson*	*2538*	38
	35	*do*	*hyson*	*1680*	34 bid
R K P	27	ch	bro or pek	2700	36
	22	do	pek	1980	31
	12	do	pek sou	1620	27
Walla Valley	20	hf ch	bro or pek	1100	60 bid
	12	ch	or pek	1080	46
	25	do	pek	2125	43
Wiharagama	38	hf ch	bro or pek No 1	1976	35
	31	do	bro or pek No 2	1550	32 bid
	29	do	bro pek	1537	29
	22	do	pek	1012	27
Farnham	*28*	*hf ch*	*young hyson*	*1563*	37 bid
	14	*do*	*hyson No 1*	*1246*	35
Homelea	*15*	*ch*	*foong mee*	*1350*	34 bid
Scarborough	12	ch	or pek	1140	42
	12	do	pek	1140	36
Monte Christo	24	ch	bro pek	2400	48
	25	do	pek	2250	36
Wevalakande	29	hf ch	bro pek	1566	50
Mahatenne	11	ch	bro or pek	1100	38
Blinkbonnie	35	hf ch	bro or pek	2100	59
	12	ch	or pek	1080	48
	19	do	pek	1748	44
Mary Hill	21	hf ch	bro pek	1092	35 bid
Oolapane	26	ch	bro pek	2600	37
	13	do	pek	1235	33
Cooroondoowatte	19	ch	pek	1900	30
Yahalatenne	36	ch	bro pek	3600	40 bid
	15	do	pek	1380	36
Gangwarily	13	ch	or pek	1040	38
	44	do	bro pek	4400	36
	18	do	pek	1530	30
Mousakande	18	ch	pek	1746	30
Meeriatenne	30	hf ch	pek	1347	36
C W M	29	hf ch	bro pek	1592	43
	18	ch	pek	1437	33 bid
Neuchatel	12	ch	bro or pek	1140	46
	53	do	or pek	4505	34
	25	do	pek	2009	29
	17	do	bro pek	1785	36
Glenalmond	17	ch	pek	1527	30 bid
Marie Land	38	ch	bro pek	3800	37
	30	do	pek	2520	33
Mt Temple	21	ch	bro or pek fans	2097	31
New Angamana	49	ch	bro pek	4107	34 bid
	67	do	pek	6027	30
	24	do	pek sou	1917	27 bid
Dodentella	10	ch	bro pek	1000	37
	17	do	pek	1411	30
Theberton	12	ch	bro pek	1200	38
	19	do	pek	1710	34
C W A	17	ch	bro pek	1527	33 bid
Deniyaya	30	ch	bro pek	3000	36 bid
	12	do	pek	1140	33
	12	do	pek sou	1080	29
	12	do	pek sou	1080	27
	27	do	bro pek	2700	37 bid
Kituldeniya	26	ch	pek	2077	withd'n
D M O G in est mark	17	ch	pek	1557	31 bid

Messrs. Forbes & Walker.

[416,834 lb.]

	Pkgs.		Name.	lb.	c.
Hunugalla	22	ch	pek sou	1870	30
Glaslyn	21	ch	pek	1835	34 bid
Darrawella	54	hf ch	bro or pek	3024	58
	27	ch	bro pek	2835	44
	26	do	or pek	2184	41
	29	do	pek	4410	36
	22	do	pek sou	1760	35
	30	hf ch	fans	2319	30
Lindupatna	23	ch	bro or pek	2438	58
	37	do	or pek	3848	42
	24	do	pek	2280	37
	12	do	pek sou	1200	34
	10	do	bro pek fans	1340	33
Wyamita	11	ch	pek	1100	35
Newmarket	44	hf ch	bro or pek	2420	54 bid
	38	ch	bro pek	3914	39 bid
	21	do	pek	1890	28
	12	do	pek sou	1080	36
St Heliers	24	hf ch	bro or pek	1392	45
	11	ch	pek	1056	34
Palmerston	19	hf ch	bro or pek	1140	64
	16	ch	pek	1360	45
Chesterford	*33*	*ch*	*young hyson*	*2970*	36 bid
	22	*do*	*hyson*	*1980*	34 bid
	16	*do*	*hyson No 2*	*1360*	34
	12	*do*	*gunpowder*	*1080*	33
Glaslyn	24	hf-ch	bro or pek	1248	42 bid
	24	do	bro pek	1200	35 bid
Templehurst	25	ch	bro pek	2500	50 bid

	Pkgs.		Name.	lb.	c.
Tonacombe	31	ch	or pek	2790	40
	30	do	bro pek	3000	43
	47	do	pek	3995	36
	22	do	pek sou	1760	33
Unugalla	14	ch			
	1	hf ch	bro pek	1502	36
	28	ch	pek	2296	29
Forest Creek	11	ch	bro or pek	1122	66
	20	do	bro pek	2040	47
	13	do	or pek	1170	43
	27	do	pek	2700	37
Swinton	17	ch	bro or pek	1700	38 bid
	13	do	or pek	1300	35
	14	do	pek	1260	29
Yataderia	*31*	*ch*	*young hyson*	*3317*	38
	32	*do*	*hyson*	*2944*	36
	15	*do*	*hyson No 2*	*1380*	36
Yataderia	23	ch	bro or pek	2369	36
	13	do	bro pek	1378	32
	20	do	or pek	1840	31
	16	do	pek	1296	28
Dromoland	23	hf ch	br or pek	1265	43
Kirrimittia	*52*	*ch*	*young hyson*	*4680*	36 bid
	75	*do*	*hgson No 1*	*6750*	34 bid
	23	*do*	*hyson No 2*	*1955*	35
	21	*hf ch*	*siftings*	*1470*	13
Florence	24	hf ch	bro pek	1320	68
	24	ch	or pek	2400	51
	72	do	pek	6840	42
	23	hf ch	br or pek fans	1492	41
Summerhill	70	hf ch	bro or pek	4060	56 bid
	36	do	bro pek	2196	47
	22	ch	or pek	1914	44
	33	do	pek	2937	40
Argyle	25	hf ch	bro or pek	1375	65
	12	ch	bro pek	1320	45
	20	hf ch	or pek	1000	44
	16	ch	pek	1520	41
Nakiadenia	*12*	*ch*	*hyson*	*1032*	35
	13	*do*	*young hyson*	*1430*	38
Ingregalla	18	ch	bro pek	1800	37
	13	do	pek	1170	33
Y S P A	22	ch	pek	2090	31
Maha Eliya	25	hf ch	bro or pek	1500	62
	37	do	bro pek	2220	48
	23	ch	pek	2070	43
Vegan	30	ch	bro or pek	3000	51
	47	do	or pek	4230	35
	60	do	pek	5400	32
	28	do	pek sou	2380	28
Tempo	13	ch	bro or pek	1144	33
	17	do	or pek	1445	34 bid
	16	do	pek	1280	30
	10	do	bro pek fans	1000	32
Robgill	30	ch	bro pek	2700	46
	20	do	pek	1600	40
Penrhos	30	hf ch	bro or pek	1650	50
	23	do	or pek	1104	39
	49	ch	pek	4067	32
Dunbar	29	hf ch	bro pek	1682	46 bid
	17	ch	pek	1530	39
Mansfield	60	hf ch	bro pek	3600	53
	15	ch	pek	1500	40
Erlsmere	30	hf ch	bro or pek	1650	60
	23	ch	bro pek	2208	48
	13	do	pek	1170	42
T T	*18*	*ch*	*young hyson*	*1926*	36
	20	*do*	*hyson*	*1840*	34
Poonagalla	23	ch	bro pek	2530	53
	15	do	pek	1350	40
Marlborough	41	hf ch	bro or pek	2132	54
	20	ch	bro pek	2000	43
	36	do	pek	3528	36
Torwood	17	ch	bro or pek	1564	40
	12	do	or pek	1053	34
	16	do	pek	1376	30
	27	do	pek sou	2160	27
Great Valley, Ceylon in estate mark	39	hf ch	bro or pek	2262	53
	12	ch	or pek	1152	39
	36	do	pek	3168	35
Tembiligalla	22	ch	bro or pek	2376	35
Opalgalla	17	hf ch	dust	1292	27
Hanwella	*22*	*ch*	*young hyson*	*2200*	36 bid
	15	*do*	*hyson No 1*	*1500*	34 bid
Yalatenne	18	hf ch	bro or pek	1044	41 bid
Algooltenne	22	hf ch	bro or pek	1166	57
	13	ch	bro pek	1105	50 bid
	21	do	or pek	1680	38
	31	do	pek	2480	35
Good Hope	42	hf ch	bro or pek	2310	40
	13	ch	or pek	1170	34
	11	do	pek	1045	30
Pine Hill	29	hf ch	bro or pek	1682	49
	20	ch	or pek	1900	39
	21	do	pek	1890	35

	Pkgs.	Name.	lb.	c.
Ruanwella	12 ch	br or pek	1200	36 bid
	15 do	or pek	1350	34
	22 do	pek	1980	30
Non Pareil	32 hf ch	bro or pek	1792	38
Ireby	63 hf ch	bro pek	3780	56
	34 ch	pek	2890	46
	12 do	pek sou	1020	40
Beverley	24 hf ch	bro or pek	1440	47
	39 do	or pek	2223	37
	60 do	pek	3120	32
	17 do	bro or pek fans	1190	30
Wella	20 ch	bro or pek	1800	withd'n
Bramley	19 hf ch	bro or pek	1026	68
	37 do	or pek	1702	42 bid
	21 do	pek	1050	39 bid
Broughton	26 hf ch	bro or pek	1456	60 bid
	11 ch	pek No 1	1078	39 bid
	28 do	or pek	2688	42 bid
	24 do	pek	2280	36 bid
Clunes	13 ch	bro pek	1300	42
	18 do	or pek	1620	36
	32 do	pek	2880	31
Ganapalla	22 ch	bro or pek	2178	40
	27 do	bro pek	2160	35 bid
	34 do	pek	2652	32
	12 do	bro pek fans	1248	27
Talgaswella	16 ch	bro or pek	1600	45
	19 do	pek	1520	34
	20 do	pek sou	1500	29
	13 do	or pek	1040	35
Galleheria	13 ch	bro or pek	1235	56
	14 do	or pek	1120	40
	24 do	pek	2160	36
	13 do	pek sou	1235	32
Freds Ruhe	15 ch	bro pek	1500	37
	11 do	pek	1045	31
	13 do	pek sou	1235	29
Middleton	20 hf ch	bro or pek	1200	94
	20 ch	bro pek	2000	58
	22 do	or pek	1870	50
	19 do	pek	1615	48
Bandara Eliya	32 hf ch	pek fans	2240	28 bid
Moray	32 hf ch	bro or pek	1760	57
	26 do	or pek	1144	45
	12 ch	bro pek	1200	42
	31 do	pek	2635	36
Avoca	13 ch	bro or pek	1378	59
	20 do	or pek	2000	42
	15 do	pek	1350	39
Harrow	31 hf ch	bro or pek	1860	57 bid
	19 ch	or pek	1900	42
	33 do	pek	3300	33
Torwood	25 ch	bro pek	2150	34
Darrawella	27 hf ch	bro or pek	1512	56 bid
H G M	26 hf ch	bro or pek	1560	44
	16 ch	bro pek	1680	35
	20 do	pek	2000	31
Panmure	24 hf ch	bro or pek	1200	55 bid
	41 do	or pek	2050	30 bid
	26 ch	pek	2340	35
Galapitakande	13 ch	or pek	1297	36
	15 do	bro pek	1497	40
Monkswood	54 hf ch	or pek	2700	51 bid
P K E	28 ch	bro pek	2797	36 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	13 hf ch	bro pek fans	845	26
Wahagapittia	3 ch	bro pek No 2	366	38
	1 do	pek sou	89	27 bid
Yuillefield	14 hf ch	bro or pek	840	45 bid
	1 do	dust	80	26
Kenilstone	*4 ch*	*hyson No 2*	*400*	*36*
	2 do	*twanky*	*200*	*10*
	1 ch	dust	100	8
M	4 hf ch	fans	260	26
	4 ch	pek	400	21
	3 hf ch	dust	255	24
Weemalle	4 ch	bro pek	397	37 bid

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
C B D	13 hf ch	pek fans	845	26
Aigburth	11 hf ch	bro or pek	572	46
	6 ch	pek sou	480	28
Aigburth	1 ch	sou	85	26
	6 hf ch	bro or pek fans	390	28
	2 do	dust	166	26
	1 do	pek mixed	45	30
Galgedioya	8 hf ch	bro or pek	400	38
	5 do	dust	375	26
	1 ch	fans	95	26
Orion	6 hf ch	dust	510	26
Ballapitiya	6 ch	bro or pek	630	34
	5 do	bro pek	460	31
	5 do	pek	455	26
	7 do	unassorted	700	12 bid
	4 do	fans	400	24
	3 do	dust	450	24
Glenburn	8 ch	bro pek	800	27
	2 do	pek	200	25
Paniyakande	5 ch	pek	450	32
	5 do	pek sou	450	28
	1 do			
	1 hf ch	bro mixed	145	18
	8 hf ch	dust	640	25
Anningkande	7 ch	pek sou	665	27 bid
	3 do	bro pek fans	291	30
	3 do			
Auningkande	1 hf ch	dust	355	26
	2 do	sou	120	26
	1 ch	red leaf	80	19
W	9 hf ch	dust	789	26
Maldeniya	11 ch	pek sou	935	27
	3 do	dust	450	24
X X	4 ch	bro or pek	412	33
Y Z	3 ch	red leaf	255	16
	5 hf ch	dust	480	15
	1 ch	fans	100	14 bid

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
K. D.	2 ch	bro pek	200	29
	5 do	pek	490	26
	2 hf ch	dust	162	24
	2 ch	*green tea*	186	13
Rookwood	2 do	orange pekoe	432	36 bid
Kosgalla	12 hf ch	pek	600	27
	10 do	pek sou	450	26
	1 do	sou	45	25
	3 do	bro pek fans	210	23
Nahavilla	3 ch	bro pek	300	41 bid
Stubton	6 ch	bro pek	600	33
	2 do	pek	200	29
	2 do	pek sou	130	27
	2 do	pek dust	300	20
Kandahar	5 hf ch	bro or pek	250	42 bid
Warleigh	7 do	fans	441	33
	4 do	dust	340	27
Tillington	9 hf ch	bro or pek	481	36 bid
Perth	12 ch	pek	900	30
	6 ch	pek sou	442	28
	5 do	fans	657	28
Templestowe	7 do	unassorted	735	33
Lameliere	10 do	or pekoe	920	39
	5 hf ch	bro pek fans	350	30
Ramsgill	5 hf ch	dust	375	26
MAY, in est. mark	7 do	or pek	350	33
	8 do	bro pek	400	35
Natuwakellie	9 ch	pek sou	810	28
	2 do	dust	200	23
Chapelton	2 hf ch	bro pek dust	158	27
	6 do	dust	600	26
	3 ch	sou	252	27
W, in est. mark	4 hf ch	dust	352	26
Avington	*3 hf ch*	*hyson No 2*	370	34
	3 ch	*green fans*	375	14
	3 do	*green dust*	375	10
Ratwatte	2 ch	pek sou	160	26
	3 hf ch	dust	240	24
Gangawatte	8 ch	pek sou	720	33
	4 hf ch	dust	340	26
	10 do	fans	650	31
Peru	10 ch	pek	900	36
	3 do	pek sou	285	31
Callander	15 hf ch	pek	750	37
	2 do	pek sou	104	34
	8 do	fans	640	28
Ottery	3 hf ch	dust	270	26
C B	7 ch	bro pek fans	945	19
Wanarajah	6 hf ch	dust	523	26
Lameliere	10 ch	or pek	920	40
	5 hf ch	bro pek fans	350	30
O W	3 ch	pek sou	246	25
	1 hf ch	dust	82	23
	10 do	pek fans	700	27
Tismoda	3 hf ch	fans	210	28
	3 do	dust	255	26

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
W	5 ch	pek sou	475	26
	6 do	pek fans	750	27
	3 do	dust	495	25
	1 do	sou	80	25
Gona	4 ch	bro pek	364	33
	7 hf ch	bro or pek	385	44
	3 ch	pek	204	31
	5 hf ch	pek sou	360	28
	2 ch	sou	166	26
	2 hf ch	dust	106	25
Dryburgh	12 do			
	1 box	bro or pek	704	39
	9 ch			
	1 hf ch	or pek	884	36
	2 ch	pek sou	184	26
	3 hf ch			
	1 box	fans	256	26
	1 box	bro mix	32	30
Dikmukulana	12 hf ch	dust	720	25
Ellerslie	4 hf ch	dust	280	26
Avisawella	5 hf ch	fans	350	27
H R W	2 ch	gr tea dust	200	9
	1 hf ch	fans	90	9
S W	1 ch			
	1 hf ch	bro pek	145	28
	1 ch	pek	56	23
	1 hf ch	dust	64	21
Carney	21 hf ch	pek sou	915	27
	12 do	bro pek fans	600	27
	9 do	sou	450	26
	4 do	dust	200	26
Hatherleigh	8 ch	bro or pek	800	37
	5 do	pek	425	30
	3 do	bro pek fans	300	27
	4 do	pek sou	320	27
	1 do	pek fans	100	18
	3 do	dust	420	26
Florida	8 ch	pek sou	768	25
	7 do	bro fans	700	26
	2 do	dust	220	25
	1 do	red leaf	96	20
Welgampola	12 hf ch	or pek	744	32
	7 do	pek sou	462	26
	4 do	fans	280	26
Allakolla	3 hf ch	dust	300	26
Salawa	10 ch	pek	900	31
	11 do	pek souc	935	28
	8 do	unassorted	760	27
	2 do	pek fans	266	29
	1 do	dust	164	25
Hapugasmulle	2 ch	dust	300	25
Beausejour	5 ch	bro or pek	500	38
	do	pek sou	600	26
	2 hf ch	dust	160	26
	1 do	fans	60	27
H K	1 ch			
	1 hf ch	bro pek	145	34
	2 ch	pek	167	26
	1 *hf ch*	*hyson*	*55*	19
	1 ch	dust	142	22
Hanagama	7 ch	bro or pek	756	42
	8 do	sou	760	26
	3 do	fans	336	25
	2 do	dust	270	25
Owilikande	8 ch	pek sou	720	26
	4 hf ch	dust	345	25
Yarrow	*14 do*	*hyson*	742	35
	8 do	*siftings*	608	14
	4 do	*hyson No 2*	184	out
	2 do	*imperials*	88	out
	5 do	*siftings*	380	14
R K P	6 ch	dust	600	26
	2 do	bromix	180	22
Wiharagama	10 hf ch	dust	750	26
Homelea	*3 ch*	*young hyson*	345	34
	5 do	*foong mee No 2*	500	13
Monte Christo	10 ch	pek sou	900	31
Wavalakande	18 hf ch	pek	900	27
	6 do	pek sou	300	28
Wilidale	7 ch	bro pek	700	30
	8 do	pek	800	26
	2 do	pek sou	200	25
	3 do	fans	300	23
M	8 ch	bro pek	880	38
	3 do	pek	285	30
	1 hf ch	pek sou	60	26
	1 do	bro pek fans	82	26
Blinkbonnie	7 ch	pek sou	595	41
Mary Hill	5 hf ch	bro or pek	250	48
	18 do	pek	900	31
	18 do	pek sou	810	29
	5 do	bro pek fans	325	29
	1 do	dust	90	26

	Pkgs.	Name.	lb.	c.
Cooroondoowatte	6 ch	bro pek	600	40
	9 do	pek sou	900	27
	3 do	pek fans	390	27
	1 do	dust	150	25
Gangwarily	4 ch	pek sou	340	27
	2 hf ch	dust	170	26
	13 do	or pek fans	780	27
	1 ch	sou	85	25
Mousakande	13 hf ch	bro pek No. 1	702	46
	5 do	do do 2	335	45
	5 ch	bro pek	505	37
	5 do	pek sou	475	27
	11 bf ch	fans	825	29
Kahatagalla	2 ch	bro or pek	200	34
	2 do	pek	180	30
	1 do	pek sou	105	26
Neuchatel	4 ch	dust	600	26
Marie Land	15 hf ch	bro or pek	840	44
	7 ch			
	1 hf ch	pek sou	627	27
	4 do	dust	334	26
Dodantella	6 ch	pek sou	480	26
	2 hf ch	dust	156	25
Hegalle	12 hf ch	bro pek	722	33
	12 do	pek	678	28
	7 do	pek sou	418	26
Theberton	1 ch	pek sou	90	28
	2 do	bro pek fans	200	27
	1 do	dust	100	26
	2 do	pek fans	200	27
S, in estate mark	1 ch	bro pek	118	32
	1 ch			
	1 hf ch	pek	124	27
	1 ch			
	1 hf ch	pek sou	159	25
	1 ch	dust	145	28
	1 box	green tea	26	26
Deniyaya	9 ch	sou	810	26
	5 do	pek fans	500	26

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Hunugalla	4 ch	bro pek	400	30
	2 do	bro pek fans	220	27
Wewawatte	9 ch	bro pek	585	35
	7 do	pek	427	28
	1 hf ch	dust	90	19 bid
Glaslyn	15 hf ch	bro or pek	780	51 bid
	17 do			
	1 ch	bro pek	932	34 bid
	2 do	pek sou	180	26 bid
	1 do	fans	150	20 bid
B, in estate mark	2 hf ch	bro pek	99	30
Wyamitta	9 ch	bro pek	945	38
	5 do	pek sou	450	28
	1 hf ch	dust	127	24
Gabhela	6 hf ch	bro pek	330	35
	7 do	pek	345	28
	4 do	pek sou	220	26
Chesterford	2 ch	fans	230	11
K G, in estate mark	9 ch	sou	790	26
	4 do			
	1 do	dust	683	25
Sylvakandy	4 ch	bro or pek No 1	375	41
Agra Oya	5 hf ch	bro or pek	275	47
Templehurst	10 ch	pek	900	39
Tonacombe	9 hf ch	dust	765	26
Unugalla	11 ch			
	1 hf ch	pek sou	954	26
	2 ch	dust	272	26
Swinton	7 ch	pek sou	595	27
	2 do	fans	200	27
	2 do	dust	220	24
	2 do	unassorted	215	25
Yataderia	4 hf ch	dust	352	10
	3 do	fans	231	13
	7 do	dust	616	22
Dromoland	7 ch	bro pek	700	36
	9 do	pek	774	31
	5 do	pek sou	425	29
	3 hf ch	fans	210	25
	1 do	dust	95	26
Kabragalla	3 hf ch	dust	255	25
	5 do	pek fans	300	28
Argyle	1 hf ch	bro pek fans	80	32
	1 do	dust	90	26
Nakiadenia	4 ch	twankey	340	13
	3 do	siftings	270	8
Y S P A	6 ch	pek dust	870	26
Vogan	4 ch	pek fans	500	27
	8 hf ch	dust	640	26
Penrhos	6 hf ch	fans	432	28
	1 do	pek dust	100	24

	Pkgs.	Name.	lb.	c.
Dunbar	6 ch	pek sou	522	26
	2 do	bro pek fans	300	31
Mansfield	5 ch	pek sou	425	37
Erlsmere	2 ch	pek sou	172	38
	4 hf ch	dust	312	28
Rosebury	8 ch			
	1 hf ch	or pek	9 5	30
	1 ch	fans	120	26
	1 do	dust	145	24
T T	*5 ch*	*hyson No 2*	450	5
	1 hf ch	dust	90	8
	1 do	fans	78	12
Poonagalla	10 ch	or pek	50	48
V O A	4 hf ch	dust	3 0	24
	2 do	dust	170	26
Arnaimallai	7 ch	bro pek	700	31 bid
	4 do	pek	40	28
	3 do	pek sou	30 0	26
B D W	7 ch	bro or pek	735	32
	2 do	mixed tea	224	30
	1 hf ch	pek fans No 1	48	25
	6 do	dust	6 0	25
	9 ch	bro or pek	9 0	33
	2 hf ch	mix tea	136	29
	2 do	dust	210	24
Hanwella	*6 hf ch*	*hyson No 2*	3 0	35
	2 do	*hyson siftings*	180	9
Yalatenne	9 ch	pek sou	64	29
	4 hf ch	dust	284	26
Good Hope	9 ch	pek sou	810	27
	6 hf ch	fans	372	27
	4 do	dust	360	26
	7 do	bro pek fans	462	25
Arnaimallai	1 hf ch	dust	85	22
St Martins	10 hf ch	bro or pek	400	35
	11 do	or pek	440	30 bid
	17 do	pek	80	28
	2 do	pek sou	80	28
	1 do	sou	40	5
	4 do	fans	240	25
Kotuagoda	*2 hf ch*	*young hyson*	100	out
	1 do	*hyson No 1*	56	out
	2 do	*hyson*	100	out
Poengalla	6 ch	pek fans	450	31
	3 do	dust	270	26
Ruanwella	6 ch	pek sou	510	27
	4 do	bro pek fans	4 0	28
Non Pariel	12 hf ch	or pek	597	34
	11 do	pek	550	29 bid
	3 do	pek sou	156	27
	3 do	fans	200	28
	3 do	dust	240	24
C	1 hf ch	pek fans	59	27
Bandara Eliya	9 hf ch	dust	720	21 bid
Broughton	7 ch	pek sou	595	32 bid
	4 hf ch	dust	340	27
Clunes	8 ch	pek sou	720	26
	6 do	bro pek fans	660	27
Talgaswela	7 hf ch	bro pek No 2	420	30
Galleheria	1 ch	dust	100	26
	2 do	congou	160	24
Freds Ruhe	2 ch	dust	250	28
W A	8 ch	pek sou	800	27
Bandara Eliya	9 hf ch	pek sou	405	31
	10 do	dust	800	26
	2 do	red leaf	96	18
Moray	5 hf ch	pek dust	375	26
	5 ch	pek No. 2	425	32
R S	9 ch	bro pek	990	31 bid
	8 do	pek	720	25

	Pkgs.	Name.	lb.	c.
Avoca	6 ch	pek sou	576	33
	5 do	bro pek fans	670	33
Harrow	5 ch	pek sou	490	34
	9 do	fans	7 0	28
Panmure	13 hf ch	bro or pek fans	780	38
	4 ch	pek sou	36	31
	7 hf ch	dust	490	27 bid

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, JAN. 16th.

"Dalmatia."—Wiharagalla F, 1 cask and 1 barrel sold at 86s; ditto P B, 1 barrel sold at 82s; WHG T in estate mark, 1 barrel sold at 37s; Gowrakellie F, 2 barrels sold at 106s 6d; ditto 2, 1 barrel and 1 cask sold at 36s; ditto S, 1 barrel sold at 46s; ditto P B, 1 barrel sold at 32s; GKE T in estate mark, 1 barrel sold at 36s.

"Java."—Nahavilla F, 1 barrel sold at 55s; ditto 1, 1 tierce sold at 55s.

CEYLON COCOA SALES IN LONDON.

"Yeoman."—Goonambil, 1 bag sold at 45s 6d; 27 at 52s 6d; 1 at 45s 6d; Lower Haloya, 1 bag sold at 41s; 1 at 45s 6d.

"Cheshire."—Ross No. 1, 37 bags sold at 67s; No. 2, 3 at 53s; Kahawattee 2, 6 bags sold at 47s; Yattawattee 2, 6 bags sold at 47s; Broken, 1 bag sold at 40s; 1, 10 bags sold at 49s 6d; 2, 3 at 40s; Asgeria A, 13 bags sold at 57s 6d; Ingurugalle T, 2 bags sold at 41s 6d; A, 21 at 56s; T, 2 at 33s 3d; Maria, 69 bags sold at 60s; ditto No. 2, 10 bags sold at 50s 6d; Middlemarch No. 2, 14 bags sold at 48s; North Matale Ceylon Cocoa C, 1 bag sold at 51s 6d; ditto A, 11 at 60s.

"Yeoman."—Pondappe London A, 17 bags sold at 70s; ditto No. 1, 8 at 55s; 1 at 55s 6d; ditto T, 2 at 41s; Armagh London No. 1, 15 bags sold at 63s; ditto No. 2, 1 at 52s; ditto T, 4 at 44s.

"Inaba Maru."—Meegama No. 1, 14 bags sold at 53s 6d; No. B, 6 at 46s.

"Warwickshire."—Meegama No. 1, 9 bags sold at 53s 6d; No. B. 7 at 48s 6d.

"Hitachi Maru."—Glenary No. 2, 3 bags sold at 58s; No. 3, 2 at 19s; No. B, 2 at 25s; Ankanda No. 1, 20 bags sold at 58s 6d; No. 2, 2 at 25s; No. B, 2 at 39s.

"Hitachi Maru."—M A in estate mark, 2 bags sold at 42s 6d.

"Dalmatia."—S MAX in estate mark, 10 bags sold at 39s.

CEYLON PLUMBAGO SALES IN LONDON.

"Statesman."—Moragala K D, 38 barrels sold at 7s 9d; ditto D, 9 at 3s 9d.

No Rubber sales this week.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 6. COLOMBO, FEBRUARY 11th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[19,481 lb.]

	Pkgs.		Name.	lb.	c.
Hornsey	18	hf ch	bro pek	1080	52
	12	ch	or pek	1020	42 bid
	13	do	pek	1170	43
Mapitigama	*13*	*ch*	*hyson No. 1*	1300	34
	10	*do*	*young hyson*	1050	37
Nawang Tenne	11	ch	bro pek	1155	35
Battalgalla	21	ch	or pek	2100	42
	18	do	pek	1530	39
Kenilstone	*13*	*ch*	*hyson*	1297	33
Kinchin	12	ch	pek	1200	35

Messrs. Forbes & Walker.

[475,522 lb.]

	Pkgs.		Name.	lb.	c.
O B E C, in est mark Forest Creek	42	ch	pek dust	3276	28
Rickarton, Invoice No. 11	10	ch	bro or pek	1000	54 bid
	20	do	or pek	2000	42
	10	do	bro pek	1000	41
	15	do	pek	1500	38
Drayton	41	hf ch	or pek	2050	44
	32	ch	pek	2720	42
Kotagaloya	29	ch	bro pek No 1	3045	28
	45	do	pek	4050	31
O B E C, Sindumallay	11	ch	bro or pek	1100	56
	15	do	bro or pe No 2	1575	39
	11	do	or pek	1045	39
	36	do	pek	3060	35
	22	do	pek sou	1650	33
Holton	35	hf ch	bro pek	1925	41
	26	do	pek	1248	35
Glencorse	20	ch	bro pek	2100	41
	22	do	or pek	2200	38
	16	do	pek	1440	32
	19	do	pek sou	1520	30
Munukettia, Ceyl., in estate mark	15	ch	or pek	1350	44
	40	hf ch	bro pek	2400	50
	30	do	pek	2550	36
Alver	69	hf ch	bro pek fans	4830	30
	18	do	pek dust	1620	27
	18	ch	sou	1530	28
	12	hf ch	dust	1000	20
Yataderia	*17*	*ch*	*young hyson*	1817	38
	15	*do*	*hyson*	1380	35
	11	*do*	*hyson No 2*	1012	24
Yataderia	*38*	*ch*	*young hyson*	4066	38
	39	*do*	*hyson*	3588	35
	11	*do*	*hyson No 2*	1012	35
Dandukelawa	16	ch	bro pek	1680	45
	19	do	pek	1710	39
	22	do	pek	2090	39
Ardlaw and Wishford	12	ch	pek	1003	45
N	15	ch	sou	1500	29
O B E C, in est. mark Newmarket	9	ch	bro pek fans	1080	32 bid
	10	do	fans	1250	32
	9	do	dust	1404	27
Monterey	12	ch	pek sou	1080	29
Tembiligalla	15	ch	bro or pek	1620	40
	13	do	pek	1170	33
Dunkeld	57	hf ch	bro or pek	3306	50
	18	ch	or pek	1620	43
	2[illegible]	do	pek	2250	39
Pallagodde	*16*	*ch*	*young hyson*	1600	41
	25	*do*	*hyson*	2600	36
	12	*do*	*hyson No 2*	1140	35
High Forest	33	hf ch	or pek No 1.	1584	58
	46	do	bro pek	2622	55
	21	do	or pek	1050	45
Erracht	10	ch	bro or pek	1050	40
	15	do	bro pek	1500	38
	19	do	or pek	1710	36
	48	do	pek	3840	32
	17	do	pek sou	1360	30
Weoya	21	ch	bro or pek	2205	42
	52	do	bro pek,	5200	37
	36	do	pek	3060	33
	17	do	pek sou	1360	31

	Pkgs.		Name.	lb.	c.
Karagaha, Inv. No 5	17	hf ch	bro pek	1003	54
	27	ch	pek	1890	38
Tymawr, Inv. No 1	19	hf ch	or pek	1045	53
	18	do	bro or pek	1080	67
	32	do	pek	1760	45
Matale	47	hf ch	bro pek	2820	40
	19	ch	pek	1710	32
	12	do	pek sou	1020	30
Ninfield	19	ch	bro or pek	1900	38
	14	do	pek	1120	32
Moray	24	hf ch	bro or pek	1320	53
	13	ch	bro pek	1300	41
	22	do	pek	1870	40
N'Pitiya	30	ch	bro mix	3000	23
Tonacombe	29	ch	or pek	2610	40
	29	do	bro pek	2900	47
	44	do	pek	3740	37
	20	do	pek sou	1600	31
Bogahagodawatte	12	ch	bro pek	1140	37 bid
	10	do	pek	1000	32
Macaldeniya	28	hf ch	bro pek	1624	43
	25	do	pek	1375	35
St Heliers	25	hf ch	bro or pek	1425	48
	11	ch	pek	1056	34
Passara Group	28	ch	bro or pek	2800	40
	19	do	pek	1805	35
Kanvesmire	33	ch	bro pek	3465	39
	33	do	pek	2805	32
	17	do	pek sou	1360	29
Middleton Inv. No 4	20	ch	bro pek	2000	60
	16	do	or pek	1360	51
	18	do	pek	1530	50
Northcove	19	hf-ch	bro or pek	1102	63
	61	do	bro pek	3660	48 bid
	21	ch	pek	1890	48
C A N	43	hf ch	bro pek	2365	36 bid
Oya	17	ch	pek	1581	29
	20	do	pek sou	1800	27
Marlborough	46	hf ch	bro or pek	2392	54
	28	do	bro pek	2800	42
	52	do	pek	5096	38
St. Vigeans	29	hf ch	bro or pek	1798	51
	12	ch	or pek	1140	41
	12	do	pek	1080	40
Maha Uva	33	hf ch	br or pek	1980	44
	18	ch	or pek	1800	43
	28	do	pek	2520	36
Kirklees	73	hf ch	bro or pek	4015	47
	16	ch	or pek	1440	39
	34	do	pek	2924	36
	16	do	pek sou	1360	33
Pine Hill	28	hf ch	bro or pek	1624	51
	17	ch	or pek	1530	39
	18	do	pek	1620	35
Templestowe	14	ch	pek	1120	35
Bellongalla	18	ch	pek	1620	29
Rickarton, Invoice No 12	10	ch	bro or pek	1000	53 bid
	15	do	or pek	1500	40
	10	do	bro pek	1000	41
	15	do	pek	1500	38
Detangalla	18	ch	or pek	1800	43
	27	do	pek	2700	37
Bmaegdda	11	ch	bro or pek	1100	42
	14	do	or pek	1260	36
Walpita	37	ch	bro pek	3700	37
	30	do	pek	2700	31
Newmarket	44	hf ch	bro or pek	2417	62 bid
	8	ch	bro pek	3911	42
G	14	ch	dust	1453	20 bid
Castlereagh	61	hf ch	bro or pek	2745	55
	11	ch	bro pek	1100	42
Ismalle	12	ch	pek	1080	30
T D, in estate mark	35	ch	bro pek	3325	31 bid
	40	do	or pek	3800	30 bid
	45	do	pek	4050	30 bid
Waldemar	25	hf ch	bro or pek	1550	60 bid
	18	ch	bro pek	2016	50
	21	do	or pek	1932	45
	15	do	pek	1350	43
K P W	32	hf ch	bro or pek	1920	38
	30	do	bro pek	1500	33
	53	do	pek	2650	32
	25	do	pek sou	1250	29
B, [illegible]	34	ch	or pek	3060	30 bid
Mousa Eliya	26	ch	bro or pek	2600	42
	98	do	bro pek	1800	37
	21	do	pek	1805	31
Darrawe'la	14	hf ch	bro or pek	2640	54 bid
	31	ch	or pek	2604	44
	52	do	pek	4680	37

Pkgs.			Name.	lb.	c.
Bullugolla	*52*	*ch*	*hyson*	4420	34 bid
	34	*do*	*hyson No 2*	2250	34
Newmarket	44	hf ch	bro or pek	2420	56
	32	ch	bro pek	3520	41
	15	do	or pek	1350	43 bid
	27	do	pek	2481	38
Puspone	11	ch	or pek	1100	34
	26	do	bro pek	2730	33
	15	do	pek	1350	31
Harrow	18	ch	bro or pek	1080	55 bid
	10	do	or pek	1000	43
	17	do	pek	1700	40
Coreen	60	hf ch	bro pek	3960	49 bid
	31	ch	or pek	2790	42
	15	do	pek	1350	41
G H A	32	ch	bro pek	3080	30 bid
Queensland	20	hf ch	bro or pek	1100	66 bid
	21	ch	bro pek	2205	50
Leangawatte	10	ch	bro pek	1000	31
	10	do	pek	1000	30
Inverness	42	ch	bro or pek	4200	55 bid
	38	do	bro or pek	3800	55 bid
	32	do	or pek	2880	51
	32	do	pek	3315	45
Morankande	33	hf ch	bro or pek	1848	36
	28	ch	or pek	2380	36
	32	do	pek	2880	30
	15	do	pek sou	1050	29
Aberdeen	13	ch	bro pek No 1	1144	40
	18	do	bro pek No 2	1746	35
	42	do	pek	3234	31
Seenagolla	23	hf ch	bro or pek	1380	61
	25	do	pek	1325	48
Purana	10	ch	bro pek	1000	41
	22	do	pek	1760	32
Digdola	12	ch	bro or pek	1200	38 bid
	15	do	bro pek	1425	34
	23	do	pek	1840	30
Kincora	15	ch	bro or pek	1500	48 bid
	12	do	or pek	1080	39
	18	do	pek	1620	36
Bandara Eliya	25	hf ch	or pek	1250	48
	25	do	br or pek No 1	1300	52 bid
	48	do	br or pek No 2	2880	41 bid
	86	do	pek	4300	41
Preston	57	hf ch	bro or pek	3078	51
	20	ch	pek	1680	41
Panmure	41	hf ch	or pek	2050	40
Ganapalla	20	ch	or pek	1560	38
	12	do	bro or pek	1200	38
	13	do	bro pek	1040	36
	26	do	pek	2028	32
	13	hf ch	dust	1040	27

Messrs. Keell and Waldock.

[31,278 lb.]

	Pkgs.		Name.	lb.	c.
Hurst	19	hf ch	bro pek	1140	39
Ovitta	15	ch	bro or pek	1560	38
	11	do	pek	1001	32
	13	do	pek sou	1105	28
Dunnottar	40	hf ch	bro or pek	2000	44 bid
	17	ch	pek	1445	38
Hangranoya	13	ch	bro or pek	1235	48
	14	do	or pek	1120	36
	27	do	bro pek	2700	38
	20	do	pek	1600	31
Waduhena	20	hf ch	bro or pek	1100	41
	14	ch	pek	1260	31
	18	do	pek sou	1620	30
H	17	ch	bro or pek	1828	33
Morahela	11	ch	bro pek	1034	40
Taprobana	40	hf ch	bro or pek	2000	41
	20	ch	pek	1600	33
hepperton	18	ch	bro or pek	1800	40 bid

Messrs. Somerville & Co.

[150,577 lb.]

	Pkgs.		Name.	lb.	c.
Avisawella	22	hf ch	bro or pek	1100	46
	16	ch	or pek	1520	36
	20	do	pek	1800	31
	15	do	pek sou	1200	30
Siriniwasa	26	ch	or pek	2600	41
	36	do	pek	3060	32
	16	do	pek sou	1120	29
S R K	16	ch	pek	1600	41
Nyanza	18	ch	or pek	1530	39
	44	hf ch	bro or pek	2420	49
	30	ch	pek	2550	36
Ingeriya	13	ch	bro or pek	1300	37
	12	do	bro pek	1080	36
	16	do	pek	1600	30
Park Hill	15	ch	bro or pek	1545	37
Mount Temple	17	ch	bro or pek	1700	36
	24	do	pek	1968	32
	16	do	pek sou	1200	29
	26	do	br or pek fans	2600	31
Warakamure	23	ch	bro or pek	2300	36
	21	do	or pek	1630	33
	30	do	pek	2550	30
	13	do	pek sou	1040	28
Mahatenne	11	ch	or pek	1045	35
Ravenscraig	18	hf ch	bro or pek	1008	46 bid
	23	do	or pek No 1	1150	40 bid
	19	do	or pek No 2	1045	37
	19	ch	pek	1710	33
Narangoda	33	ch	bro pek	3135	35
	23	do	pek	2070	30
	15	do	pek sou	1350	28
Kelani	20	ch	bro or pek	3000	39
	26	do	pek	2340	33
	14	do	pek sou	1190	30
Munangalla	22	hf ch	bro pek	1100	40
	32	do	pek	1600	31
	21	do	pek sou	1050	28
Bollagalla	26	ch	bro pek	2600	38
	17	do	pek	1360	31
	13	do	pek sou	1105	29
Harrangalla	18	ch	bro or pek	1620	37
	18	do	bro pek	1800	37
	24	do	pek	1920	32
Citrus	*26*	*ch*	*young hyson*	2470	37
	24	*do*	*hyson*	2160	35
Annandale	29	hf ch	or pek	1508	47
	29	do	pek	1045	44
	22	do	pek	1210	43
Scarborough	14	ch	or pek	1330	44
	14	do	pek	1330	36 bid
Cooroondoowatte	10	ch	pek	1000	31
Hobart	12	ch	bro or pek	1200	35
Monrovia	*19*	*ch*	*young hyson*	1900	36
	15	*do*	*hyson*	1350	35
M O	36	ch	bro pek	3420	32 bid
	26	do	pek	2077	29 bid
D O N	*20*	*ch*	*foong mee*	1800	35
Combe	20	ch	pek sou	1600	28
Yahalatenne	25	ch	bro pek	2500	43
	14	do	pek sou	1274	33
Oonankande	25	hf ch	bro pek	1250	40
	35	do	pek	1925	33
R in est mark	20	hf ch	bro or pek	1320	20
Highfields	20	hf ch	bro or pek	1080	39
	22	do	or pek	1034	35
	23	do	pek	1150	31 bid
Walla Valley	20	hf ch	bro or pek	1097	57 bid
Ferndale	10	ch	bro or pek	1000	50
	14	do	pek	1400	32
Mora Ella	23	hf ch	bro or pek	1150	withd'n
	21	ch	pek	1890	withd'n
Hanagama	26	ch	or pek	2687	32 bid
Deniyaya	21	ch	pek	1995	34
	28	do	pek sou	2520	30
Charlie Hill	19	hf ch	bro pek	1045	36 bid
	25	do	or pek	1250	34
	20	do	pek	1600	30

Messrs. E. John & Co.

[152,803 lb.]

	Pkgs.		Name.	lb.	c.
Dubena	16	ch			
	1	hf ch	bro pek	1044	32
Waragalande	11	ch	bro or pek	1100	43
	12	do	pek	1080	32
Ottery	11	ch	bro or pek	1100	45 bid
	15	do	or pek	1350	38
Agra Ouvah	57	hf ch	bro or pek	3420	44 bid
	41	do	or pek	2214	41
	15	ch	pek	1380	38
Oonoogaloya	19	ch	or pek	1620	40
	19	do	bro or pek	1615	51 bid
	19	do	pek	1710	38
Rookwood	32	hf ch	flwy bro or pek	1952	46 bid
	23	do	flwy or pek	1324	47
	31	ch	pek	2976	38
	34	do	pek sou	3060	37
Eila	*30*	*ch*	*young hyson*	3000	37
	11	*do*	*hyson No 1*	1045	34
Navangama	13	ch	bro or pek	1300	39
Kolapatna	18	hf ch	bro or pek	1008	61
	17	do	bro pek	1037	45
	20	do	or pek	1000	44
	11	ch	pek	1012	40

	Pkgs.	Name.	lb.	c.
H T	16 ch	bro pek fans	1680	21 bid
Ormidale	21 hf ch	bro or pek	1050	78
	56 do	bro pek	3248	47
	34 ch	pek	3128	42
Winwood	20 hf ch	bro or pek	1200	50 bid
	28 ch	or pek	2800	40
	32 do	pek	3040	37
Bowella	21 hf ch	bro pek	1050	34
Westhall	25 hf ch	dust	2125	26
E T	10 ch	bro pek	1100	34
	11 do	pek	1100	30
Ohiya	47 ch	bro pek No 2	1649	46
	16 do	pek	1312	42
Elston	20 ch	pek	1600	33
	29 do	pek sou	2465	30
Brownlow	21 hf ch	bro or pek	1176	53 bid
	16 ch	or pek	1360	40
	18 hf ch	bro pek	1008	40 bid
	25 ch	pek	2100	37 bid
Ohiya	31 hf ch	bro pek	1702	48 bid
Glentilt	46 hf ch	bro or pek	2530	58 bid
	26 ch	or pek	2392	48
	26 do	pek	2340	45
	15 do	fans	1200	32
Yahalakelle	23 ch	unas	2070	30
	14 do	bro pek fans	1568	34
	11 do	pek dust	1430	28
Hiralouvah	19 hf ch	bro pek	1026	37
Mt. Vernon	27 ch	pek	2430	42
H R S	19 ch	pek sou	1612	26 bid
Tismoda	34 hf ch	bro pek	1700	41
	15 ch	pek	1200	34
Horagalla	9 hf ch	bro or pek	1003	34
	11 ch	pek	1005	30
Theresia	22 hf ch	bro or pek	1207	49 bid
Glassaugh	33 hf ch	or pek	1818	63
	31 do	bro or pek	2046	55 bid
	19 ch	pek	1938	50
M R	14 hf ch	dust	1260	26
Balado	13 ch	pek sou	1040	31
Myraganga	12 ch	or pek	1080	38
	19 do	br or pek No 1	1900	46
	22 do	br or pek No 2	2200	41
	22 do	pek	1760	37
B A	26 ch	pek	2340	32
Kandaloya	23 hf ch	bro or pek	1032	45
Mocha	38 hf ch	bro or pek	2204	00
	24 ch	or pek	2232	44 bid
	26 do	pek	2470	45
	28 hf ch	bro pek	1820	44

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Mapitigama	*5 ch*	*hyson No 2*	500	34
	3 do	*siftings*	315	10
Nawang Tenne	5 ch	or pek	425	35
	9 do	pek	850	29
	4 do	sou	360	27
	2 do	pek fans	260	28
S, in estate mark	1 ch	bro or pek	79	34
	3 do	pek	230	26 bid
	1 ch			
	1 hf ch	dust	201	22
O L	2 ch			
	1 hf ch	bro pek	253	18 bid
	1 ch			
	1 hf ch	pek	134	15 bid
	3 ch			
	1 hf ch	bro pek fans	442	out
	3 ch			
	1 hf ch	bro tea	255	out
Kinchin	11 hf ch	bro or pek	630	46
	8 do	or pek No 1	440	45
	8 do	or pek	680	38
	3 ch	pek sou	240	32
	3 hf ch	dust	255	24

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
B B B, in est. mark	4 ch	dust	340	27
North Matale	6 hf ch	dust	480	27
	1 do	dust	80	28
O B E C, in est. mark Forest Creek	3 c	sou	270	33
	5 do	fans	520	38
G	7 ch	pek	721	32
	1 do	pek	72	29

	Pkgs.	Name.	lb.	c.
Brickarton, Inv. No 11	1 ch	pek sou	100	33
	2 do	bro pek fans	240	32
	2 do	fans	240	29
	2 do	dust	250	27
Drayton	9 ch	pek sou	720	38
Kotagaloya	10 hf ch	dust	800	28
Holton	2 ch	pek sou	170	30
	3 hf ch	bro pek fans	165	29
	2 do	dust	170	27
Alver	4 ch	bro mix	408	24
	12 hf ch	fans	960	27
Yataderia	2 do	dust	176	10
	3 do	fans	231	15
Yataderia	4 do	dust	352	10
	1 ch	fans	107	15
Dandukelawa	7 ch	bro or pek	756	58
	15 hf ch	bro or pek	870	59
	2 ch	pek sou	164	35
	1 do	dust	110	28
	2 do	dust	164	28
N C C in est mark	1 ch			
	1 hf ch	bro pek	166	34
	2 do	pek	124	30
	1 ch	pek sou	104	28
	2 hf ch	dust	159	24
	1 do	unas green tea	62	20
S W	6 ch	bro pek	630	34
	4 do	pek	368	31
N	6 ch	bro tea	600	23
	4 do	pek fans	910	25
Monterey	2 ch	sou	180	28
	1 do	s u	90	27
	3 do	fans	300	32
	8 hf ch	dust	640	23
Debatgama	*1 ch*	*young hyson*	108	33
	2 do	*hyson*	210	33
	1 hf ch	*hyson No 2*	35	30
	1 ch	*young hyson fans*	92	10
Tambiligalla	7 ch	pek sou	616	31
	2 do	pek dust	300	27
	2 do	pek fans	208	23
N	2 ch	pek fans	260	26
Erracht	5 do	dust	650	28
Weoya	7 ch	bro pek fans	805	29
	3 do	dust	450	26
Karagaha Inv. No 5	11 ch	pek sou	770	34
	8 hf ch	dust	640	27
	1 ch	red leaf	71	22
B B, in estate mark	1 hf ch	bro pek	60	33
	2 ch	pek	182	29
	2 do	pek sou	156	27
	1 do	dust	100	24
	1 do	*hyson*	106	30
	1 hf ch	fans	46	10
Ninfield	6 ch	or pek	510	36
	9 do	pek sou	675	29
	3 hf ch	dust	240	6
Moray	21 do	or pek	945	5
	8 ch	pek No 2	640	35
	5 hf ch	dust	375	28
	4 ch	bro or pek No 1	240	39
Bogahagodawatte	5 ch	pek sou	500	28
	2 do	fans	227	26
Passara Group	6 ch	pek sou	570	32
Knavesmire	10 ch	or pek	900	40
	8 hf ch	bro pek fans	720	28
North Cove	16 do	bro or pek	928	68
	1 ch	pek sou	115	35
	2 do	sou	212	30
	3 hf ch	bro mix	204	31
	3 do	fans	255	31
	4 do	dust	348	28
Dunbar	10 ch	or pek	808	38
Marlborough	1 do	pek fans	100	27
St. Vigeans	2 hf ch	dust	176	27
Kirklees	4 ch	pek fans	440	29
	8 hf ch	dust	720	27
A A, in est. mark	1 hf ch	dust	111	out
Bellongalla	3 ch	or pek	270	36
	9 do	bro or pek	900	35
	3 do	dust	375	20
	2 do	bro or pek fans	230	27
Lower Kananka	6 ch	bro pek	600	35
	7 ch	pek	700	29
	2 do	pek sou	200	27
Rickarton, Inv No 12	1 ch	pek sou	100	34
	2 do	bro pek fans	240	32
	1 do	fans	120	28
	2 do	dust	250	28
Detenagalla	7 ch	pek sou	795	34
	4 do	fans	320	30
Ivies	3 ch	congou	285	28
	1 do	unassorted	75	28
	4 do	dust	600	25
	6 do	fans	570	29

	Pkgs.	Name.	lb.	c.
Baddegama	5 ch	bro pek	500	36
	8 de	pek	680	32
	5 do	pek sou	400	30
	3 do	fans	300	29
Walpita	10 ch	pek sou	800	29
	3 do	souchong	285	27
	1 do	dust	150	25
Castlereagh	9 ch	or pek	720	39
	10 do	pek	800	36
Ismalle	3 ch	bro pek	300	36
	6 do	bro or pek	600	40
	10 do	or pek	900	35
	4 do	pek sou	380	28
	1 do	pek sou	95	28
	1 do	pek sou	90	28
	3 do	sou	255	28
	5 do	bro pek fans	625	28
Ambanpitiya	1 ch	dust	160	26
K P W	15 hf ch	or pek	675	37
	6 do	pek fans	450	30
	4 do	dust	360	28
K!C E	1 ch	dust	150	22
Wewawatte	1 hf ch	dust	90	25
Nona Totam	5 ch	or pek	450	45
	8 do	pek	720	37
	1 do	pek sou	75	31
	5 hf ch	dust	450	28
	5 do	fans	375	33
	3 do	bro pek fans	210	35
Arnaimallai	7 ch	bro pek	700	35
R S	9 ch	bro pek	990	35
Harrow	2 ch	pek sou	180	36
	3 do	fans	240	29
C R D	4 ch	pek	360	30
	3 do	sou	240	28
	4 hf ch	dust	400	29
Queensland	5 ch	bro pek No. 2	525	36
	3 do	pek No 2	264	30
	4 hf ch	bro pek dust	320	30
Inverness	13 ch	fans	845	32
Morankande	4 hf ch	bro or pek fans	280	28
	2 do	dust	180	28
Aberdeen	6 ch	bro pek fans	420	28
Seenagolla	10 hf ch	or pek	470	55
urana	9 ch	pek sou	648	29
	2 hf ch	dust	160	26
	2 do	fans	190	32
M	2 ch	coarse leaf	110	15
Preston	5 hf ch	bro or pek fans	340	35
	1 do	unassorted	64	31
U S A, in est mark	1 ch	sou	80	23
	6 do	fans	510	27
	6 do	dust	600	23
S R, in estate mark	2 ch	dust	300	28
	2 do	bro mix	190	30
D, in estate mark	3 ch	sou	228	27
Wyamita	8 ch	bro pek	840	39
	10 do	pek	900	34
	5 do	pek sou	425	31
	1 hf ch	bro pek fans	64	31

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
K in est. mark	6 hf ch	pek	322	31
Ovitta	1 ch	dust	136	26
Dunnottar	2 hf ch	bro or pek fans	150	33
W D	7 hf ch	fans	462	20 bid
Morahela	9 ch	bro or pek	945	36
	10 do	or pek	930	35
	10 do	pek	900	31
	1 do	unassorted	115	26
	3 hf ch	dust	230	28

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
F F	5 hf ch	dust	425	26
	2 ch	pek sou	200	28
Avisawella	3 ch	sou	240	26
Siriniwasa	9 ch	fans	945	32
	2 do	dust	300	26
S R K	2 ch	dust	320	27
Nyanza	5 ch	pek sou	450	30
	3 hf ch	dust	255	27
	7 do	fans	490	29
Ingeriya	10 ch	pek sou	900	29
	5 do	sou	500	27
	2 do	dust	260	20
Park Hill	11 ch	bro pek	990	33
	3 do	pek	210	30
	11 do	pek sou	847	29
	2 do	sou	156	27
	3 hf ch	dust	210	23
Warakmure	1 hf ch	dust	90	25

	Pkgs.	Name.	lb.	c.
Mahatenne	1 ch	dust	150	26
	1 do	fans	115	27
Ravenscraig	4 hf ch	dust	320	27
G B	10 hf ch	dust	800	27
	7 do	bro tea	350	26
D B R in est mark	1 ch	pek	80	28
	2 hf ch	dust No 1	138	24
	1 ch	*hyson*	79	30
Kelani	3 ch	pek mixed	270	25
	6 do	dust	600	26
Munangalla	6 hf ch	fans	300	27
	4 do	dust	280	27
Bollagalla	7 hf ch	fans	490	27
	3 ch	bro tea	285	26
Citrus	*3 ch*	*hyson No 2*	240	34
	3 do	*hyson fans*	300	14
	1 do	*Green tea dust*	152	10
Gampolawatte	2 ch	bro pek	200	36
	4 do	or pek	360	37
	4 do	pek No. 1	360	34
	3 do	pek souchong	255	30
	1 do	fans	110	28
	6 do	pek No 2	540	33
	4 do	bro or pek	400	40
Hobart	12 hf ch	pek	600	32
	10 do	pek dust	650	26
Monrovia	*4 ch*	*hyson No 2*	360	31
	6 do	*hyson fans*	570	13
	3 do	*twanky*	225	13 bid
	1 do	*green tea dust*	113	10
D O N	*5 ch*	*young hyson*	575	36
	5 do	*foong mee No 2*	500	14
	2 do	*dust*	270	9
	1 hf ch	*gunpowder*	54	28
Combe	9 ch	bro or pek	900	35
	12 do	pek	900	31
Oonankande	6 ch	pek sou	420	29
	5 hf ch	dust	330	27
Deniyaya	4 hf ch	dust	380	27
Charlie Hill	3 hf ch	pek sou	150	27
	1 do	dust	80	26

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Dubena	9 ch			
	1 hf ch	pek	954	29
	10 ch			
	1 hf ch	pek sou	990	28
	1 ch			
	1 hf ch	fans	133	25
	1 ch	dust	114	21
	1 do			
	1 hf ch	congou	108	25
Melville	17 hf ch	bro pek	850	38
	18 do	pek	900	29
	7 do	pek sou	350	27
Waragalande	7 ch	pek sou	630	30
Ottery	2 hf ch	dust	170	29
K	2 ch	red leaf	200	20
Oonoogaloya	4 hf ch	dust	340	28
Rookwood	2 ch	bro pek	140	34
	4 do	pek dust	352	30
Eila	*10 ch*	*hyson*	950	34
	3 do	*hyson No 2*	270	34
	3 do	*green fans*	285	13
	2 do	*dust*	170	9
Navangama	6 ch	pek	600	33
	5 do	pek sou	450	30
	2 do	dust	200	28
H F D	5 ch	dust	500	29
W R P	5 hf ch	unas	325	26
Kolapatna	4 ch	pek sou	368	35
	4 hf ch	fans	272	32
	3 do	dust	249	28
Ormidale	8 ch	bro pek fans	616	31
Winwood	8 hf ch	bro pek fans	480	31
	5 do	dust	450	29
Bowella	6 ch	pek	510	32
	2 hf ch	dust	150	28
Westhall	10 ch	pek sou	800	28
	6 do	fans	570	30
Ohiya	16 hf ch	bro or pek	880	26
	3 ch	pek sou	252	35
	3 hf ch	dust	240	30
	6 do	fans	378	33
Yahalakelle	3 ch	dust	435	20
	3 do	bro mix	300	30
Hiralouvah	10 ch	pek	850	33
	2 do	pek sou	161	29
	1 hf ch	dust	80	26
	1 do	bro pek No 2	40	31
	1 ch	pek No 2	80	29
H H	1 ch	sou	86	24
Tismoda	9 ch	pek sou	720	31
Horagalla	1 ch	bro or pek dust	146	26

	Pkgs.	Name.	lb.	c.
Glassaugh	4 ch	pek sou	408	38
	7 hf ch	dust	630	30
	5 do	fans	375	33
M R	6 ch	sou	540	28
Eton	2 ch	bro or pek	200	35
	3 do	or pek	300	33
	3 do	pek sou	300	30
	1 do	sou	100	29
	1 hf ch	dust	90	24
	3 do	bro or pek	300	34
	2 do	pek sou	200	31
	2 do	sou	200	30
Engurakande	1 *ch*			
	1 *hf ch*	*young hyson*	146	26 bid
	2 *ch*	*hyson*	142	24 bid
	2 *do*	*hyson No* 2	122	16 bid
M L K	3 ch	pek sou	231	37
	2 do	fans	262	23 bid
	12 hf ch	pek dust	875	24
	9 do	dust	756	20
	5 bags	fluff	478	15

CEYLON COCOA SALES IN LONDON.

MINCING LANE, JAN. 16th.

"Craftsman."—Goonambil, 1 bag sold at 45s; 1 a 36s; 39 at 58s; 5 at 52s 6d; 7 at 49s 6d; 2 at 36s; 17 at 24s.

"Statesman."—Goonambil, 6 bags sold at 52s.

"Craftsman."—Kepitigalla A 2, 9 bags sold at 50s.

"Agamemnon."—Yattawatte A, 9 bags sold at 49s; ditto B 1, 1 at 49s; Broken 1 D, 20 bags sold at 63s; Kahawatte 2, 8 bags sold at 49s.

"Java."—Rosebury Estate Cocoa, 37 bags sold at 54s,

"Hitachi Maru."—O MAK in estate mark, 5 bags sold at 39s 6d.

"Yeoman."—Gilbury, 20 bags sold at 55s; 5 at 48s.

"Craftsman."—Polwatta B, 2 bags sold at 47s 6d.

"Agamemnon."—Alloowharie Ceylon Cocoa A, 20 bags sold at 74s; 99 at 73s 6d.

"Craftsman."—Strathisla Ceylon Cocoa A, 27 bags sold at 80s; ditto A, 1 at 51s; ditto B, 3 at 41s.

"Derbyshire."—Alloowiharie Ceylon Cocoa A, 4 bags sold at 53s 6d.

"Yeoman."—Beredewella COC FX No. 1, 59 bags soldat 73s 6d; ditto T, 2 at 34 6d.

"Craftsman."—Hylton I, 25 bags sold at 74s; ditto I, 3 at 51s; ditto IX, 25 at 69s; 1 at 52s 6d; ditto II, 18 at 74s; 2 at 52s 6d.

"Inaba Maru."—Hylton 1, 20 bags sold at 68s; ditto IX, 17 at 63s; 1 at 59s; 1 at 53s.

"Craftsman."—Udapolla B, 2 bags sold at 34s; ditto G, 7 at 46s.

"Java."—Udapolla A, 51 bags sold at 60s; ditto B, 2 at 53s 6d; ditto G, 7 at 42s; ditto pieces, 1 at 50s.

CEYLON CARDAMONS SALES IN LONDON.

"Hitachi Maru."—Warriapolla, 1 bag sold at 53s; 2 at 49s 6d; 23 at 52s; 1 at 39s; Suduganga, 21 bags sold at 80s 6d; 58 at 70s; 3 at 51s 6d; 10 at 52s; 4 at 38s.

"Craftsman."—Warriapolla, 20 bags sold at 77s 6d; 67 at 77s; 20 at 70s 6d; 2 at 51s 6d; 33 at 52s 6d; 7 at 33s; Suduganga, 28 bags sold at 83s; 26 at 70s; 4 at 53s; 10 at 51s 6d; North Matale Ceylon Cocoa, F, 19 bags sold at 50s.

"Agamemnon."—North Matale Ceylon Cocoa, F, 50 bags sold at 67s 6d.

"Hitachi Maru."—WDS, 26 cases sold at 1s 3d; 1 at 1s 1d; 3 at 1s 2d; 1 at 1s; 11 at 8d.

"Agamemnon."—WDS, Mysore 2, 1 case sold at 11d; ditto 3, 1 at 1s; ditto 4, 3 at 11d; ditto 1, Seeds, 5 at 1s 3d; 4 at 1s 4d.

"Java."—Kobo O, 1 case sold at 2s 4d; ditto 1, 14 at 1s 10d; ditto 2, 14 at 1s 1d; ditto Splits OO, 1 at 1s 7d; ditto 1, 2 at 1s 3d; 2 at 1s 2d.

"Cheshire."—Midlands O, 6 cases sold at 1s 8d; ditto 1, 7 at 1s 2d; ditto 2, 2 at 11d; ditto B & S, 2 at 1s.

"Clan MacLaren."—Elkadua 2, 2 cases sold at 11d; ditto B & S, 1 at 11d; 1 at 10d.

CEYLON RUBBER SALES IN LONDON. LONDON.

"Derbyshire."—Eadengoda Biscuit, 3 cases sold at 4s 2½d; Hatherly Para Rubber, 1 at 4s 2½d.

"Japan."—Culloden, 6 cases sold at 4s 3d; 3 at 3s 4½d; 2 at 3s 3d.

"Clan Leslie."—Clyde Estate, 2 Parcels sold at 4s 2d; 2 at 3s 2d.

"City of Madrid."—Nikakotuwa, 2 cases sold at 4s 2½d; 1 at 3s 2d.

No Plumbago Sales this week.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 7. COLOMBO, FEBRUARY 18th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

LARGE LOTS.

Messrs. E. Benham & Co.

[25,889 lb.]

	Pkgs.	Name.	lb.	c.
Yuillefield	17 hf ch	bro or pek	1020	60
	22 do	or pek	1100	44
	22 ch	pek	2090	40
L H O	34 ch	pek sou	3060	31
	9 do	fans	1008	30
H D, estate mark	12 ch	bro pek	1200	41
Mapitigama	*16 ch*	*young hyson*	1648	38
	34 do	*hyson No. 1*	3400	34
Hornsey	22 hf ch	bro pek	1320	54
	12 ch	or pek	1020	45
	15 do	pek	1350	43
Dartry	22 hf ch	fans	1606	38

Messrs. Keell and Waldock.

[91,363 lb.]

	Pkgs.	Name.	lb.	c.
Rock Cave	16 ch	bro pek	1600	36
	22 do	pek	1870	33
	14 do	pek sou	1120	31
Galla	17 ch	bro pek	1700	36 bid
Oodoowerra	14 ch	bro pek	1400	42
	13 do	pek	1300	34
Tillington	40 hf ch	bro pek	2000	39
	13 ch	pek	1105	34
	20 hf ch	fans	1200	30
Aigburth	26 hf ch	bro or pek	1352	48
	11 ch	or pek	1045	41
	24 do	pek	1920	34
Woodend	42 ch	bro pek	4200	38
	42 do	pek	3780	33
	20 do	pek sou	1600	32
Galgedioya	26 ch	bro pek	2600	35
	20 do	pek	1800	32
	17 do	pek sou	1445	31
Battalawatte	28 hf ch	bro or pek	1540	38
	14 ch	pek	1260	34
	17 do	pek sou	1520	32
Moneragalla	12 ch	bro or pek	1000	43 bid
	27 do	pek	1917	36
V'Galla	27 ch	bro or pek	2700	31 bid
	35 do	pek	3150	31
Hyde	14 ch	or pek	1190	42
	21 do	bro or pek	2100	51
	25 do	pek	2250	39
Anningkande	22 ch	bro pek	2200	41 bid
	16 do	pek	1520	34
Morabela	10 ch	bro or pek	1200	38
	28 do	bro pek	2800	40 bid
	20 do	or pek	1860	36
	21 do	pek	1890	34
Taprobana	27 hf ch	bro or pek	1350	42
Panilkande	20 hf ch	br or pek No 1	1000	60 bid
	16 ch	br or pek No 2	1600	46 bid
	25 do	pek	2250	38 bid
	12 do	pek sou	1080	35 bid
Oakwell	22 ch	bro pek	2200	withd'n

Messrs. Forbes & Walker.

[553,564 lb.]

	Pkgs.	Name.	lb.	c.
New Peacock	20 hf ch	bro pek	1000	45
	34 do	pek fans	2380	29
Gallaheria	28 ch	pek	2520	36 bid
	13 do	pek sou	1235	34
	14 do	bro or pek	1330	55 bid
	14 do	or pek	1120	43
Glendon	15 ch	bro pek	1500	54
	45 do	or pek	4500	38
	41 do	pek	3690	35
	21 do	pek sou	1890	33
Donnybrook	21 ch	bro or pek	1869	51
	12 do	pek	1080	38
Eastland	28 hf ch	bro or pek	1624	45 bid
	46 do	or pek	2162	37
Bramley	22 do	or pek No 1	1056	56
	22 do	bro pek No 1	1144	46 bid
Welkandle	20 hf ch	dust	1600	27
Sylvakandy	17 ch	bro or pe No 1	1700	45
	30 do	bro or pe No 2	3000	42
	16 do	bro pek	1600	39
	16 do	or pek	1600	39
	32 do	pek	3200	35
Laxapana	22 hf ch	pek fans	1540	29
	14 do	dust	1330	28
Irex	25 ch	bro or pek	2500	41
	16 do	bro pek	1280	36
	18 do	pek	1620	35
O B E C, in est mark Nillomally	15 ch	or pek	1230	47
	14 do	bro pek	1400	42
	13 do	pek sou	1040	34
	11 do	bro or pek	1100	59
	61 do	pek	5368	37
Floronce	28 hf ch	bro or pek	1540	67
	17 ch	or pek	1700	55
	52 do	pek	4940	44
	16 do	pek sou	1456	41
Deviturai	10 ch	pek fans	1.00	29
Wilpita	12 ch	bro or pek	1260	35
	15 do	or pek	1425	31
Glengariff	55 hf ch	bro or pek	3190	47
	27 ch	or pek	2295	40
	26 do	pek	2470	39
Yelverton	16 ch	bro pek	1664	40 bid
	18 do	pek	1620	35
Laurawatte	30 ch	bro pek	3000	39 bid
	21 do	pek	1890	35
	13 do	pek sou	1183	34
	24 hf ch	fans	1872	28 bid
Rajawatte	19 ch	or pek	18 5	39
	18 do	pek	1620	37
Mawiligangawatte	29 ch	bro pek	2900	37
	20 do	pek sou	1600	33
Carlabeck	20 ch	pek	1920	40
	9 do	bro pek fans	1206	26
Weyungawatte	18 ch	bro pek	1890	37
	16 do	pek	1360	33
Poonagalla	18 ch	or pek	1730	60
	91 do	bro pek	5642	58
	31 do	pek	2583	44
	14 do	fans	1175	32
Marlborougb	45 hf ch	bro or pek	2340	54 bid
	25 ch	bro pek	2500	44
	44 do	pek	4312	37 bid
	15 do	pek sou	12.5	36
Torwood	20 ch	bro or pek	1840	42
	14 do	or pek	1232	37
	35 do	pek	3010	33
	21 do	pek sou	1680	32
Chesterford	*38 ch*	*young hyson*	3610	36 bid
	46 do	*hyson*	4140	33 bid
	37 do	*hyson No 2*	2960	34
Ardlaw and Wisbford	14 ch	bro or pek	1540	61 bid
	23 do	bro pek No 1	2530	52
	15 do	bro pek No 2	1500	50
	16 do	or pek	1440	47
	17 do	pek	1428	43
M K	8 ch	bro mix	1060	24
Vogan	18 ch	bro or pek	1800	50
	22 do	or pek	1980	37
	35 do	pek	3150	35
	17 do	pek sou	1445	33
elta Inv. No 1	19 hf ch	bro or pek	1159	49
	30 ch	bro pek	2000	40
	31 do	pek	2666	36
	15 do	pek sou	1275	35
Agra Oya	17 hf ch	bro or pek	1020	54
	36 do	or pek	1800	40
	36 do	bro pek	2160	43
	16 do	pek	1440	38
Handford, Invoice No 5 12	14 ch	bro pek	1400	39
	12 do	pek	1140	33
Edward Hill	37 ch	bro pek	3700	40
	23 do	or pek	1932	37
	22 do	pek	1936	35
Robgill	22 hf ch	br or pek	1100	64
	29 ch	bro pek	2610	51
	20 do	pek	1600	44
Dunbar	33 hf ch	bro pek	1980	51 bid
	16 do	pek	1472	43
O B E C, in est. mark Forest Creek	17 ch	bro or pek	1734	63
	35 do	bro pek	3570	47
	21 do	or pek	1890	41
	40 do	pek	4000	38
Great Valley Ceylon in estate mark	52 hf ch	bro or pek	2964	49
	15 ch	or pek	1410	38
	40 do	pek	3520	37
	16 do	pek sou	1280	35
Glencorse	12 ch	bro pek	1260	41
	14 do	or pek	1330	38
	14 do	pek	1120	34

	Pkgs.		Name.	lb.	c.
Kournagoda	24	ch	bro or pek	2160	39 bid
	27	do	or pek	2295	34 bid
	36	do	pek	2880	33
	22	do	pek sou	1716	32
	16	do	bro pek fans	1600	36
Dumblane	31	hf ch	bro or pek	1705	58
	17	ch	bro pek	1700	48
	14	do	pek	1400	42
Killarney	22	hf ch	bro or pek	1276	61
	32	do	bro pek	1856	46
	16	ch	or pek	1360	45
	19	do	pek	1615	41
B P C	16	bf cb	dust	1200	28
Dammeria	21	ch	bro pek	2100	40
	23	do	pek	2070	35
	24	do	or pek	2160	36
	21	do	pek sou	1890	33
Clunes	27	cb	pek	2430	34
	14	do	bro pek	1400	41
	14	do	or pek	1260	37
Polatagama	33	ch	bro or pek	3300	41
	30	ch	bro pek	3000	38
	93	do	pek	8835	33
	16	do	pek sou	1360	32
	12	do	fans	1200	30
B W	*39*	*hf ch*	*twankcy No 2*	1950	14
Palmerston	25	hf cb	bro or pek	1500	66 bid
	24	do	bro pek	1440	49
	19	ch	pek	1615	45
Erlsmere	36	hf cb	bro or pek	1944	60 bid
	21	ch	bro pek	2058	45
	13	do	pek	1170	41
Mousakellie	22	ch	bro or pek	2200	46 bid
	20	do	or pek	1900	37 bid
	22	do	pek	1980	34
Shrubs Hill	34	ch	bro pek	3740	38
	15	do	pek	1425	34
	37	do	bro pek	3885	38
	25	do	pek	2375	35
Kitulgalla	12	cb	bro or pek	1200	38
	13	do	or pek	1235	37
	13	do	pek	1131	33
Hanaeella	*28*	*ch*	*young hyson*	2800	35 bid
	18	*do*	*hyson No 1*	1800	34
Nakiadeniya	*18*	*ch*	*young hyson*	1890	42
	15	*do*	*hyson*	1290	36
	12	*do*	*hyson No 2*	1020	40
New Peradeniya	23	cb	dust	1610	27
Drayton	29	hf ch	or pek	1450	49
	32	ch	pek	2720	45
	13	do	pek sou	1040	41
Coldstream Group	45	hf cb	bro or pek	2475	42
	80	do	bro pek	4400	38
	47	cb	pek	4465	35
	12	do	pek sou	1080	31
Nawalapitiya	25	cb	bro mix	2250	25
Frees Ruhe	31	ch	bro pek	3100	38
	25	do	pek	2375	33
	15	do	pek sou	1500	32
Dambagastalawa	13	ch	bro or pek	1378	58 bid
	23	do	or pek	2392	41
	17	do	pek	1564	39
High Forest	64	hf cb	br or pek No 1	3072	52 bid
	47	do	bro pek	2679	51 bid
	45	do	pek	2070	44
Ruanwella	20	cb	bro pek	2000	39
	22	do	or pek	1980	35
	33	do	pek	2970	34
Erracht	10	ch	bro or pek	1000	39
	13	do	or pek	1105	36
	40	do	pek	3200	34
Hayes	28	cb	bro pek	2800	42
	15	do	or pek	1275	38
	64	do	pek	6080	34
St Vigeans	17	hf ch	bro or pek	1054	67
	11	ch	pek	1023	43
Carfax	25	ch	or pek	2250	44 bid
	27	do	pek	3430	41
Harrington	24	hf ch	bro or pek	1320	58 bid
	12	cb	bro pek	1344	40 bid
	27	hf ch	or pek	1350	45
	14	ch	pek	1330	41
Talgaswella	24	ch	bro or pek	2400	42
	28	do	pek	2240	34
	28	do	pek sou	2100	33
	23	do	or pek	1840	37
Middleton	20	hf ch	bro or pek	1200	96
	24	ch	bro pek	2400	72
	20	do	or pek	1700	61
	18	do	pek	1530	54
Handford	22	ch	bro pek	2200	38 bid
Maha Eliya	26	hf ch	bro or pek	1560	59 bid
	33	do	bro pek	1980	48 bid
	13	cb	or pek	1170	47 bid
	31	do	pek	2790	45
H G M	23	bf ch	bro or pek	1380	47
	12	ch	bro pek	1200	37
	25	do	pek	2250	34

	Pkgs.		Name.	lb.	c.
Hatton	35	ch	bro pek	3500	
	25	do	pek	2250	
Ganapalla	18	ch	bro or pek	1854	37 bid
	20	do	bro pek	1620	36
	20	do	pek	1600	33
	12	do	bro pek fans	1236	30
Bandara Eliya	20	hf ch	or pek	1000	48
	20	do	br or pek No 1	1040	50 bid
	30	do	br or pek No 2	1800	42
	69	do	pek	3450	40 bid
	30	do	pek fans	2100	32
Ingrogalla	13	ch	bro pek	1300	40
	12	do	pek	1030	34
Slinfold	10	ch	bro or pek	1050	45 bid
D W	*28*	*ch*	*hyson No 2*	2380	14 bid
Pine Hill	28	hf ch	bro or pek	1624	48 bid
	21	ch	or pek	1890	39
	19	do	pek	1710	36
	15	do	pek sou	1275	34
Broughton	26	bf ch	br or pek	1463	60 bid
Puspone	16	ch	or pek	1600	36
	28	do	bro pek	2940	39
	16	do	pek	1520	34
	19	do	pek sou	1710	33
Knavesmire	40	ch	bro or pek	4200	39
	48	do	pek	4080	34
	18	do	pek sou	1440	33
Passara	34	cb	bro pek	3400	39
	22	do	pek	2090	37

Messrs. Somerville & Co.

[292,568 lb.]

	Pkgs.		Name.	lb.	c.
Depedene	57	bf ch	bro pek	3420	37
	57	do	pek	2850	33
	72	do	pek sou	3600	32
Morahela	23	hf cb	bro or pek	1150	44 bid
	21	ch	pek	1890	36
Galphele	11	ch	bro or pek	1045	55
	20	do	or pek	1800	42
	10	do	br pek No 1	1000	40
	10	do	br pek No 2	1000	36
	34	do	pek	3060	36
Allacollawewa	22	hf ch	bro or pek	1100	50
Marigold	32	bf cb	bro or pek	1600	50
	28	do	or pek	1344	44
Ellerslie	43	hf cb	bro or pek	2365	46 bid
	17	ch	or pek	1445	39 bid
	17	do	pek	1360	34 bid
	22	do	bro pek	2090	36
Ferriby	22	hf ch	bro or pek	1100	39 bid
	21	ch	or pek	1995	33 bid
	23	do	pek	2070	32
	18	do	pek sou	1530	32
Mousa	23	hf ch	bro pek	1265	42
	20	do	pek	1000	35
Glenalmond	17	ch	pek	1524	withd'n
K E N	18	ch	bro or pek	2016	56
	40	do	or pek	3800	35
	16	do	pek	1344	33
Kallebokka	19	ch	bro or pek	1960	52
	32	do	bro pek	3040	38
	26	do	pek	2080	34
Kurulugalla	16	ch	bro pek	1520	37
	25	do	pek	2250	34
Gallawatte	*21*	*ch*	*young hyson*	1890	33 bid
Dalvern	14	ch	pe	1120	32
Bopitiya	43	cb	bro pek	4085	39
	18	do	pek	1620	34
	21	do	pek sou	1890	33
R K P	24	ch	bro or pek	2400	39
	24	do	pek	2160	34
Kelani	36	cb	bro or pek	3600	39
	34	do	pek	3050	34
	15	do	pek sou	1200	33
Avisawella	21	hf ch	bro or pek	1050	48
	16	ch	or pek	1520	37
	21	do	pek	1890	34
	18	do	pek sou	1440	33
Warakamure	30	cb	bro or pek	3000	37
	28	do	or pek	2240	34
	35	do	pek	2975	33
Grange Gardens	13	ch	bro or pek	1300	47 bid
	11	do	or pek	1100	40
	23	do	pek	2185	37
Walla Valley	42	hf ch	bro or pek	2310	53
	19	ch	or pek	1710	47
	43	do	pek	3655	42
B & D	16	hf ch	dust	1312	28
	18	cb	unassorted	1710	33
Glenanore	26	hf ch	bro or pek	1430	53 bid
	14	ch	or pek	1260	44
	14	do	pek	1190	37

	Pkgs.	Name.	lb.	c.
New Angamana	35 ch	bro or pek	3500	38 bid
	20 do	or pek	1800	36
	45 do	pek	4050	34
	17 do	pek sou	1530	32
Rambodde	18 hf ch	bro pek	1008	40
	30 do	pek	1440	37
Old Maddegama	17 ch	bro or pek	1275	46 bid
	18 do	pek	1440	37
Damblagolla	22 hf ch	bro pek	1320	37 bid
	22 ch	pek	1870	33
	18 do	pek sou	1440	32
Salem	14 ch	bro or pek	1400	38 bid
	13 do	pek	1170	34
Neboda	24 ch	bro or pek	2400	40
	22 do	or pek	2024	36
	38 do	pek	3800	34
Agra Elbedde	53 hf ch	br or pek	2915	59
	36 do	or pek	2016	46 bid
	26 do	pek	1300	43 bid
H G L	15 hf ch	pek sou	1200	26
Bodawa	40 hf ch	bro pek	20[illegible]0	37
	15 ch	pek	1350	34
	15 do	pek sou	1275	32
Hanagama	2[illegible] ch	or pek	2500	35
	30 do	pek	3000	33
	13 do	pek sou	1235	32
Yarrow	*40 hf ch*	*young hyson*	2080	37
	30 do	*hyson*	1500	24
Oonangalla	12 ch	or pek	10[illegible]0	43
	16 do	bro or pek	1600	48
	20 do	pek No. 1	1900	39
California	1[illegible] ch	pek	1186	33
Owilikande	17 ch	bro or pek	1700	36
	1[illegible] do	or pek	1020	34
	20 do	pek	1890	34
Theberton	17 ch	bro pek	1700	38
	31 do	pek	2790	31
W K P	19 ch	bro pek	1995	40
	12 do	or pek	1080	36
	45 do	pek	3600	34
Ambalawa	14 ch	pek	1120	34
	13 do	pek sou	1040	33
Murraythwaite	31 ch	bro pek	3100	39
	21 do	pek	1785	34
Beausejour	15 ch	bro or pek	1500	38 bid
	16 do	bro pek	1520	36
	34 do	pek	2720	33
	20 do	pek sou	1500	32
Neuchatel	10 ch	bro or pek	1000	46
	35 do	or pek	2975	35
	14 do	pek	1120	34
	1[illegible] do	bro pek	1260	38
Highfield	20 hf ch	bro or pek	1077	41
	22 do	or pek	1031	38
Mahavilla	19 hf ch	bro pek	1045	44
	20 do	or pek	1020	41
	18 ch	pek	1836	37
	21 do	pek sou	2142	33
Kurunegalla	26 hf ch	bro or pek	1950	38
	32 do	or pek	1760	37
	18 ch	pek	1620	34
Meddegodda	38 hf ch	br or pek	2470	40
	35 do	pek	1925	35
Selvawatte	25 hf ch	bro pek	1375	35
Deniyaya	19 ch	sou	1710	31
Blinkbonnie	34 hf ch	bro or pek	2040	56
	12 ch	or pek	1050	50
	1[illegible] do	pek	1656	44
Farnham	*24 ch*	*young hyson*	2400	26 bid
	15 do	*hyson*	1350	24
Kannatotta	14 ch	bro pek	1330	35

Messrs. E. John & Co.

[213,186 lb.]

	Pkgs.	Name.	lb.	c.
A T	13 ch	pek sou	1170	30
Poilakande	17 ch	bro pek	1530	34
	22 do	pek	1760	32
P K T	13 ch	pek sou	1040	30
Gonavy	3 hf ch	bro or pek	1612	56
	27 ch	pek	2295	40
Theresia	25 hf ch	bro or pek	1375	63
	15 ch	or pek	1200	48
	30 do	pek	2400	42
Eila	*39 ch*	*young hyson*	3900	37
	16 do	*hyson*	1520	35
Lameliere	17 ch	bro or pek	1700	47 bid
	13 do	or pek	1196	40
	28 do	pek	2520	33
Perth	*42 ch*	*young hyson*	4200	36
	32 do	*hyson*	2720	33 bid
Rondura	10 ch	bro or pek	1100	47
	14 do	bro pek	1400	39
	12 do	or pek	1200	38
	25 do	pek	2500	34
	10 do	pek sou	1000	32

	Pkgs.	Name.	lb.	c.
Cleveland	30 hf ch	fly or pek	1650	57
	55 do	pek	3135	41
G B	*15 ch*	*hyson dust*	2100	10
Captains Garden	25 ch	pek	2250	30
M L K	11 ch	bro pek	1034	33
Yapame	62 ch	bro pek	5480	41
	30 do	pek	3000	35
	14 do	pek sou	1400	33
Kadicniena	31 hf ch	bro or pek fans	2335	29
Birnam	22 ch	pek sou	1540	41
	25 do	fans	2600	35
Brownlow	18 hf ch	bro or pek	1008	60
	17 ch	or pek	1445	42
	13 hf ch	pek	1092	39
Kandahar	47 hf ch	pek	2491	36
Merrow	32 hf ch	bro pek	1760	39
	13 ch	pek	1235	34
Bowhill	11 ch	bro pek	1100	38
	12 do	pek	1080	35
Woodstock	20 hf ch	bro or pek	1600	36 bid
Templestowe	27 hf ch	bro or pek	1431	54 bid
	23 do	bro pek	1288	51
	33 do	or pek	1419	48
	20 ch	pek	1700	43
	13 do	pek sou	1170	40
	18 hf ch	fans	1260	36
Lameliere	17 ch	bro or pek	1700	48
	13 do	or pek	1196	41
	20 do	pek	2520	40
Mt. Vernon	31 ch	pek	2790	44
	21 do	pek sou	1827	39
	18 hf ch	dust	1494	29
Bittacy	28 ch	bro pek	2744	50
	22 do	pek	1848	43
C K	12 ch	pek	1077	32 bid
	12 do	pek sou	1077	31 bid
Gingranoya	11 ch	bro or pek	1105	50 bid
	20 do	pek	1700	40
Rockwood	27 hf ch	fly bro or pek	1782	46 bid
	27 do	fly or pek	1620	48
	30 ch	pek	2880	38
	34 do	pek sou	3060	36
B B, in est. mark	15 ch	pek	1377	34 bid
	13 do	pek sou	1253	32 bid
Agra Ouvah	56 hf ch	bro or pek	3360	withd'n
	41 do	or pek	3214	withd'n
	15 ch	pek	13[illegible]0	withd'n
	13 do	pek sou	1170	36
	23 hf ch	pek fans	1840	32
Higham	36 ch	bro pek	3600	41
	30 do	pek	2855	34
	22 do	pek sou	2990	32
O W	23 ch	bro pek	2116	36
	19 do	pek	1615	33
Warleigh	24 hf ch	bro or pek	1[illegible]41	61
Elston	26 ch	pek	20[illegible]0	36
	32 do	pek sou	2560	33
	25 hf ch	dust	2125	28
Birnam	22 hf ch	dust	1936	29
Glassaugh	27 hf ch	or pek	1566	80
	25 do	bro or pek	1675	64
	18 ch	pek	1890	64
Cabin Ella	18 ch	bro pek	1800	45
	16 do	pek	1360	37
Dallawella	10 ch			
	1 hf ch	pek	1000	34

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	4 ch	pek sou	380	35
	1 do	sou	100	33
	2 hf ch	dust	160	27
B, in estate mark	1 ch	bro pek	78	35
	1 do			
	1 hf ch	pek sou	121	31
	1 ch	dust	125	28
H D, in est. mark	8 ch	pek	800	35
	3 do	pek sou	225	32
	6 do	fans	610	out
Kenilstone	*5 ch*	*twanky*	500	10
	3 do	*dust*	300	9
	7 do	*siftings*	7[illegible]0	11
Mapitigama	*4 ch*	*hyson No 2*	4[illegible]4	34
	5 do	*siftings*	500	13
Mawanella	2 hf ch	bro pek	110	44
	6 do	pek	280	34
	7 do	pek sou	364	32
	1 do	dust	60	26
Dartry	4 hf ch	dust	380	27

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
T C	1 hf ch	or pek	60	35
	1 do	pek	53	32
	1 do	pek sou	58	31
	1 do	dust	61	26
Norfolk	5 ch	bro or pek	525	
	8 do	bro pek	880	40
	11 do	pek	990	36
	6 do	pek sou	510	34
	3 hf ch	dust	255	27
Eastland	4 hf ch	pek	228	33
	5 do	dust	400	28
Sylvakandy	3 ch	pek sou	300	34
	5 do	dust	600	28
O O, in est. mark	1 ch	bro pek	75	36
	2 do	pek	160	33
	2 do	pek sou	164	31
	1 do	dust	89	26
	4 do	bro Tea	492	27
	2 hf ch	*hyson*	148	30
	1 do	*hyson dust*	53	11
R	2 ch	dust	240	29 bid
Kalupahana	8 ch	bro pek	800	37
	5 do	pek	475	32
	4 do	pek sou	360	30
	2 do	bro pek fans	220	31
	1 do	fans	117	23
	1 do	dust	132	24
I K V	4 ch	dust	480	28
Irex	7 ch	pek sou	560	34
	4 do	fans	440	30
	3 do	dust	255	27
O B E C, in est. mark				
Nillomally	6 ch	fans	600	33
Wilpita	8 ch	pek	800	30
	3 do	bro or pek fans	360	25
	1 do	sou	100	28
	2 do	bro mix	200	23
Yelverton	5 ch	pek sou	425	34
	1 hf ch	dust	90	26
Adams Peak	3 ch	bro pek	296	43
	1 do	or pek	99	39
Rajawatte	9 ch	bro or pek	900	50
	5 do			
	1 hf ch	pek sou	500	36
	8 do	fans	480	31
	6 do	dust	450	28
Mawiligangawatte	3 ch	dust	306	28
Atgalla	5 ch	dust	615	28
Carlabeck	9 ch	pek sou	900	37
C B	6 ch	bro pek	660	38
	7 do	pek	742	34
	2 do	pek sou	200	32
Weyungawatte	10 ch	pek sou	800	34
	1 hf ch	sou	40	30
	2 do	dust	150	27
Poonagalla	2 ch	pek sou	180	36
Marlborough	3 ch	bro pek fans	198	34
Broora	3 hf ch	bro or pek	150	withd'n
Torwood	3 ch	dust	405	26
Chesterford	*10 ch*	*gunpowder*	800	33
	4 ch	fans	480	16
	2 do	dust	180	10
Ardlaw and Wishford	5 ch	fans	500	32
	2 do	dust	200	28
Ardlaw and Wishford	8 ch	bro or pek	880	65
	6 do	or pek	540	61
	6 do	pek	510	42
D D, in est mark	*4 hf ch*	*young hyson*	210	36
	3 do	*hyson No 1*	135	34
Digdola	10 ch	pek	800	34
	11 do	pek sou	825	33
	1 do	bro pek fans	110	27
	2 hf ch	dust	160	26
V	5 ch	or pek	450	36
Vogan	2 ch	pek fans	260	29
	5 hf ch	dust	400	28
Mahayaya	2 ch	bro pek	174	39
	2 do	or pek	180	34
	1 hf ch	dust	20	27
Handford Inv. No 12	10 ch	pek sou	950	33
	2 do	bro pek fans	160	33
	1 hf ch	sou	50	30
	2 do	dust	200	27
W	1 hf ch	pek	34	30
Edward Hill	4 ch	pek sou	372	34
	4 hf ch	dust	304	27
Seenagolla	10 ch	pek sou	557	31
Dunbar	4 ch	pek sou	595	37
	2 do	bro pek fans	308	31
Great Valley, Ceylon in est. mark	9 hf ch	dust	720	28
Kournagoda	11 ch	sou	825	31
	8 do	dust	880	27

	Pkgs.	Name.	lb	c.
Dumblane	3 ch	pek sou	270	37
Dammeria	8 hf ch	bro or pek	560	41
	3 do	bro pek fans	240	37
	1 do	dust	100	27
Clunes	6 ch	dust	840	27
Polatagama	4 ch	dust	600	27
B W	*5 hf ch*	*twankey No 1*	400	12
T B	3 hf ch	dust	225	28
	3 do	fans	180	30
Erlsmere	3 ch	pek sou	258	37
	3 hf ch	dust	234	28
Mousakellie	8 hf ch	bro pek fans	520	35
	5 do	dust	375	23
Shrubs Hill	2 ch	pek sou	194	33
	9 do	fans	720	29
Hanwella	*12 ch*	*hyson No 2*	780	35
	3 do	*yng hyn siftings*	270	10
R S	4 hf ch	or pek	200	38
	11 do	pek	550	32
	5 do	pek sou	250	30
	10 do	bro tea	500	27
	3 do	fans	150	28
	4 do	congou	240	22
Nakiadeniya	3 ch	siftings	270	12
Rockside	12 ch	pek sou	972	33
	2 do	bro pek fans	132	30
New Peradeniya	2 ch	red leaf	140	22
Coldstream Group	6 hf ch	bro or pek fans	420	30
	3 do	dust	255	27
Nawalapitiya	11 hf ch	dust	935	27
W A	3 ch	dust	450	27
Dambagastalawa	8 ch	pek sou	752	35
	6 do	bro pek fans	804	32
D G T	2 ch	bro pek	220	37
	5 do	pek	500	34
Ruanwella	8 ch	pek sou	720	33
	4 do	bro pek fans	420	30
	4 hf ch	dust	352	28
Erracht	9 ch	pek sou	675	33
	3 do	pek fans	270	30
	5 do	dust	650	27
Queensland	5 ch	pek	400	37 bid
Harrington	1 hf ch	bro pek fans	80	30
	1 do	dust	90	28
H, B L	6 ch	bro pek	600	37
	6 hf ch	bro or pek	336	45
	6 ch	pek	504	34
	3 do	pek sou	240	33
	1 hf ch	dust	70	27
	1 do	bro or pek fans	68	30
Talgaswella	11 hf ch	bro pek No. 2	660	35
	5 do	dust	425	27
Handford	8 ch	pek sou	720	33
W	4 hf ch	dust	340	27
Sylvakandy	4 ch	bro or pek No 1	400	48
B W D	3 ch	red leaf	225	20
H G M	6 ch	pek sou	540	33
Padapitiya	6 ch	bro pek	570	35
	4 do	or pek	400	36
	9 do	pek	810	33
	9 do	pek sou	720	32
Jenny Dale	2 ch	bro pek	220	36
	1 do	bro pek	73	35
	3 do	pek	285	32
	4 do	pek sou	340	31
	1 do	unassorted	100	30
Monterey	9 ch	sou	810	32
	4 do	fans	400	29
	6 hf ch	dust	480	27
Bandara Eliya	9 hf ch	pek sou	432	24
	10 do	dust	820	27
M	2 hf ch	coarse leaf	130	13
Deviturai	7 ch	pek fans	840	29
Glaslyn	5 ch	pek	500	34
	1 do	fans	150	28
Kenpitiya	*13 hf ch*	*young hyson*	715	30 bid
	11 do	*hyson*	517	28 bid
	6 do	*hyson No 2*	270	27 bid
	1 do	fans	65	0
M	3 hf ch	pek sou	120	32
Ella Oya	*7 hf ch*	*siftings*	490	15
	3 do	*hyson No 3*	126	13
Passara Group	7 ch	pek sou	665	35
	2 do	dust	180	27
	8 do	fans	600	30

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Kitulakanda	13 hf ch	bro pek	728	36
	16 do	pek	800	32
	12 do	pek sou	540	29
	3 do	bro pek fans	180	27
	6 do	pek fans	300	27
	1 do	dust	84	22

	Pkgs.	Name.	lb.	c.
A W A	2 ch	bro pek	192	30
	1 do			
	1 hf ch	sou	132	29
	1 do	congou	46	27
Rock Cave	1 ch	pek sou	56	31
	3 do	dust	339	27
Galla	6 ch	pek	540	35
	4 do	pek sou	320	34
	3 do	bro pek fans	360	31
	1 hf ch	dust	85	27
Oodoowerra	1 ch	pek fans	100	27
	1 do	dust	130	27
Tillington	6 hf ch	bro or pek	300	50
	5 ch	pek sou	425	32
	1 do	sou	90	30
	4 hf ch	dust	280	28
Aigburth	4 ch	pek sou	320	33
	5 hf ch	bro or pek fans	350	31
Woodend	1 hf ch	fans	86	31
	3 do	dust	420	29
Galgedioya	5 hf ch	dust	375	23
	1 ch	fans	100	29
D	8 ch	bro pek	800	37
	7 do	pek	665	32
	5 do	pek sou	450	29
Moneragalla	8 ch	or pek	560	42
	6 do	pek sou	372	33
	4 do	fans	428	29
Hyde	4 ch	pek sou	352	25
	7 hf ch	bro or pek fans	441	34
	3 do	dust	237	29
Anningkande	7 ch	pek sou	665	34
	1 hf ch	sou	55	31
	2 do	bro pek fans	140	30
	2 do	dust	170	27
Morahela	2 hf ch	dust	160	27
Taprobana	12 ch	pek	960	36
	3 do	pek sou	240	34
	6 hf ch	or pek fans	360	30
Panilkande	4 ch	sou	360	33
P in est mark	7 hf ch	dust	700	25
A *B*	6 *hf ch*	*green tea dust*	510	9
Ooakwell	18 hf ch	bro or pek	987	
	11 do	pek	550	withd'n
D	1 ch			
	1 hf ch	red leaf	127	25 bid
	1 ch			
	1 hf ch	unassorted	144	27
G in est mark	5 ch	bro mix	425	20
S	*1 hf ch*	*green tea fans*	93	9 bid
C	*2 bags*	*green tea*	110	out

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Depedene	11 hf ch	dust	880	27
	2 do	bro pek fans	120	32
A	5 hf ch	pek	240	33
	2 do	bro pek	104	31
	2 do	fans	94	26
Mowbray	9 ch	bro pek	900	40
	12 ch	pek	960	36
	5 do	pek sou	400	33
Raven Oya	6 ch	pek sou	600	33
	3 do	fans	450	29
Allacollawewa	22 hf ch	or pek	990	41
	13 do	pek	650	37
	15 do	pek sou	720	36
Marigold	16 hf ch	pek	800	40
	18 do	pek sou	864	35
Ellerslie	2 hf ch	dust	140	27
Ferriby	8 hf ch	dust	480	28
Mousa	8 hf ch	pek sou	640	32
K E N	11 ch	pek sou	880	32
	2 do	dust	300	25
	3 do	bro pek fans	336	29
	2 ch	pek fans	228	27
Kallebokka	2 ch	pek sou	220	33
	3 do	fans	375	29
Kurulugalla	6 ch	pek sou	540	32
	2 hf ch	pek fans	180	30
	2 do	pek dust	200	26
Gallawatte	*10 ch*	*hyson No 1*	850	32 bid
	2 do	*hyson No 2*	190	30 bid
Dalveen	10 ch	bro pek	950	37
	1 do	bro or pek	100	32
	6 do	pek sou	570	32
	1 do	mix tea	95	28
Bopitiya	6 hf ch	dust	480	28
D in est mark	2 hf ch	bro pek	110	35
	3 do	pek	123	33
	2 do	pek fans dust	150	27
Gwernet	8 ch	bro pek	800	48
	12 ch	pek	960	27
R K P	10 ch	pek sou	800	27
Avisawella	6 hf ch	dust	450	25
Warakamure	12 ch	pek sou	960	32
	1 hf ch	dust	90	25
A	3 hf ch	fans	223	
	3 do	dust	258	withd'n
	1 ch	bro tea	93	
Koswatte	3 hf ch	bro pek	150	37
	2 do	pek	100	33
	2 do	pek sou	100	32
	1 do	unasst	42	31
	1 do	dust	80	25
Queenwood	3 ch	pekoe	256	46
B and D	10 hf ch	fans	650	32
Glenamore	5 hf ch	bro pek fans	375	32
	5 do	dust	400	27
New Angamana	5 ch	pek fans	600	28
	2 do	dust	312	26
Donside	10 ch	sou	850	31
	3 hf ch	dust	255	26
	3 do	fans	165	29
Rambodde	12 hf ch	bro or pek	600	52
	13 do	pek sou	572	35
	3 do	bro pek fans	201	30
	3 do	dust	240	26
Old Maddegama	5 ch	pek sou	400	34
	3 do	bro or pek fans	270	33
D B G	2 ch	fans	200	31
	2 hf ch	dust	160	27
Salem	2 ch	dust	200	27
Neboda	2 ch	pek fans	200	30
	3 do	pek sou	276	33
	6 hf ch	dust	510	28
X X	6 hf ch	bro or pek fans	420	33
	2 do	pek dust	160	28
Bodawa	1 hf ch	bro mix	50	22
	3 do	bro pek fans	225	27
F A in est mark	1 ch	pek sou	64	37
	1 hf ch	dust	90	28
Hanagama	7 ch	bro or pek	805	46
Yarrow	*3 hf ch*	*siftings*	198	16
	2 do	*hyson No 2*	92	12 bid
California	7 ch	bro pek	685	36
	7 do	pek sou	700	30
	1 do	dust	127	24
Owilikande	7 ch	pek sou	630	33
	4 hf ch	dust	340	24
Theberton	4 ch	pek sou	340	38
	3 do	bro pek fans	300	27
	2 do	fans	200	28
	1 do	dust	100	25
W K P	10 ch	pek sou	750	32
	6 do	sou	456	30
	2 hf ch	dust	167	26
Murraythwatte	3 ch	pek sou	210	33
	1 do	bro pek fans	140	29
Neuchatel	3 ch	dust	450	26
Mahavilla	8 hf ch	bro or pek	456	37
	1 ch	sou	95	30
	4 hf ch	dust	320	29
Kurunegalla	1 ch	pek sou	95	33
	9 hf ch	dust	675	27
Meddegodda	17 hf ch	pek sou	850	34
	2 do	dust	150	27
	4 do	bro pek fans	220	30
C in est mark	3 ch			
	1 hf ch	pek souchong	315	32
	1 do	dust	70	24
	2 do	bro or pek fans	160	26
	1 do	fans	91	26
Selvawatte	6 ch	pek	600	33
	1 do	dust	100	23
	1 hf ch	fans	80	26
Deniyaya	8 ch			
	1 hf ch	pek fans	860	28
Blinkbonnie	5 ch	pek sou	425	39
Farnham	*6 ch*	*hyson No 2*	540	30 bid
	4 do	*fans*	300	14
	1 do	*dust*	140	11
	5 bags	*twanky*	225	12 bid
	1 hf ch	black tea	72	22
Kannatotta	9 ch	pek	765	33
	6 do	pek sou	510	32
	1 do	dust	116	24
M	7 ch	bro pek	735	37
	4 do	pek	380	34
	1 hf ch	pek sou	62	32
	1 do	bro pek fans	80	36

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
A T	1 ch	sou	84	30
	5 do	bro pek fans	550	30
	1 do	fans	110	29
	2 do	bro pek dust	240	27

	Pkgs.	Name.	lb.	c.
Castle Hill	3 ch	bro or pek	300	40
	6 do	or pek	600	35
	13 ch	pek	990	33
	9 do	pek sou	810	32
	6 do	congou	540	25
	5 do	dust	500	28
Poilakande	8 ch	bro or pek	720	36
P K T	12 hf ch	dust	960	27
Theresia	3 ch	bro pek fans	300	36
	3 do	sou	270	35
	4 hf ch	dust	320	29
Eila	*8 ch*	*hyson No 1*	760	34
	2 do	*hyson No 2*	140	34
	4 do	*green fans*	400	15
	2 do	*dust*	200	11
Lameliere	7 hf ch	bro pek fans	490	31
	2 ch	sou	170	33
Perth	*7 ch*	*hyson No 2*	560	34
	4 do	*siftings*	5 0	13
Rondura	3 ch	fans	375	28
	3 do	dust	510	29
Cleveland	10 hf ch	bro or pek	560	70
	5 do	fans	400	31
Captains Garden	7 ch	bro pek	700	36
	1 do	pek sou	90	30
	5 hf ch	pek dust	400	24
M L K	5 ch	fans	610	29
A T	4 hf ch	dust	372	14
Yapame	3 ch	dust	285	27
	4 do	fans	380	28
	1 do	unas	100	32
Brownlow	7 hf ch	dust	560	29
Alplakande	8 ch	sou	683	31
Elston	1 ch	pek	90	35
N	10 hf ch	dust	850	28
Kandahar	3 hf ch	dust	180	28
Merrow	5 hf ch	fans	410	28
Church Hill	4 hf ch	bro pek	200	34
	1 ch	pek	63	32
Bowhill	8 ch	bro or pek	800	50
	5 do	or pek	450	40
	2 do	dust	200	28
Woodstock	10 ch	pek	900	36
B K	8 hf ch	dust	823	27
Castle Hill	2 ch	pek sou	180	36
Lameliere	7 hf ch	bro pek fans	490	32
	2 ch	sou	170	34
Mt. Vernon	10 hf ch	fans	700	35
Ankande	7 hf ch	dust	560	24
Peru	1 ch	pek sou	95	33
	1 do	fans	140	30 bid
Bittacy	12 hf ch	bro or pek	600	61
	10 do	fans	600	35
	1 ch	pek sou	90	36
	3 hf ch	dust	252	28
Gingranoya	10 ch	or pek	950	44
Rookwood	1 ch	bro pek	74	33
	4 do	pek dust	352	30
Agra Ouvah	5 hf ch	dust	475	29
Dalhousie	16 hf ch	or pek	800	40
	11 do	bro pek	6 5	50 bid
	21 do	pek	945	38
	12 do	pek sou	540	35
	4 do	bro fans	260	32
Craigingilt	7 hf ch	bro or pek	385	54
	4 ch	or pek	380	42
	9 do	pek No 1	765	37
	3 hf ch	or pek fans	195	33
	1 do	dust	85	28
Higham	15 hf ch	bro or pek	825	45
	1 ch	sou	95	30
	2 hf ch	dust	180	27
	4 ch	bro pek fans	280	32
O W	1 ch	pek sou	80	29
	1 hf ch	dust	88	27
	7 do	pek fans	476	30
Cabin Ella	2 hf ch	bro pek fans	140	29
	1 do	pek dust	90	28
M G	11 hf ch	fans	814	30
Dallawella	2 ch	bro or pek	212	36
	6 do	bro pek	624	33
	9 do	pek sou	828	26
	1 do	fans	130	28
	4 do	bro tea	400	18
	3 do			
	2 hf ch	dust	653	24
Y Z	4 ch	fans	472	10
	4 do			
	1 hf ch	dust	600	8 bid
Dikoya	2 bags	fluff	161	10

CEYLON COCOA SALES IN LONDON.

MINCING LANE, JAN. 30th.

"Asia."—F OBEC in estate mark, Kondesalle Ceylon O, 110 bags sold at 65s 6d; F ditto 1, 48 at 55s; ditto O, 34 at 77s 6d.

"Historian."—New Peradeniya, 23 bags sold at 62s; 5 bags out no bid; Alloowiharie Cocoa A, 5 bags out no bid; Strathisla Ceylon Cocoa A, 31 bags out no bid; ditto B, 2 at 53s; ditto C, 3 at 50s 6d.

"Cheshire."—New Peradeniya, 23 bags out no bid; 2 bags sold at 46s.

"Inaba Maru."—Marakona, 54 bags out no bid.

"Derbyshire."—Meegama No. A, 104 bags out no bid; ditto No. A 1, 41 bags out no bid; ditto No. 1, 27 bags out no bid; ditto No. B, 12 bags sold at 48s.

"Clan Murray."—Meegama A, 120 bags out; ditto B, 7 bags out; ditto No. 1, 11 bags out.

"Leslie."—HJ 1 in estate mark D, 47 bags out; HJ 2 in estate mark D, 18 bags out; Kesbawa Estate Cocoa, 37 bags out; Ranasinbage Estate Cocoa, 26 bags out.

"Derbyshire."—Coodogalla, 35 bags out; 4 bags sold at 55s 6d; Kepitigalla, 64 bags out; 26 bags sold at 59s 6d; 2 at 53s; Laxahena 2, 4 bags sold at 49s 6d.

"Cheshire."—Kepitigalla, 48 bags out; Asgeria A, 80 bags out; Ingurugalle A, 60 bags sold at 66s; Middlemarch No. 1, 38 bags sold at 58s 6d.

"Glenartney."—Dangan Estates No. 1, 47 bags out; ditto No. 2, 6 bags sold at 51s; No. 1 D, 3 bags sold at 56s; No. 2 10, 3 at 49s 6d; Broken, 6 at 50s; No. 1, 1 at 51s 6d; No. 1 D, 1 at 51s 6d; Bandarapola 1, 31 bags out; ditto T, 4 bags out.

"Warwickshire."—KM in estate mark, 60 bags out.

"Glenartney."—Anniewatte, 20 bags sold at 73s 6d; 21 at 73; ditto GA, 7 at 56s.

"Derbyshire."—Maria No. 1, 35 bags sold at 60s; ditto No. 2, 5 at 48s; Middlemarch Caracas, 3 bags sold at 55s; ditto Forastero No. 1, 8 at 57s 6d; ditto No. 2, 5 at 50s 6d; ditto Black, 2 at 20s

"Inaba Maru."—Coodoogalla HB, 60 bags out; Andella, 16 bags out; AAA, 8 bags out; BBB, 27 bags out; CCC, 31 bags out; Gilbury, 19 bags out; DD, 21 bags out.

"Workman."—HB, 39 bags out.

"Derbyshire."—Laxahena 1, 25 bags out.

"Hitachi Maru."—MA in estate mark, 31 bags out; MM in estate mark, 200 bags out.

"Ophir."—KMA in estate mark, 60 bags out.

"Clan Robertson."—KK in estate mark 79 bags out.

"Benvorlich."—Palli London 1, 119 bags out.

CEYLON PLUMBAGO SALES IN LONDON.

35 Barrels Plumbago.

"Vesta."—TWC, 2 barrels out at 36s.

"Portia."—15 in estate mark, 2 barrels out at 34s; 7 in estate mark, 2 out at 7s; 6 in estate mark, 2 out at 7s; 16 in estate mark, 2 out at 36s; 5 in estate mark, 4 out at 7s 6d; 8 in estate mark, 4 out at 10s 6d; 17 in estate mark, 2 out at 45s; 7 in estate mark, 2 out at 7s; 6 in estate mark, 2 out at 7s.

"Haison."—P, 11 barrels out at 36s.

LATEST PRICES.—Plumbago Lump, 27s to 51s per cwt. Chips, 14s to 26s per cwt. Dust, 2s 6d to 13s per cwt.

CEYLON RUBBER SALES IN LONDON. LONDON.

LATEST PRICES.—Ceylon Para Seed fine biscuits 4s 2d to 4s 6d. Ceylon Ceara Seed clean scrap 2s 9d to 3s 5d.

CEYLON COCONUTS SALES IN LONDON.

CEYLON COCONUTS.—£28 to £28 10s per ton, market quiet. Sellers C.I.F. firm and ask £26 5s C.I.F. Spot Cochin is £35 and C.I.F. £27 5s to £28 5s, according to position buyers require.

CEYLON COTTON SALES IN LONDON.

CEYLON COTTON—should be grown from Egyptian Seed or Texas or Tinnivelly or Broach Seed and would fetch the price today of 4⅝ to 8⅝ per lb. on the spot. The demand is strong and about 200,000 bales should be grown as a trial.

No. 8. COLOMBO, FEBRUARY 25th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[20,395 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	20 ch	or pek	2000	45
	18 do	pek	1530	42
Southwards	12 ch	bro pek	1200	36
	13 do	pek	1053	35
Hornsey	12 hf ch	dust	1020	30
	16 do	bro pek fans	1120	33
Bunyan and Ovoca	50 hf ch	bro or pek	2750	50 bid
	45 do	or pek	2250	40 bid
	22 ch	pek	1980	38
	14 do	pek No 2	1330	44
	19 do	pek sou	1710	38
	21 hf ch	pek fans	1365	32

Messrs. Forbes & Walker.

[402,370 lb.]

	Pkgs.	Name.	lb.	c.
Choisy	26 ch	bro or pek	2730	47
	26 do	or pek	2210	38
	66 ch	pek	5940	35
Sirikandura	24 ch	bro pek	2400	38
	26 do	pek	2470	34
	23 do	pek sou	1955	34
Strathspey	11 ch	or pek	1056	45
	12 do	pek	1140	42
O B E C, in est mark Darrawella	24 ch	bro pek	2592	44
	46 do	pek	4232	38 bid
	21 do	pek sou	1680	35
Moray	23 hf ch	or pek	1035	44
	25 do	bro or pek	1375	52 bid
	14 ch	bro pek	1400	41
	29 do	pek	2523	39
Vincit	12 ch	pek	1080	33
Clarendon, Dimbula	35 hf ch	bro pek	2100	56 bid
	24 ch	pek	2088	45
	29 do	pek sou	2320	39
Mansfield	57 hf ch	bro pek	3420	51 bid
	14 ch	pek	1400	41
Amblakande	10 ch	bro pek	1000	41 bid
	25 do	pek	2125	34 bid
Cloyne	13 ch	bro or pek	1300	48
	12 do	bro pek	1224	41 bid
	18 do	or pek	1800	36 bid
	21 do	pek	1890	34 bid
Attampettia	20 ch	bro pek	2120	53 bid
	19 do	or pek	1710	43
	17 do	pek	1530	41
Y S P A	19 ch	pek	1900	34
	8 do	bro pek fans	1000	30
Queensland	11 ch	bro pek	1155	47
	12 do	pek	1020	42
Debatgama	*18 hf ch*	*young hyson*	1170	34 bid
	12 ch	*hyson*	1152	33
Chesterford	*23 ch*	*young hyson*	2185	36
	24 do	*hyson*	2160	33
	18 ch	*hyson No 2*	1530	34
Heragoda	11 ch	pek	1001	34
Vogan	28 ch	bro or pek	2800	47 bid
	45 do	or pek	4050	36
	58 do	pek	5220	34
	27 do	pek sou	2295	33
Penrhos	38 hf ch	bro or pek	2090	47
	28 do	or pek	1344	39
	51 ch	pek	4182	34
Halbarawa	11 ch	bro pek	1100	36
	13 do	pek	1155	33
	13 do	pek sou	1040	32
Walton	21 ch	bro pek	2100	38 bid
	12 do	or pek	1020	36
O B E C, est. mark Nillomally	40 ch	pek	3520	38
	15 do	or pek	1230	46
	12 do	bro pek	1200	47
Udaveria	21 hf ch	bro or pek	1260	61 bid
	46 do	bro or pe No 1	2668	60
	16 ch	or pek	1472	47
Harrow	26 hf ch	bro or pek	1560	63 bid
	19 ch	or pek	1900	46
	18 do	pek	1800	44
Mahawella Inv. No 1	16 ch	bro pek	1600	29 bid
	23 do	or pek	2185	36
	29 do	pek	2610	33 bid
	16 do	pek sou	1440	32 bid
Gonapitiya Inv. No 5	34 hf ch	or pek	1734	56
	23 do	bro pek	1403	59
	42 do	pek	2142	46
Good Hope Inv. No 2	26 ch	bro or pek	2600	39
	18 do	or pek	1620	35
	16 do	pek	1520	34
Nahalma	16 ch	or pek	1536	36
	10 do	bro pek	1000	37
	19 do	pek	1862	33 bid
	14 do	bro or pek	1400	39
C N N Inv. No A	12 ch	pek sou	1140	40
Deaculla Inv. No 33	19 hf ch	br or pek	1064	53
	23 do	or pek	1012	48
	49 ch	pek	3675	37
Devonford Inv. No 1	11 ch	pek	1045	51
Errolwood Invoice No 1	28 hf ch	bro or pek	1540	46 bid
	15 ch	pek	1350	35 bid
	18 do	pek sou	1710	33
Madulkelle	19 ch	pek No 1	1710	35 bid
	13 do	pek No 2	1040	33
Algooltenne Invoice No 15	20 hf ch	bro or pek	1000	48 bid
	15 ch	bro pek	1275	50
	20 do	or pek	1600	39
	31 do	pek	2635	36
Castlereagh	60 hf ch	bro or pek	3000	53 bid
	12 ch	bro pek	1200	41 bid
	14 do	pek	1120	42
	12 hf ch	fans	1020	29
High Forest	45 hf ch	or pek No 1	2160	51 bid
	61 do	bro pek	3177	50
	66 do	or pek	3300	45
Maha Uva	18 hf ch	bro or pek	1080	42
	10 ch	or pek	1000	41 bid
	17 do	pek	1530	38
	14 do	pek sou	1050	35
Dunkeld	47 hf ch	bro or pek	2679	49
	14 ch	or pek	1260	38 bid
	18 do	pek	1620	40
Killarney	20 hf ch	bro or pek	1200	58 bid
	35 do	bro pek	2030	48
	15 ch	or pek	1275	44
	20 do	pek	1700	43
Inverness	35 ch	bro or pek	3500	55 bid
	28 do	or pek	2520	53
	33 do	pek	2805	48
Bandarapolla	40 hf ch	bro or pek No 1	2030	39
	45 do	bro or pek No 2	2160	37
	43 do	bro pek	1973	36
	26 do	pek	1118	34
Ireby	49 hf ch	bro pek	2940	57
	27 ch	pek	2295	47
Waldemar	25 hf ch	bro or pek	1550	60
	16 do	bro or pek	1008	57 bid
	31 hf ch	bro pek	1891	45 bid
	16 do	or pek	1520	44
	11 do	pek	1012	42
Karawkettia	15 ch	bro pek	1500	32
	10 do	pek	1039	30
Yatiana	18 ch	or pek	1890	33
Batatwele	12 ch	bro pek	1200	34
	12 do	pek	1200	33
O B E C in est mark Sindumallay	11 ch	br or pek No 2	1210	43
	12 do	or pek	1200	43
	36 do	pek	3240	43
	20	pek sou	500	38
Marlborough	42 hf ch	bro or pek	2352	52 bid
	23 ch	bro pek	2300	44
	36 do	pek	3456	41
Kirrimettia	*38 ch*	*young hyson*	3420	36
	48 do	*hyson No 1*	4320	33
Amblangoda	13 ch	bro or pek	1300	47
	13 do	or pek	1300	38
Galapitakande	14 ch	or pek	1400	39 bid
	20 do	bro pek	2000	42
	21 do	pek	1890	36
Wiltshire	13 ch	pek sou	1040	31 bid
Preston	48 hf ch	bro or pek	2722	54
	12 ch	pek	1008	46
B D W	10 ch	bro or pek	1100	35
Monswood	24 hf ch	bro or pek	1440	67 bid
	50 do	or pek	2500	53
	42 ch	pek	3990	45 bid
Pine Hill	18 ch	pek	1620	35

	Pkgs.		Name.	lb.	c.
Aberdeen	21	ch	pek	1680	34
Bowlana	36	ch	bro or pek	3780	43 bid
	34	do	pek	3060	34 bid
	26	do	or pek	2340	33 bid
Glaslyn	24	hf ch	bro pek	1200	33 bid
Bellongalla	14	ch	pek	1190	33
Aberdeen	12	ch	bro pek No 1	1044	39
	13	do	bro pek No 2	1287	37
	17	do	or pek	1360	37
	33	do	pek	2541	33 bid
Bandara Eliya	28	hf ch	br or pek No 2	1380	44
	47	hf ch	pek	2350	40 bid
Beverley	23	hf ch	bro pek	1311	38
	20	do	pek	1040	35
	18	do	bro or pek	1080	48
	33	do	or pek	1980	38
	40	do	pek	2080	35
K P W	33	hf ch	bro or pek	1980	39
	30	do	bro pek	1500	39
	36	do	pek	1800	35
Digdola	10	ch	bro or pek	1000	39
	11	do	bro pek	1045	38
	22	do	pek	1760	34
Rickarton	10	ch	bro or pek	1000	50 bid
Dunbar	33	hf ch	bro pek	1980	46 bid
Harrow	18	ch	bro or pek	1080	51 bid
Palmerston	18	hf ch	bro or pek	1080	61 bid
	25	ch	bro or pek	1497	61 bid
	17	do	pek	1445	49
Slinford	10	ch	bro or pek	1047	45 bid
Kurnagoda	24	ch	bro or pek	2157	withd'n

Messrs. Keell and Waldock.

[99,966 lb.]

	Pkgs.		Name.	lb.	c.
B Talawa in est mark	12	ch	br or pek	1200	46 bid
	15	do	pek	1350	36
Gonagalella	18	ch	bro or pek	1800	40 bid
	12	do	pek	1080	34 bid
Maldeniya	21	ch	bro or pek	2205	39
	23	do	or pek	2300	35 bid
	43	do	pek	3870	33 bid
	17	do	pek sou	1445	32
Hangranoya	27	ch	bro pek	2700	38
	19	do	pek	1520	36
Katugastota	13	ch	bro pek	1365	39
	24	do	pek	1920	33 bid
Aigburth	21	hf ch	bro or pek	1092	47
	11	ch	or pek	1045	39 bid
	34	do	pek	2720	34
Cottesbrooke	31	hf ch	bro or pek	1705	39 bid
	26	ch	pek	2340	36
A O S	12	hf ch	dust	1080	19 bid
M N	15	ch	pek sou	1065	25
M	16	hf ch	bro pek fans	1040	28
	20	do	br pek dust	1800	26
Dunnottar	29	hf ch	bro or pek	1450	47
	22	do	bro pek	1210	38
Alpha	24	hf ch	bro pek	1320	38
Gampai	33	hf ch	or pek	1551	35 bid
	48	ch	bro or pek	2592	38 bid
	30	do	pek	2400	34
	25	do	pek sou	1900	33 bid
A R Y	46	ch	or pek	3680	out
	36	do	bro pek	3528	29 bid
	36	do	pek	3312	29 bid
R L M	54	ch	pek sou	4860	32 bid
M I in est mark	*11*	*ch*	*hyson*	1110	9 bid
Hurstpierpoint	30	ch	bro tea	3000	18 bid
Uprassoya	8	ch	dust	1200	27
Brixworth	18	ch	br or pek	1800	39 bid
	15	do	pek sou	1350	33 bid
	12	do	bro or pek	1200	39 bid
Tillington	28	hf ch	bro pek	1400	38 bid
	31	ch	pek	2635	33

Messrs. Somerville & Co.

[226,504 lb.]

	Pkgs.		Name.	lb.	c.
S F K	12	ch	pek	1200	40
Meeriatenne	23	hf ch	pek	1058	37
Mossville	20	hf ch	dust	1700	withd'n
Glenalmond	13	ch	bro pek	1300	41 bid
	14	do	pek	1260	35
Jak Tree Hill	33	ch	bro pek	3160	37 bid
	21	do	pek	2044	34 bid
Heragalla	11	ch	pek	1001	33 bid
Ossington	10	ch	bro pek	1000	36
	25	do	pek	2250	33
	15	do	pek sou	1200	32

	Pkgs.		Name.	lb.	c.
Rothes	20	hf ch	bro pek	1240	46 bid
Grange Gardens	10	ch	bro or pek	1000	47 bid
	10	do	or pek	1000	39 bid
	14	do	pek	1330	35 bid
Karangalla	13	ch	bro pek	1365	39
	13	do	pek	1040	33 bid
Nyanza	12	ch	or pek	1020	39
	21	hf ch	bro or pek	1155	49
	20	ch	pek	1900	38
Columbia	23	hf ch	bro or pek	1380	49
	14	ch	or pek	1288	38 bid
	15	do	pek	1350	37
Ravenscraig	33	hf ch	bro or pek	1848	40 bid
	12	ch	pek	1080	35
Marieland	23	hf ch	bro or pek	1288	45
	53	ch	bro pek	5300	41
	31	do	pek	2728	34
Warakamure	20	ch	bro or pek	2000	37
	18	do	or pek	1440	34
	22	do	pek	1870	33
Welgampola	12	ch	bro or pek	1320	35
Harrangalla	12	ch	bro or pek	1080	39
	12	do	bro pek	1200	39
	53	do	pek	4240	35
	26	do	pek sou	2080	33
St Catherine	14	ch	pek	1263	34
Ambalawa	13	ch	or pek	1105	36
Mahatenne	15	ch	bro or pek	1500	39 bid
	16	do	pek	1520	34
Gallawatte	*22*	*ch*	*young hyson*	1914	33 bid
	15	*do*	*hyson No 1*	1200	33 bid
Cooroondoowatte	11	ch	bro pek	1000	41
	17	do	pek	1700	34
	10	do	pek sou	1000	33
Mount Temple	14	ch	bro pek	1400	36
	16	do	pek	1312	34
	17	do	br or pek fans	1700	32
Elchico	12	ch	bro or pek	1200	41
	11	do	or pek	1045	35
	15	do	pek	1425	34
	12	do	pek sou	1080	33
	14	hf ch	bro or pek fans	1050	28 bid
New Valley	40	ch	bro or pek	4000	44 bid
	22	do	or pek	2090	43
	30	do	pek	2850	38
Monte Christo	20	ch	bro pek	2000	50
	22	do	pek	1980	40
Maragalla	17	ch	bro pek	1700	39 bid
Annandale	22	hf ch	bro or pek	1320	58 bid
	18	do	or pek	1368	45
	22	do	pek (A)	1210	42
	24	do	pek	1344	41
Walla Valley	37	hf ch	bro or pek	2035	51 bid
	18	ch	or pek	1620	53
	37	do	pek	3330	47
Citrus	*17*	*ch*	*young hyson*	1530	34
	17	*do*	*hyson*	1530	30 bid
Monrovia	21	ch	bro pek	2100	36
	16	do	pek	1440	34
Highfields	42	hf ch	bro or pek	2352	39 bid
	33	do	or pek	1617	37
	52	do	pek	2600	35
Farnham	*13*	*ch*	*hyson*	1157	33 bid
Gallawatte	*21*	*ch*	*young hyson*	1887	withd'n
Havilland	*24*	*ch*	*young hyson*	2400	37 bid
	20	*do*	*hyson No 1*	1800	34 bid
I P	12	hf ch	dust	1080	28
Ferndale	10	ch	bro or pek	1000	48
	16	do	pek	1440	36
Yabalatenne	25	ch	bro pek	2500	44
	15	do	pek	1350	40
Deniyaya	28	ch	bro pek	2800	41
	15	do	pek	1425	34 bid
	14	do	pek sou	1260	33
	28	do	bro pek	2800	40
	24	do	pek	2280	34 bid
Ellerslie	43	hf ch	bro or pek	2362	41 bid
	17	ch	or pek	1442	38 bid
Manangoda	13	ch	pek	1235	out
Agra Elbedde	36	hf ch	or pek	2018	41 bid
Avisawella	23	hf ch	bro or pek	1150	46
	18	ch	or pek	1710	37
	24	do	pek	2160	34
	18	do	pek sou	1440	32 bid
Rahatungoda	22	hf ch	bro or pek	1232	52
	12	ch	or pek	1188	39
	13	do	pek	1222	37
Scarborough	20	hf ch	bro or pek	1120	58 bid
	16	ch	or pek	1520	45
	20	do	pek	1960	40
W L	17	ch	bro pek	1700	28 bid
	12	do	pek	1200	20 bid
	14	do	bro tea	1190	out
	14	hf ch	pek dust	1260	out
Paradise	16	ch	bro pek	1680	36

Messrs. E. John & Co.

[313,057 lb.]

	Pkgs.	Name.	lb.	c.
Hiltoon	10 ch	bro or pek	1000	35 bid
Stubton	12 ch	bro pek	1200	38
M B, in est. mark	18 ch	sou No 1	1530	out
Kelaneiya & Breamar	19 ch	bro or pek	1900	50 bid
	14 do	bro pek	1400	41
	30 do	pek	2800	37 bid
Killin	*23 hf ch*	*young hyson*	1150	37 bid
	18 ch	*hyson*	1530	33
Kandahar	20 hf ch	bro or pek	1120	49
	23 do	or pek	1219	41
Natuwakelle	13 ch	bro or pek	1300	44
	21 do	or pek	1890	39
	20 do	pek	1800	35
Mossend	17 hf ch	bro or pek	1020	56 bid
	37 do	or pek	2035	45 bid
	25 do	pek	1750	43 bid
St. John's	30 hf ch	bro or pek	1740	52 bid
	20 ch	or pek	1810	45 bid
	20 do	pek	1900	41 bid
Acrawatte	20 hf ch	bro or pek	1000	49 bid
	15 ch	or pek	1275	38 bid
	11 do	bro pek	1045	39 bid
	21 do	pek	1680	36
Balado	12 ch	pek	1080	35
	12 do	pek sou	1020	33
Gansarapolla	26 hf ch	br or pek No 1	1456	40
	30 do	br or pek No 2	1680	39
	29 do	bro pek	1711	38
	26 do	pek	1300	37
Gangawatte	27 ch	bro or pek	2700	51 bid
	20 do	bro pek	2000	42 bid
	43 do	pek	3870	39
	18 hf ch	fans	1170	32
Kahagalla	19 hf ch	bro pek	1140	44 bid
Ratwatte	32 ch	bro pek	3200	37
	15 do	pek	1350	34
Mocha	28 hf ch	bro or pek	1680	58 bid
	20 ch	or pek	1900	50
	22 do	pek	2200	46
Glentilt	57 hf ch	bro or pek	3135	55 bid
	30 ch	or pek	2760	47
	29 do	pek	2610	45
Osborne	23 ch	pek	2070	40
	32 do	fly or pek	1600	44 bid
Coslanda	38 hf ch	bro pek	2280	47 bid
	26 ch	pek	2600	36
Devon	28 hf ch	bro or pek	1761	55 bid
	23 ch	or pek	2507	48
	12 do	pek	1044	44 bid
Bowella	23 hf ch	bro pek	1150	37
Tismoda	44 hf ch	bro pek	2200	39
	23 ch	pek	1810	35
Agra Ouvah	42 hf ch	bro or pek	2520	55
	27 do	or pek	1458	44
	13 ch	pek	1196	41
Ronduca	11 ch	bro or pek	1210	41 bid
	21 do	bro pek	2100	38 bid
	16 do	or pek	1600	38 bid
	20 do	pek	2000	36 bid
Arnhall	18 ch	bro pek	1800	43
	15 do	pek	1350	38
Mt. Vernon	24 ch	pek	2100	44
	28 do	pek	2520	44
Taunton	13 ch	pek sou	1010	33
Eladuwa	10 ch	bro pek	1100	38
	15 do	pek	1425	33
Yahalakelle	16 ch	unas	1520	28
	8 do	dust	1064	30
Elemane	27 ch	bro pek	2700	42 bid
	20 do	pek	1800	35 bid
F, in estate mark	16 ch	red leaf	1343	14 bid
Kandaloya	23 hf ch	bro pek	1150	37
	40 do	or pek	1600	39
	55 do	pek	2200	34 bid
	40 do	pek No 2	1600	33 bid
Theresia	12 ch	pek	1020	38 bid
Oonoogaloya	15 ch	or pek	1200	40 bid
	18 do	bro or pek	1710	51
	26 do	pek	2340	37
Elston	25 ch	pek sou	2125	33
Glassaugh	15 hf ch	bro or pek	1018	45 bid
Myraganga	18 ch	or pek	1620	39 bid
	34 hf ch	bro or pek No 1	1870	47
	50 do	bro or pek No 2	5000	41 bid
	16 do	pek	1360	37
Poilakande	18 ch	bro pek	1620	33
	15 do	pek	1200	32
Cocoawatte	19 ch	bro pek	1900	38 bid
	21 do	pek	2100	35
	11 do	pek sou	1100	33
Rondura	12 ch	bro pek	1200	40
	12 do	or pek	1200	37 bid
	17 do	pek	1700	36 bid
	12 do	pek sou	1200	33

	Pkgs.	Name.	lb.	c.
F S	34 ch	pek sou	2890	withd'n
Warleigh	18 hf ch	bro or pek	1008	64
	17 ch	or pek	1666	44
	33 do	pek	2805	40
Brownlow	26 hf ch	bro or pek	1456	51 bid
	18 ch	or pek	1656	40 bid
	25 do	pek	2175	41
Kehelwatte	62 ch	bro pek	5890	42
	51 do	pek	4845	35
	23 do	pek sou	2185	35
Longville	24 ch	bro pek	2400	39 bid
	14 do	pek	1400	35
Orwell	18 ch	or pek	1710	37
	18 do	pek	1620	34 bid
Elston	23 ch	pek	1955	36
	32 do	pek sou	2720	35
M L W	15 ch	bro pek	1500	38 bid
Tarawera	*65 ch*	*young hyson*	6500	36 bid
	51 do	*hyson*	4590	33 bid
	16 ch	*hyson No 2*	1440	33
	14 do	*hyson dust*	1120	12
Nahavilla	12 ch	or pek	1080	38 bid
	15 do	bro pek	1500	45 bid
	15 do	pek	1350	36
	13 do	pek sou	1040	34
Tarawera	*42 ch*	*young hyson*	4200	36 bid
	45 do	*hyson*	4275	33 bid
Glassaugh	25 hf ch	or pek	1425	62 bid
	22 do	bro or pek	1452	52 bid
	13 ch	pek	1365	52
Mahanilu	21 hf ch	bro or pek	1155	51 bid
	40 do	or pek	2000	45
	39 ch	pek	3510	36 bid
Sifton	21 ch	bro pek	1803	37
	56 do	pek	5037	33 bid
	15 do	pek sou	1350	withd'n
C M W	17 ch	bro pek	1530	36
P, in estate mark	22 ch	bro pek	2200	39 bid
Ottery	12 ch	bro or pek	1200	50
	23 do	pek	1955	40
M	26 hf ch	bro or pek	1456	52 bid
	12 ch	pek	1077	withd'n
Eversfield	19 ch	bro pek	1882	36
	15 do	pek	1479	33
Dotala	23 hf ch	bro or pek	1265	3518
	22 ch	pek	1980	bidbid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Southwark	2 ch	pek sou	152	33
Bunyan and Ovoca	11 hf ch	dust	935	28

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Now Galway	9 hf ch	bro pek	540	63 bid
	7 do	pek	385	47
Rockside	10 ch	pek sou	800	34
	4 do	bro pek fans	480	30
	3 do	dust	405	27
Sirikandure	1 ch	bro pek fans	85	32
	1 do	fans	95	27
	3 do	bro pek dust	417	30
Strathspey	4 ch	bro or pek	400	61
	6 do	bro pek	600	45
	1 do	dust	116	30
Eriacolla	*7 ch*	*young hyson*	665	37
	8 do	*hyson*	720	34
	1 do	*hyson No 2*	95	33
	1 hf ch	*siftings*	60	16
	1 do	*green dust*	80	9
Moray	9 ch	pek No 2	720	36
	7 do	dust	560	29
	2 do	bro or pek No 1	130	40
Vincit	6 ch	bro pek	600	37
	1 do	sou	90	32
	2 do	fans	230	28
Horagaskelle	6 hf ch	bro pek	378	36
	5 do	pek	286	35
	6 do	pek sou	546	32
Clarendon, Dimbula	1 ch	sou	80	36
	2 hf ch	pek dust	170	28
Mansfield	5 ch	pek sou	450	39
	5 hf ch	dust	450	29
Amblakande	9 ch	pek sou	720	32
C E	2 ch	bro Tea	228	26
	1 do	dust	122	23
Attampettia	4 ch	pek sou	332	36
Horence	10 ch	or pek	950	43 bid

	Pkgs.	Name.	lb.	c.
Y S P A	4 do	pek dust	580	26
Queensland	2 ch	bro pek No 2	210	35
Debatgama	*2 hf ch*	*hyson No 2*	132	30 bid
	8 do	*young hyson fans*	240	15
	1 do	dust	49	10
Chesterford	*2 ch*	*gunpowder*	160	33
	2 ch	fans	240	13
	1 do	dust	130	10
K	3 ch	unas	285	12
	1 hf ch	dust	47	10
Kelburne	4 hf ch	dust	320	27
Yoxford	3 hf ch	pek	157	44
Horagoda	2 ch	bro pek	216	40
	2 do	or pek	200	36
	4 do	pek sou	348	33
	1 hf ch	bro pek dust	32	25
Vogan	4 ch	pek fans	500	28
	8 hf ch	dust	640	28
Penrhos	2 do	pek sou	102	33
	7 do	fans	490	31
	1 do	pek dust	94	26
Halbarawa	2 ch	bro pek fans	216	28
	1 do	pek fans	92	31
	1 do	dust	63	26
Walton	10 ch	pek	850	34
	3 do	pek sou	210	32
	2 do	dust	200	26
Wewatte	9 ch	bro pek	594	37
	8 hf ch	pek	448	34
Lyegrove	7 ch	bro pek	700	41
	6 do	pek	540	40
	2 do	pek sou	160	36
O B E C, in est. mark Nillomally	4 ch	fans	400	34
	5 do	dust	475	29
Udaveria	8 ch	pek	680	42
	5 hf ch	bro or pek fans	350	35
	4 do	fans	320	29
C R S	5 ch	bro pek	425	32
	1 hf ch	dust	80	24
Kabragalla	3 do	dust	255	28
	4 do	pek fans	240	28
Mahawele Inv. No 1	7 hf ch	fans	385	30
	16 do	dust	800	29
Macaldeniya	7 do	bro or pek	399	44
	6 do	pek	336	36
	4 do	pek sou	220	34
	3 ch	fans	221	28
Good Hope Inv. No 2	11 ch	pek sou	990	33
	4 hf ch	fans	248	28
	3 ch	pek sou No 2	258	31
	1 hf ch	bro pek fans	75	34
	4 do	dust	360	27
N P Inv. No 7	1 ch	bro mix	100	20
Nahala	9 do	fans	882	27
	5 hf ch	dust	400	26
Ookoowatte	2 ch	pek fans	240	28
	2 do	pek sou	160	32
	2 hf ch	dust	200	24
Deaculla Inv. No 33	8 do	dust	640	27
Devonford Inv. No 1	10 ch	bro or pek	570	73
	7 do	or pek	616	53
	4 do	pek sou	308	41
Errolwood Inv. No 1	7 ch	or pek	665	out
Madulkelle	3 do	fans	300	28
	1 do	dust	100	24
Castlereagh	10 ch	or pek	800	41
Killarney	4 hf ch	fans	300	28
St Martins	7 do	bro or pek	280	38
	8 do	or pek	320	37
	14 do	pek	560	34
	2 do	pek sou	80	32
	3 do	fans	180	29
Ireby	9 ch	pek sou	765	42
	4 hf ch	fans	280	34
	6 do	dust	510	30
Mabopitiya	*6 ch*	*young hyson*	642	38
	6 do	*hyson*	552	34
	2 do	*hyson No 2*	184	34
V O A	5 ch	dust	450	26
	3 do	bro tea	360	22
Yatiana	2 ch	bro pek	200	32
	3 do	pek	309	31
Batakele	3 ch	pek sou	300	30
	3 do	bro pek fans	295	28
	1 do	bro mix	100	23
	1 do	bro pek dust	145	22
Marlborough	1 ch	pek fans	100	26
Asgeria	1 ch	bro tea	105	28
	1 do	dust	165	27
Kirrimettia	*10 ch*	*hyson No 2*	850	33
	10 hf ch	*siftings*	700	15

	Pkgs.	Name.	lb.	c.
Amblangoda	11 ch	pek	990	34
	5 do	pek sou	425	33
	1 do	fans	100	30
	1 do	dust	110	26
Galapitakande	7 ch	pek sou	665	34
	7 do	bro pek No 1	665	52
	5 hf ch	dust	425	28
Wiltshire	8 ch	bro pek	800	38
	9 do	pek	720	33 bid
Memorakande	11 hf ch	fans	880	28
	2 do	dust	200	26
Poengalla	3 hf ch	fans	225	31
	2 do	dust	180	27
Augusta	2 ch	fans	260	27
	2 hf ch	dust	200	18
Preston	13 hf ch	or pek	624	51
	6 do	fans	408	37
	2 do	unassorted	106	32
T C L	2 ch	fans	200	26
	4 do	dust	280	28
	2 hf ch	pek dust	140	28
C T L	4 ch	dust	500	26
Agra Oya	5 hf ch	bro or pek	272	58
Bandara Eliya	9 hf ch	dust	717	26
Ambragalla	12 hf ch	or pek	564	37
	18 do	bro or pek	972	40
	10 ch	pek sou	800	33
	8 do	pek sou	624	32
	2 do	dust	150	28
Monkswood	7 ch	pek sou	560	42
	7 hf ch	fans	490	38
	3 do	dust	270	31
Bowlana	12 ch	pek sou	960	32
	6 hf ch	fans	420	29
	7 do	dust	560	27
Dehiowita	3 ch	dust	450	27
H G M	5 ch	bro pek	475	33 bid
R	2 ch	dust	240	27
Bellongalla	3 ch	or pek	270	38
	5 do	bro pek fans	550	28
	8 do	bro pek	800	32
Bandara Eliya	10 hf ch	bro or pek No 1	520	52
Beverley	5 hf ch	pek sou	250	32
	4 do	bro or pek fans	280	33
	4 do	dust	360	27
	5 do	pek sou	250	32
	5 do	dust	450	26
	6 do	bro or pek fans	420	32
C T L	1 ch	fans	125	25
Ambanpitiya	1 ch	dust	165	24
K P W	13 hf ch	or pek	585	36
	10 do	pek sou	500	32
	3 do	pek fans	225	30
	2 do	dust	180	28
Digdela	12 ch	pek sou	900	32
D D, in est mark	*5 hf ch*	*young hyson*	250	36
	10 do	*hyson No 1*	500	33
	3 do	*hyson No 2*	135	33
El Teb	1 ch	pek sou	90	32
	6 do	dust	480	26
L, in estate mark Anglawatte	3 ch	bro pek dust	278	29

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
M	9 hf ch	dust	756	17 bid
Hiltoon	4 ch	pek	384	33
	1 do	bro pek	93	34
	1 do	pek dust	134	26
Stubton	5 ch	pek	500	34
	4 do	pek sou	400	33
	1 do	pek dust	150	22
M B, in estate mark	4 ch	fans No 1	400	14
Kelaneiya & Braemar	8 ch	pek sou	760	35
	9 do	fans	900	34
	6 hf ch	dust	480	28
Killin	*4 ch*	*hyson*	340	32
	3 do	*siftings*	300	10
Natuwakelle	10 ch	pek sou	900	34
	2 do	dust	200	28
Mossend	5 hf ch	pek sou	250	41
	4 do	bro or pek fans	240	32
Balado	11 hf ch	dust	880	28
Lynford	7 ch	bro pek	735	38
	4 do	pek	380	36
Stonyhurst	9 ch	pek fans	585	35
	5 do	pek sou	430	35
	4 hf ch	dust	300	28
Gangawatte	11 ch	pek sou	990	37
	4 do	sou	360	34
	5 hf ch	dust	425	28
Kahagalla	6 ch	pek	570	38
	7 do	pek sou	630	36
	2 hf ch	dust	168	29

	Pkgs.	Name.	lb	c.
Batwatte	4 ch	pek sou	320	33
	4 hf ch	dust	320	26
Mocha	9 hf ch	fans	720	33
Bambragalla	7 hf ch	bro or pek	420	45
	8 do	or pek	400	38
	7 do	pek	3 0	35
	4 do	pek sou	2,0	33
Gonavy	6 ch	pek sou No 1	408	35
	4 do	pek sou No 2	320	34
	5 hf ch	fans	310	36
	2 do	dust	172	28
Coslanda	5 ch	pek sou	500	34
	2 do	fans	212	29
	2 hf ch	dust	180	28
Bowella	4 ch			
	1 hf ch	pek	390	34
	3 do	dust	225	28
B	4 bags	fluff	355	6
Tismoda	19 hf ch	bro or pek	950	40
	5 ch	pek sou	450	33
	3 hf ch	fans	204	29
	2 do	dust	160	26
G	1 bag	fluff	93	6
Harrisland	9 hf ch	bro or pek	486	49
	5 do	or pek	230	40
	10 ch	pek	800	35
	2 hf ch	fans	140	31
	1 do	pek dust	80	25
Rondura	1 ch	fans	115	30
	2 do	dust	340	27
Arnhall	1 ch	pek sou	100	33
	3 hf ch	dust	240	28
A	2 hf ch	unas	104	35
Taunton	2 ch	fans	240	26
	5 hf ch	dust	450	25
Eladuwa	8 ch	pek sou	760	33
Yahalakelle	5 ch	bro pek fans	525	33
O F E	6 ch	bro or pek	600	42
	6 do	bro pek	600	36
	6 do	pek	600	35
	6 do	pek sou	600	34
	6 do	sou	600	32
	1 do	bro or pek fans	80	30
Elemane	9 ch	pek sou	810	34
	3 do	fans	300	30
F, in estate mark	1 ch	pek	80	31
	2 do	pek No 2	173	20 bid
	6 bags	sweeping	400	7 bid
Kandaloya	6 hf ch	bro or pek	300	51
	11 do	pek sou	440	33
	14 do	fans	700	18 bid
	12 do	dust	600	28
Theresia	12 hf ch	bro pek	720	43 bid
Oonoogaloya	4 hf ch	dust	340	27
Myraganga	8 ch	pek sou	600	34
	3 do	bro mix	240	31
	2 do	dust	250	28
	5 do	pek sou	700	31
Poilakande	9 ch	bro or pek	810	36
Coc.awatte	3 ch	fans	300	25
Rondura	1 ch	fans	120	28
	2 do	dust	340	28
D H	1 box	or pek	23	39
Warleigh	8 hf ch	fans	504	34
Kehelwatte	8 hf ch	dust	680	28
	3 ch	fans	330	31
Longville	6 ch	pek sou	600	33
Orwell	17 hf ch	bro or pek	952	43
	14 do	pek fans	980	29
M L W	7 ch	pek	595	34
	6 do	pek sou	450	33
	1 hf ch	dust	62	24
	3 do	fans	210	29
Orwell	11 ch	pek	915	35
Tarawera	*7 ch*	*hyson No 2*	665	32 bid
	12 hf ch	*hyson dust*	960	12
Mahanilu	3 hf ch	dust	228	27
	6 do	bro pek fans	408	33
Sefton	5 hf ch	dust	300	28
Ottery	6 ch	or pek	480	40
	8 hf ch	dust	640	29
Eversfield	4 ch	pek sou	393	32
	1 do	congou	100	27
	1 do	dust	85	27

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Hurst	5 ch	pek	500	34 bid
	1 do	pek sou	100	32
Maldeniya	4 ch	dust	600	27
Katugastota	7 ch	or pek	630	36
	8 do	pek sou	600	32
	2 do	sou	152	30
	2 hf ch	dust	100	26

	Pkgs.	Name.	lb.	c.
Kurugalla	9 ch	bro mix	885	19
Gallanda	2 ch	pek sou	146	27 bid
	5 do	sou	555	21
	5 do	bro pek fans	630	28
	4 do	pek fans	672	25
	4 do	fans	367	20 bid
A O S	7 ch	pek sou	595	27 bid
	6 hf ch	bro pek fans	390	23 bid
	3 ch	sou	240	27
M N	5 ch	sou	285	19
M	8 ch	bro pek	800	31
	4 ch			
	1 hf ch	pekoe	450	80 bid
Dunnottar	3 ch	bro pek No 2	300	37
	5 do	pek No 2	450	33
	2 hf ch	bro or pek fans	150	33
Alpha	12 ch	pek	960	35
	6 do	pek sou	480	33
	2 hf ch	fans	150	26
	1 do	dust	95	25
Gampai	3 ch	dust	315	27
J in est mark	11 hf ch	dust	770	25
S in est mark	9 hf ch	dust	180	out
K in est mark	7 hf ch	bro or pek fans	490	23
L in est mark	9 hf ch	bro or pek fans	783	14 bid
R in est mark	*2 ch*	*hyson*	212	22 bid
A	3 ch	dust	300	8 bid
X	3 ch	dust	300	8 bid
R M in est mark	*1 ch*	*young hyson*	94	out
O O R in est mark	1 ch			
	1 hf ch	bro or pek	140	34
	1 do	or pek	42	38
	1 ch	pek	62	32
	1 do	pek sou	70	32
	2 hf ch	dust	174	25
D in est mark	2 ch	dust	200	18 bid
L V in est mark	3 ch	dust	300	8 bid
Uprassoya	5 ch	bro or pek	575	33
	7 do	flo or pek	700	36
	3 do	bro pek	276	35
	8 do	or pek	800	35
	2 do	pek	204	33
	1 do	pek sou	97	32
A	*1 ch*			
	1 hf ch	*young hyson*	156	15 bid
	2 ch	*hyson*	176	23 bid
	2 do	*hyson No 2*	124	15 bid
Tillington	6 ch	pek sou	480	28
	2 hf ch	fans	150	27
	1 do	dust	90	25
Tillington A	2 hf ch	bro or pek	100	50
	11 hf ch	bro pek	605	38
	4 ch	pek	340	34
	1 do	pek sou	85	33
	1 do	sou	100	32
	3 hf ch	fans	210	27
	2 do	dust	160	26
	2 ch	red leaf	154	20

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
S R K	2 ch	dust	320	28
Meeriatenne	12 hf ch	bro pek	648	50
	3 do	pek No 1	120	39
	5 do	pek sou	200	34
[illegible]	2 ch	pek sou	180	33
	1 do	fans	100	29
	2 hf ch	dust	160	28
Jak Tree Hill	3 ch	pek sou	270	32 bid
	1 do	fans	115	27 bid
	2 do	dust	300	27
Horagalla	4 ch	bro or pek	462	39
	3 do	or pek	300	36
	3 do	pek sou	261	32
Rothes	9 ch	pek	900	33
	1 hf ch	dust	85	26
Karrangalla	5 ch	pek sou	450	32
	2 hf ch	dust	160	29
Kallebokka	10 ch	or pek	800	33 bid
Nyanza	3 ch	pek sou	270	35
	3 do	fans	210	32
	1 hf ch	dust	90	28
St. Leys	2 ch	pek sou	196	33
	2 do	sou No. 2	198	25
	2 do	dust	162	23
Labuduwa	9 ch	bro pek	900	36
	5 do	pek	500	32
	11 ch	pek sou	990	32
Ravenscraig	2 hf ch	dust	168	27
Marieland	6 hf ch	or pek	300	39
	8 ch	pek sou	720	32
	2 do	dust	300	28
Warakamure	8 ch	pek sou	640	31
	1 hf ch	dust	90	24

	Pkgs.		Name.	lb.	c.
Welgampola	9	ch	pek	990	33
	7	do	pek sou	700	32
	1	do	dust	140	24
	1	do	congou	91	30
Harrangalla	2	hf ch	dust	164	28
	4	ch	bro pek fans	400	29
St. Cathcrine	9	ch	bro or pek	903	42
	8	do	or pek	723	38
	2	hf ch	fans	133	28
Ambalawa	7	ch	bro pek	700	35
	7	do	bro or pek	700	37
San Cio	4	ch	sou	360	32
Mahatenne	5	ch	or pek	475	36
	1	do	dust	140	26
	1	do	fans	105	28
Gallawatte	*3*	*ch*	*hyson No 2*	285	28
Cooroondoowatte	3	ch	fans	390	30
Mount Temple	5	ch	sou	350	30
New Valley	7	do	pek sou	630	36
	1	ch	pek. No 2	100	35
	2	hf ch	dust	180	29
Marragalla	10	ch	or pek	850	36
	8	ch	pek	680	35
	3	do	pek sou	210	32
	2	do	dust	200	26
Annandale	2	hf ch	pek sou	152	37
	7	do	bro pek fans	462	35
	5	do	dust	425	28
P T N in est mark	13	hf ch	bro pek	728	29
	6	do	pek sou	336	27
	1	do	pek dust	86	22
A	2	hf ch	dust	160	28
	9	do	souchong	450	27
Citrus	*5*	*ch*	*hyson No 2*	593	30
	4	*do*	*hyson fans*	383	15
	1	*do*	*hyson dust*	140	12
	1	*do*	*hyson No 3*	90	12
Monrovia	5	ch	pek sou	425	31
	7	do	pek fans	630	28
	1	do	pek dust	151	26
Torbay	13	hf ch	pek sou	520	32
	9	do	bro or pek fans	621	33
	8	do	fans	560	31
	3	do	dust	270	27
Farnham	*1*	*ch*	*unasst young hyson*	89	30
	6	*do*	*hyson No 2*	537	30
Gallawatte	*10*	*ch*	*hyson No 1*	847	32
	2	*do*	*hyson No 2*	187	30
Havilland	*7*	*ch*	*hyson No 2*	630	33
	5	*do*	*siftings*	500	14
S	5	hf ch	dust	400	28
	15	do	souchong	750	28
N P	10	ch	bro pek	900	37
	9	do	pek	675	33
	3	hf ch	fans	195	28
Oaklands	9	ch	pek sou	675	32
	5	hf ch	bro or pek fans	350	29
	1	do	dust	90	27
I P	8	ch	pek sou	640	34
Hegalle	10	hf ch	bro pek	630	37
	14	do	pek	714	32
	9	do	pek sou	486	30
Deniyaya	9	ch	souchong	810	32
	3	do	pek fans	300	28
Gampolawatte	2	ch	bro pek	200	39
	2	do	or pek	190	39
	2	do	pek No 1	180	36
	2	do	pek sou	180	33
	2	hf ch	dust	160	28
	1	do	fans	60	28
	3	ch	pek No 2	270	36
	3	do	bro or pek	300	39
R in est mark	2	hf ch	bro or pek	116	37
	1	ch			
	1	hf ch	pek	147	32
	1	ch	fans	117	22
	1	*hf ch*	*hyson*	30	22
D B R in est mark	1	ch	bro pek	87	35
	1	do	pek	84	32
	1	hf ch	pek sou	67	31
	1	do	dust	99	26
Dikbedde	5	ch	bro pek	503	38
	9	do	pek	899	31
	1	do	sou	100	28
	2	do	fans	227	25
	1	do	red leaf	100	19
Manangoda	8	ch	bro pek	800	32
	4	do	sou	407	28
	4	do	fans	360	19 bid
	2	do	dust	249	22
	5	do	unasst	450	12 bid
Avisawella	6	hf ch	fans	420	28
Scarborough	5	hf ch	fans	425	26
	8	do	bro or pek fans	544	34
W L	12	hf ch	bro or pek	600	30
	5	do	dust	450	20
	2	ch	unasst	200	26

	Pkgs.		Name.	lb.	c.
Paradise	9	ch	pek	855	33
	7	do	pek sou	630	32
	2	do	fans	220	28
	2	do	dust	294	28

CEYLON COCOA SALES IN LONDON.

Mincing Lane, Feb. 6th.

"City of Madrid."—OBEC F in estate mark, Kondesalle Ceylon O, 252 bags withdrawn; ditto F 1, 82 bags sold at 53s 6d; ditto O 7 at 72s 6d; ditto 1, 4 at 55s 6d; ditto F, 19 at 50s; ditto G, 20 at 30s.

"Historian."—DMR D2 in estate mark London, 70 bags withdrawn; ditto 2, 26 bags withdrawn.

"Agamemnon."—KK in estate mark Palengemali Estate Cocoa, 66 bags sold at 52s; 1 KMA in estate mark, 96 bags withdrawn.

"Asia."—1 MAK in estate mark, 100 bags withdrawn.

"Wakasa Maru."—Udapolla A, 48 bags withdrawn; ditto G, 9 bags sold at 45s 6d; ditto B, 2 at 31s; ditto Pieces, 1 at 50s; ditto A, 8 at 30s 6d; ditto B, 1 at 18s.

"Lancashire."—Maria No. 1, 58 bags sold at 63s 6d; ditto No. 2, 15 at 48s 6d; ES Rajah Totum, 20 bags sold at 75s; 16 at 74s 6d; 15 at 60s.

"Warwickshire."—ES Rajah Totum, 16 bags withdrawn.

"Clan Cameron."—Katugastota, 158 bags withdrawn.

"Historian."—Maousava AA, 77 bags sold at 71s 6d; ditto A, 18 at 68s 6d; ditto C, 5 at 48s; Rockhill AA, 74 bags sold at 69s 6d; A, 2 at 47s; B, 8 bags withdrawn; C, 3 bags sold at 40s.

"City of Madrid."—Ingurugalle A, 82 bags sold at 66s; T, 5 at 44s; Asgeria A, 20 bags sold at 69s; 61 at 68s 6d.

"Wakasa Maru."—Ross No. 1, 29 bags withdrawn; No. 2, 10 bags sold at 55s; Lower Haloya, 38 bags withdrawn.

"Clan Cameron."—Kepitigalla, 65 bags withdrawn; 5 bags sold at 50s 6d; Coodogalla, 14 bags sold at 50s; 2 at 48s 6d; Betwoitb, 17 bags sold at 65s; 6 bags withdrawn; 3 bags sold at 51s; Old Haloya, 28 bags withdrawn; 2 bags sold at 51s; O H O, 10 bags withdrawn.

"Historian."—Bandarapola K, 16 bags withdrawn; ditto T, 2 bags withdrawn.

"City of Madrid."—Ukuwela A, 28 bags withdrawn.

"Cheshire." -Yattawatte 1, 67 bags withdrawn.

"Clan Cameron."—1 DB in estate mark, 128 bags withdrawn; 1 PB in estate mark Argamam, 111 bags sold at 52s.

"Glenartney."—M in estate mark London, 94 bags withdrawn.

"Dalmatia."—MAK in estate mark London, 133 bags withdrawn.

"Hitachi Maru."—AK in estate mark London, 135 bags withdrawn; RP London A Ceylon Cocoa, 2 bags withdrawn; RPB London Ceylon Cocoa, 4 bags withdrawn; RP ditto, 24 bags withdrawn.

"Duke of Westminster."—RP London 1 Ceylon Cocoa, 14 bags withdrawn; ditto 2, 17 bags withdrawn.

"Historian."—North Matale Ceylon Cocoa C 1, 35 bags withdrawn; ditto C 2, 38 bags withdrawn; Armagh London No. 1, 15 bags withdrawn; ditto No. 2, 4 bags withdrawn; ditto No. 3, 2 bags sold at 46s 6d; ditto T, 3 bags sold at 42s 6d.

"Japan."—Pondappe London No. 1, 20 bags sold at 64s 6d; ditto No. 2, 5 at 51s; 1 at 47s; ditto No. 3, 6 at 43s 6d; ditto T, 3 at 42s 6d.

"Wakasa Maru."—Maryland London No. 1, 8 bags sold at 67s 6d; 2 at 52s 6d; ditto 2, 1 at 50s; ditto T, 2 at 44s.

"Bavaria."—North Matale Ceylon Cocoa E, 82 bags withdrawn.

"Clan Cameron."—1 MAK in estate mark Estate Cocoa, 121 bags sold at 52s; 1 MM in estate mark, 121 bags withdrawn.

"Japan."—1 KA in estate mark, 80 bags withdrawn.

"Wakasa Maru."—1 MM in estate mark, 112 bags withdrawn.

"Asia."—Wiharagama 1, 65 bags withdrawn; ditto T, 10 bags sold at 50s.

"Craftsman."—Polwatta A, 30 bags withdrawn.
"City of Madrid."—Marakona, 110 bags withdrawn; 8 bags sold at 49s; Yellangowry A, 20 bags sold at 67s 6d; A, 10 at 67s; B, 13 at 50s 6d.
"Japan."—Kotuagoda No. 1, 20 bags sold at 67s; 14 at 66s 6d.
"Lancashire."—Batagolla A, 32 bags withdrawn; B, 44 bags withdrawn; C, 10 bags sold at 48s.
"Clan Cameron."—Marakona, 100 bags withdrawn; Glenury No. 1, 20 bags sold at 69s; 8 at 68s; No. 2, 2 at 33s; B, 1 at 39s.

CEYLON CARDAMONS SALES IN LONDON.

"Glenartney."—Wariagalla Mysore A, 7 cases sold at 1s 7d; ditto B, 4 at 1s 1d; ditto C, 1 at 1s; ditto D, 5 at 1s.
"Inaba Maru."—Knuckles Group A, 2 cases sold at 1s 7d; ditto B, 16 at 1s 7d; ditto C, 2 at 1s; ditto D, 4 at 1s; ditto E, 2 at 1s.
"Yeoman."—Knuckles Group E, 2 cases sold at 1s 2d.
"Glenartney."—Wattakelly Mysore A, 2 cases withdrawn; ditto B, 2 cases withdrawn; ditto C, 1 case sold at 11d; ditto D, 2 at 11½d.
"Clan Cameron."—Delpotonoya, 2 cases sold at 1s 11d; 3 at 1s 5d; 4 at 1s 1d; 1 at 11d; 2 at 1s 3d; 2 at 11d.
"Orotava."—Delpotonoya, 5 cases withdrawn.
"Lancashire."—Delpotonoya, 2 cases withdrawn.
"Duke of Argyle."—Delpotonoya, 2 cases withdrawn.
"Senator."—Kobo Mysore 3, 2 cases withdrawn.
"Statesman."—Elkaduwa B & S, 2 cases withdrawn.
"Ajax."—Duckwari A Splits, 1 case withdrawn.
"Clan McIntyre."—DSS, in estate mark, Malabar, 4 cases withdrawn.
"Ogilvy."—MLM, in estate mark, 8 cases withdrawn at 1s 2d.
"Clan Chisholm."—N, in estate mark D, 22 cases withdrawn at 1s.
"Java."—Kitgalle Malabar, 6 cases withdrawn at 1s.
"Duke of Devonshire."—Tella Mullai 3, 5 cases sold at 1s.
"City of Madrid."—P in estate mark, R Mysore 6 cases sold at 11d; 2 at 1s; ditto Seeds, 2 at 1s 3d.
"Popack."—Tella Mullai 3, 8 cases sold at 1s.
"Clan Fraser."—Winchfield Park A Splits, 1 case sold at 1s.
"Wakasa Maru."—MHJL, in estate mark, Mysore, 12 cases withdrawn; ditto 2, 8 cases withdrawn; ditto 3, 3 cases withdrawn; ditto 4, 1 case withdrawn, ditto Seeds, 1 case withdrawn.
"Clan Leslie."—M HJL in estate mark, Seeds 8 cases withdrawn.
"Hitachi Maru."—WDS, 20 cases withdrawn.
"Warwickshire."—Gammadua 3, 6 cases withdrawn at 1s 2d; ditto Seed 1 at 1s 4d
"Inaba Maru."—Winchfield Park B, 7 cases withdrawn at 1s 3d; ditto B 1, 2 cases sold at 11d.
"Agamemnon."—WDS Mysore 1, 4 cases withdrawn.
"Historian."—WDS Malabar, 17 cases sold at 1s 2d; ditto 4 cases withdrawn; ditto Seeds 5 cases withdrawn at 1s 5d; WDS Malabar, 15 cases withdrawn; ditto I, 3 cases withdrawn.
"Wakasa Maru."—WDS Malabar, 22 cases withdrawn; ditto Seed, 2 cases sold at 1s 2d.
"Duke of Westminster."—AL OO, 9 cases sold at 1s 10d.
"Peiho."—AL OO, 9 cases withdrawn.
"Ulysses."—AL 1, 5 cases withdrawn.
"Douro." AL 1, 5 cases withdrawn.
"City of Madrid."—OBEC Dangkande, in estate mark, 1, 15 cases withdrawn at 1s 8d; ditto 2, 14 cases sold at 1s; 6 at 11d; ditto Seed, 1 bag sold at 1s; OBEC Nilloomally in estate mark, Mysore O, 2 cases withdrawn; ditto 1, 5 cases withdrawn; ditto 2, 1 case sold at 1s; ditto 3, 1 at 1s; ditto B and S, 1 at 1s; ditto Seed, 1 bag sold at 1s.
"Java."—OBEC in estate mark, Nilloomally Mysore 1, 7 cases withdrawn at 1s 3d; ditto 2, 3 at 1s 3d; ditto Naranghena A, 2 cases sold at 1s 1d; 2 at 1s; ditto BB, 2 at 1s 1d.
"Asia."—Elkadua O, 5 cases withdrawn at 1s 7d; ditto 1 12 at 1s 2d; ditto 2, 2 cases sold at 11d; ditto B and S, 2 at 11d; ditto Seed, 1 at 1s 3d; ditto 2, 1 at 1s.
"Clan McLaren."—Elkadua O, 3 cases withdrawn at 1s 8d.
"Taotician."—Elkaduwa O, 3 cases withdrawn at 1s 9d.
"Cheshire."—Dromoland 3, 2 cases sold at 1s; 2 cases withdrawn; ditto Seed, 1 case sold at 1s 2d.
"Yorkshire."—Kobo Splits 2, 5 cases sold at 1s ditto Seed, 6 cases withdrawn at 1s 5d.
"Historian."—Midlands O, 5 cases withdrawn at 1s 9d; ditto 1, 4 at 1s 3d; ditto 2, 1 case sold at 11d; ditto B and S 1 at 11d; Seed, 1 at 1s 3d.
"Workman."—Midlands 1, 4 cases withdrawn at 1s 4d; ditto 2, 2 cases sold at 11½d; ditto 2, 1 at 11d.
"Wakasa Maru."—Upper Haloya Ex, 1 case sold at 2s 6d; ditto A, 2 at 1s; ditto B, 2 at 11d; ditto C, 1 at 11d; ditto D, 1 at 1s 3d.

CEYLON RUBBER.—No auction sales this week; but the market keeps quiet and lower. Fine Ceylon now 3s 11d to 4s.

CEYLON PLUMBAGO.—No public sales this week, tone quiet.

CEYLON COCONUT OIL—easier, C. I. F. done at £25 10s. Spot £28 to £28 15s.

CEYLON COFFEE.—The opinion is the heavy decline is over and the corner turned.

CEYLON COTTON—is badly wanted and would fetch 4 5-16d to 8½d per lb according to length of staple and quality. Tinnivelly fetches 4⅜d on spot for "*good*." As America is now apparently unable to properly feed Lancashire with Cotton, India should ship freely to Liverpool and London—2d to 3d per lb advance is talked of as likely.

OBSERVER PRINTING WORKS.

No. 9. COLOMBO, MARCH 4th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[20,778 lb.]

	Pkgs.	Name.	lb.	c.
Battalgalla	19 ch	or pek	1900	44
	18 do	pek	1530	40 bid
Wahagapittia	11 ch	bro or pek	1100	44 bid
	21 do	bro pek	2105	38
	19 do	pek	1615	36
Coodoogalla	32 hf ch	bro pek	1600	37
Hornsey	42 hf cb	bro pek	2520	49 bid
	12 ch	or pek	1080	45 bid
	26 do	pek	2470	41
Kenilstone	*13 ch*	*young hyson*	1300	33 bid
	13 do	*hyson*	1300	30 bid

Messrs. Keell and Waldock.

[64,332 lb.]

	Pkgs.	Name.	lb.	c.
Waduhena	50 hf ch	bro or pek	2750	38 bid
	14 ch	pek sou	1260	33
Glenfern	15 cb	bro pek	1575	38
	14 do	pek	1260	36
Minna	70 hf ch	bro pek	4200	42 bid
	28 ch	or pek	2660	41 bid
	46 do	pek	4140	39
Battalawatte	10 ch	bro or pek	1000	41 bid
	12 do	pek sou	1080	33
Orion	10 cb	bro pek	1000	38
	13 do	or pek	1170	39
	12 do	pek No. 1	1080	36
	12 do	pek sou	1020	35
	14 do	pek No. 2	1260	35
	14 do	bro or pek	1400	43
Woodend	37 ch	bro pek	3700	37
	37 do	pek	3330	34
	15 do	pek sou	1200	33
Taprobana	27 hf ch	bro or pek	1350	40
	17 ch	pek	1360	36
G K in est mark	17 hf ch	bro pek	1020	43 bid
M N	15 hf ch	dust	1320	26
N'Galla	13 cb	bro pek	1326	30 bid
	27 do	pek	2518	out
R L M	54 ch	pek sou	4857	29 bid
Gonagalella	18 ch	bro or pek	1797	41
	12 do	pek	1077	35
Shepperton	18 cb	bro or pek	1800	39 bid
	20 do	pek	1800	36

Messrs. Forbes & Walker.

[526,391 lb.]

	Pkgs.	Name.	lb.	c.
O B E C, in est mark Darrawella	27 hf ch	bro or pek	2072	52
	22 cb	or pek	1980	46
	28 do	pek	2716	40
	24 hf ch	fans	1848	34
Lindupatna	19 cb	bro or pek	2014	52
	27 do	or pek	2808	41
	19 do	pek	1767	40
Ardlaw and Wishford	13 ch	bro or pek	1430	61
	15 do	bro pek No 1	1650	48
	10 do	bro pek No 2	1000	44
	15 do	or pek	1350	48
	20 do	pek	1690	41
Kincora	22 cb	bro or pek	2200	49 bid
	16 do	or pek	1520	41
	24 do	pek	2160	38
A, in estate mark	34 ch	bro pek	3060	37 bid
	24 do	pek	1824	35 bid
K, in estate mark	21 ch	bro mix	2100	30
Putupaula	11 ch	bro or pek	1155	47 bid
	75 do	or pek	6375	36 bid
	64 do	pek	5120	34 bid
Glencorse	10 ch	bro pek	1050	40
	17 do	or pek	1530	41
	18 do	pek	1620	36
	17 do	pek sou	1360	33
Stamford Hill	21 hf ch	bro or pek	1218	57
	37 do	bro pek	2220	45
	40 do	or pek	2000	49
	34 cb	pek	2040	42

	Pkgs.	Name.	lb.	c.
Tembiligalla	30 ch	bro or pek	3300	38
	11 do	pek	1001	36
Templehurst	20 ch	bro pek	2000	50
Tonacombe	42 ch	or pek	3780	41
	46 ch	bro pek	4600	44
	75 do	pek	6375	38
	30 do	pek sou	2400	33
	13 do	dust	1105	29
Roeberry	10 ch	bro or pek	1100	53
	24 do	bro pek	2400	38
	26 do	pek	2548	36
Roeberry	18 cb	bro pek	1656	40
	20 do	pek	1800	37
	12 do	pek sou	1200	34
Kandaloya	*34 hf ch*	*hyson*	1360	35
Ponagalla	12 ch	or pek	1140	52
	26 do	bro pek	2933	54 bid
	14 do	pek	1288	45
Battawatte	23 hf ch	bro or pek	1488	42
	44 ch	bro pek	4391	49 bid
	27 do	pek	2693	37
	14 do	pek sou	1255	33
Hayes	21 ch	bro pek	2100	45
	40 do	pek	3800	33 bid
Lucky Land	31 hf ch	bro or pek	1860	41
	14 ch	bro pek	1360	46
	17 do	pek	1445	37
High Forest, Invoice No 1	25 hf ch	or pek No 1	1250	67
	35 do	bro pek	2015	56
	38 do	pek	1748	46
Gampaha	58 bf ch	bro or pek	3480	44
	28 ch	bro pek	2632	43 bid
	13 do	or pek	1248	45
	30 do	pek	2550	38
Massena	56 bf ch	bro or pek	2800	41 bid
	40 do	bro pek	2000	37 bid
	40 do	pek	1800	35
	24 do	pek sou	1200	34
	24 do	bro pek fans	1140	32
St. Vigeans	19 bf ch	bro or pek	1178	54
	16 ch	pek	1536	45
Letchemey	16 ch	pek sou	1344	32
High Forest	21 hf ch	or pek No 1	1050	51 bid
	22 do	bro pek	1298	49
	29 do	or pek	1479	47
	23 do	pek sou	1035	38
	51 do	pek dust	3927	33 bid
Seenagolla	23 hf ch	bro or pek	1380	52
	26 do	pek	1378	47
Dunkeld	54 hf ch	bro or pek	3078	49
	16 ch	or pek	1440	42
	21 do	pek	1890	39
B P C	19 bf ch	dust	1520	27
Yogama	*36 ch*	*young hyson*	3120	37
	54 do	*hyson*	4860	31
Florence	22 hf ch	bro or pek	1320	71
	20 ch	or pek	2000	52
	57 do	pek	4515	43
	24 hf ch	bro or pek fans	1680	41 bid
Kotagaloya	34 ch	bro pek	3400	36
	28 do	pek	2520	34
	15 do	pek sou	1350	32
Drayton	36 hf ch	or pek	1800	59
	39 ch	pek	3315	42
Moray	23 hf ch	or pek	1035	46
	25 do	bro or pek	1375	62
	24 ch	bro pek	2520	41 bid
	26 do	pek	2340	38
Rickarton, Invoice No 13	18 ch	or pek	1800	43
	15 do	pek	1500	38
Lagalla	32 ch	pek sou	2560	33
	19 do	bro pek fans	1900	30
	27 hf ch	dust	2160	2.
Cattaratenne	11 ch	bro pek fans	1100	31
	20 hf ch	dust	1600	27
Lebanon Group	24 ch	bro pek	2760	41
	27 do	pek	2295	37
	14 do	pek	1190	36
	29 do	pek sou	2165	34
St. Heliers	35 hf ch	bro or pek	199.	45
	11 ch	pek No 1	1078	39
Marlborough	38 hf ch	bro or pek	2128	49 bid
	19 ch	bro pek	1900	42 bid
	41 do	pek	4018	40
Panmure	28 bf ch	bro or pek	1540	50 bid
	43 do	or pek	2365	40 bid
	34 ch	pek	3060	36 bid
Court Lodge	9 cb	bro or pek	1026	55 bid

	Pkgs.		Name.	lb.	c.
O B E C, est. mark Forest Creek	17	ch	bro or pek	1734	60
	18	do	bro pek No 1	1872	45
	21	do	bro pek No 2	2142	44
	16	do	or pek	1440	45
	35	do	pek	3500	40
Dunbar	36	hf ch	bro pek	2160	46 bid
	17	ch	pek	1561	41
Avoca	13	ch	bro or pek	1378	54
	18	do	or pek	1872	44
	12	do	pek	1116	40
Munukettia Ceylon, in est mark	12	ch	or pek	1080	44
	33	bf ch	bro pek	1980	47
	23	ch	pek	1955	40
G K	19	bf ch	dust	1520	26
W N	26	hf ch	dust	2080	28
Robgill	27	ch	bro pek	2430	45 bid
	20	do	pek	1600	42
Nagagalla	25	bf ch	bro pek	1250	40 bid
	31	do	pek	1550	35
Penrhos	30	hf ch	bro or pek	1680	47
	22	do	or pek	1056	43
	18	ch	pek No 1	1476	36
	29	do	pek No 2	2407	35
Chesterford	*28*	*ch*	*young hyson*	2660	37
	34	*do*	*hyson*	3230	34
	22	do	*hyson No 2*	1760	34
Ellesmere	31	hf ch	bro or pek	1736	52 bid
	17	ch	bro pek	1615	45
	12	do	pek	1080	42
Moneragalande	*63*	*hf ch*	*young hyson*	3276	36 bid
	34	*ch*	*hyson*	2788	33 bid
Bandarapolla	43	bf ch	bro or pek	2365	38 bid
	42	do	br or pek No 2	2184	36
	43	do	bro pek	2150	34
	33	do	pek	1452	34
Tymawr	29	bf ch	or pek	1595	55
	25	do	or pek	1375	57
	17	do	bro or pek	1020	60
	36	do	pek	1980	47
	36	do	pek	1980	49
	16	do	fans	1050	38
Wella	36	bf ch	bro pek	1980	40
	22	do	pek	1012	36
Middleton	15	ch	bro pek	1500	56 bid
	15	do	or pek	1275	48
	16	do	pek	1360	47
	14	bf ch	dust	1120	29
North Cove	18	bf ch	bro or pek	1044	70
	46	do	bro pek	2760	53
	19	ch	pek	1710	43
Hanwella	*26*	*ch*	*young hyson*	2730	34 bid
	20	*do*	*hyson No 1*	2000	33
H G M	31	hf ch	bro or pek	1860	44
	18	ch	bro pek	1800	38 bid
	18	do	pek	1620	37
Nakiadenia	*25*	hf ch	*young hyson*	1500	42
	14	*ch*	*hyson*	1260	37
Tempo	14	ch	pek	1190	34
	10	do	bro pek fans	1000	34
A G	13	ch	pek	1105	34
N'Pitiya	35	hf ch	fans	2625	28
	15	do	dust	1350	26
	25	cb	bro mix	2500	24
Macaldenia	26	bf ch	bro pek	1690	42 bid
	30	do	pek	1800	37 bid
Monterey	25	ch	pek	2375	35
	15	do	pek sou	1350	33
	13	hf ch	dust	1040	27
Middleton	21	hf ch	bro or pek	1260	76
	21	ch	bro pek	2100	56 bid
	20	do	or pek	1700	53
	18	ch	pek	1530	43
	13	do	pek sou	1040	44
Vogan	19	ch	bro or pek	1900	48
	31	do	or pek	2790	38
	40	do	pek	3600	36
	12	do	pek No 2	1080	34
B T	23	ch	pek	2700	37 bid
Talgaswella	18	ch	bro or pek	1800	44
	21	do	pek	1680	36
	25	do	pek sou	1875	34
	16	do	or pek	1280	40
Sylvakandy	15	ch	bro pek	1500	40
	16	do	or pek	1600	41
	30	do	pek	3000	37
	20	do	br or pek No 1	2000	45 bid
	31	do	br or pek No 2	3100	42 bid
Great Valley, Ceylon in estate mark	42	hf ch	bro or pek	2520	48
	10	ch	or pek	1000	43
	34	do	pek	2992	37
G	13	hf ch	fans	1040	28
Irex	16	ch	bro or pek	1500	40
	16	do	pek	1440	36

	Pkgs.		Name.	lb.	c.
Freds Ruhe	20	cb	bro pek	2000	39
	16	do	pek	1520	35
	10	do	pek sou	1000	33
Dunblane	29	bf ch	bro or pek	1595	53 bid
	15	ch	bro pek	1500	43 bid
	11	do	pek	1100	40 bid
Queensland	19	bf cb	bro or pek	1045	61
	11	ch	bro pek	1100	45
	12	do	or pek	1080	42
Tranby	24	hf ch	bro or pek	1320	42 bid
Inverness	19	ch	bro or pek	1900	59
	16	do	or pek	1440	63
	19	do	pek	1615	48
	13	hf ch	dust	1105	30
Moragande	19	hf ch	bro or pek	1064	39 bid
	21	ch	or pek	1785	38
	31	do	pek	2790	35
Clunes	14	cb	bro pek	1400	39
	18	do	or pek	1620	37
	35	do	pek	3150	35
Ganapalla	16	cb	bro or pek	1600	39
	19	do	bro pek	1553	37
	15	do	or pek	1200	38
	22	do	pek	1760	35
	12	do	bro pek fans	1236	35
Clarendon	35	hf ch	bro pek	2097	52 bid
Mahawele	29	ch	pek	2607	34
Kincora	14	ch	pek	1260	38
Madulkelle	19	ch	pek No. 1	1707	36
Marlborough	42	hf ch	bro or pek	2349	50 bid

Messrs. Somerville & Co.

[208, 233lb.]

	Pkgs.		Name.	lb.	c.
Dodantella	12	ch	bro pek	1236	39 bid
	18	do	pek	2464	33
Kinross	15	ch	bro or pek	1650	48 bid
	31	do	or pek	3100	36 bid
	15	do	pek	1440	34
Ingeriya	14	ch	bro or pek	1400	57
	14	do	bro pek	1260	37
	18	do	pek	1620	33
	16	do	pek sou	1440	33
Labugama	23	cb	pek	1955	33
Mary Hill	30	hf ch	bro pek	1500	38
	24	cb	pek	1200	35
Invery	36	hf ch	bro or pek	2304	57
	24	do	or pek	1368	48
	39	do	pek	3822	43
Malapane	25	ch	bro pek	2500	39
	12	do	pek	1140	37
Theberton	11	cb	bro pek	1100	38
	19	do	pek	1710	35
W in est mark	25	ch	bro or pek	2500	37
	20	do	or pek	1800	35
	40	do	pek	3800	33
Deville	11	ch	bro pek	1100	38
Hanagama	27	cb	or pek	2700	35
	43	do	pek	4300	34
	16	do	pek sou	1600	32
	15	do	sou	1425	31
Hatdowa	12	ch	bro pek	1200	37
	14	do	pek sou	1260	32
Ellerslie	32	hf ch	bro or pek	1760	46
	17	cb	or pek	1445	39
	15	do	bro pek	1425	37
Neboda	21	cb	bro or pek	2100	42
	19	do	or pek	1743	38
	17	do	pek	2700	36
Lyndhurst	34	hf ch	bro pek	1870	37 bid
	35	do	pek	1750	34 bid
	35	do	pek sou	1505	33
Monte Christo	24	ch	bro pek	2400	49
	16	do	pek	1440	40
	11	do	pek sou	1100	36
Farnham	*31*	*hf ch*	*young hyson*	1360	36
	13	*ch*	*hyson No 1*	1300	34
Gona	22	ch	bro pek	1980	38
	19	do	pek	1520	35
	17	do	pek sou	1360	33
	16	do	bro or pek fans	1680	34
Laxapanagalla	27	ch	bro or pek	2565	38
	18	do	or pek	1710	35
Fairfield	21	ch	or pek	1890	51 bid
	29	do	bro pek	2900	49 bid
	24	hf ch	bro or pek	1080	67 bid
	21	ch	pek No 1	1680	44
	18	do	pek No 2	1620	44
Cooroondoowatte	11	ch	pek	1100	35
Hobart	15	cb	bro or pek	1500	37
	11	ch	bro pek	1015	34 bid
Blinkbonnie	35	hf ch	bro or pek	2100	52 bid
	12	ch	or pek	1080	47
	19	do	pek	1748	44

	Pkgs.	Name.	lb	c.
Weygalla	23 hf ch	bro or pek	1219	67
	16 do	bro pek	1010	36 bid
	26 ch	pek	2600	35
Dalukoya	25 hf ch	bro or pek	1500	43
	36 ch	pek	1980	35
	42 do	pek sou	2310	33
Highfields	19 hf ch	bro or pek	1083	40 bid
	29 do	pek	1508	36
Forest Hill	20 hf ch	bro or pek	1040	45
	15 ch	bro pek	1380	37 bid
	14 do	pek	1190	34
	15 hf ch	fans	1070	31
Oonankande	24 hf ch	bro pek	12 0	withd'n
	22 do	pek	1210	withd'n
Glenalmond	13 cb	bro or pek	1297	39 bid
Avisawella	24 hf ch	bro or pek	1200	45 bid
	18 ch	or pek	1710	38
	22 do	pek	1980	35
	18 do	pek sou	1440	32 bid
Jak Tree Hill	33 ch	bro pek	3157	36 bid
	21 do	pek	2041	33 bid
Oonangalla	11 ch	bro or pek	1100	59
	18 do	pek	1530	37
	18 do	pek sou	1620	35
Bollagalla	28 ch	br pek	2800	37 bid
	24 do	pek	1900	34 bid
	12 do	pek sou	1020	32 bid
Harrangalla	22 ch	bro or pek	1980	38 bid
	19 do	pro pek	1900	36
	45 do	pek	3600	35
	18 do	pek sou	1440	34
Ravenscraig	33 hf ch	bro or pek	1845	40 bid
Mora Ella	26 hf ch	bro pek	1430	40
	14 ch	pek	1260	36
	13 do	pek sou	1105	35
Diyanilakelle	24 ch	unassorted	2472	34 bid
Mahatenne	15 ch	bro or pek	1497	39 bid
Pindenioya	14 ch	or pek	1260	36
	26 do	pek	2210	35
	12 do	pek sou	1020	32

Messrs. E. John & Co.

[160,151 lb.]

	Pkgs.	Name.	lb.	c.
A	56 hf ch	bro or pek	3360	40 bid
	41 do	or pek	2230	36 bid
	15 cb	pek	1380	34 bid
Heeloya	*41 hf ch*	*young hyson*	2665	30 bid
	11 ch	*hyson*	1100	33 bid
Mt. Everest	36 hf ch	bro or pek	1980	52 bid
	39 do	or pek	1872	47
	43 ch	pek	4300	38 bid
Gingranoya	16 ch	bro or pek	1760	45 bid
Winwood	19 hf ch	bro or pek	1140	54 bid
	28 ch	or pek	2800	40 bid
	35 do	pek	3325	37
	13 do	sou	1170	34 bid
F S	34 ch	pek sou	2890	32
Tarawera	*17 ch*	*young hyson*	1700	33 bid
	24 do	*hyson*	2160	33
Westhall	10 ch	bro pek	1000	39
	11 do	dust	1430	28
G T	13 ch	pek	1170	34 bid
Dickapitiya	26 cb	bro pek	2600	33 bid
	28 do	pek	2520	36
	36 do	pek sou	3240	33 bid
Elston	25 ch	pek	2100	37
	29 do	pek sou	2465	35
Ohiya	13 ch	or pek	1274	47
	35 hf ch	bro pek	1890	46 bid
	16 ch	pek	1312	43 bid
Brownlow	20 hf ch	bro or pek	1120	52
	17 ch	or pek	1598	42
	22 do	pek	1936	40
Dickhena	15 ch	pek sou	1290	32
Fordyce	24 hf ch	dust	2160	withd'n
Templestowe	25 hf ch	bro or pek	1375	55
	25 do	bro pek	1400	47 bid
	26 do	or pek	1118	47
	18 ch	pek	1584	40 bid
	12 do	unas	1200	37
V	17 ch	pek sou	1445	32
Kolapatna	19 hf ch	bro or pek	1064	55 bid
	21 do	bro pek	1281	45
	24 do	or pek	1200	44
	11 ch	pek	1012	40
Dotala	23 hf ch	bro or pek	1262	51 bid
	22 ch	pek	1977	39
Wanarajah	19 hf ch	bro pek fans	1463	30
Rookwood	27 hf ch	flwy bro or pek	1779	45 bid
Mt. Vernon	30 ch	pek	2700	44
Elemane	27 cb	bro pek	2697	38 bid
Kosgalla	21 hf ch	bro pek	1155	34 bid

	Pkgs.	Name.	lb.	c.
Natuwakelle	13 ch	bro or pek	1300	43
	19 do	or pek	1710	39
	19 do	pek	1710	36
Tismoda	31 hf ch	bro pek	1559	39
	16 ch	pek	1280	36
Ben Nevis	17 hf ch	bro pek	1020	42 bid
	17 ch	pek	1530	41
Agra Ouvah	63 hf ch	bro or pek	3780	45 bid
	41 do	or pek	2214	41
	16 ch	pek	1472	38
Glentilt	39 hf ch	bro or pek	2145	54 bid
	20 ch	or pek	1840	47
	15 do	pek	1350	44 bid
Waragalande	11 ch	bro or pek	1100	46
	14 do	pek	1330	36
Mabanilu	25 hf ch	or pek	1250	50
	14 ch	pek	1330	40
Troup	10 ch	sou	1000	29 bid
Elston	21 ch	pek	1680	36
	19 do	pek sou	1615	35
Mossend	17 hf ch	bro or pek	1017	54 bid
	37 do	or pek	2032	47
	25 do	pek	1237	44
Galleola	20 ch	bro pek	2000	47
	25 do	pek	2250	38
	15 do	pek sou	1350	34

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Wahagapittia	1 ch	pek sou	75	33
	2 do	fans	250	29
	1 do	dust	150	27
Coodoogalla	17 hf ch	pek	850	35
	4 do	dust	320	28
Kenilstone	*6 ch*	*hyson No 2*	600	20

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Glenfern	9 ch	pek sou	720	32 bid
	2 do	dust	144	26
Battalawatte	10 ch	pek	950	36
Orion	4 ch	fans	440	30
Kurugalla	2 ch			
	1 hf ch	bro pek	254	37
	5 ch	pek	450	34 bid
	2 do	pek sou	160	31
Woodend	3 ch	dust	420	27
	1 do	bro pek fans	98	30
Nawanagalla	7 hf ch	bro pek	385	40
	3 ch	pek	270	34
	1 do	pek sou	95	32
G K in est mark	11 hf ch	or pek	583	40 bid
	13 do	pek	702	37
	10 hf ch	pek sou	480	34
	5 do	dust	400	27
M N	8 ch	pek sou	858	36
	11 hf ch	pek fans	605	26
	6 do	fans	438	24 bid
Belgodde	5 hf ch	bro pek	250	31
	5 do	pek	150	28
	2 do	or pek	110	30
	1 do	dust	70	16

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Tennehena	1 ch	bro pek	99	35
	2 do	pek	186	32
Arnaimallai	5 cb	bro pek	590	35
	4 do	pek	400	33
	2 do	pek sou	200	31
Lindupatna	8 ch	pek sou	800	32
	7 do	bro pek fans	938	33
A in estate mark	9 hf ch	bro or pek	450	44 bid
	14 do	bro pek	700	35 bid
V P	4 do	dust	340	25
	6 do	fluff	360	9
Putupaula	3 ch	pek sou	225	32 bid
	2 do	dust	290	27
	2 do	sou	150	26
Nagaganga	5 hf ch	bro pek	250	35
	4 hf ch	pek	200	33
	2 do	pek sou	100	31
	1 d	fans	66	26
Glencorse	11 hf ch	dust	935	26
D, in estate mark	3 do	pek	132	34
Stamford Hill	10 ch	pek sou	900	38
	5 hf ch	dust	450	30

	Pkgs.	Name.	lb.	c.
Tembiligalla	5 ch	pek sou	440	34
	1 do	pek fans	107	31
	2 do	pek dust	300	28
Templehurst	8 ch	pek	720	43
	1 do	dust	80	27
	2 hf ch	fans	140	31
Reeberry	1 ch	pek No 1	100	33
Kandaloya	*18 hf ch*	*young hyson*	810	40
	18 do	*hyson No 2*	810	36
	4 do	fans	200	16
	2 do	fans No 2	80	15
	2 do	dust	100	9
Berrewella	9 ch	pek sou	810	33
	7 hf ch	bro tea	595	26
T Y	1 ch	pek	95	33
Battawatte	2 ch	dust	200	28
Hayes	11 ch	or pek	935	40
	10 do	pek sou	850	23
	10 hf ch	pek dust	750	27
Lucky Land	6 ch	or pek	576	42
	4 do	pek sou	360	35
Gampaha	8 ch	pek sou	720	34
Massena	6 hf ch	dust	480	27
Letchemey	6 do	bro or pek fans	396	28
	3 do	dust	246	27
Seenagolla	3 do	dust	255	29
Yogama	*3 ch*	*hyson No 2*	270	33
	2 ch	dust	260	10
	6 do	fans	660	14
Kotagaloya	9 hf ch	fans	540	31
Drayton	9 ch	pek sou	720	40
Moray	7 do	pek No 2	560	36
	4 hf ch	dust	320	28
Rickarton, Invoice No 1	2 ch	bro pek fans	260	31
	1 do	fans	151	29
	1 do	dust	170	27
Lagalla	2 ch	bro tea	220	31
	8 do	bro mix	680	29
Lebanon Group	5 ch	pek sou	500	34
	7 hf ch	dust	560	28
	2 do	dust	160	27
Cattaratenne	10 ch	pek sou	800	32
	5 do	bro mix	425	28
St. Heliers	9 ch	pek	945	35
Panmure	5 do	pek sou	456	36
	15 hf ch	bro or pek fans	975	35
Ritnageria	12 do	bro pek	720	43
	7 do	pek	335	36
Court Lodge	9 ch	or pek	828	48 bid
	10 do	pek	920	41
Dunbar	8 ch	pek sou	664	39
	3 do	bro pek fans	426	30
	1 hf ch	bro pek fans No 2	79	30
Avoca	6 ch	pek sou	576	37
	5 do	bro pek fans	675	33
G K	12 ch	pek sou	840	32
	2 do	sou	130	31
	8 do	fans	760	31
W N	5 ch	bro pek sou	425	34
Robgill	9 do	pek sou	720	38
	5 hf ch	bro or pek fans	300	33
	5 do	dust	400	29
Nugagalla	2 do	dust	180	28
Penrhos	7 do	fans	490	30
	2 do	pek dust	170	26
Chesterford	2 ch	fans	210	15
	2 do	dust*	260	10 bid
Erlsmere	2 ch	pek sou	172	38
	3 hf ch	dust	234	27
Moneragande	*11 ch*	*hyson No 2*	935	26 bid
Carfax	9 ch	bro pek	990	39
	9 do	sou	810	28
B B, in estate mark	3 ch	bro pek	330	39
	3 do	pek	170	30
	11 hf ch	dust	990	28
Wella	3 hf ch	dust	258	27
Hanwella	*14 hf ch*	*hyson No 2*	910	35
	4 do	*hyson siftings*	330	12
H G M	9 hf ch	dust	810	27
North Matale	5 hf ch	dust A	400	25
	3 do	dust B	225	31
	4 do	dust A	320	25
	2 do	dust B	150	31
Monterey	3 ch	sou	270	32
Vogan	5 ch	pek sou	425	33
	3 do	pek fans	375	28
	7 hf ch	dust	560	27
Talgaswella	11 hf ch	bro pek No 2	660	33
Sylvakandy	5 ch	dust	500	27
G	8 ch	dust	720	25
Irex	11 ch	or pek	880	37
	6 do	pek sou	480	35
	3 do	fans	330	28
	1 hf ch	dust	85	23
Freds Ruhe	10 ch	or pek	950	37
S G	6 ch	pek	570	34
	1 do	pek sou	80	32
Queensland	3 ch	bro pek	300	35
	3 do	pek No 2	270	34
	3 hf ch	bro pek dust	240	29
	do	sou	90	26
Tranby	16 hf ch	bro pek	880	37 bid
Morankande	14 ch	pek sou	980	32
	5 hf ch	bro or pek fans	350	31
	2 do	dust	180	27
Clunes	8 ch	fans	800	28
Napier	1 ch	bro pek 1 lb pkts.	60	40 bid
Kincora	4 ch	fans	480	32
	5 do	dust	750	29
Glaslyn	2 ch	pek	180	35
	1 do	fans	158	27

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
S W	2 ch	bro pek	186	34
	1 do	pek	70	28
	1 hf ch	dust	78	22
Dodantella	6 ch	pek sou	522	32
	2 hf ch	dust	160	27
Kinross	1 ch	pek sou	96	34
	3 do	bro or pek fans	360	32
	2 do	bro tea	260	28
	1 do	dust	160	27
Koswatte	2 hf ch	bro pek	100	37
	1 do	pek	50	34
	1 do	pek sou	46	32
	1 do	dust	65	26
Labugama	14 hf ch	bro or pek	840	38
	7 ch	or pek	595	38
	5 do	pek sou	400	32
Mary Hill	5 hf ch	bro or pek	260	51
	18 do	pek sou	810	33
	6 do	bro pek fans	390	33
	2 do	dust	160	28
Invery	7 ch	pek sou	700	40
Theberton	2 ch	pek sou	180	33
	3 do	bro pek fans	300	30
	2 do	pek fans	200	28
	1 do	dust	100	27
W	6 ch	pek sou	570	32
	6 do	pek fans	690	31
	4 do	unasst	400	26
	2 do	souchong	170	29
	4 do	dust	640	26
Deville	10 ch	pek	900	34
	9 do	pek sou	810	32
	2 hf ch	dust	160	26
G B	10 hf ch	dust	800	28
	1 do	bro tea	50	25
Hanagama	9 ch	bro or pek	963	44
	4 do	fans	480	27
	5 do	dust	730	25
Hatdowa	7 ch	pek	665	35
	4 hf ch	dust	280	31
Vilgoda	5 ch	bro pek	475	36
	11 do	pek	883	33
	1 do	souchong	100	29
Neboda	3 ch	pek sou	276	32
	3 do	dust	425	27
Monte Christo	3 ch	fans	300	33
	5 hf ch	dust	425	29
	3 ch	bro tea	300	29
Farnham	*1 hf ch*	*gunpowder*	52	32
	4 do	*fans*	280	15
	1 do	*dust*	90	10
	1 sack	*twanky*	54	11
Wiharagama	3 hf ch	dust	240	27
Laxapanagalla	6 ch	pekoe	540	34
	2 do	pek sou	200	27
Fairfield	12 ch	pek sou	960	41
Cooroondoowatte	6 ch	bro pek	600	42
	5 do	pek sou	500	33
Blinkbonnie	7 ch	pek sou	595	39
Weygalla	8 ch	pek sou	800	33
Highfields	17 hf ch	or pek	833	39
Torbay	5 hf ch	pek sou	210	32
	4 do	bro or pek fans	280	33
	3 do	fans	210	28
	2 do	dust	180	27
S in est mark	1 ch	bro pek	93	35
	1 do	pekoe	76	32
	1 do	pek sou	105	31
	1 do	dust	96	24
	1 do	*hyson*	72	10
H R W	*2 hf ch*	*green tea fans*	160	
Oonankande	5 hf ch	pek sou	350	withd'n
	7 do	dust	462	
Avisawella	4 ch	souchong	320	31

	Pkgs.	Name.	lb.	c.
Marigold	9 hf ch	pek sou No. 2	432	35
	10 do	bro pek fans	640	36
	8 do	pek dust	616	30
Allacollawewa	7 hf ch	pek sou No 2	336	35
	8 hf ch	bro pek fans	512	30
Kallebokka	10 ch	or pek	797	40
Mora Ella	3 hf ch	dust	246	29
	14 do	bro or pek fans	910	37
Diyanilakelle	2 hf ch	dust	180	28
Oaklands	1 ch	pek	80	34
Margary	2 ch	bro pek	200	36
	1 do	pekoe	76	33
Pindenioya	9 ch	bro or pek	900	40
	3 do	fans	360	28

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
G B	3 hf ch	bro pek	180	33
	2 do	fans	120	26
	1 do	dust	60	21
	1 bag	fluff	70	8
Eton	1 ch	bro or pek	100	39
	1 do	or pek	100	36
	2 hf ch	dust	180	27
Heeloya	*6 ch*	*young hyson*	600	37 bid
	7 do	*hyson*	700	34 bid
	3 do	*hyson No 2*	300	33 bid
	2 hf ch	*green tea dust*	190	9
	3 do	*green tea siftings*	150	13
	4 ch	*hyson No 2*	400	33 bid
	4 hf ch	*green tea dust*	380	9
	1 do	*green tea siftings*	50	11
Church Hill	5 hf ch	bro pek	250	36 bid
	1 ch	pek	85	33
	1 hf ch	dust	74	27
Awiscombe	5 ch	bro pek	550	39
	6 do	pek	570	35
	2 do	pek sou	190	33
	1 do	dust	160	24
Tarawera	*3 ch*	*hyson No 2*	270	32
	5 do	*hyson siftings*	525	15
	3 do	*fly. young hyson*	330	35

	Pkgs.	Name.	lb.	c.
A B C	6 ch	bro pek	600	36
	9 do	pek	810	33
	1 hf ch	fans	75	26
Westhall	7 ch	fans	735	32
Gansarapolla	5 hf ch	dust	400	28
G T	5 ch	bro pek	560	41
	5 hf ch	dust	475	26
Dickapitiya	6 hf ch	dust	450	28
Ohiya	16 hf ch	bro or pek	864	51 bid
	3 ch	pek sou	282	37
	6 hf ch	dust	438	29
Brownlow	10 ch	pek sou	870	36
	9 hf ch	bro pek fans	720	32
Kolapatna	4 ch	pek sou	368	36
	7 hf ch	bro pek fans	476	32
	5 do	pek fans	415	29
T G	9 hf ch	dust	675	withd'n
Hiralouvah	8 ch	pek sou	6 6	33
	4 hf ch	dust	328	26
	2 do	fans	104	29
Wanarajah	1 hf ch	pek sou	42	35
	6 do	dust	540	27
Eladuwa	5 ch	bro pek	550	38
	8 do	pek	760	34
	5 do	pek sou	475	33
	1 do	bro pek fans	102	29
Ullandapitiya	2 hf ch	bro or pek	110	43
	2 do	bro pek	100	37
	2 do	pek	100	35
	2 do	sou	100	33
Kosgalla	15 hf ch	pek	750	32 bid
	11 do	pek sou	495	31
	2 do	bro pek fans	140	20 bid
Natuwakelle	7 ch	pek sou	630	33
Rickarton	2 ch	fans	240	30
Ben Nevis	10 hf ch	bro or pek	580	62
	18 do	or pek	900	48
	5 ch	pek sou	450	37
	4 hf ch	dust	352	29
Waragalande	9 ch	bro pek	855	40
	9 do	pek sou	810	32
	2 do	fans	200	27
Chapelton	4 hf ch	dust No 1	280	29
	3 ch	sou	255	33
	6 hf ch	dust No 2	510	28
Galloola	2 ch	dust	200	28
	2 do	fans	200	29

No. 10. COLOMBO, MARCH 11th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[39,801 lb.]

	Pkgs.	Name.	lb.	c.
Yuillefield	11 ch	or pek	1100	45
	23 do	pek	2185	40
Hornsey	42 hf ch	bro pek	2617	withd'n.
	25 do	bro pek	1625	45 bid
	19 ch	pek	1805	42
H D in estate mark	20 ch	bro pek	2000	39
	12 do	pek	1020	37
Battalgalla	15 do	pek sou	1200	38
	15 do	sou	1275	38
Wabagapittia	11 ch	bro or pek	1097	44 bid
	13 do	bro or pek	1300	43 bid
	18 do	bro pek	1800	38
	12 do	pek	1032	35
Kinchin	14 ch	or pek	1120	37
	21 do	pek	2100	36
M	22 ch	pek	2000	34
R	22 do	pek	1800	30 bid
T	13 ch	pek	1105	30 bid
Mapitigama	*26 ch*	*young hyson*	2600	36 bid
	18 do	*hyson No. 1*	1800	33 bid

Messrs. Forbes & Walker.

[480,145 lb.]

	Pkgs.	Name.	lb.	c.
Fetteresso	12 hf ch	dust	1020	29
Galleheria	28 ch	pek	2520	40
	13 do	pek sou	1235	37
	16 do	bro or pek	1520	53
Mousa Eliya	25 ch	bro or pek	2500	40
	10 do	bro pek	1000	37
	20 do	pek	1900	34
O B E C, in est mark Darrawella	19 hf ch	bro or pek	1064	58
	17 ch	bro pek	1785	47
	14 ch	or pek	1260	44
	14 do	pek	1330	41
	23 do	pek sou	1886	37
Siriwatte	35 hf ch	bro or pek	1960	38
	18 ch	pek	1440	35
	11 do	bro pek sou	1100	34
H, in estate mark	54 ch	bro pek	4860	33 bid
M T P, 1 and 2, in estate mark	17 ch	fans	1785	32
Maha Eliya	26 hf ch	bro or pek	1557	64 bid
	28 do	bro or pek	1680	63 bid
	39 do	bro pek	2340	48 bid
	32 ch	pek	2880	45
Broughton	30 hf ch	bro or pek	1680	56
	25 ch	or pek	2375	44
	20 hf ch	pek	1000	41
Waldemar	16 do	bro or pek	1008	54
	18 ch	bro pek	2070	43
	16 do	or pek	1536	45
	12 do	pek	1056	42
Delta, Inv. No 2	30 hf ch	bro or pek	1830	48 bid
	52 ch	bro pek	5356	38
	49 do	pek	4214	39
	19 do	pek sou	1615	34
	21 hf ch	fans	1365	29
Mousakelle	14 ch	bro or pek	1400	45
	14 do	pek	1260	37
	14 do	or pek	1330	40
B W D	16 ch	pek sou	1200	37
Holton	41 hf ch	bro pek (Momi pkgs.)	2255	40
	35 do	pek (Momi pkgs.	1680	36
O B E C, est. mark Nillomally	13 ch	pek sou	1040	34
	13 do	bro pek	1300	41
	35 do	pek	3080	38
	12 do	bro or pek	1200	51
	13 do	or pek	1066	46
Harrington	15 ch	bro pek	1680	44
	15 do	pek	1425	43
O B E C, in estate mark Summerhill	67 ch	bro or pek	3819	52
	39 do	bro pek	2340	47
	19 do	or pek	1710	47
	31 do	pek	2821	43
Campion	17 hf ch	dust	1360	29
Hentleys	25 do	bro pek	1250	37
	23 ch	pek	1656	34
Waitalawa	54 hf ch	bro pek	2700	48
	66 do	pek	3300	36
Deaculla, Inv. No 11	19 hf ch	br or pek	1064	52
	21 do	or pek	1008	45
	49 do	pek	3675	37
Middleton Inv. No 8	17 do	bro or pek	1020	84
	25 ch	bro pek	2500	63 bid
	29 do	or pek	2465	60
	25 do	pek	2125	50
Kitulgalla Inv. No 2	18 ch	bro or pek	1890	37
	12 do	or pek	1080	38
	12 do	pek	1044	35
W V R A	28 hf ch	bro or pek	1540	47
Agra Oya	13 ch	pek	1170	40
	35 hf ch	bro pek	2100	41
	33 do	or pek	1650	42
Maha Uva	17 hf ch	bro or pek	1020	41
	10 ch	or pek	1000	41
	18 do	pek	1620	38
Dea Ella	35 hf ch	or pek	1915	41
	42 do	bro pek	2310	37
	33 do	pek	1650	37
Gampaha	53 hf ch	bro or pek	3180	43
	26 ch	bro pek	2444	42 bid
	13 do	or pek	1248	43
	33 do	pek	2805	38
Kirklees	60 hf ch	bro or pek	3300	46
	25 ch	or pek	2250	40 bid
	27 do	pek	2295	37
Erracht	12 ch	bro or pek	1200	40
	15 do	or pek	1350	38
	46 do	pek	3680	35
	17 do	pek sou	1445	33
Killarney	20 hf ch	bro or pek	1160	58 bid
	25 do	bro pek	1450	46
	14 ch	or pek	1190	47
	16 do	pek	1360	44
Matale	44 hf ch	bro pek	2640	39
	19 ch	pek	1710	36
	13 do	pek sou	1170	33
A L	15 ch	bro pek fans	1720	20 bid
Monterey	17 hf ch	fans	1190	29
K P W	30 do	bro or pek	1800	38
	26 do	bro pek	1300	38
	33 do	pek	1650	36
Monkswood, Invoice No 1	42 ch	pek	3900	47
Moray	19 do	bro or pek	1045	52
	18 do	bro pek	1890	41
	24 do	pek	2160	40
Hatton	24 ch	bro pek	2640	52
	29 do	pek	2610	43
Passara Group	36 ch	bro pek	3600	40 bid
	21 do	pek	1995	38
Puspone	20 ch	or pek	2000	37 bid
	30 do	bro pek	3300	39 bid
	20 do	pek	1900	37
	13 do	pek sou	1170	33
Glendon	12 ch	bro pek	1200	54
	43 do	or pek	4300	38
	45 do	pek	4050	37
	19 do	pek sou	1710	33
	7 hf ch	dust	1050	28
Unugalla	12 ch	bro pek	1224	39
St. Heliers	21 do	pek	1722	36
	38 hf ch	bro or pek	2166	44
	13 ch	pek	1274	35
Y S P A	11 ch	fans	1397	31
Marlborough	43 hf ch	bro or pek	2365	43
	23 ch	bro pek	2300	41
	40 do	pek	3920	41
Bullugolla	*48 ch*	*young hyson*	4800	36
	40 do	*hyson*	3400	33 bid
	19 do	*hyson No 2*	1425	33
Swinton	12 ch	bro or pek	1200	44
	12 do	or pek	1200	39
Castlereagh	60 hf ch	bro or pek	3000	48
	14 ch	bro pek	1400	38
	13 do	or pek	1040	43
Mahawela	15 ch	bro pek	1500	39 bid
	23 do	or pek	2185	37
	33 do	pek	2970	36
	14 do	pek sou	1260	32
	14 hf ch	bro mix	1190	33
O B E C, in est mark Newmarket	57 hf ch	bro or pek	3135	48 bid
	40 ch	bro pek	4320	41 bid
	24 do	or pek	2040	43
	33 do	pek	3036	40
Yelatenne	15 ch	bro or pek	1620	42 bid
	15 do	pek sou	1410	33

	Pkgs.	Name.	lb.	c.
Coldstream Group	33 hf cb	bro pek	2145	38
	22 ch	pek	1760	37
D	12 bf ch	pek	1076	35 bid
Stratford	50 ch	pek	4750	36 bid
	21 do	pek sou	2322	33 bid
C W, in est mark	40 ch	pek sou	3600	31 bid
R T L	75 ch	bro pek	7500	32 bid
Ugieside	12 ch	bro mix	1200	31
Preston	38 ch	bro or pek	2052	53
	16 do	pek	1312	44
Donnybrook	22 hf ch	bro or pek	1320	47
	10 ch	or pek	1070	42 bid
	11 do	pek	1012	42
Glengariff	27 hf ch	bro or pek	1566	44
	22 ch	or pek	1936	42
	22 do	pek	2090	41
	22 do	pek fans	1496	33
Lochiel	26 hf ch	dust	2132	31
Walpita	30 ch	bro pek	3000	37
	28 do	pek	2550	35
Tembiligalla	20 ch	bro or pek	2200	38
Vogan	18 ch	bro or pek	1800	48
	31 do	or pek	3060	38
	41 do	pek	3690	36
	12 do	pek No 2	1080	35
Penrhos	21 hf ch	bro or pek	1176	43 bid
	15 ch	pek No 1	1215	38
	19 do	pek No 2	1558	34
Dammeria	29 ch	bro pek	2900	39
	25 do	or pek	2250	37
	30 do	pek	2700	36
	14 do	pek sou	1260	33
Bandarapola	53 hf ch	br or pek No 1	2915	37 bid
	49 do	br or pek No 2	2548	36
	43 do	bro pek	2150	35
	36 do	pek	1728	34
Monkswood	29 hf ch	or pek	1595	51
	29 ch	pek	2755	49
Carfax	21 ch	bro or pek	2100	53
	20 do	or pek	1800	46
	18 do	pek	1620	43
Bellongalla	26 cb	pek	2340	33
	13 do	bro pek	1300	35
	10 do	br or pek fans	1050	30
Palmerston	19 hf ch	bro or pek	1140	65
	18 do	bro pek	1080	49
	15 ch	pek	1275	49
Purana	10 ch	bro pek	1000	41
	20 do	pek	1600	36
B D W	10 cb	bro or pek	1100	36
Cloyne	14 ch	bro or pek	1400	withd'n
	12 do	or pek	1200	withd'n
	15 do	pek	1320	withd'n
Harrow	29 hf ch	bro or pek	1740	52
	20 ch	or pek	2000	49
	21 do	pek	2100	45
Udaveria	19 hf ch	bro or pek	1140	57 bid
	43 do	br or pek No 1	2494	49
	15 cb	or pek	1380	46
Dumblane	31 hf ch	bro or pek	1705	52
	18 cb	bro pek	1800	38 bid
	15 do	bro pek	1497	38 bid
	13 do	pek	1300	42
Panmure	28 hf ch	bro or pek	1537	47 bid
	43 do	or pek	2382	41
Middleton	15 ch	bro pek	1497	50 bid
	21 do	bro pek	2097	51 bid

Messrs. Keell and Waldock.

[62,331 lb.]

	Pkgs.	Name.	lb.	c.
Ovitta	13 ch	bro or pek	1300	36 bid
Fairlawn	82 hf ch	bro or pek	4920	44
	26 ch	bro pek	2470	38
	30 do	or pek	2400	40
Panilkande	20 hf ch	br or pek No 1	1000	52 bid
	16 ch	bro or pek	1597	40 bid
	25 do	pek	2247	38 bid
Hangranoya	16 hf ch	bro pek	1520	44 bid
	16 cb	or pek	1280	40
	22 do	bro pek	2200	37
	15 do	pek	1200	34
M I in est mark	11 cb	coarse leaf	1110	10 bid
Glenwood	20 ch	bro or pek	2000	26 bid
	17 do	or pek	1479	34 bid
	22 do	pek	1826	32
Paniyakande	11 ch	bro pek	1100	38
M N	14 cb	pek sou	1260	25
	15 do	fans	1890	21 bid
	25 hf ch	dust	2250	17 bid
Upressoya	14 hf ch	bro or pek	1022	30
	9 ch	bro pek	1064	27
G	37 ch	bro pek	3367	33 bid
	26 do	pek	2236	28 bid

	Pkgs.	Name.	lb.	c.
Brixworth	18 ch	bro or pek	1800	38 bid
	21 do	pek	1890	34
B Talawa	16 cb	bro or pek	1600	44 bid
	20 do	pek	1800	37
	12 do	pek sou	1080	33 bid
Dambagalla	23 hf ch	bro pek	1219	33 bid
	28 do	bro or pek	1792	36 bid
	27 do	pek	1323	35

Messrs. Somerville & Co.

[230,868 lb.]

	Pkgs.	Name.	lb.	c.
Theberton	16 ch	bro pek	1600	38
	28 do	pek	2520	36
Hatherleigh	13 ch	or pek	1300	37
	28 do	pek	2380	34
Nyanza	12 ch	or pek	1020	40
	23 hf cb	bro or pek	1265	48
	16 ch	pek	1520	40
Oonankande	24 hf ch	bro pek	1200	withd'n
	22 do	pek	1210	withd'n
Lonach	27 hf ch	bro or pek	1512	42
	17 ch	or pek	1530	38
	31 do	pek	2958	36
	33 do	pek sou	2871	33
Kallebokka	21 ch	bro or pek	2100	45 bid
	37 dq	bro pek	3700	40
	33 ch	pek	2805	36 bid
Warakamure	23 ch	bro or pek	2300	36 bid
	17 do	or pek	1360	35
	19 do	pek	1615	33
Walla Valley	45 hf ch	bro or pek	2475	52 bid
	27 ch	or pek	2430	53
	56 do	pek	5040	48
Highfields	25 hf ch	bro pek No 1	1400	44
	21 do	pek	1008	38
Salawa	12 ch	pro pek	1200	38
	11 do	pek	1045	34
Dalukeya	56 hf ch	or pek	3080	39 bid
Hobart	18 ch	pek	1104	34
Carriglea	12 ch	pek sou No 1	1020	withd'n
Mount Temple	15 ch	br pek	1500	37
	15 do	pek	1200	36
	18 do	bro pek fans	1800	34
Invery	18 hf ch	pek dust	1530	32
Monrovia	19 ch	bro pek	1900	35 bid
Siriniwasa	36 cb	or pek	3600	39
	48 do	pek	4320	35
	26 do	pek sou	2080	33
	14 do	fans	1400	33
R K P	21 ch	bro or pek	2100	37 bid
	19 do	pek	1710	35
	13 do	pek sou	1040	33
Depedene	65 hf ch	bro pek	3900	37
	40 do	pek	2200	34
	44 do	pek sou	2200	32
Kelani	31 ch	bro pek	3100	33 bid
	29 do	pek	2610	35
	19 do	pek sou	1520	33
New Valley	81 hf ch	bro or pek	4475	46 bid
	25 ch	or pek	2375	42
	33 do	pek	3135	39
Annandale	15 hf ch	or pek	1140	45
	14 do	pek (A)	1064	43
	14 hf ch	pek	1092	41
Mahagoda	13 ch	bro pek	1300	51
Avisawella	28 hf ch	bro or pek	1400	47
	19 ch	or pek	1805	37
	26 cb	pek	2340	35
	18 do	pek sou	1440	33
	14 bf ch	dust	1050	28
Florida	16 ch	bro pek	1664	35
	16 do	pek	1591	32
Yarrow	*60 hf ch*	*young hyson*	3000	37
	34 do	*hyson*	1632	34
Laxapanagalla	22 ch	bro or pek	2090	38
	15 do	or pek	1425	35
Yahalatenne	30 ch	bro pek	3000	43
	17 do	pek sou	1547	36
Rambodde	23 hf ch	bro pek	1288	45
	39 do	pek	1872	38
Galphele	10 cb	bro or pek	1000	52
	15 do	or pek	1350	43
	10 do	bro pek	1000	40
	27 do	pek	2430	38
Mahavilla	10 ch	pek	1020	38
	10 do	pek sou	1020	35
Richlands	13 ch	or pek	1170	44
	16 do	bro or pek	1600	46 bid
	16 do	pek No 1	1600	40
	16 do	pek No 2	1360	39
Highfields	19 hf ch	br or pek	1080	57 bid
Ravenscraig	27 hf ch	bro or pek	1512	40 bid
	12 ch	pek	1080	34 bid

	Pkgs.	Name.	lb.	c.
Cooroondoowatte	11 ch	pek	1100	34
St. John's Wood	22 hf ch	bro or pek	1210	42 bid
	12 ch	pek	1056	37
Scarborough	13 ch	or pek	1235	45
	16 do	pek	1568	38 bid
N A	11 ch	pek fans	1430	28
Jah Tree Hill	33 ch	bro pek	3154	37 bid
R D A	11 ch	pek sou	1045	31 bid
Glenalmond	13 ch	bro pek	1294	38 bid
Roseneath	15 ch	bro pek	1500	36 bid
	13 do	pek	1170	34 bid
Deniyaya	19 ch	pek sou	1710	32 bid
Ferriby	22 hf ch	bro or pek	1100	42
	21 ch	or pek	1995	36
Rotbes	21 hf ch	bro pek	1344	46 bid
Ferriby	24 hf ch	br or pek	1200	43
	23 ch	or pek	2185	35 bid
	27 do	pek	2130	33 bid
	15 do	pek sou	1275	31 bid

Messrs. E. John & Co.

[202,870 lb.]

	Pkgs.	Name.	lb.	c.
St. Andrew's	13 ch	pek sou	1040	34 bid
	18 hf ch	dust	1530	29
Kelaneiya & Braemar	13 ch	bro or pek	1300	52
	10 do	bro pek	1000	45
	19 do	pek	1805	42
Oonoogaloya	21 ch	or pek	1680	41
	26 do	bro or pek	2470	46
	20 do	pek	1800	40
St. John's	28 ch	pek	2630	44
	12 do	pek sou	1032	34 bid
	22 hf ch	pek fans	1496	31
Ashburton	13 ch	bro or pek	1365	47
	20 do	bro pek	2160	39 bid
	12 do	or pek	1020	39 bid
	20 do	pek	1840	37
Mocha	37 hf ch	bro or pek	2220	56 bid
	28 ch	or pek	2800	46 bid
	11 do	pek	1210	47
	31 hf ch	bro pek	2015	43
Ormidale	23 hf ch	bro or pek	1150	65 bid
	66 do	bro pek	4620	46
	36 ch	pek	3420	42 bid
Galkande	11 ch	bro or pek	1045	36
Captains Garden	24 ch	pek	2160	31 bid
Osborne	21 ch	pek	1890	40
	32 hf ch	fly or pek	1597	43
Rondura	10 ch	bro or pek	1100	44 bid
	10 do	bro pek	1050	38
	11 do	or pek	1100	39
	17 do	pek	1530	38
Agra Ouvah	50 hf ch	bro or pek	3000	52 bid
	19 ch	or pek	1805	45
	13 do	pek	1196	44
Callander	21 hf ch	bro or pek	1113	54
	46 do	bro pek	2760	46
	20 do	or pek	1000	43 bid
Tarawera	*44 ch*	*young hyson*	4400	37
	46 do	*hyson*	4140	34
G B	15 ch	bro pek	1650	37
	11 do	pek	1045	35
	23 hf ch	fans	1610	31
Balado	18 ch	pek sou	1440	33
Mahaousa	40 hf ch	pek fans	2800	33
	12 do	dust	1020	29
Devon	21 hf ch	bro or pek	1344	60
	20 ch	or pek	2200	51
	9 do	pek	1116	47
Bowella	34 hf ch	bro pek	1700	38
Tismoda	25 hf ch	bro or pek	1250	40
	34 do	bro pek	1700	37 bid
	20 ch	pek	1700	37
Lameliere	29 ch	bro or pek	2900	45
	17 do	or pek	1564	48
	42 do	pek	3780	43
Peru	12 ch	bro pek	1200	43
	12 do	pek	1080	38
K D O	55 hf ch	pek	2197	32 bid
Perth	*39 ch*	*young hyson*	3900	36
	19 do	*hyson*	1710	35
K L G	9 ch	bro pek fans	1095	27 bid
72, in est. mark	19 ch	bro pek	1900	32 bid
	15 do	pek	1410	30 bid
	30 do	pek sou	2700	25 bid
Mt. Everest	43 ch	pek	4297	37 bid
L R C	9 ch	bro or pek fans	1008	28
K	18 ch	bro pek	1800	32 bid
Mt. Temple	27 ch	pek	2160	33 bid
Coldstream	14 ch	pek sou	1120	32 bid

	Pkgs.	Name.	lb.	c.
Brownlow	22 hf ch	bro or pek	1232	59
	22 ch	or pek	2134	44
	27 do	pek	2268	41
Birnam	25 ch	pek sou	1750	42
Gangawatte	20 ch	bro or pek	2000	49 bid
	16 do	bro pek	1600	42
	30 do	pek	2790	40
Glassaugh	60 hf ch	or pek	2850	71
	47 do	bro or pek	3196	52 bid
	29 ch	pek	3045	56
Orwell	18 ch	pek	1617	34
Higham	23 ch	bro pek	2300	38 bid
	20 do	pek	1900	35
	16 do	pek sou	1520	32 bid
Gingranoya	16 ch	bro or pek	1757	45 bid
R	27 ch	bro or pek	2565	35 bid
	27 do	pek	2295	32 bid
	44 do	pek sou	3564	31 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	13 hf ch	bro or pek	780	50
	5 do	bro pek	275	42 bid
	7 do	fans	490	32
	3 ch	pek sou	285	33
	1 hf ch	dust	90	26
H D in est. mark	5 ch	pek sou	400	32
Wahagapittia	1 ch	fans	130	27
Kenilstone	6 ch	*twanky*	600	14
	4 do	*dust*	400	11
	9 do	*siftings*	900	13
Kinchin	14 hf ch	bro or pek	840	45
	13 do	or pek No 1	715	42
	2 ch	pek sou	160	33
	3 hf ch	dust	255	26
Mapitigama	5 ch	*hyson No 2*	475	32
	7 hf ch	fans	420	17
	1 ch	dust	105	12

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Beverley, Invoice No 1	3 hf ch	pek sou	150	32
	4 do	dust	360	29
Mousa Eliya	2 ch	pek sou	200	32
	5 do	dust	500	28
Strathisla	2 ch	fans	220	28
	6 do	dust	510	24
Siriwatte	11 ch	or pek	990	38
	8 hf ch	bro pek fans	600	31
	4 do	dust	320	29
Udapolla	3 ch	*young hyson*	285	33
	4 do	*hyson*	340	33
	4 do	*hyson No 2*	320	32
	1 hf ch	fans	65	16
M T P, 1 and 2	5 ch	sou	500	29
	5 do	dust	600	26
Aden	4 ch	bro pek	400	37
	3 do	pek	270	34
Broughton	8 do	pek No 1	784	42
	10 do	dust	800	31
Delta, Inv. No 2	8 hf ch	dust	680	27
Mousakellie	4 do	dust	300	18
	6 do	bro pek fans	390	34
B W D	6 hf ch	dust	420	28
A B, in estate mark	1 ch	pek	62	31
	1 do	pek sou	55	31
	2 do	bro tea	216	26
	1 do	*hyson*	66	28
	1 box	*green tea dust*	29	11
Deviturai	2 ch	bro pek	230	31
	2 do	pek	172	28
	2 hf ch	dust	180	12
	7 ch	pek fans	805	28
Holton	2 ch	pek sou	170	33
	6 hf ch	bro pek fans	330	32
	3 do	dust	255	28
O B E C, in est mark Nillomally	6 ch	fans	600	33
	2 do	dust	190	25
Vincit	8 ch	*young hyson*	760	36
	7 do	*hyson*	630	34
	6 do	*hyson No 2*	510	33
	1 do	*siftings*	150	14
	1 do	*gunpowder*	90	33
Harrington	2 hf ch	bro pek fans	160	29
	2 do	dust	190	25

	Pkgs.	Name.	lb.	c.
Kelvin	4 ch	pek sou	380	32
K	3 ch	unas	279	16
	1 box	dust	30	10
Hentleys	5 hf ch	fans	350	28
	1 do	dust	91	25
Eildon Hall	1 do	bro pek	60	39
	1 ch	pek	85	36
Naynangodde	5 ch	bro or pek fans	500	29
	1 do	dust	120	24
Ookoowatte, Invoice No 2	1 ch	pek sou	85	32
	1 do	pek fans	110	29
	1 hf ch	dust	100	25
Deaculla, Inv. No 11	7 do	dust	560	28
Kitulgalla, Inv. No 2	2 ch	dust	310	27
	4 do	bro or pek fans	480	31
W V R A	5 hf ch	fans	400	24
Agra Oya	4 do	fans	300	30
	3 do	dust	255	28
C R D, Inv. No 10	5 ch	sou	400	31
	2 do	red leaf	140	19
	7 do	dust	700	27
N P, Inv. No 8	2 ch	bro mix	200	21
B B B, in est mark	4 ch	dust	323	28
Dea Ella	7 hf ch	fans	490	33
Erracht	2 ch	bro pek fans	250	29
	2 do	pek fans	210	28
	5 do	dust	750	28
Killarney	3 ch	pek sou	270	37
Massena	13 hf ch	bro or pek	650	40
	8 do	bro pek	400	37
	5 do	pek	250	34
	3 do	pek sou	150	31
	1 do	dust	80	27
Matale	4 ch	sou	340	31
	3 hf ch	fans	210	31
	6 do	dust	480	28
D, in estate mark	3 ch	dust	300	10
Monterey	11 ch	sou	990	30
	7 hf ch	dust	560	28
K P W	15 do	or pek	675	37
	15 do	pek sou	750	33
	3 do	pek fans	225	29
	2 do	dust	180	27
C W Co.	1 ch	bro pek	100	47
Moray	21 hf ch	or pek	945	45
	5 ch	pek No 2	400	35
	5 hf ch	dust	400	28
	5 do	bro or pek No 1	300	29
Hatton	4 ch	pek sou	360	36
	3 do	dust	480	31
	1 do	bro pek fans	110	31
Trewardena	7 ch	bro pek	700	37
	5 do	pek	500	33
	5 do	pek sou	500	31
	3 do	sou	300	30
	1 do	fans	100	30
Detenegalla	3 hf ch	or pek	165	43
	3 ch	pek	300	33
Passara Group	6 do	pek sou	570	35
	1 hf ch	dust	90	28
	4 ch	fans	300	30
Puspone	9 hf ch	dust	810	28
Unugalla	7 ch	pek sou	574	31
	1 hf ch	dust	90	28
St Heliers	7 hf ch	bro or pek fans	595	30
Y S P A	8 ch	pek	760	36
Y O A, D	6 hf ch	dust	510	28
Bullvgolla	*6 ch*	*siftings*	600	15
	7 do	*dust*	770	11
	8 bags	*sweeping*	914	9
Swinton	10 ch	pek	900	37
	4 do	pek sou	340	32
	1 do	fans	100	28
	1 do	dust	110	26
Castlereagh	11 ch	pek	935	42
Wattaoya	11 hf ch	bro or pek	647	36 bid
Coldstream Group	18 hf ch	bro or pek	990	39
	3 ch	pek sou	240	33
	1 hf ch	bro or pek fans	80	30
D	18 hf ch	bro or pek	990	50
Preston	9 ch	or pek	810	53
	5 do	fans	340	38
O F, Ceylon in estate mark	*2 hf ch*	*pek sou*	110	31
	1 do	*hyson*	45	26
	1 ch	*dust*	94	out
Glengariff	12 hf ch	dust	960	29
Bogahagodawatte	10 ch	bro pek	950	38
	9 do	pek	810	33
	4 do	pek sou	400	31
	1 do	fans	124	25
Lower Kananka	6 ch	bro pek	600	36
	8 do	pek	800	32
	3 do	pek sou	300	30
	1 do	fans	125	22
Walpita	9 ch	pek sou	720	32
	3 do	sou	270	30
	2 do	dust	300	24
Tembiligalla	8 ch	pek	728	36
	5 do	pek sou	440	33
	1 do	pek fans	117	31
	2 do	pek dust	300	27
Vogan	5 ch	pek sou	425	32
	3 do	pek fans	375	28
	7 hf ch	dust	560	28
Penrhos	18 hf ch	or pek	846	41
	4 do	fans	300	29
Dammeria	10 hf ch	bro or pek	700	37
	6 do	bro pek fans	480	30
	3 do	dust	300	28
Monkswood	14 hf ch	bro or pek	840	66
M	3 bags	coarse leaf	138	14
Hunugalla	7 ch	pek sou	630	30
	6 do	bro pek	600	29
	2 do	bro pek fans	180	27
	5 hf ch	dust	375	26
Bellongalla	2 ch	or pek	190	39
	2 do	dust	300	22
H	2 ch	bro pek	222	34
	1 do	pek	117	32
	1 do	pek sou	110	33
Purana	8 ch	pek sou	576	33
	2 hf ch	dust	160	27
	2 do	fans	180	34
B D W	2 ch	pek fans	160	37
	5 hf ch	dust	500	28
C E	1 ch	bro tea	123	withd'n
Harrow	5 ch	pek sou	400	34
	6 hf ch	fans	480	32
Udaveria	8 ch	pek	680	44
	5 hf ch	bro or pek fans	350	36
	3 do	fans	246	29
Dumblace	3 ch	pek sou	270	35

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
A	3 ch	dust	300	10
R in est mark	2 *ch*	*hyson*	209	31
Ovitta	9 ch	pek	793	33
	6 do	pek sou	498	31
	1 do	dust	124	28
Fairlawn	3 ch	pek sou	240	34
X	3 ch	dust	300	10
Paniyakande	9 ch	pek	810	35
	3 do	pek sou	270	33
	1 do	souchong	90	31
R M in est mark	1 *ch*	*young hyson*	91	out
M N	3 ch			
	1 hf ch	red leaf	409	14
A	5 ch	bro pek	470	34
	2 do			
	1 hf ch	pek	226	32
	1 ch	pek sou	90	30
	1 do	fans	80	27
Uprassoya	2 ch	sou	230	20
Dambagalla	10 hf ch	or pek	470	40
	10 ch	pek sou	800	33
	4 hf ch	bro mix	340	26
	2 do	dust	255	26

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Galata	5 ch	pek sou	475	29 bid
	6 hf ch	bro pek fans	480	28
Manangoda	3 ch	bro pek	275	33
	5 do	pek	460	31
	1 do	pek sou	103	30
	1 do	fans	106	24
	1 do	red leaf	83	21
Theberton	1 ch	pek sou	90	32
	2 do	bro pek fans	200	30
	1 do	pek fans	100	28
	1 do	dust	100	26
Hatherleigh	9 ch	bro or pek	990	41
	6 do	bro pek	660	37
	8 do	pek sou	680	32
	3 do	bro pek fans	300	33
	3 do	dust	420	27
Nyanza	1 ch	pek sou	95	33
	4 hf ch	fans	280	33
	1 do	dust	90	28
Oonankande	5 hf ch	pek sou	350	withd'n
	7 do	dust	462	
Kallebokka	2 ch	pek sou	220	33
	2 do	fans	250	28
Warakamure	7 ch	pek sou	560	31
	1 hf ch	dust	90	26
Highfields	3 hf ch	bro pek No 2	168	37

	Pkgs.	Name.	lb.	c.
Salawa	11 ch	pek sou	935	32
	9 do	unassorted	900	33
	2 do	pek fans	250	32
	1 do	dust	146	27
Dryburgh	10 ch	bro pek	560	40 bid
	6 do	or pek	528	39
	10 do	pek	820	34
	1 do	pek sou	92	32
	2 do	fans	148	28
Hobart	9 ch	or pek	810	37
Carriglea	11 hf ch	bro pek fans	715	
	9 ch	pek No 2	765	withd'n
	1 hf ch	dust	75	
Mount Temple	8 ch	pek sou	600	33
Monrovia	10 ch	pek	900	32 bid
	4 ch	pek sou	340	31 bid
	6 do	fans	570	26
G A	4 ch	sou	400	31
	3 hf ch	dust	252	28
	3 ch	bro mix	204	30
G B	5 hf ch	dust	400	29
Siriniwasa	4 ch	dust	600	27
	5 do	sou No. 2	450	30
Depedene	8 hf ch	dust	640	27
Allakolla	4 hf ch	dust	360	29
H M	1 hf ch	bro or pek	34	41
Aulutkelle	7 ch	bro pek	700	34
	4 do	pek	369	32
	2 do	pek sou	160	31
Agalatota	4 ch	bro pek	380	28 bid
	2 do	pek	198	28
New Valley	6 ch	pek sou	570	37
	2 hf ch	dust	180	29
Mahagoda	6 ch	pek	630	33
	1 hf ch	fans	90	23
California	4 ch	bro pek	356	35
	8 do	pek	786	32
	4 do			
	1 hf ch	pek sou	450	28
Florida	9 ch	pek sou	864	30
	5 do	pek fans	500	28
	2 do	dust	300	24
	2 do	red leaf	210	18
	1 do	bro mixed	100	18
Yarrow	*5 hf ch*	*fans*	350	19
	2 do	*dust*	166	10
Laxapanagalla	5 ch	pek	450	33
	2 do	pek fans	200	29
	2 do	dust	200	28
Yahalatenne	10 hf ch	dust	8 0	28
Rambodde	14 hf ch	bro or pek	840	50
	16 do	pek souchong	720	36
	4 do	bro pek fans	260	32
	3 do	dust	255	28
M in est mark	1 hf ch	unasst	53	30
Galphele	8 ch	br pek No 2	800	35 bid
Ravenoya	7 ch	pek sou	700	34
	1 do	sou	80	32
	2 do	fans	300	29
Cooroondoowatte	4 ch	pek fans	520	27
Gallawatte	*3 ch*	*hyson fans*	300	16
	2 do	*hyson dust*	200	10
G	*2 ch*	*young hyson*	180	
	1 do	*hyson*	85	
	1 do	*hyson dust*	99	withd'n
	10 do	*hyson bro tea*	884	
	1 do	*hyson bro tea*	74	
St. John's Wood	4 ch	pek sou	320	34
	4 hf ch	bro pek fans	236	32
	1 do	dust	67	28
C	8 ch	bro pek fans	800	28 bid
N A	9 ch	fans	882	27 bid
Patulpana	7 ch	bro pek	700	35
	6 do	pekoe	600	31 bid
	4 do	pek sou	380	29 bid
	4 do	unast	380	28
N C	5 hf ch	bro pek fans	315	28
Roseneath	2 ch	dust	200	26
	2 hf ch	fans	170	27
U	1 ch	bro or pek	105	45
Rothes	9 ch	pek	900	40
	1 hf ch	dust	79	28
	1 do	unast	58	35
Ferriby	4 ch	sou	360	30
	7 hf ch	fans	455	30

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Horagalla	5 ch	bro or pek	500	35
	5 do	pek	485	33
	1 hf ch	bro or pek dust	84	27
Castle Hill	3 ch	bro or pek	300	37
	5 do	or pek	500	36
	10 do	pek	900	34
	11 do	pek sou	990	31

	Pkgs.	Name.	lb.	c.
	6 do	congou	540	24
	3 do	dust	300	29
N P K	1 ch	bro pek	93	37
Ashburton	2 ch	fans	250	31
	1 do	dust	156	28
Ormidale	7 hf ch	bro pek fans	525	31
Galkande	8 ch	pek	680	32
	7 do	pek sou	630	30 bid
	1 do	dust	120	26
	1 do	fans	110	26
A T	3 ch	pek sou	270	31
	2 do	bro pek fans	220	29
	4 do	dust	480	26
Captains Garden	6 ch	bro pek	600	35
	3 do	pek sou	270	29
Rondura	2 ch	fans	210	32
	2 ch	dust	320	28
Callander	12 hf ch	pek	624	41
	9 do	bro pek fans	702	32
Tarawera	*9 ch*	*hyson No 2*	810	33
	10 hf ch	*hyson siftings*	800	15
G B	1 hf ch	bro mix	70	24
	6 do	dust	540	30
K P	3 hf ch	dust	300	26
	3 do	fans	258	30
E T	7 ch	bro pek	770	39
	7 do	pek	700	37
S T V	5 do	bro pek	580	26
Bowella	5 ch	pek	425	34
	3 hf ch	dust	225	28
Tismoda	6 ch	pek sou	540	32
	2 hf ch	fans	150	28
	2 do	dust	180	27
Lameliere	9 hf ch	bro pek fans	630	34
	1 ch	sou	85	33
Peru	4 ch	pek sou	380	34
	1 do	bro pek fans	140	32
Oakwell	5 ch	fans	300	32
	2 do	dust	176	28
Perth	*3 ch*	*hyson No 2*	279	34
	2 do	*fans*	238	18
	3 do	*dust*	403	12
Bogahagodawatte	1 ch	fans	122	27 bid
K L G	4 ch	pek sou	377	26
	8 do	bro or pek fans	557	27
A W	7 ch	bro pek fans	837	30
D G T	1 ch	bro pek fans	139	29
T G L	10 ch	pek sou	917	30 bid
	7 do	bro pek fans	592	27
	5 hf ch	fans	397	29
R B	7 ch			
	1 hf ch	pek sou	569	27
	4 do	bro pek fans	341	27
H W	1 ch	pek sou	92	29
	1 do	pek fans	97	27
L R C	5 ch	bro pek fans	600	28
Church Hill	5 hf ch	bro pek	247	35
Kandaloya	20 hf ch	pek	800	33 bid
	10 do	pek	400	33 bid
Gangawatte	6 ch	pek sou	540	35
	10 hf ch	fans	650	33
Glassaugh	4 ch	pek sou	400	39
	5 hf ch	dust	480	32
	4 do	fans	300	36
Higham	11 hf ch	bro or pek	6·0	40 bid
	1 do	dust	95	25
	4 do	bro pek fans	280	33

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, Feb. 20th.

"Shropshire."—W P F, 1 barrel sold at 59s; ditto 2, 1 cask sold at 56s; ditto S, 1 barrel sold at 35s; ditto P B, 1 at 46s; W P T in estate mark, 1 tierce withdrawn; Middlemarch 2, 1 barrel sold at 45s; ditto S, 1 barrel withdrawn; ditto P B, 1 barrel withdrawn; M M T in estate mark, 1 barrel withdrawn.

CEYLON COCOA SALES IN LONDON.

"Clan Lamont."—A Grove, 48 bags withdrawn.

"Derbyshire."—Palli London F, 84 bags withdrawn.

"Shropshire."—Pathuegalla London 1, 80 bags withdrawn; 76 bags withdrawn; ditto 2, 10 bags sold at 48s; ditto T, 4 at 51s 6d; Kaduwella 1, 94 bags sold at 60s; ditto 2, 6 at 47s; ditto T, 2 at 51s 6d.

"Kanagawa Maru."—Gilbury, 28 bags withdrawn; 8 bags sold at 54s; 6 at 60s; 2 at 53s.

"Derbyshire."—1 A M in estate mark, Estate Cocoa, 92 bags withdrawn; 2 bags sold at 35s.

"Ulysses."—K A in estate mark, 8 bags withdrawn.
"City of Madrid."—1 M M in estate mark, Estate Cocoa, 35 bags withdrawn.
"Kanagawa Maru."—Hylton 1, 46 bags sold at 80s 6d ; 2 at 54s 6d ; ditto D, 27 at 76s 6d.
"Shropshire."—Hylton 1, 27 bags sold at 78s ; ditto 1 X, 13 bags withdrawn ; ditto 1, 34 bags withdrawn ; Old Haloya, 20 bags sold at 68s 6d ; 10 bags withdrawn ; Coodoogalla, 35 bags withdrawn.
Collegian."—Dynevor A, 17 bags withdrawn ; B, 40 bags withdrawn.
"Magician."—Kepitigalla, 54 bags withdrawn; 6 bags sold at 52s.
"Ulysses."—Goonambil. 120 bags withdrawn ; 8 bags sold at 50s ; 9 at 49s ; 18 at 48s 6d.
"Historian."—Rockhill B, 8 bags withdrawn ; Bandarapola 1, 16 bags withdrawn ; T, 2 bags sold at 40s 6d.
"Warwickshire."—Raja Totum 1, 16 bags withdrawn ; K M in estate mark, 60 bags withdrawn ; 3 bags sold at 33s 6d.
"City of Sparta."—F OBEC in estate mark, Kondesalle Ceylon O, 20 bags sold at 67s 6d ; F ditto 1, 6 bags sold at 55s ; ditto O, 56 bags withdrawn ; ditto 1, 15 bags sold at 56s ; F ditto D2, 4 at 55s ; G ditto, 5 at 55s.
"Historian."—New Peradeniya, 5 bags sold at 53s ; Allooviharie, 5 bags sold at 66s 6d.
"Shropshire."—H K 1, 25 bags withdrawn ; ditto 2, 4 bags sold at 47s 6d ; ditto T, 2 at 51s.
"Duke of Norfolk."—New Peradeniya, 24 bags sold at 65s.
"Glenartney."—Meegama No. A, 137 bags withdrawn ; No. 1, 20 bags withdrawn ; No. B, 9 bags sold at 49s ; Meegama A No. A, 6 bags withdrawn ; No. 1, 1 bag withdrawn ; No. B, 1 bag sold at 49s.
"Derbyshire."—Meegama No. A, 104 bags wit'draw.
"City of Madrid."—Marakona, 110 bags withdrawn; Yellangowry, 2 bags withdrawn.
"Clan Cameron."—Marakona, 75 bags withdrawn.
"Clan Lamont."—Jack Tree Hill No. 1, 10 bags sold at 61s ; No. II, 11 at 58s 6d ; No. III, 12 at 54s 6d.

CEYLON CARDAMONS SALES IN LONDON.

"Shropshire."—North Pundaluoya No. OO A, 1 case sold at 2s 8d ; ditto No. I B, 2 cases at 2s ; ditto No. II C, 1 at 1s 6d ; ditto No. III D, 1 at 1s 1d ; ditto No. IIII, F, 1 at 1s 1d ; ditto No. IIIII, Seed, 1 at 1s 3d ; Lauderdale Cardamoms London O, 2 at 1s 11d ; ditto 1, 4 at 1s 6d ; ditto 2, 3 at 1s 6d ; ditto 2, 6 at 1s 2d ; ditto Split, 3 at 11½d ; ditto Brown, 1 at 11½d.
"Kanagawa Maru."—A & Co., in estate mark, LC, 7 cases withdrawn at 2s.
"Abergeldie."—VRD, in estate mark, FFCS, 3 cases sold at 1s 3d.
"Ulysses."—NJDS, in estate mark, Malabar, 5 cases withdrawn at 1s 3d.
"Historian."—WDS, Malabar, 20 cases withdrawn at 1s 3d.
"City of Madrid."—Duckwari Ceylon Cardamoms B 1, 4 cases sold at 2s 1d ; ditto C 1, 6 cases sold at 1s 5d ; ditto D 1, 2 at 1s ; ditto A, Splits, 1 at 2s 3d ; ditto B, Splits, 2 at 1s 6d ; ditto C, Splits, 1 at 1s 1d ; 2 cases withdrawn ; D Splits 1 at 11d ; E Splits, 3 at 1s.
"Wakasa Maru."—JJB, 2 cases sold at 1s 3d.
"Albatross."—SB, 2 cases sold at 1s 4d.
"Benmohr."—Katooloya Cardamoms FX, 2 cases withdrawn at 2s 6d ; ditto AA, 7 at 1s 8d ; ditto A, 3 at 1s 1d ; ditto B, 4 at 1s ; 1 withdrawn : ditto C, 5 withdrawn ; ditto D, 2 cases sold at 1s 3d ; MM, 50 bags (Shells) withdrawn.
"Glenartney."—Katooloya Cardamoms EX, 1 case sold at 2s 6d ; ditto AA, 8 bags at 1s 7d ; ditto B, 5 cases withdrawn at 1s ; ditto D, 1 bag at 1s 4d ; Nicholaoya Cardamoms, Ceylon, London, 1 case withdrawn at 1s 7d ; ditto 2, 2 bags at 1s 5d ; ditto 3, 6 cases withdrawn at 1s ; ditto 4, 5 bags at 11d.
"Duke of Norfolk."—Yellam Mullai O, 1 case sold at 2s 9d ; ditto 1, 2 bags at 2s 2d ; ditto 2, 1 case at 1s 8d ; ditto 2, 4 bags at 1s 7d ; ditto 3, 3 cases at 1s 2d ; ditto Seed No. 1, 1 bag at 1s 5d ; Seed No. 2, 1 case at 1s 1d.

ALL MINCING LANE MARKETS THIS WEEK ARE QUIET

bar Cotton and Sugar. No sales of Ceylon Rubber this week or Ceylon Plumbago. As to Cardamoms 103 cases sold and 168 offered. Ceylon Cocoa fully 1,050 bags sold. Good to fine 76s 6d to 80s 6d. Ceylon Cotton, if procurable, would fetch from about 4⅝d to 8¾d per lb. according to staple and colour. Ceylon Cocoa met £28 to £33·15 C.I.F. done at £24 17s 6d and now closing at 25 guineas.

No. 11. COLOMBO, MARCH 18th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[30,179 lb.]

	Pkgs.	Name.	lb.	c.
Southwark	14 ch	bro pek	1400	36
	16 do	pek	1296	34
Hornsey	20 hf ch	bro pek	1200	45 bid
	12 ch	or pek	1080	42 bid
	12 do	pek	1140	41
	17 do	pek sou	1360	40
Goodnestone	19 ch	bro or pek	1425	38
	20 do	pek	1800	34 bid
Battalgalla	18 do	bro pek	1980	44
	18 do	pek	1630	42
Kenilstone	12 ch	*young hyson*	1200	33 bid
	11 do	*hyson*	1100	28
Bunyan and Oroca	40 hf ch	bro or pek	2200	45 bid
	37 ch	or pek	1850	43
	20 do	pek	1800	40
	12 do	pek No 2	1140	41
	16 do	pek sou	1440	40

Messrs. Forbes & Walker.

[525,684 lb.]

	Pkgs.	Name.	lb.	c.
New Peacock	24 hf ch	bro pek	1200	41
	20 do	bro mix	1000	32
	36 do	pek fans	2520	27
N	11 ch	sou	1100	30
	9 do	pek fans	1170	27
Yatiana	16 ch	or pek	1576	33
Glaslyn	67 hf ch	bro or pek	3819	withd'n.
	33 do	bro pek	1881	37 bid
Tempo	10 ch	bro or pek	1000	36 bid
	12 do	or pek	1080	37
	14 do	sou	1050	32
Tempo	10 ch	bro or pek	1000	37 bid
	12 do	or pek	1080	37
	12 do	pek	1020	34
	13 do	pek sou	1040	33
Ingrogalla	22 ch	bro pek	2200	37
	19 do	pek	1710	36
Baddegama	11 ch	br or pek	1100	43 bid
	16 do	or pek	1410	39
O B E C, in est mark Sindumallay	14 ch	bro or pek	1400	54
	11 do	or pek	1100	44
	27 do	pek	2430	41
	15 do	pek sou	1125	38
Walton	18 ch	bro pek	1800	38
Valana	13 ch	pek	1170	36
Tunisgalla	23 hf ch	bro or pek	1265	57
	60 do	bro pek	3000	41
	29 ch	or pek	2610	38
	29 do	pek	2610	36
Hayes	29 ch	bro pek	2900	42
	16 do	or pek	1360	41
	59 do	pek	5605	34
Ruanwella	40 ch	*young hyson*	3600	39
	13 do	*hyson*	1170	35
Cloyne	14 do	bro or pek	1400	44 bid
	12 do	or pek	1200	37
	15 do	pek	1320	34 bid
Detenagalla	28 hf ch	or pek	1568	42 bid
	20 ch	pek	2000	40
Rickarton, Invoice No 14	30 ch	bro or pek	3000	49
	20 do	bro pek	2000	39
Laurawatte	24 ch	bro pek	2400	40
	20 do	pek	1800	37
	13 do	pek sou	1170	34
Laurawatte (Vensta packages)	22 hf ch	fans	1716	29
Marlborough	49 hf ch	bro or pek	2646	47
	26 ch	bro pek	2600	41
	34 do	pek	3332	41
Florence	23 hf ch	bro or pek	1265	67
	17 ch	or pek	1700	55
	53 do	pek	5035	44
	20 do	pek sou	1900	41
	20 do	sou	1800	41
	27 hf ch	dust	2295	33
O B E C, est. mark Forest Creek	18 ch	bro or pek	1836	55
	20 do	bro pek No 1	2080	41
	23 do	bro pek No 2	2346	41
	19 do	or pek	1710	43
	26 do	pek	3600	40
Handford Inv. No 1	16 ch	pek	1520	31
Nahalma Inv. No 4	11 do	or pek	1056	38
	14 do	bro or pek	1400	38
	16 do	pek	1568	34
	12 do	bro pek	1200	35
Middleton, Inv. No 2	15 ch	bro pek	1500	66
	14 do	or pek	1260	53
	12 do	pek	1020	46
Kitulgalla Inv. No 3	11 ch	bro or pek	1100	37
	12 do	or pek	1080	37
	12 do	pek	1044	34
Good Hope, Invoice No 3	54 hf ch	bro or pek	3324	39
	16 ch	or pek	1440	37
Drayton	43 hf ch	or pek	2150	47
	41 ch	pek	3485	43
	15 do	pek sou	1200	41
Sirikandura	25 ch	bro pek	2500	39
	27 do	pek	2165	34
	24 ch	pek sou	2040	33
Lobanon Group	35 hf ch	bro or pek	2100	46
	32 ch	bro pek	3200	38
	28 do	pek	2380	37
	21 do	pek sou	1785	34
Breughton	30 ch	or pek	2560	42
	24 hf ch	bro or pek	1344	61
	12 ch	pek No 2	1176	41
	37 do	pek	3478	38
Clunes	16 ch	bro pek	1600	38
	19 do	or pek	1710	37
	32 do	pek	2880	34
	12 do	pek sou	1020	33
Mariawatte	12 hf ch	dust	1020	28
G in estate mark	40 ch	sou	3600	31
Dimbulkelle	18 hf ch	bro pek	1080	36 bid
Nakiadeniya	10 ch	*young hyson*	1000	42
	14 do	*hyson*	1260	37
Freds Ruhe	15 ch	bro pek	1575	37
	14 do	pek	1330	34
Hanwella, Inv. No 6	20 ch			
	1 hf ch	*young hyson*	2160	36
	8 ch			
	8 hf ch	*hyson*	1240	34
Madulkelle	17 ch	bro or pek	1700	41 bid
	13 do	or pek	1140	42
	14 do	pek No 1	1260	38
	11 do	sou	1050	32
Dunkeld	55 hf ch	bro or pek	3135	46
	17 ch	or pek	1530	42
	22 do	pek	1980	41
St. Vigeans	25 hf ch	bro or pek	1550	52
	18 ch	or pek	1458	48
	20 do	pek	1920	46
Erracht	14 ch	bro or pek	1400	36
	29 do	pek	2320	35
Torwood	24 ch	bro or pek	2400	39
	25 do	or pek	2250	36
	43 do	pek	3870	34
	22 do	pek sou	1980	33
Tonacombe	30 ch	or pek	2700	40
	34 do	bro pek	3400	42
	51 do	pek	4335	38
	26 do	pek sou	[illegible]	34
Talgaswella	18 ch	pek	1440	34 bid
Coreen	56 hf ch	bro pek	3360	58
	26 ch	or pek	2260	46
	17 do	pek	1530	44
Attampettia	22 do	bro pek	2415	48 bid
	22 do	or pek	2090	43
	24 do	pek	2328	40
Galapitakande	13 ch	or pek	1300	49
	18 do	bro pek	1800	40
	24 do	pek	2160	37
Queensland	19 hf ch	bro or pek	1045	58 bid
	20 do	bro pek	2000	44
	14 do	pek	1190	42
St Heliers	21 hf ch	bro or pek	1197	44
	11 ch	pek	1078	39
Y S P A	8 ch	fans	1016	29
Hanagama	13 ch	or pek	1300	35 bid
Polatagama	18 ch	bro or pek	1800	42 bid
	28 do	bro pek	2800	38 bid
	49 do	pek	4655	35 bid
	15 do	pek sou	1425	33
Yolverton	18 ch	bro pek	1890	40 bid
	27 do	pek	2430	37
K P W	26 hf ch	bro or pek	1500	39

	Pkgs.	Name.	lb.	c.
H G M	33 hf ch	bro or pek	1980	42
	18 ch	bro pek	1800	38
	14 do	pek	1260	39
	15 ch	fans	1050	31
O B E C, in est mark Summerhill	49 ch	pek sou	3773	36
	53 do	fans	1541	37
Delta	27 hf ch	bro or pek	1647	47
	40 ch	bro pek	4120	38
	37 do	pek	3182	38
	15 do	pek sou	1275	34
Watte	15 ch	bro pek	1480	36 bid
G L P, M	22 ch	bro pek	2200	35 bid
H P S, in est mark	14 ch	bro pek	1400	34 bid
Dunbar	37 hf ch	bro pek	2116	47
	21 ch	pek	1890	42
Coldstream Group	21 hf ch	bro or pek	1155	39
	23 do	bro pek	1495	40
	42 ch	pek	3360	36
Clarendon, Dimbula	27 hf ch	bro pek	1620	51
	25 ch	pek	2250	46
	28 do	pek sou	2380	43
Mansfield	65 hf ch	bro pek	3900	41 bid
	14 ch	pek	1400	40
Strathspey	11 ch	or pek	1047	withd'n
	11 do	pek	1034	withd'n
Lindupatna	12 ch	bro or pek	1260	54
	20 do	or pek	2080	43
	12 do	pek	1152	41
Ridgmount	10 ch	bro pek	1100	38
Ardlaw and Wishford	16 ch	bro or pek	1760	56
	17 do	bro pek No 1	1870	44
	13 do	bro pek No 2	1326	44
	19 do	or pek	1824	46
	26 do	pek	2236	42
Penrhos	26 hf ch	bro or pek	1456	44
	22 do	or pek	1056	41
	21 ch	pek No 1	1743	36
	22 do	pek No 2	1804	35
Kandaloya	*29 hf ch*	*young hyson*	1755	33 bid
	65 do	*hyson*	2600	35 bid
	29 do	*hyson No 2*	1160	35
Putupaula	10 ch	bro or pek	1000	47 bid
	66 do	or pek	5610	37 bid
	39 do	pek	3120	34 bid
	8 do	bro pek fans	1000	29 bid
Arnoimallai	12 ch	bro pek	1200	33
Harrington	36 hf ch	bro or pek	1980	53
	18 ch	or pek	1800	47
Dickdeliya	12 ch	pek	1080	33
Kotagaloya	26 ch	bro pek	2730	38
	24 do	pek	2280	36
Great Valley, Ceylon in estate mark	63 hf ch	bro or pek	4080	45
	22 ch	or pek	2200	42
	60 do	pek	5400	39
Wilpita	14 ch	bro or pek	1470	35
	13 do	or pek	1235	33
Mousa Eliya	26 ch	bro or pek	2600	39
	11 do	bro pek	1100	37
Robgil	20 hf ch	bro or pek	1000	54 bid
	27 ch	bro pek	2430	44
	20 do	pek	1600	42
Erlsmere	36 hf ch	bro or pek	1980	54
	23 ch	bro pek	2208	45
	13 do	pek	1080	41
Harrow	17 hf ch	bro or pek	1020	52 bid
	12 ch	or pek	1200	46
	13 do	pek	1300	44
Bandara Eliya	25 hf ch	or pek	1200	46 bid
	21 do	br or pek No 1	1092	4
	40 do	br or pek No 2	2482	40 bid
	35 do	pek	1645	46
Kalagama	12 ch			
	1 hf ch	bro pek	1237	36 bid
Morankande	14 ch	or pek	1390	36
	19 do	pek	1710	34
Inverness	22 ch	bro or pek	2200	57
	17 do	or pek	1530	70
	22 do	pek	1870	52
L, in estate mark	10 ch	bro pek	1010	34
Palmerston	14 hf ch	bro or pek	1010	55 bid
	18 do	bro pek	1080	48
	16 ch	pek	1360	47
Talgaswela	18 ch	bro or pek	1800	43
	20 do	pek	1600	36
	19 do	or pek	1520	38
Amblakande	10 ch	bro pek	1000	47
	28 do	pek	2380	36
E B, B in est mark	16 ch	fans	1615	31
Ambragalla	32 hf ch	bro or pek	1728	withd'n
	17 do	pek	1360	withd'n

Messrs. Keell and Waldock.

[81,346 lb.]

	Pkgs.	Name.	lb.	c.
T	12 ch	bro pek	1260	26 bid
	19 do	pek	1710	26 bid
	16 do	pek sou	1360	24 bid
	13 hf ch	br pek dust	1105	23 bid
Mudalkelle	14 ch	bro or pek	1100	38
	16 do	pek	1400	33
	13 do	pek sou	1170	32
Fairlawn	80 hf ch	bro or pek	4000	40 bid
	25 ch	bro pek	2375	40
	21 do	pek	1680	39
Galagama	25 ch	bro pek	2375	38 bid
	38 do	pek	3400	33 bid
	12 do	pek sou	1050	32 bid
Woodend	43 ch	bro pek	4300	38
	48 do	pek	4300	34
	18 do	pek sou	1440	31
Dunnottar	40 hf ch	bro or pek	2000	45
	20 ch	pek	1700	39
Galgedioya	36 ch	bro pek	3600	36
	20 do	pek	1700	34
	13 do	pek sou	1040	33
Hyde	20 ch	bro or pek	2060	47
	25 do	pek	2250	41
Woodend	31 ch	bro pek	3100	38
	32 do	pek	2880	35
	14 do	pek sou	1120	33
Morahela	16 ch	bro or pek	1900	38
	38 do	bro pek	3800	41
	23 do	or pek	2139	36
	25 do	pek	2250	34
Taprobana	27 hf ch	bro or pek	1350	39
	17 ch	pek	1360	38

Messrs. Somerville & Co.

[322,515 lb.]

	Pkgs.	Name.	lb.	c.
Citrus	19 ch	bro pek	1710	36
	24 do	pek	2160	34
Neuchatal	12 ch	bro or pek	1140	40
	46 do	or pek	3910	36
	24 do	pek	1920	34
	17 do	bro pek	1785	37
Lonach	25 hf ch	bro or pek	1450	42
	13 ch	or pek	1170	39
	31 do	pek	2697	39
	30 do	pek sou	2610	34
Laxapanagalla	13 ch	bro or pek	1261	38
S R K	19 ch	pek	1900	41
Kudaganga	16 ch	bro pek	1600	38
	14 do	pek	1260	34
Mahatenne	13 ch	bro or pek	1300	40
Invery	37 hf ch	bro or pek	2368	61
	28 do	or pek	1624	46
	38 ch	pek	3724	44
Meriatenne	19 hf ch	bro or pek	1045	43
	23 do	pek	1058	39
Allac Ilawewa	21 hf ch	bro or pek	1092	44
Marigold	23 hf ch	bro or pek	1150	45
	23 do	or pek	1081	42
Berry Hill	10 ch	bro or pek	1000	37
	12 do	pek	1020	34
Theberton	12 ch	bro pek	1200	37
	20 do	pek	1800	36
Carriglea	12 ch	pek sou No 1	1020	33
Owilikande	20 ch	bro or pek	2000	37
	14 do	or pek	1190	36
	24 do	pek	2160	34
Nellicoll ywatte	13 ch	bro pek	1326	38
	12 do	pek	1080	36
Walla Valley	48 hf ch	bro or pek	2640	52 bid
	32 ch	or pek	2720	56
	50 do	pek	4500	46
B and D	15 hf ch	dust	1230	32
	17 ch	unast	1615	24
Glenanore	47 hf ch	bro or pek	2820	46
	20 ch	or pek	1800	41
	16 do	pek	1410	40
Torbay	27 hf ch	bro pek No 1	1512	40
	27 do	pek	1296	39
Kallebokka	13 ch	or pek	1170	40 bid
Ellerslie	25 hf ch	bro or pek	1375	43 bid
	14 ch	or pek	1260	40
	14 do	pek	1120	38
	13 do	br pek	1300	35 bid
Welgampola	13 ch	pro pek	1430	34 bid
	11 do	pek	1210	30 bid
Eilandhu	11 ch	bro pek	1045	37
	15 do	pek	1350	34
St. Andrews K	19 hf ch	bro pek	1140	38
Wiharagama	19 hf ch	br or pek No 1	1045	38

	Pkgs.	Name.	lb.	c.
Grange Gardens	12 ch	bro or pek	1200	45 bid
	11 do	or pek	1100	42
	15 do	pek	425	40
	12 do	pek sou	1140	37
Warakamure	20 ch	br or pek	2000	37
	13 do	or pek	1040	36
	17 do	pek	1445	35
New Angamana	20 ch	bro or pek	2000	37 bid
	12 do	or pek	1080	37
	29 do	pek	2610	34 bid
Agra Elbedde	55 hf ch	bro or pek	3025	50 bid
	42 do	or pek	2352	43 bid
	47 do	pek	2350	41 bid
Salem	11 ch	bro or pek	1100	39
	13 do	or pek	1300	35
R A W	29 ch	bro pek	2349	38 bid
	14 do	pek	1148	38
Maddegodda	24 hf ch	bro pek	2210	38 bid
	36 do	pek	19[illegible]0	35 bid
Dikmukalana	47 hf ch	bro pek	2585	38
	31 do	or pek	1550	35
	44 do	pek	2200	34
Oolapane	21 ch	bro pek	2100	38 bid
	10 do	pek	1000	37
Polgahakande	11 ch	bro pek	1045	36
	[illegible] do	pek	1600	34
	14 ch	or pek	1120	38
	23 do	bro pek	2185	38
	16 do	pek	1280	34
Oonoonagalla	17 ch	or pek	1445	42
	21 do	br or pek	2100	48
	23 do	pek No 1	2300	40
	12 do	pek sou	1080	36
Hobart	16 ch	bro or pek	1600	36
	17 do	pek sou	1309	23
Dryburgh	13 ch	pek	1066	24
Hanagama	20 ch	or pek	2000	35
	33 do	pek	3300	34
	13 do	pek sou	1300	32
Cooroondoowatte	11 ch	pek	1100	35
	11 do	pek sou	1100	33
Mahatenne	16 ch	bro or pek	1600	38 bid
	17 do	or pek	1615	36
	13 do	pek	1235	35
Mahavilla	18 hf ch	bro pek	1044	38
	18 do	bro pek	1044	40
	20 do	or pek	1000	40
	10 ch	pek	1020	38
Kurulugalla	40 ch	bro pek	3800	38
	40 do	pek	3600	34
Oonankande	24 hf ch	bro or pek	1200	40
	22 do	pek	1210	36
Dooroomadella	13 *ch*	*young hyson*	1300	33
	24 *do*	*hyson*	2232	35
Forest Hill	11 ch	bro pek	1012	37
	21 do	pek	1785	34
Murraythwaite	15 ch	bro pek	1500	38
	17 do	pek	1445	34
Old Maddegama	18 hf ch	bro or pek	1000	49
	20 ch	pek	1700	40
Ferndale	11 ch	bro or pek	1100	47 bid
	20 do	pek	1800	35
	11 do	pek sou	1045	33
Kalle'okka	21 ch	bro or pek	2097	48 bid
Beausejour	12 ch	bro or pek	1200	38
	17 do	bro pek	1615	37
	33 do	pekoe	2560	35
	30 do	pek sou	2250	33
Hakgalle	69 ch	bro or pek	5890	38 bid
Bodawe	34 hf ch	bro pek	1700	38
Gwernet	10 ch	bro pek	1000	41 bid
	14 do	pek	1040	38
Mora Ella	24 hf ch	bro or pek	1300	42 bid
	2[illegible] do	or pek	1025	42
	11 ch	pekoe	1012	36
Moragalla	11 ch	bro pek	1100	37
	16 ch	pek sou	1400	33
Rahatungoda	22 hf ch	bro or pek	1232	40
	11 ch	or pek	1029	40
	12 do	pek	1128	39
Farnham	35 *hf ch*	*young hyson*	1960	38
	10 *ch*	*hyson No 1*	1000	35
D M O G in est mark	20 hf ch	bro pek	1100	41
	20 do	or pek	1000	41
	16 ch	pekoe	1440	36
	17 do	pek sou	1275	34
Deniyaya	27 ch	bro pek	2700	39
	1[illegible] do	pekoe	1520	35
	13 do	pek sou	1170	34
Cwm	39 hf ch	bro pek	2145	42
	27 ch	pekoe	2160	39
Highfields	35 hf ch	bro pek	1960	42 bid
	33 do	pekoe	1584	39
Neboda	18 ch	bro or pek	1800	39 bid
	17 do	or pek	1564	37
	22 do	pekoe	2200	34 bid

Messrs. E. John & Co.

[257,948 lb.]

	Pkgs.	Name.	lb.	c.
Poilakande	13 ch	bro or pek	1170	35
	29 do	bro pek	2610	33
	21 do	pek	1680	33
Theresia	28 hf ch	bro or pek	1540	49 bid
	15 ch	or pek	1350	44 bid
	29 do	pek	2465	41
Glentilt	34 hf ch	bro or pek	1870	55
	18 ch	or pek	16[illegible]6	47
	17 do	pek	1530	45
	18 hf ch	fans	14[illegible]0	33
S J	20 ch	bro pek	2000	31 bid
	24 do	pek	2232	32
Lameliere	29 ch	bro or pek	2900	44 bid
	17 do	or pek	1[illegible]64	43 bid
	42 do	pek	3780	40 bid
Templestowe	24 hf ch	bro or pek	1368	53 bid
	24 do	bro pek	1344	46 bid
	23 do	or pek	1012	46
	18 ch	pek	1620	43
	14 do	pek sou	1260	40
	16 hf ch	fans	1120	35
Longville	17 ch	bro pek	1700	39
Nabavilla	21 ch	or pek	2100	41
	24 do	bro pek	2400	40 bid
	15 do	pek	1500	39
O W	23 ch	bro pek	2070	35
	16 do	pek	2180	34
Kadienlena	25 hf ch	bro or pek fans	1875	29
Brownlow	18 hf ch	bro or pek	1003	55 bid
	19 ch	or pek	16[illegible]5	44
	15 do	pek	1125	40
Elston	20 ch	pek	1600	37
	30 do	pek sou	2[illegible]50	35
	18 hf ch	dust	1440	30
	17 do	bro mix	1190	30
Birnam	15 ch	pek sou	1050	43
	17 hf ch	dust	1496	32
	36 do	fans	2736	34
Genavy	20 ch	or pek	1600	43
	35 hf ch	bro or pek	1820	45 bid
	33 do	pek	2805	41
Ottery	11 ch	bro or pek	1100	45 bid
	16 do	pek	1440	37
Coslanda	25 hf ch	bro pek	1500	44
	16 ch	pek	1600	40
Gingranoya	17 ch	bro or pek	1870	46
	15 do	pek	1350	40
Dubena	17 ch	pek	1685	32
Koslande	25 hf ch	bro pek	1500	45 bid
	16 ch	pek	1600	40
Morton	17 ch	bro pek	1700	37
	13 do	or pek	1105	37
	31 do	pek	2480	34
	18 do	bro or pek	1800	37
	13 do	or pek	1105	37
	30 do	pek	2400	34
Elbedde	14 hf ch	dust B	1260	28
Cleveland	30 hf ch	fly or pek	1710	60 bid
	53 do	pek	3021	42 bid
Glasgow	20 hf ch	pek fans	1400	33
Agra Ouvah	48 hf ch	bro or pek	2880	49 bid
	19 ch	or pek	1805	42
	13 do	pek	1195	41
	22 hf ch	pek fans	1760	32
Rondura	11 ch	pek	1155	39
	13 do	or pek	1326	37 bid
	20 do	pek	1860	36
	13 do	pek sou	1040	34
Kelaneiya & Braemar	16 ch	bro or pek	1600	47 bid
	14 do	bro pek	1400	4[illegible] bid
	22 do	pek	2090	41
St. John's	36 hf ch	bro or pek	2088	4[illegible] bid
	23 ch	or pek	2024	49 bid
	20 do	pek	1900	40 bid
Navangama	12 ch	bro or pek	1100	38
Natuwakelle	12 ch	bro or pek	1200	42
	18 do	or pek	1620	38
	17 do	pek	1530	36
Mt. Vernon	42 ch	pek	3780	48
	22 do	pek sou	1980	40
	15 hf ch	dust	1200	31
	23 ch	pek	2550	44
Nahavilla	12 ch	or pek	1080	37 bid
Galpotta	29 hf ch	natural leaf No 3	1805	out
Holbrook	26 hf ch	bro pek fans	1820	33
	7 ch	dust	1050	30
Westhall	10 ch	dust	1150	34
Gansarapolla	34 hf ch	bro or pek No 1	1938	38 bid
	32 do	bro or pek No 2	1696	36
	32 do	bro pek	1600	35
	24 do	pek	1152	34
Kadienlena	24 hf ch	sou	1200	26
Ratwatte	34 ch	bro pek	3400	36
	16 do	pek	1440	35

	Pkgs.	Name.	lb.	c.
Dickapitiya	25 ch	bro pek	2500	38 bid
	17 do	pek	1620	35
	29 do	pek sou	2610	33
N	12 hf ch	dust	1020	28
Gangawatte	24 hf ch	bro or pek	24?0	49 bid
	19 ch	bro pek	1900	45
	32 do	pek	2880	41
Agra Ouvah	31 hf ch	bro or pek	1820	42 bid
Myraganga	16 ch	or pek	1440	38 bid
	28 do	bro or pek No 1	2800	44 bid
	34 do	bro or pek No 2	3400	41 bid
	15 do	pek	1275	37
Avington	*41 ch*	*young hyson*	4100	37
	37 do	*hyson*	3515	35
Bittacy	28 ch	bro pek	2744	47
	24 do	p k	2016	46
Mt. Everest	42 hf ch	bro or pek	23?0	52
	33 do	or pek	1650	46
	47 ch	pek	4700	40

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Southwark	4 ch	pek sou	292	33
Goodnestone	2 ch	pek sou	180	33
	8 hf ch	bro pek fans	640	30
Gondanawella	11 hf ch	bro or pek	627	37
	5 do	pek	250	31
	4 do	sou	196	30
	4 do	bro pek fans	280	35
	1 do	dust	90	23
	2 ch			
	1 hf ch	*green tea*	223	14
Battalgalla	10 ch	pek sou	800	38
	10 hf ch	bro pek fans	700	34
	3 do	dust	270	28
Kenilstone	*6 ch*	*hyson No 2*	600	41
H	1 ch	pek	90	32

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
N				
Yatiana	4 ch	bro tea	400	25
	2 ch	bro pek	198	34
	3 do	pek	303	32
	1 do	sou	103	26
	1 do	dust	154	24
Glaslyn	4 ch	pek	360	37
	2 hf ch	fans	180	30
Tempo	6 ch	dust	550	29
	4 do	sou	320	33
	8 do	bro pek fans	600	37
	4 do	dust	410	29
Ingrogalla	3 ch	pek fans	300	34
	3 do	bro pek dust	360	28
Baddegama	6 ch	bro pek	600	38
	9 do	pek	765	37
	7 do	pek sou	560	35
	3 do	fans	330	30
Walton	11 ch	or pek	935	36
	10 do	pek	900	34
	3 do	sou	210	33
	1 do	dust	150	27
Valana	5 ch	bro or pek	5?0	40
	9 do	bro pek	855	38
	9 do	pek sou	765	33
	1 do	dust	150	26
Tunisgalla	9 ch	pek sou	765	33
	7 hf ch	dust	665	27
Ruanwella	1 do	pek	40	35
	1 do	pek sou	39	33
	1 do	bro pek fans	40	31
Ruanwella	*2 ch*	*hyson No 2*	200	38
	4 do	*siftings*	420	17
Aden	1 ch	bro pek	100	39
	1 do	pek	90	35
C E	1 do	bro tea	128	27
A F	3 ch	sou	210	33
R W	3 do	sou	225	32
I K V	4 ch	pek fans	460	28
Norfolk	7 do	bro pek	770	39
	11 do	pek	935	39
	7 do	pek sou	630	35
	3 hf ch	dust	255	29
Detenagalla	7 ch	pek sou	700	37
	4 do	fans	320	31
Laurawatte	4 hf ch	fans (Venesta packages)	400	29
Marlborough	10 ch	pek sou	900	37
	3 hf ch	bro pek fans	216	33

	Pkgs.	Name.	lb.	c.
Florence	14 do	bro or pek fans	910	42
Handford, Inv. No 1	1 ch	sou	90	33
	2 do	bro pek fans	150	31
	3 hf ch	dust	270	27
Nahalma, Inv. No 4	8 ch	fans	800	32
	5 hf ch	dust	400	28
Kitulgalla, Invoice No 3	2 ch	dust	300	28
	2 do	bro or pek fans	230	31
Good Hope, Invoice No 3	5 ch	pek	475	35
	5 do	pek sou	450	33
	3 hf ch	fans	198	30
	1 do	bro pek fans	75	30
H M, Inv. No 3	1 ch	bro mix	100	24
Sirikandura	2 do	bro pek fans	190	33
	2 do	bro pek dust	271	30
	2 do	dust	340	25
Broughton	8 ch	pek sou	680	36
	10 hf ch	dust	800	29
Nona Totum	1 hf ch	or pek	50	41
	1 ch	pek	90	34
	1 do	pek sou	70	34
	2 hf ch	dust	180	30
	4 do	bro pek fans	280	24
	4 ch	fans	510	29
Kelhourne	4 hf ch	dust	340	28
Clunes	6 ch	dust	780	30
Curzon	10 do	pek	850	32
C B L	4 ch	bro or pek	400	33
	5 do	pek	425	31
	2 do	fans	210	28
Dimbulakelle	6 ch	pek	522	33
Kenpitiya	*11 hf ch*	*young hyson*	605	33
	11 do	*hyson*	517	33
	5 do	*hyson No 2*	235	30
	1 do	fans	60	11
Natiadeniya	7 ch	*twanky*	315	21
Freds Ruhe	9 ch	pek sou	900	33
W A	2 do	dust	300	27
Hanwella Inv No 5	*6 hf ch*	*hyson No 2*	390	37
	3 do	*hyson siftings*	210	14
Madulkelle	8 ch	pek No 2	200	35
	1 do	dust	100	26
	1 do	fans	100	31
St. Vigeans	3 hf ch	dust	270	30
Erracht	8 ch	or pek	720	38
	10 do	pek sou	800	33
	2 do	pek fans	240	31
	1 do	dust	150	28
Torwood	2 ch	bro pek fans	250	32
	2 do	dust	260	27
Coreen	5 ch	pek sou	400	39
	11 hf ch	pek fans	770	32
	4 do	dust	340	38
Attampettia	6 ch	pek sou	570	37
Galapitakande	10 ch	pek sou	950	34
	8 do	bro pek No 1	760	48
	3 hf ch	dust	255	28
Queensland	3 ch	pek No 2	270	33
	3 hf ch	bro pek dust	240	31
	5 do	bro pek No 2	500	34
Lindoola	13 ch	pek sou	975	35
	10 do	dust	900	30
Y S P A	4 ch	pek	380	35
	6 do	dust	900	28
Polatagama	7 do	fans	700	33
	3 do	dust	450	23
Wewekelle	3 ch	bro tea	300	33
	3 hf ch	dust	255	29
Yelverton	8 ch	pek sou	696	35
	1 hf ch	dust	100	26
Digdola	2 ch	bro or pek	200	40
	9 do	bro pek	855	36
	4 do	pek	320	33
	8 do	pek sou	600	32
	1 do	bro pek fans	110	31
	2 hf ch	dust	180	26
K P W	10 hf ch	bro pek	500	37
	15 do	pek	750	36
New Galway	9 hf ch	bro pek	540	63
Denmark	1 do	pek sou	90	34
O B E C, in est mark Summerhil	7 ch	dust	651	32
Nagaganga	5 ch	bro pek	280	35
Dunbar	8 ch	pek sou	664	37 bid
W	*9 ch*	*hyson*	900	36
B L G	9 ch	bro or pek	900	32 bid
Dunbar	6 ch	pek sou	492	28
	7 hf ch	bro pek fans	525	33
Coldstream Group	11 ch	pek sou	830	34
	4 hf ch	bro or pek fans	320	29
	3 do	dust	240	28
Clarendon, Dimbula	1 ch	sou	85	37
	1 hf ch	pek dust	85	30
Mansfield	9 ch	pek sou	765	32

	Pkgs.	Name.	lb.	c.
Strathspey	5 ch	bro or pek	500	withd'n
	6 do	bro pek	600	withd'n
	2 do	dust	204	withd'n
Lindupatna	6 ch	pek sou	576	38
	6 do	bro pek sou	810	33
Ridgmount	7 ch	pek	700	34
Ardlaw and Wishford	5 ch	fans	600	32
	2 do	dust	200	29
Monterey	9 ch	pek sou	810	32
Penrhos	2 hf ch	pek sou	100	32
	4 do	fans	300	30
	1 do	pek dust	93	28
Kandaloya	4 hf ch	gunpowder	200	32
	10 do	fans	500	22
	4 do	fans No 2	160	19
	5 do	dust	250	12
Putupaula	1 ch	pek sou	90	33
	1 do	dust	155	29
K B	9 ch	dust	720	withd'n
Harrington	7 ch	bro pek	785	45
	7 do	pek	700	43
	1 do	dust	95	29
New Galway	10 hf ch	bro pek	600	56
	9 do	pek	495	41
	2 do	pek sou	100	38
Dickdeliya	5 ch	bro pek	475	36
	4 do	or pek	400	38
	11 do	pek sou	880	32
Nawdagalla	2 ch	bro pek	220	33
	1 do	bro pek	75	34
	2 do	pek	220	32
	4 do	pek sou	360	31
Kotagaloya	12 hf ch	dust	960	30
Wilpita	9 ch	pek	855	32
	4 do	bro or pek fans	480	29
	3 do	sou	270	30
	2 do	bro mix	200	26
Mousa Eliya	8 ch	pek	760	34
	1 do	pek sou	95	33
	3 do	dust	300	26
L, N S in est mark	1 ch	bro pek	68	34
	2 do	pek	182	30
	3 do	pek sou	210	29
	1 do	dust	129	20 bid
Erlsmere	2 ch	pek sou	172	38
	4 hf ch	dust	312	32
Harrow	2 ch	pek sou	196	39
	4 do	dust	320	29
K H L	2 ch	pek fans	260	30
	4 do	dust	640	29
G M	1 box	bro pek	24	35
Morankande	16 hf ch	bro or pek	896	37
	12 ch	pek sou	840	33
	4 hf ch	bro or pek fans	280	31
	2 do	dust	180	28
W W	1 ch	or pek	80	40
L, in estate mak	9 ch	pek	765	32
	2 do	dust	150	26
L B K	2 ch	bro mix	180	29
Palmerston	9 ch	pek sou	675	39
Talgaswella	3 ch	pek sou	975	34
	8 hf ch	bro pek No 2	480	34
	4 do	dust	340	28
Amblakande	4 ch	dust	400	27
O H S	1 ch	fans	105	24
C T S	1 ch	dust	140	10
D L H	3 hf ch	green tea dust	285	10
Mount	*1 hf ch*	*hyson No 2*	50	30
W	4 hf ch	dust	340	11
W	*2 hf ch*	*young hyson*	119	34
L P	1 box	green tea fans	28	11
S D T, in est mark	*1 ch*	*hyson*	67	35
T T	1 ch	dust	112	10
Borougalla	2 hf ch	green tea fans	160	12
A A, in estate mark	1 ch	dust	181	11
B K T, in est mark	2 ch	br pek fans	240	31
R C	2 ch			
	1 hf ch	bro mix	228	22
H T H	*1 ch*	*hyson*	63	34
	1 do	*dust*	132	12
A B C	6 hf ch	dust	510	10
P R T	2 hf ch	bro or pek	90	40
T K	2 ch	dust	280	9
V	1 ch	fans	100	26
Ambragalla	20 hf ch	or pek	940	withd'n
	11 ch	pek sou	858	withd'n
	2 do	unassorted	120	withd'n
	2 do	dust	220	withd'n
	1 do	congou	40	withd'n

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
F in est mark	5 ch	red leaf	400	10 bid
	3 hf ch	dust	255	8 bid
T	12 hf ch	bro pek fans	780	24

	Pkgs.	Name.	lb.	c.
Fairlawn	7 hf ch	dust	630	28
Galagama	2 hf ch	dust	160	27
Kosgodawella	5 hf ch	bro pek	250	34
	15 do	pek	750	31
	2 do	sou	95	18
	4 do	fans	228	18 bid
	6 do	dust	300	withd'n
Woodend	1 ch	fans	114	30
	3 do	dust	420	28
Dunnottar	10 ch	pek sou	850	35
A	5 ch	red leaf	460	10 bid
	2 hf ch	dust	150	11 bid
Galgedioya	8 hf ch	dust	640	32
	3 ch	fans	300	30
K G	6 ch	sou	570	30
T in est mark	*1 hf ch*	*hyson powder*	51	9
M N	1 ch	pek sou	83	27
	7 do	bro tea	707	16 bid
	do	red leaf	760	16 bid
	6 do	bro mix	450	14 bid
Hyde	4 ch	pek sou	360	37
	hf ch	bro or pek fans	441	33
	7 do	dust	225	31
Woodend	3 ch	fans	48	30
	1 do	dust	420	28
Morahela	3 do	sou	102	33
	4 hf ch	dust	320	26
Taprobana	3 ch	pek sou	240	34
	3 hf ch	dust	210	28
	4 do	or pek fans	240	31
	1 ch	sou	78	21
Liliawatte	6 ch	bro pek	648	35
	5 do	pek	485	33
	1 do	pek sou	80	32
Engurankande	8 hf ch	bro pek fans	572	26
	5 ch	unasst	600	15 bid
	1 do	pek dust	163	19 bid
	1 do	dust	180	13 bid

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Ahamed	14 hf ch	bro pek	700	32 bid
	10 hf ch	pek	500	33
Citrus	6 ch	pek sou	570	32
	2 do	bro pek fans	200	29
	1 do	pek dust	128	26
Charlie Hill	16 hf ch	bro pek	800	37
	18 do	or pek	900	36
	13 do	pek	600	34
	2 do	pek sou	150	32
	2 do	dust	180	26
Neuchatel	3 ch	dust	450	28
Laxapanagalla	10 ch	or pek	970	35
	2 do	pek	182	33
	2 hf ch	pek fans	152	28
	1 do	dust	85	26
G	4 ch			
	1 hf ch	red leaf	413	27
S R K	3 ch	dust	480	30
Kudaganga	9 ch	pek sou	765	33
	2 do	fans	190	33
	3 do	pek dust	339	29
Mowbray	8 ch	bro pek	800	49 bid
	10 do	pek	850	37
	4 do	pek sou	320	34
Mahatenne	1 hf ch	fans	85	27
	1 do	dust	90	24
Invery	9 ch	pek sou	900	40
Meeriatenne	7 hf ch	pek sou	336	34
Allacollawewa	18 do	or pek	846	42
	9 do	pek	441	38
	13 hf ch	pek sou	637	37
	8 do	pek dust	600	30
Marigold	14 hf ch	pek	686	40
	17 do	pek sou	832	35
Theberton	2 ch	pek sou	180	33
	2 do	bro pek fans	200	30
	2 do	pek fans	200	28
	1 do	dust	100	26
Carriglea	11 hf ch	bro pek fans	715	30
	9 ch	pek No 2	765	36
	1 do	dust	75	25
Owilikande	10 ch	pek sou	900	32
	5 hf ch	dust	450	26
Nellicollaywatte	16 hf ch	bro or pek	928	46 bid
	6 ch	pek sou	456	34
	1 hf ch	dust	80	28
	3 do	bro or pek fans	213	31
G	*2 ch*	*young hyson*	180	31
	1 do	*hyson No 1*	85	24
Gallawatte	*1 ch*	*hyson fans*	100	15
G	*10 ch*	*hyson bro tea*	884	14
B & D	10 hf ch	fans	650	32
Glenanore	7 hf ch	dust	525	29
Ellerslie	3 hf ch	dust	210	28

	Pkgs.	Name.	lb.	c.
Welgampola	5 ch	pek sou	550	31
	1 do	congou	107	28
	2 do	dust	240	26
Eilandhu	5 ch	pek sou	450	33
	3 do	bro tea	270	31
	2 do	bro mixed	170	28
	2 hf ch	dust	250	27
St. Andrews K	15 hf ch	pek	750	36
	2 do	pek sou	100	34
Ingeriya	7 ch	souchong	630	32
	6 do	dust	780	28
Wiharagama	17 hf ch	bro or pek No 2	901	37
	16 do	bro pek	848	36
	9 do	pek	450	35
Ferriby	11 hf ch	dust	830	27
Grange Gardens	9 ch	fans	900	34
	4 hf ch	dust	340	30
Warakamure	6 ch	pek sou	480	32
	1 hf ch	dust	90	25
New Angamana	8 ch	pek sou	720	33
	4 do	pek fans	440	31
	1 do	dust	165	25
X X	4 hf ch	bro or pek fans	260	33
	2 do	pek dust	170	30
B F	2 hf ch	dust	196	29
Salem	1 ch	dust	100	28
R A W	11 ch	or pek	858	40
	5 do	pek sou	390	35
	5 do	fans	500	32
	2 hf ch	dust	150	28
Meddegodda	19 hf ch	pek sou	950	34
	4 do	dust	300	28
	4 do	bro pek fans	220	31
Atherton	5 ch	bro tea	450	26
	5 hf ch	fans	365	28
	5 do	dust	415	28
St. Leys	2 ch	pek sou	184	35
	1 do	sou No. 1	110	29
	2 hf ch	fans	162	32
F A in est mark	2 hf ch	pek sou	90	36
	1 do	dust	62	29
F in est mark	2 ch	pek sou	160	38
	3 hf ch	dust	285	29
Oolapane	7 hf ch	dust	560	27
	4 do	fans	280	28
Polgahakande	7 ch	or pek	560	37
	7 do	bro or pek	665	38
	7 do	pek sou	560	33
	2 do	fans	250	29
	2 do	dust	280	26
Hegalle	8 hf ch	bro pek	452	35
	10 do	pekoe	506	34
	6 do	pek sou	312	33
	5 do	pek dust	400	26
	1 do	congou	58	29
	6 do	bro mix	336	23
Maligatenne	2 hf ch	bro or pek	110	33
	2 ch	bro pek	180	32
	4 do	pek	320	31
	2 do	pek sou	172	31
Dryburgh	13 hf ch	bro or pek	728	38
	7 ch	or pek	630	39
	1 do	pek sou	90	33
	2 hf ch	fans	148	28
Hanagama	6 ch	bro or pek	678	40
	7 do	souchong	644	32
	2 do	fans	224	29
	2 do	dust	288	26
Cooroondoowatte	9 ch	bro pek	900	40
Mahatenne	1 hf ch	fans	80	28
	1 ch	dust	110	27
Makavilla	1 ch	sou	95	33
Kurulugalla	11 ch	pek sou	990	33
	3 do	bro pek fans	300	32
	2 do	pek dust	300	27
K G A in est mark	2 ch	red leaf	190	20
Oonankande	5 ch	pek sou	350	32
	7 hf ch	dust	462	29
Dooroomadella	*4 hf ch*	*siftings*	276	15
Murraythwaite	3 ch	pek sou	255	32
	1 do	bro pek fans	130	28
	1 do	dust	185	24
Old Maddegama	12 hf ch	or pek	600	42
	5 ch	pek sou	425	36
	2 do	bro or pek fans	200	34
	1 hf ch	dust	90	28
Beausejour	1 ch	fans	110	30
	2 hf ch	dust	180	27
Bodawa	11 ch	pek	990	34
	11 do	pek sou	935	32 bid
	1 hf ch	bro mix	56	26
	3 do	bro pek fans	225	28
Gwernet	8 ch	pek souchong	640	35
	3 do	dust	300	30
Bodagoda	4 ch	bro pek	360	35
	6 do	pek	546	32
	1 hf ch	dust	63	24

	Pkgs.	Name.	lb.	c.
Moragalla	8 ch	pek	800	
	2 do	dust	224	
	4 do	fans	400	
	3 bags	red leaf	250	29
Farnham	*1 ch*	*hyson No 2*	110	34
	2 hf ch	*fans*	140	18
	1 do	*dust*	90	10
	1 sack	*twanky*	60	13
D M O G in est mark	4 hf ch	dust	340	28
	8 do	fans	480	31
	2 ch	bro mix	170	27
G T	3 hf ch	bro tea	198	35
	5 do	dust	425	28
	3 do	fans	207	30
	3 ch	bro mixed	248	28
Allakolla	4 ch	red leaf	480	27
Deniyaya	9 ch	sou	810	33
	2 do	dust	190	27
	5 do	pek fans	500	30
	6 do	sou	540	33
	3 do	pek fans	300	32
Cwm	9 ch	pek sou	720	35
	7 hf ch	pek fans	560	32
Highfields	6 hf ch	bro or pek	330	47
Neboda	2 ch	pek fans	200	32
	4 do	pek sou	400	34
	5 hf ch	dust	425	28
Partgahakanke	4 ch	bro pek	400	34
	4 do	pek	380	32
	2 do	pek sou	170	31
	2 do	fans	170	25

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
P P P	4 ch	bro pek	420	34
	2 do	pek	180	33
	3 do	pek sou	270	32
	1 do	fans	100	28
	3 bags	red leaf	173	20
P K T	6 ch	pek sou	480	31
	8 hf ch	dust	640	26
Theresia	5 ch	bro pek fans	500	35
	4 do	sou	360	34
	7 hf ch	dust	560	31
S J	10 hf ch	dust	860	26
Lameliere	9 hf ch	bro pek fans	630	33
	1 ch	sou	85	33
Longville	9 ch	pek	900	34
	5 do	pek sou	500	33
	8 hf ch	fans	600	30
W, in estate mark	3 hf ch	dust	252	28
Kehelwatte	5 hf ch	dust	425	28
	2 ch	fans	220	34
O W	2 ch	pek sou	152	32
	1 hf ch	dust	87	26
	9 do	pek fans	612	28
Yapame	1 hf ch	dust	95	36
	2 ch	fans	190	28
Shawlands	3 ch	dust	240	25
	3 do	fans	336	27
Brownlow	8 hf ch	dust	584	30
Ottery	9 ch	or pek	720	40
	3 hf ch	dust	227	29
Coslanda	8 ch	pek sou	800	35
	2 do	fans	220	30
	1 hf ch	dust	90	28
Gingranoya	10 ch	or pek	950	43
	5 do	dust	700	29
Dubena	3 ch	bro or pek	264	36
	5 do	bro pek	495	34
	1 do	dust	113	24
H F D	5 ch	dust	500	30
Harrisland	6 hf ch	bro or pek	324	41 bid
	5 do	or pek	235	39
	11 ch	pek	891	34
	1 hf ch	pek sou	46	32
	3 do	fans	210	29
Koslande	8 ch	pek sou	800	35
	2 do	fans	220	31
	1 do	dust	90	28
Morton	11 ch	pek sou	825	32
	4 do	dust	320	27
	11 do	pek sou	825	32
	5 do	dust	400	27
Elbedde	3 hf ch	dust A	270	28
Eila	3 ch	green tea fans	300	19
	4 do	green tea dust	400	11
Cleveland	11 hf ch	bro or pek	627	73
	4 hf ch	fans	332	31
Agra Ouvah	11 ch	pek sou	990	38
	4 hf ch	dust	380	30
Rondura	1 ch	fans	105	30
	1 do	dust	168	27
Kelaneiya & Braemar	5 ch	pek sou	475	35
	8 hf ch	fans	800	34
	4 do	dust	320	28

	Pkgs.	Name.	lb.	c.
Rockside	4 ch	bro pek fans	430	31 bid
Dalhousie	16 hf ch	or pek	800	41
	21 do	pek	945	38 bid
Navangama	6 ch	pek	600	35
	4 do	pek sou	360	33
	1 do	dust	125	28
Bowhill	8 ch	bro or pek	800	43 bid
Natuwakelle	7 ch	pek sou	630	34
	3 hf ch	dust	300	28
Poilakande	8 ch	bro or pek	720	35 bid
Mt. Vernon	8 hf ch	fans	560	34
Wanarajah	10 hf ch	bro pek fans	780	34
	3 do	dust	270	28
Galpotta	5 hf ch	natural leaf No 1	275	37
	11 do	,, ,, No 2	550	32 bid
	5 do	,, ,, No 4	250	21
	9 do	fans	565	12 bid
	1 do	unas	37	out
T G L	10 ch	pek sou	914	31
N	3 hf ch	bro pek fans	204	31
Yaha Ella	15 hf ch	bro or pek	825	38
	4 do	or pek	200	39
	15 do	pek	750	36
	8 do	pek No 2	360	34
	1 do	bro pek fans	75	28
	1 do	pek fans	65	29
	1 do	pek sou	50	32
	1 do	dust	106	26
H B K	10 hf ch	bro pek	650	34
	5 ch	pek	500	32
M G	10 hf ch	fans	600	32
Westhall	6 hf ch	fans	510	28
Alplakande	5 ch	sou	470	31
D	1 ch	pek sou	98	withd'n
Ratwatte	6 ch	pek sou	540	33
	4 hf ch	dust	320	27
C	3 ch	bro pek	300	34
Gangawatte	7 ch	pek sou	630	37
	8 hf ch	dust	640	28
	12 ch	fans	780	34
P	1 ch	bro pek	90	33
Avington	*3 ch*	*hyson No 2*	285	35
	4 do	*green fans*	400	19
	3 do	*green dust*	300	10
Bittaey	9 hf ch	bro or pek	450	58
	8 do	fans	480	33 bid
	1 ch	pek sou	90	37
	3 hf ch	dust	252	28
Church Hill	7 hf ch	bro pek	350	34
	1 ch	pek	85	33

CEYLON CINNAMON SALES IN LONDON.

MINCING LANE, FEB. 23rd.

"Sinai."—C A C Ekelle Plantation, 1 bale sold at 1s 2d; 9 at 1s; 5 at 10½d; 2 at 9½d; 1 at 8d; 1 at 11d.

"Sado Marn."—ABC in estate mark, 100 bags chips withdrawn at 3d.

"Duke of Norfolk."—DB & Co. 629 in estate mark, 220 bags chips sold at 2½d; 153 at 2¼; 12 at 2⅝d; 9 at 2½d; 6 at 2d.

"Benmohr."—OMM, 7 bags chip sold at 6½d; 54 at 2⅜d.

"Hitachi Maru."—M, 100 bags chip withdrawn at 2⅞d.

"Sanuki Maru."—C in estate mark, 160 bags chips withdrawn at 2⅞d.

"Agamemnon."—⁐MAK in estate mark, 40 bags chips withdrawn at ⅞d.

"Salazie."—MLM Plantation 1, 4 bales sold at 7d; ditto 2, 4 at 6½d; ditto 3, 3 at 5⅞d; ditto 4, 1 at 5d.

"Hitachi Maru."—M in estate mark Plantation 1, 1 bale withdrawn at 9½d; ditto 2, 2 withdrawn at 8d; ditto 3, 3 withdrawn at 7d; ditto 4, 2 withdrawn at 5d.

"Ulysses."—KM in estate mark 1, 2 bales withdrawn at 9½d; ditto 2, 4 withdrawn at 8½d; ditto 3, 2 withdrawn at 6½d; ditto 4, 1 withdrawn at 5d.

"Agamemnon."—DBM Ekelle Plantation 1902 1, 2 bales sold at 10d; ditto 2, 4 bales withdrawn at 9½d; ditto 3, 1 withdrawn at 9½d; ditto 4, 1 withdrawn at 8d.

"Idomeneus."—FSWS in estate mark North Kaderane, 2 bales sold at 1s 5d; 7 at 1s 3d; ditto Kaderane, 2 bales sold at 1s 5d.

"Persia."—DBM Ekelle Plantation 2, 7 bales withdrawn at 9d; ditto 3, 5 withdrawn at 8d; ditto 2D, 1 withdrawn at 9d.

"Stentor."—DBM Ekelle Plantation 1902 2, 11 bales withdrawn at 9d; ditto 3, 10 withdrawn at 8d; ditto 4, 4 withdrawn at 7d.

"Sanuki Maru."—F in estate mark Ekelle Plantation, 4 bales withdrawn at 9d; 4 withdrawn at 8d; 3 withdrawn at 7d.

"Shropshire."—ASGP, in estate mark, Kaderane, 5 bales sold at 1s 8d; 17 at 1s 4d; 10 at 11d; 4 bales and 1 parcel at 8½d; 1 box at 8d; 3 bags (Clippings) at 8½d.

"Himalaya."—FSK Kaderane, 4 bales sold at 1s 6d 9 at 1s 4d; 2 at 1s 3d; 3 at 1s 1d; 2 at 11½d; 1 at 9d; 3 at 7d; 2 bales and 1 parcel at 6½d; 1 bale at 8d; 1 box at 9d.

"Peninsular."—FSWS, in estate mark, North Kaderane, 4 bales withdrawn at 1s 5d; 4 bales sold at 1s 4d; 2 at 1s 1d; 1 bale and 1 parcel at 8d: 1 at 8½d; 4 at 7½d; 4 at 6½d; 1 box at 9d; FSWS Kaderane, 4 bales withdrawn, at 1s 5d; 3 sold at 1s 4d; 2 bales withdrawn at 6d; 5 bales sold at 1s 2d; 4 bales at 8d; 1 box at 8½d; 3 bags at 9d; 2 bags (clippings) at 6½d; 5 (clippings) at 7d; FSW, in estate mark, Kaderane, 99 bags (chips) out at 2¼d; 20 (chips) sold at 2⅝d; FSWS, in estate mark, North Kaderane, 79 (chips) at 2⅝d; 5 (chips) at 2½d.

"Magician."—RSKW, in estate mark, Jaela, 77 bags (Chips) sold at 3d; 2 bags (dust) at 1d.

"Ulysses."—C H de S, Salawa, 3 bales sold at 1s 1d; 10 at 11d; 7 at 9d; 3 at 7d; C H de S, Enstoom, 5 at 11d; 12 at 8d; C H de S, Kandevalle, 8 at 7d; 1 at 1s; 7 at 10d; 9 at 8d; 6 at 7½d; 2 at 7d.

"Shropshire."—GR SA, in estate mark, 1 bale sold at 10d; 6 at 8½d: 3 at 8d; 5 at 7½d.

"Clan Cameron."—C H de S, Morotto, 5 bales sold at 10½d; 12 withdrawn at 9d; C H de S, Kuruwitte 1 bale sold at 1s 1d; 6 at 11½d; 6 withdrawn at 9d 3 bales sold at 7d; C H de S, Koottariavalle, 1 at 10½d; 3 at 8d; 2 at 7d; C H de S, Inncgaltuduwat 1 at 7½d; C H de S, Morotto, 7 at 7d.

"Ulysses."—NJDS, in estate mark, Ekelle Plantation, London, 8 bales sold at 11d; 6 at 8½d; 13 at 8d; 13 withdrawn at 8½d; 2 sold at 6½d; 7 withdrawn at 7½d; CG, in estate mark, 1 sold at 9½d; 4 withdrawn at 9d; 2 bales sold at 7d; 3 withdrawn at 8½d.

"Benmohr."—GDS, in estate mark, Ekelle Plantation, London, 4 bales sold at 11d; 6 at 9d; 3 at 8½d; 7 at 8d; 2 withdrawn at 8d; 1 at 6½d.

"Japan."—NIDS, in estate mark, Ekelle Plantation, London, 1 bale sold at 11d; 9 at 8d; 10 at 7½d; 6 withdrawn at 7d; 1 at 6½d.

Bavaria."—NIDS, in estate mark, Ekelle Plantation, London, 5 bales sold at 9½d; 6 at 8½d; 21 withdrawn at 8½d; 7 at 8d; 2 at 7d; Dehigoda, 3 bales sold at 7d; 1 at 6d; DBM, Ekelle Plantation, London, 5 sold at 10½d; 6 at 8½d; 3 withdrawn at 8½d; 3 at 8d: 2 bales sold at 6d.

"Hitachi Maru."—NIDS, in estate mark, Dehigoda Plantation, London, 9 bales sold at 8½d; 2 at 8d: 2 at 5½d; 2 at 5d; 5 withdrawn at 4d: INJDS, is estate mark, Ekelle Plantation, London, 32 bags sold at 6½d; M, in estate mark, 50 withdrawn at 3d.

"Bavaria"—NIDS, in estate mark, Ekelle Plantation, London, 9 bales withdrawn at 3d.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, Feb. 27.

"Omrah."—H V 672 in estate mark No. 1, 5 bags withdrawn; No. 2, 13 bags withdrawn.

"Duke of Norkfolk."—Gangwarily No. 1, 20 bags sold at 76s; 18 at 75s 6d; No. 2, 22 at 60s; No. 3, 3 at 30s; No. 4, 2 at 47s 6d.

,, Sado Marn."—Rnsiagama, 22 bags sold at 58s; 7 at 49s.

"Sbropshire."—Ross No. 1, 31 bags; sold at 70s No. 2, 17 at 56s; Broken, 2 at 47s 6d.

"Wakasa Maru."—Ross No. 1, 30 bags witbdrawn.

"Benmobr."—Lower Haloya 1, 30 bags sold at 55s; 2, 12 at 37s.

"Kanagawa Maru."—Pollagalla, 1 bag sold at 55s.

"Shropsbire."—Warriapolla, 41 bags withdrawn at 78s; 98 bags withdrawn; 82 bags withdrawn at 55s; 25 bags sold at 50s; 27 at 40s 6d.

"City of Sparta."—Eanella London, 51 bags sold at 58s; ditto No. 1, 25 bags withdrawn; ditto A, 22 bags sold at 55s.

"Duke of Norfolk."—North Matale Ceylon Cocoa, 10 bags withdrawn; 1 bag sold at 49s; Pondappe No. 1, 14 bags sold at 68s; No. 2, 1 at 51s; ditto T, 2 at 44s 6d.

"Shropshire."—Armagh London 1, 16 bags sold at 64s 6d; ditto No. 2, 2 at 51s; ditto T, 7 at 50s; ditto Pieces, 1 at 50s.

"Sado Maru."—D London, Mnwagala Estate, London, 9 bags sold at 56s; 3 at 52s 6d.

"Benmohr."—Beredewelle C O C Ex. No. 1, 16 bags withdrawn at 81s; ditto Ex. No. 1, 1 bag sold at 52s 6d; ditto 1, 21 bags withdrawn; 2 bags sold at 52s 6d; ditto 2, 1 at 52s; ditto B, 9 at 35s; ditto T, 2 at 38s; F OBEC in estate mark Kondesalle Ceylon O, 87 bags withdrawn; F ditto 1, 38 bags sold at 52s; F ditto D2, 7 at 56s; ditto O, 43 at 77s; ditto 1, 8 at 57s; G ditto, 9 at 35s 6d.

"Kanagawa Maru."—Goonambil, 54 bags sold at 58s.

"Agamemnon."—No mark, 1 bag sweepings sold at 51s.

"Ulysses."—Marakona, 59 bags withdrawn; 82 bags sold at 59s; 53 bags withdrawn at 56s.

"Clan Lamont."—Belgodde No. 1, 3 bags sold at 54s; No. 2, 2 at 54s; E Kerry, 21 bags sold at 58s.

"Bavaria."—1 M in estate mark, 125 bags sold at 60s.

"Sado Maru."—Pitakande, 31 bags withdrawn; 1 ASM in estate mark Estate Cocoa, 85 bags withdrawn at 54s; 1 MAK in estate mark, 44 bags sold at 60s; 1 MM in estate mark, 54 bags withdrawn.

"Clan Leslie."—HJ 1 in estate mark, 47 bags withdrawn; HJ 2 in estate mark, 18 bags withdrawn; D Ranasinbage Estate Cocoa, 26 bags withdrawn.

"Benmohr."—Morankande No. 1, 59 bags withdrawn at 68s; ditto No. 2, 11 bags sold at 50s; ditto No. 1, 11 at 52s 6d; ditto No. 2, 3 at 45s; Deaella 1, 25 bags withdrawn; ditto 2, 3 bags withdrawn.

"Sado Maru."—Benvenla No. 1, 30 bags sold at 59s; ditto No. 2, 15 at 47s; ditto Nibs, 3 bags withdrawn.

CEYLON RUBBER SALES IN LONDON.

27th February.

"Benmohr."—Aberdeen Rubber, 1 case sold at 3s 10d; 1 bag sold at 3s 1½d.

"Shropshire."—Igalkande, 1 crate sold at 4s 2d.

"Sado Maru."—Tudugalla, 5 cases sold at 4s 2½d.

"Benmohr."—Culloden best Para Rubber, 6 cases sold at 4s 2d; ditto Scrap 2 at 3s 4½d; Edengod Biscuits 3 cases sold at 4s 2d; ditto Scrap at 3s 1¾d.

"Shropshire."—Kumaradola, 1 case sold at 3s 4¾d.

"Patrician."—Clyde Biscuit, 2 cases sold at 4s; Clyde Scrap, 2 at 3s.

"Kawachi Maru."—Heatberley Para Rubber 4 cases withdrawn; ditto Scrap, 2 cases withdrawn; Culloden best Para Rubber, 6 cases withdrawn; ditto Scrap, 2 cases withdrawn; 1 case withdrawn; Glamhos, 1 case withdrawn.

"Oopack."—Culloden, 1 case sold at 3s 0¾d.

"Glenshiel."—Yatepanwa Estate Scrap, 3 cases sold at 3s 0¾d.

"Workman."—Culloden Scrap, 1 case sold at 3s 2d; 1 at 3s; F A O, Conahry 10 cases sold at 3s; J J F C C 1 B, 7 at 2s 8½d.

No Plumbago sales this week. No Coffee sales this week. No Cardamom sales this week.

MINCING LANE CEYLON PRODUCE.

27th February, 6 p.m.

Most markets past week keep dull,

CEYLON CINCHONA BARK—is dearer.

CEYLON COCONUT OIL—easier, only buyers at £24 15s for shipment. Not £27 7s 6d.

CEYLON COTTON—wanted in Europe. Markets excited. Prices would fetch 4¾d to 8½d. American new crop acreage same. but fertilisers 10 per cent increase. This crop 10¾ to 11¼ and next 10 to 12 millions.

CEYLON QUININE—strong at 1/1¼ sellers per oz.

CEYLON PLUMBAGO.—No sales last 3 weeks, therefore the market keeps featureless and dulness reigns.

CEYLON COFFEE—Experts expect prices to rise next few months.

CEYLON COCOA—stronger, but we could not safely report any change in price, 500 bags sold privately at firm rates. Sugar has a firm tone.

CEYLON NUTMEGS—95's fair with a few rather dark fetched 1s 2d.

CEYLON RUBBER—sales fetched quiet steady prices 3/10 to 4/2. The Liverpool failure has rather upset the market and those hit. Good clean quality is in demand, and should be freely shipped to London.

CEYLON COTTON.—From Ceylon and Tuticorin, 8th Feb., *via* Bombay 400 bales cotton sent to England.

No. 12. COLOMBO, MARCH 25th, 1903. { PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[29,145 lb.]

	Pkgs.	Name.	lb.	c.
Hornsey	17 hf ch	bro pek	1105	55
	12 ch	pek	1104	43
	13 hf ch	dust	1040	31
Yuillefield	23 ch	pek	2185	42
Kenilstone	18 ch	*young hyson*	1800	30 bid
	23 do	*hyson*	2300	29 bid
Wahagapitiya	11 ch	bro or pek	1094	41 bid
H T	40 hf ch	dust	3400	27
Bunyan and Ovoca	39 do	bro or pek	2340	51
	40 do	or pek	2000	44
	20 ch	pek	1900	41
	11 do	pek No 2	1045	42
	16 do	pek sou	1440	41
	20 hf ch	pek fans	1300	32

Messrs. Forbes & Walker.

[637,709 lb.]

	Pkgs.	Name.	lb.	c.
Choisy	27 ch	bro or pek	2835	47
	29 do	or pek	2465	41
	16 do	pek	1440	37
Galkande	33 hf ch	or pek	1650	41
	32 ch	pek	2880	40
Halbarawa	13 do			
	1 hf ch	bro pek	1576	39
	13 ch			
	1 hf ch	pek	1695	36
O B E C, in est mark Darrawolla	29 hf ch	bro or pek	1624	57
	18 ch	br pek	1944	45
	16 do	or pek	1440	45
	34 do	pek	3230	42
	26 do	bro pek	2210	41
Moray	39 hf ch	or pek	1755	47
	19 do	bro or pek	1045	58
	37 ch	bro pek	3885	43
	37 do	pek	3330	40
	14 do	pek No 2	1120	40
Court Lodge	10 ch	bro or pek	1160	46
	12 do	pek	1116	42
Waldemar	19 hf ch	bro or pek	1216	56
	21 ch	bro pek	2415	42
	22 do	or pek	2112	42 bid
	12 do	pek	1104	40 bid
	15 do	pek sou	1275	41
Nawalapitiya	20 ch	bro mix	1800	24
O B E C, est. mark Nillomallay	36 ch	pek	3168	38
	21 do	bro pek	2100	39 bid
	20 do	or pek	1640	46
	10 do	bro or pek	1090	53
	13 do	pek sou	1040	35
Glaslyn	37 ch	bro or pek	3700	42 bid
	23 hf ch	bro pek	1265	39
Glencorse	10 ch	bro pek	1000	41
	13 do	or pek	1170	39
	11 do	pek	1120	35
	14 do	pek sou	1050	34
Shrubs Hill	61 ch	bro pek	6466	39 bid
	43 do	pek	4042	35 bid
Irby	56 hf ch	bro pek	3360	57
	34 ch	pek	2890	54
	12 do	pek sou	1020	50
Templehurst	30 ch	bro pek	3000	47 bid
	14 do	pek	1260	41
Lebanon Group, No 6	24 hf ch	bro or pek	1440	44
	31 ch	bro pek	3100	38
	19 do	pek	1615	36
	21 do	pek sou	1785	35
Lebanon Group, No 7	13 hf ch	dust	1040	29
Dambagastalawa	13 ch	bro or pek	3165	57
	21 do	or pek	2184	41 bid
	14 do	pek	1316	39
Ardlaw and Wishford	11 ch	or pek	1045	46
	16 do	pek	1320	42
Edward Hill	34 ch	bro pek	3400	39
	23 do	or pek	1932	36
	21 do	pek	1848	35
Monterey	15 ch	sou	1350	33
	15 hf ch	dust	1200	26
Sylvakandy	12 ch	bro pek	1200	41
	13 do	or pek	1300	41
	22 do	pek	2200	38
	12 do	bro or pk No 1	1200	45
	23 do	do do No 2	2300	[illegible]
Castlereagh	55 hf ch	bro or pek	2750	50
	12 ch	bro pek	1200	39
	13 do	or pek	1040	42
	15 do	pek	1275	41 bid
Marlborough	33 hf ch	bro or pek	1762	47
	14 ch	bro pek	1400	42
	20 do	pek	1960	40 bid
Dromoland	32 hf ch	bro or pk No 1	1600	48
	22 do	do do No 2	1163	38
	16 ch	pek	1360	35
Poonagala	18 do	or pek	1764	45 bid
	52 do	bro pek	5876	52 bid
	36 do	pek	3312	43 bid
	17 hf ch	fans	1394	31 bid
N W D	12 ch	pek	1104	35
	13 hf ch	dust	1170	32
Laurawatte	21 ch	*young hyson*	2289	36
	18 do	*hyson*	1800	24
Stafford	49 ch	pek	4655	36 bid
Carlabeck	22 ch	pek	2090	41
	12 do	pek sou	1200	38
	11 do	bro pek fans	1485	3[illegible]
L H O	25 ch	bro pek	2375	41 bid
	37 do	pek	3330	35
Agra	23 ch	bro pek	2070	41
Mawiligangawatte	43 ch	bro pek	4300	38
	24 do	pek sou	1920	35
Weyungawatte	13 do	bro pek	1365	37 bid
Tonacombe	40 ch	or pek	3600	40
	38 do	bro pek	3800	42
	60 do	pek	5100	39
	29 do	pek sou	2320	35
	12 hf ch	dust	1020	31
Bramley	78 do	pek	3744	40 bid
Erroliwood, Invoice No 2	28 hf ch	bro or pek	1680	44
	17 ch	pek	1530	35
Willa, Inv. No 2	40 hf ch	bro pek	2280	40
	28 do	pek	1400	37
Devonford, Invoice No 2	18 do	bro or pek	1080	69
	13 ch	pek	1261	55
Monkswood, Invoice No 8	18 hf ch	bro or pek	1080	66
	37 do	or pek	2035	45 bid
	34 ch	pek	3230	47
Amherst Inv. No 2	12 hf ch	dust	1020	30
Gonapitiya, Invoice No 1	32 hf ch	or pek	1696	60
	21 do	bro or pek	1302	60
	38 do	pek	2014	48
Algooltenne, Invoice No 17	25 ch	bro or pek	2500	53
	14 do	bro pek	1540	41
	19 do	or pek	1615	41
	24 do	pek No 1	2160	39
	29 do	pek	2900	38
Battakelle	13 ch	bro pek	1300	36
	11 do	pek	1100	33
Rickarton, Invoice No 15 (Vensta Packages)	20 ch	bro or pek	2000	49
	20 do	or pek	2000	41
	14 do	bro pek	1400	42
	20 do	pek	2000	41
Great Valley, Ceylon in estate mark	20 ch	pek sou	1600	34 bid
Agra Oya	21 hf ch	bro or pek	1155	51
	26 do	or pek	1300	42
	25 do	bro pek	1500	39
	12 ch	pek	1080	41
Tymawr	43 hf ch	or pek	2365	52
	25 do	bro or pek	1500	60
	69 do	pek	3795	48
	23 do	pek sou	1150	42
G	16 hf ch	dust	1280	28
Kalupahana	15 ch	bro pek	1530	36
Vincit	16 *ch*	*hyson No 2*	1440	34
Beverley	24 hf ch	bro or pek	1440	49
	32 do	or pek	1920	39
	40 do	pek	2080	36
Mousakellie	11 ch	bro or pek	1100	47
	20 do	pek	1800	40
Macaldenia	22 hf ch	bro pek	1430	40
	22 do	pek	1320	37

	Pkgs.		Name.	lb.	c.
Mahawale	13	ch	bro pek	1300	40
	19	do	or pek	1805	[illegible]
	26	do	pek	2340	34 bid
	14	do	pek sou	1260	34
Weoya	20	ch	bro or pek	2100	41
	49	do	bro pek	4900	38
	33	do	pek	3230	36
Kirklees	40	ch	bro or pek	4000	44
	25	do	or pek	2247	40 bid
	17	do	pek	1360	36
Maha Uv	30	hf ch	bro or pek	1800	42
	13	ch	or pek	1300	40
	22	do	pek	1920	37
	13	ch	pek sou	1040	35
High Forest	52	hf ch	or pek No 1	2600	56
	58	do	bro pek	3480	53
	44	do	pek	2112	45
Dunkeld	18	hf ch	pek fans	1224	32
	12	do	dust	1080	29
Seenagolla	19	hf ch	bro or pek	1140	50 bid
	21	do	or pek	1008	53
	22	do	pek	1166	45
Dunkeld	43	hf ch	bro or pek	2451	48
	14	ch	or pek	1260	42
	18	do	pek	1620	41
Killarney	20	hf ch	bro or pek	1160	59
	32	do	bro pek	1856	46 bid
	14	ch	or pek	1190	46
	16	do	pek	1408	46
Bandarapolla	49	hf ch	br or pek No 1	2842	40
	47	do	br or pek No 2	2491	38
	44	do	bro pek	2332	36
	26	do	pek	1352	34
Stamford Hill	18	hf ch	bro or pek	1044	70
	32	do	bro pek	1920	44
	33	do	or pek	1650	49
	31	ch	pek	2790	43
Vogan	27	ch	bro or pek	2700	49
	50	do	or pek	4500	37
	57	do	pek	5130	36
	14	do	pek No 2	1260	34
Waitalawa	64	hf ch	bro pek	3200	45
	76	do	pek	3800	37
	20	do	pek sou	1000	34
Tembiligalla	15	ch	bro or pek	1650	38
Knavesmire	35	ch	bro pek	3675	39
	35	do	pek	2975	36
	30	hf ch	bro pek No 2	1600	37
Udaveria	18	hf ch	bro or pek	1080	55 bid
	42	do	br or pek No 1	2520	46 bid
	16	ch	or pek	1520	48 bid
Knavesmire	45	ch	bro pek	4725	39
	44	do	pek	3740	36
Bowlana	32	ch	bro or pek	3360	45
	28	do	or pek	2520	39
	40	do	pek	3600	39
	15	do	pek sou	1200	35
Polatagama	18	ch	bro or pek	1797	42
	28	do	bro pek	2797	39
	49	do	pek	4652	35 bid
Alver	13	ch	sou	1170	33
	12	hf ch	dust	1080	26
	18	do	bro pek fans	2430	30
Kandaloya	*39*	*hf ch*	*young hyson*	1755	39
	82	*do*	*hyson*	3280	36
	30	*do*	*hyson* No 2	1200	36
Talgaswella	13	ch	pek	1040	37
	14	do	pek sou	1050	35
Ambragalla	32	hf ch	bro or pek	1728	40
	17	ch	pek	1360	36
Bandara Eliya	26	hf ch	or pek	1248	48
	21	do	bro or pek	1092	48
	40	do	bro or pek	2400	42
	35	do	pek	1645	39
	28	do	pek fans	1904	30 bid
	12	ch	dust	1056	26
Parsloes	16	ch	bro pek	1760	39
	19	do	pek	1710	36
Ambalangoda	10	ch	bro or pek	1000	45
	11	do	or pek	1100	39
Bullugolla	19	ch	bro or pek	1900	44 bid
	17	do	pek sou	1445	34
M A	23	ch	bro pek fans	2599	29 bid
Relugas	6	ch	dust	1050	26
North Cove	20	hf ch	bro or pek	1160	72
	50	do	bro pek	3000	55
	20	ch	pek	1900	51
Delta Invoice No 4	27	hf ch	bro or pek	1647	45
	57	ch	bro pek	5571	39
	51	do	pek	4386	37
	22	do	pek sou	1870	35
	14	do	fans	1680	32
	12	hf ch	dust	1020	30
B D W P Inv. No 3	14	ch	bro or pek	1540	35
Handford Inv. No 2	22	ch	bro pek	2200	38
Karegaha	22	hf ch	bro or pek	1320	47
	69	ch	pek	5175	40

	Pkgs.		Name.	lb.	c.
Ninfield	35	ch	bro or pek	3500	38 bid
	22	do	or pek	1870	37
	29	do	pek	2320	35
Passara Group	39	ch	bro pek	3900	40
	24	do	pek	2200	38
Sunny Croft	*63*	*ch*	*young hyson*	5670	37 bid
	53	*do*	*hyson*	4505	35 bid
	34	*do*	*hyson No 2*	2890	34
Swinton	12	ch	bro or pek	1200	44 bid
	13	do	or pek	1300	38 bid
	14	do	pek	1260	37
Putupaula	10	ch	bro or pek	1000	45 bid
	66	do	or pek	5610	37
Lucky Land	12	ch	bro or pek	1320	43
	14	do	or pek	1344	43
	15	do	pek	1275	38
Gampaha	40	hf ch	bro or pek	2400	43 bid
	26	ch	bro pek	2444	42
	30	do	pek	2550	39

Messrs. Keell and Waldock.

[133,793 lb.]

	Pkgs.		Name.	lb.	c.
Kitulakanda	24	hf ch	pek sou	1080	31
Halaganga	18	ch	pek sou	1620	31 bid
Oodoowera	16	ch	bro pek	1792	38
	11	do	pek	1045	35
Hanaranoya	26	ch	bro pek	2600	38
	20	do	pek	1600	35
	16	hf ch	dust	1280	28
Fairlawn	66	hf ch	bro or pek	3960	41 bid
	22	ch	bro pek	2280	38
Meath	19	hf ch	bro or pek	1007	42
	10	ch	or pek	1000	38
Moneragalla	29	ch	bro or pek	2465	39
	19	do	or pek	1350	39
	26	do	pek	1872	36
Maldeniya	*54*	*ch*	*young hyson*	5400	37
	32	*do*	*hyson*	2880	35
	20	*do*	*hyson No 1*	1700	34
Orion	14	ch	bro or pek	1460	40 bid
	10	do	br pek	1000	37 bid
	13	do	or pek	1170	38
	15	do	pek No. 1	1350	36
	14	do	pek No. 2	1260	35
	14	do	pek sou	1190	35
P	14	ch	dust	1834	27 bid
Glenwood	38	ch	bro pek	3800	35 bid
	28	do	pek	2436	34 bid
	38	do	pek sou	3078	33
Panilkande	10	hf ch	br or pek No 1	1000	59
	22	ch	bro pek	1980	39
	17	do	bro or pek	1700	43
Anningkande	21	ch	bro pek	2100	41
Paniyakande	10	ch	bro pek	1000	39
M	10	*ch*	*siftings*	1070	9 bid
Rock Cave	11	ch	bro pek	1100	37
	14	do	pek	1260	34
A R W	36	ch	bro pek	3528	30 bid
	15	do	pek	1140	30 bid
	24	do	pek sou	2064	28 bid
Gampai	30	hf ch	or pek	1410	38
	46	do	bro or pek	2484	33
	25	ch	pek	2000	35
	20	do	pek sou	1520	34
Alpha	25	hf ch	bro pek	1375	38
R M D	27	ch	bro or pek	2565	34 bid
	26	do	pek	2210	32 bid
	44	do	pek sou	3564	30 bid
Woodend	25	ch	bro pek	2500	37
	24	do	pek	2160	34
H	17	ch	dust	1275	29 bid
N'Galla	13	ch	bro pek	1326	30 bid
Liliawatte	11	ch	bro or pek	1210	34
	11	do	bro pek	1100	36
	25	do	pek	2625	31
	14	do	pek sou	1150	30
M N	16	ch	pek sou	1340	20 bid
	11	do	pek dust	1650	23 bid
	13	hf ch	dust	1105	17 bid
	10	ch	pek fans	1300	out
Brixworth	12	ch	bro or pek	1200	38
	13	do	pek sou	1170	34
Cottesbrooke	30	hf ch	bro or pek	1650	36 bid

Messrs. Somerville & Co.

[237,498 lb.]

	Pkgs.		Name.	lb.	c.
Marigold	21	hf ch	bro or pek	1092	45
Meeriatenne	19	hf ch	br or pek	1064	45
	23	do	pek No 1	1058	39

	Pkgs.	Name.	lb.	c.
Mount Temple	12 ch	bro pek	1200	37
	25 do	pekoe	2000	35
	20 do	br or pk fans	2000	33 bid
Abergeldie	22 hf ch	bro pek	1320	47
	24 ch	pek	2160	40
	16 do	pek sou	1360	36
Columbia	29 hf ch	bro or pek	1740	45 bid
	20 ch	or pek	1840	42
	16 do	pek	1440	41
Karangalla	17 ch	bro or pek	1785	39
	15 ch	pekoe	1200	35 bid
Leyton in est mark	16 ch	pek	1360	35
	15 do	pek sou	1275	34
Kituldenia	19 ch	bro pek	1995	39
	12 do	or pek	1080	38
	46 do	pek	3688	34
Simla	25 ch	bro pek	2725	43
	24 do	pek	2160	41
A P	11 hf ch	dust	1056	28
Blinkbonnie	39 hf ch	bro or pek	2340	55
	14 ch	or pek	1260	46
	20 do	pek	1840	45
Walla Valley	25 hf ch	bro or pek	1375	57
	13 ch	or pek	1105	56
	20 do	pek	1800	60
S	13 hf ch	dust	1040	30
	40 do	sou	2000	31
Carney	22 hf ch	bro pek	1100	39
	20 hf ch	pek	1000	35
R K P	22 ch	bro or pek	2200	38
	18 do	pek	1620	36
Kelani	22 ch	bro or pek	2200	38
	18 do	pek	1620	37
R M in est mark	37 ch	bro or pek	3700	40
	23 do	or pek	2070	37
Evalgolla	22 ch	bro pek	2490	42
	22 ch	pek	2200	36
W K P	17 ch	bro pek	1785	39
	12 do	or pek	1080	37
	32 do	pek	2560	35
Avisawella	23 hf ch	br or pek	1150	45
	19 ch	or pek	1805	39
	24 do	pek	2160	36
	17 do	pek sou	1360	34
Ambalawa	15 ch	pek	1245	36
	13 do	or pek	1118	37
Gona	17 ch	bro pek	1615	38
	16 do	bro or pek	1680	35
	18 do	pek	1620	36
	19 do	pek sou	1615	34
Damblagolla	15 ch	or pek	1350	40
	24 hf ch	bro pek	1440	38
	22 ch	pek	1870	35
	18 do	pek sou	1440	34
Harrangalla	27 ch	bro or pek	2430	40
	15 do	bro pek	1500	37
	51 do	pek	43.0	37
	16 do	pek sou	1·80	35
Monte Christo	24 ch	bro pek	2400	47 bid
Annandale	14 ¾ ch	bro or pek	1176	58 bid
	14 do	or pek	1064	47 bid
	14 do	pek (A)	1064	43
	13 do	pek	1027	43
New Valley	49 hf ch	bro or pek	2695	46
	21 ch	or pek	1995	42
	25 do	pek	2375	40
Scarborough	24 hf ch	bro or pek	1248	54 bid
	12 ch	or pek	1140	42 bid
	26 do	pek	2518	40 bid
St Catherine	17 ch	pekoe	1530	36
Torbay	47 hf ch	bro pek	2444	40 bid
	33 do	pek sou	1320	35
Theberton	12 ch	bro pek	1200	38 bid
	20 do	pekoe	2000	38
Wagnila	13 ch	bro pek	1300	45
	18 do	pekoe	1800	38
Warakamure	20 ch	bro or pek	2000	37
	16 do	or pek	1280	37
	16 do	pek	1360	35
Hobart	20 hf ch	bro pek	1000	36
A in est mark	18 ch	pekoe	1620	37
Mary Hill	30 hf ch	bro pek	1680	38
	25 hf ch	pek	1350	36
Laxapanagalla	22 ch	bro or pek	2098	39
	12 do	or pek	1140	36
Oonankande	25 hf ch	pek	1375	36
Ferndale	10 ch	bro or pek	1000	44 bid
	17 do	pek	1530	36
	11 do	pek sou	1045	34
Yahalatenne	2[illegible] ch	bro pek	2100	42
	19 do	pek	1748	39
Selvawatte	34 hf ch	bro pek	1870	36
Meddegodda	3[illegible] hf ch	bro pek	2207	38 bid
Highfields	35 hf ch	bro pek	1957	42
Kanatota	14 ch	bro pek	1300	37

	Pkgs.	Name.	lb.	c.
Kapudoowa	15 ch	bro pek	1500	out
Aluthena	12 ch	br pek	1200	out
Hakgalla	29 ch	bro or pek	2900	withd
Weygalla	24 hf ch	bro or pek	1320	5 'n
	23 ch	pek	2310	36
Rambodde	22 hf ch	br pek	1232	43
	36 do	pek	1800	40
Glenalmond	13 ch	br pek	1300	39 bid
	12 do	pek	1080	35
Kurunegalla	21 hf ch	br pek	1680	40
	18 ch	pek	1620	36

Messrs. E. John & Co.

[182,000 lb.]

	Pkgs.	Name.	lb.	c.
Tismoda	31 hf ch	bro pek	1550	38
	20 ch	pek	1700	37
Perth	*33 ch*	*young hyson*	3300	38
	17 do	*hyson*	1530	34 bid
Theresia	14 ch	pek	1260	38
Merrow	27 hf ch	bro pek	1485	36 bid
	12 ch			
	1 hf ch	pek	1190	34
Osborne	15 ch	or pek	1350	41 bid
Dotala	23 hf ch	or pek	1035	46
	20 do	bro or pek	1100	49
		pek	1440	40
Glentilt	23 hf ch	bro or pek	1265	56
	12 ch	or pek	1104	47
Templestowe	22 hf ch	bro or pek	1232	54
	27 do	bro pek	1620	47
	28 do	or pek	1260	46
	17 ch	pek	1496	43
	11 hf ch	dust	1001	30
Oonoogaloya	18 ch	or pek	1440	40 bid
	21 do	bro or pek	1995	46
	22 do	pek	1980	39
Ottery	13 ch	pek	1170	35
Bowella	37 hf ch	bro pek	1850	37
Eila	*47 ch*	*young hyson*	4700	37 bid
	33 do	*hyson*	3135	35
Mocha	58 hf ch	bro or pek	2480	54 bid
	24 ch	or pek	2400	48
	28 do	or pek	2797	43 bid
	16 do	pek	1760	42 bid
Kandaloya	56 hf ch	pek	2194	35
Mahanilu	34 hf ch	or pek	1700	47
	27 do	bro or pek	1485	48
	34 ch	pek	3128	33 bid
M L W	13 hf ch	bro pek	1300	59
Stonyhurst	17 ch	or pek	1496	39
	13 do	pek	1105	36
E T	15 ch	bro pek	1650	37 bid
	16 do	pek	1600	35
Taraiwera	*50 ch*	*young hyson*	5000	37
	57 do	*hyson*	5415	35
Elston	32 ch	pek sou	2720	36
Acrawatte	21 ch	bro or pek	2205	43 bid
	13 do	or pek	1131	42
	22 do	pek	1760	40
Cabin Ella	26 ch	bro pek	2600	42
	22 do	pek	1870	40
Lynford	12 ch	bro pek	1260	38
Glassaugh	36 hf ch	or pek	2160	77
	31 do	bro or pek	2077	55 bid
	21 ch	pek	2289	61
Balado	15 hf ch	pek sou	1125	35
	14 do	dust	1120	30
	12 ch	pek	1050	37
Agra Ouvah	35 ch	bro or pek	3500	51 bid
	24 do	or pek	2200	46
	16 do	pek	1472	45
Dalhousie	20 hf ch	or pek	1000	39
	28 do	or s	1260	36 bid
Bowhill	11 ch	bro pek	1100	37
	13 do	pek	1170	37
Stubton	10 ch	bro pek	1000	39
Arncliff	34 hf ch	bro or pek	2040	44 bid
	24 ch	or pek	2160	40 bid
	31 do	pek	2635	37 bid
Myraganga	17 ch	or pek	1530	37 bid
	22 do	bro or pek No 1	2200	45
	34 do	bro or pek No 2	3400	40 bid
	14 do	pek	1190	36
Kahagalla	25 hf ch	bro pek	1500	41
Lameliere	17 ch	or pek	1561	44
Rookwood	40 hf ch	fly bro or pek	2440	44 bid
	26 do	fly or pek	1508	48
	37 ch	pek	3552	43
	43 do	pek No 1	3870	37 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Mawanella	1 hf ch			
	1 box	bro pek	82	39
	3 hf ch	pek	150	36
	5 do	pek sou	250	33
	1 do	dust	30	29
Yuilliefield	9 ch	or pek	900	48
Kenilstone	9 ch	*hyson No*	900	29
H T	1 ch	pek	90	33
H[redacted]	4 hfch	dust	40	28
Kenilstone	7 ch	*twanky*		16
	3 do	*dust*		12
	5 do	*siftin*		12
Bunyan and Ovoca	10 hf ch	dust	850	30

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Wewawatte	10 hf ch	bro pek	660	39
	9 do	pek	522	34
Rockside	9 ch	pek sou	720	35
	2 do	dust	270	29
Elfindalae	8 ch	fans	720	31
	8 do	dust	800	26
Halbarawa	6 ch	pek sou	480	33
	5 do	bro pek fans	550	31
	2 do	dust	336	29
Gabhela	10 hf ch	bro pek	540	37
	17 do	pek	765	33
	11 do	pek sou	580	33
Moray	7 do	dust	560	30
	6 ch	bro or pek No 1	390	40
K B	9 ch	pek dust	720	29
Court Lodge	10 ch	or pek	950	47
Carolina	9 ch	*hyson*	828	35
	11 do	*siftings No 2*	814	17
	6 hf ch	*siftings No 1*	600	17
M P	6 ch	sou	480	34
	2 do	dust	280	27
	1 do	dust No 2	170	22
	3 do	bro pek fans	360	28
North Matale A	8 hf ch	dust	640	28
North Matale B	1 do	dust	75	30
Glaslyn	7 ch	pek	665	36 bid
	2 hf ch	fans	176	28
Udapolla	4 ch	*young hyson*	380	37
	5 do	*hyson*	450	34
	5 do	*hyson No 2*	425	33
	2 hf ch	fans	130	19
	1 do	dust	80	19
Udapolla	4 ch	bro pek	320	38
	3 do	pek	240	34
	2 do	pek sou	150	33
Ericolla	7 ch	*young hyson*	665	38
	8 do	*hyson*	720	34
	2 hf ch	*hyson No 2*	150	33
	2 ch	*siftings*	120	18
	1 do	*green dust*	80	11
Shrubs Hill	10 hf ch	bro pek fans	900	30
Templehurst	2 do	fans	140	30
Lebanon Group, No 6	12 hf ch	bro pek	720	43
	10 ch	pek	850	36
Lebanon Group, No 7	9 ch	sou	900	24
Dambagastalawa	6 do	pek sou	600	37
	6 do	bro pek fans	810	32
Ardlaw and Wishford	8 ch	bro or pek	920	54 bid
	8 do	bro pek No 1	920	46
	5 do	bro pek No 2	525	42
Edward Hill	6 hf ch	dust	468	28
Monterey	10 do	fans	700	29
Sylvakandy	5 ch	pek sou	500	34
	5 do	dust	500	28
Sylvakandy	3 ch	dust	300	28
Marlborough	1 ch	pek fans	100	33
Dromoland	3 do	pek sou	255	34
	7 hf ch	fans	455	25
	3 do	dust	270	26
Poonagalla	1 ch	pek sou	90	29
N W D	11 hf ch	bro pek	792	39
	3 ch	pek sou	282	35
S—V, in est. mark	8 do	pek sou	800	31
	5 hf ch	pek fans	325	33
	3 do	dust	255	29
Laurawatte	9 ch	*hyson No 2*	936	34
	1 do	*capers*	91	34
	5 hf ch	*fans*	455	15
Mudamana	4 ch	fans	400	16
L, in estate mark	8 hf ch	dust	832	28

	Pkgs.	Name.	lb.	c.
Agra	16 do	bro or pek	800	44 bid
	7 ch	pek	532	38
Mawiligangawatte	4 do	dust	400	28
Weyungawatte	8 ch	pek sou	640	34
Erroll wood, Inv. No 2	9 ch	or pek	855	39
Willa, Inv. No 2	4 hf ch	dust	320	28
Devonford, Inv. No 2	9 ch	or pek	819	56
	4 do	pek sou	348	43
	4 hf ch	bro mix	264	39
	2 do	dust	170	29
Monkswood, Invoice No 3	12 ch	pek sou	960	42
	12 hf ch	fans	840	38
	4 do	dust	360	29
North Cove	5 do	dust	430	29
	5 do	bro mix	325	34
	7 do	ou	490	33
	1 hf ch	sou	66	33
Gonapatiya, Invoice No 2	16 hf ch	pek sou	768	40 bid
	14 do	pek fans	980	39
Algooltenne, Invoice No 17	5 hf ch	fans	300	30
	7 do	dust	489	28
Batakelle	4 ch	pek sou	400	33
	2 do	fans	200	27
	1 do	bro mix	100	25
Lyegrove	7 ch	bro pek	770	43
	5 do	pek	450	38
	2 do	pek sou	160	35
Rickarton, Invoice N 15	2 ch	bro pek fans	240	31
	2 do	fans	260	29
	2 do	dust	260	29
H B L	7 ch	bro pek	686	38
	6 hf ch	bro or pek	336	43
	7 ch	pek	688	36
	4 do	pek sou	320	34
	2 do	bro or pek fans	140	33
Great Valley, Ceylon in est. mark	4 ch	sou	320	33
	10 hf ch	dust	800	28
Ookoowatte, Inv. No 3	1 do	pek fans	70	29
Tymawr, Inv. No 3	10 hf ch	dust	900	32
	12 do	fans	840	38
Kelvin	4 ch	pek sou	360	24
	9 hf ch	fans	630	29
	4 do	dust	340	30
	1 ch	bro mix	105	36
R	2 ch	pek dust	210	27
	3 do	sou	225	32
Kalupahana	8 ch	pek	770	33
	6 do	pek sou	585	33
	5 do	br pek fans	510	30
	2 hf ch	fans	119	24
	1 ch			
	1 hf ch	dust	205	out
	3 ch	bro fans	290	out
Vinoit	*9 ch*	*young hyson*	855	39
	10 do	*hyson*	800	36
	2 do	*fans*	250	21
	2 do	*gunpowder*	180	34
Beverley	3 hf ch	pek sou	150	35
	3 do	dust	270	28
Mousakellie	2 hf ch	dust	150	30
	2 do	bro pek fans	130	37
T B	6 hf ch	dust	480	29
	3 do	fans	195	30
Mahawale	7 ch	bro mix	595	31
	6 do	fans	570	32
	12 hf ch	dust	960	27
Weoya	7 ch	bro pek fans	805	30
	2 do	dust	300	26
Kirklees	6 hf ch	dust	510	28
Maha Uva	3 ch	pek fans	210	32
	11 do	dust	880	28
Seenagolla	10 hf ch	pek sou	550	39
B P C	19 hf ch	bro mix	855	26
Killarney	2 hf ch	dust	190	29
Stamford Hill	8 ch	pek sou	720	40
	4 hf ch	dust	360	30
Vogan	9 ch	pek sou	765	33
	4 do	pek fans	500	30
	10 hf ch	dust	800	29
Waitalawa	9 hf ch	dust	810	28
Tembiligalla	5 ch	pek	455	37
	4 do	pek sou	352	34
	1 do	pek dust	150	28
Udaveria	7 ch	pek	630	45
	4 hf ch	bro or pek fans	280	37
	3 do	fans	240	31
Knavesmire	11 hf ch	bro pek fans	990	30
Bowlana	7 hf ch	fans	490	31
	7 do	dust	560	29

	Pkgs.	Name.	lb.	c.
Wyamita	7 ch	bro pek	735	39
	9 do	pek	810	36
	5 do	pek sou	4.5	34
	1 hf ch	fans	72	30
●, in estate mark	4 ch	bro or pek	408	36
	2 hf ch	or pek	110	34
	3 ch	pek	270	33
	4 do	pek sou	308	32
	4 do	dust	412	26
X, in estate mark	1 ch	green dust	92	14 bid
Kendaloya	*5 hf ch*	*gunpowder*	250	33
	12 do	*fans*	600	19
	6 do	*fans No 2*	240	20
	5 do	*dust*	250	11
K C E	5 ch	or pek	475	36
	4 do	bro pek	400	38
	7 do	pek	630	35
	4 do	pek sou	360	33
	3 hf ch	fans	160	32
	1 do	dust	50	20
Talgaswela	8 ch	bro or pek	800	45
	9 do	or pek	720	40
Ambragalla	20 hf ch	or pek	940	38
	11 ch	pek sou	858	33
	2 do	unassorted	120	30
	2 do	dust	2[illegible]0	28
	1 hf ch	red leaf	40	23
Bandara Eliya	2 hf ch	red leaf	120	29
Parsloes	7 ch	bro pek	770	46
	6 do	pek	570	36
	1 do	pek No 1	95	withd'n
	4 do	pek sou	340	33
	1 hf ch	dust	80	27
	11 ch	or pek	880	39
	7 do	pek sou	595	34
	2 do	pek fans	190	34
	1 do	fans	87	34
	2 hf ch	dust	180	27
	6 do	pek	300	36
Ambalangoda	11 ch	pek	990	36
	7 do	pek sou	595	34
	1 do	fans	100	30
	1 do	dust	110	27
Ballugolla	8 ch	or pek	800	38
	8 do	pek	720	36
	3 do	fans	300	32
	2 do	dust	220	28
Kelugas	1 ch	sou	100	32
Augusta	1 ch	fans	140	28
	4 do	dust	600	26
Memorakande	9 ch	pek fans	720	32
	2 do	dust	200	28
B D W P	4 hf ch	dust	400	28
Handford	8 ch	pek	720	34
	10 do	pek sou	950	33
	4 do	sou	380	29
	2 do	bro pek fans	200	29
	2 hf ch	dust	200	28
Karagaha	15 hf ch	or pek	720	48
	3 do	dust	240	28
	1 do	red leaf	43	26
Ninfield	8 ch	pek sou	600	33
	5 hf ch	dust	400	26
Passara Group	9 ch	pek sou	855	38
Sunny Croft	*10 ch*	*gunpowder*	800	33
	6 do	*siftings*	720	16
Swinton	9 ch	pek sou	765	33
	1 ch	fans	100	30
	1 do	dust	11	27
Lucky Land	7 hf ch	bro or pek	420	40
	9 ch	pek sou	810	35
Sampaha	10 ch	pek sou	900	37

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Godakela	4 ch	pek	320	33
Kitulakanda	12 hf ch	bro pek	672	34
	13 do	pek	650	32
	8 do	bro pek fans	464	28
	2 do	pek fans	80	27
	4 do	red leaf	160	24
	1 do	[illegible]	94	24
Malagauga	8 ch	fans	896	32
	5 hf ch	dust	400	28
Oodoowera	1 ch	dust	140	27
Hangranoya	7 ch	sou	560	33
	7 do	bro tea	560	38
Fairlawn	22 hf ch	or pek	946	39 bid
	7 ch	pek	560	36 bid
Meath	9 ch	pek	882	37
	2 do	bro pek	140	30
	1 do	pek dust	83	25
Moneragalla	8 ch	pek sou	520	34
	4 do	fans	448	29
	1 do	red leaf	[illegible]9	27

	Pkgs.	Name.	lb.	c.
Maldeniya	5 ch	fans	525	17
	2 do	dust	300	11
Orion	1 ch	bro mix	74	30
	5 hf ch	dust	425	29
M T	1 ch	or pek	77	31
Engurakande	*2 ch*	*young hyson*	144	23 bid
	3 do			
	1 hf ch	*hyson*	312	23 bid
	1 ch	*hyson No 2*	90	21 bid
	1 do	*dust*	142	11
Panilkande	8 ch	pek	720	36
	3 do	sou	270	34
Anningkande	9 ch	pek	810	37
	10 do	pek sou	950	35
	3 do	sou	300	34
	2 do	bro pek fans	200	33
	2 do	dust	200	28
Paniyakande	8 ch	pek	720	36
	3 do	pek sou	270	34
	2 do	sou	180	33
Rock Cave	9 ch	pek sou	765	32
	1 do	dust	150	28
Gampai	3 ch	dust	330	27
Alpha	10 ch	pek	880	36
	4 do	pek sou	340	34
	2 hf ch	fans	160	28
	1 do	dust	95	24
Woodend	11 ch	pek sou	880	33
	1 do	pek fans	91	30
	2 do	dust	280	26
A in est mark	7 ch			
	1 hf ch	bro tea	680	20
	1 do	dust	64	16
Liliawatte	8 ch	br pek dust	720	19 bid
Uprassoya	9 ch	bro pek	900	33
	4 do	pek	400	32
M N	5 ch	bro mixed	455	14

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Marigold	21 hf ch	or pek	987	40
A	5 hf ch	dust	400	29
	14 hf ch	souchong	700	32
Columbia	8 hf ch	pek fans	624	29
Arcady	6 hf ch	unasst	270	29
Karangalla	4 ch	pek sou	380	33
	2 hf ch	dust	160	28
Leyton	11 hf ch	bro or pek	616	38
	7 ch	or pek	630	36
	2 do	bro mix	150	30
	1 hf ch	dust	85	28
Kituldeniya	10 ch	pek sou	7[illegible]0	33 bid
	6 do	souchong	456	33
	2 hf ch	dust	163	28
Simla	1 hf ch	dust	95	28
A P in est mark	2 ch	pek	200	33
	2 do	red leaf	190	28
Blinkbonnie	7 ch	pek sou	595	41
Donside	8 ch	sou	6[illegible]0	33
	3 hf ch	dust	2[illegible]0	27
	3 do	fans	165	28
Carney	18 hf ch	pek sou	9[illegible]0	34
	5 do	sou	2[illegible]0	33
	2 do	bro pek fans	100	32
	5 do	pek fans	250	30
	3 do	dust	150	27
R K P	10 ch	pek sou	800	34
Kelani	10 ch	pek sou	800	36
R M in est mark, Bopitiya	10 ch	pek	900	36
	10 do	pek sou	900	34
	6 hf ch	dust	480	29
Labuduwa	7 ch	bro pek	700	36
	4 do	pekoe	400	33
	9 do	pek sou	810	32
Evalgolla	4 ch	pek sou	400	34
Patulpana	7 ch	bro pek	700	37
	6 do	pek	600	33
	5 do	pek sou	4[illegible]5	32
	3 do	dust	285	30
N P	10 ch	bro pek	900	36
	11 do	pekoe	880	[illegible]
	2 do	bro pek fans	1[illegible]0	27
W K P	8 ch	pek sou	600	33
	4 do	sou	304	32
	2 hf ch	dust	1[illegible]8	26
Avisawella	6 hf ch	fans	4[illegible]0	27
D B G	3 ch	fans	300	28 bid
	3 hf ch	dust	[illegible]40	27
G B	9 hf ch	dust	720	31
Harrangalla	2 hf ch	dust	160	29
	6 ch	bro pek fans	600	31 bid
New Valley	5 ch	pek sou	450	38
Scarborough	11 hf ch	bro pek	748	40

	Pkgs.	Name.	lb.	c.
St. Catherine	15 hf ch	bro or pek	825	40
	6 ch	or pek	603	37
	2 do	fans	223	29
Torbay	18 hf ch	sou	864	38
Theberton	2 ch	pek sou	180	34
	2 do	bro pek fans	200	29
	1 do	pek fans	100	28
	1 do	dust	100	28
Wagnila	3 ch	pek sou	258	38
	2 hf ch	dust	180	27
C in est mark	4 ch	or pek	420	34
	1 ch	pek sou	70	32
	1 hf ch	dust	41	22
	1 do	mixed (green)	38	out
Warakamure	6 ch	pek sou	480	33
	1 hf ch	dust	90	25
F F	8 hf ch	dust	680	20
	4 ch	pek sou	380	33
Mary Hill	8 hf ch	bro or pek	432	49
	16 do	pek sou	800	34
	8 do	bro pek fans	560	32
	2 do	dust	180	28
Laxapanagalla	3 ch	pek	270	34
	2 do	pek fans	200	29
	1 do	dust	100	29
Tallegallekande	4 ch	bro pek	449	33
	7 do	pekoe	700	31
	4 do	pek sou	400	30
	1 do	dust	140	22
	3 hf ch	fans	295	23
Horagoda	2 ch	bro or pek	228	38
	3 ch	or pek	300	35
	8 do	pekoe	728	34
	3 do	pek sou	261	32
Wilidale	4 ch	bro pek	400	33
	6 do	pek	600	32
	1 do	pek sou	100	30
	1 do	fans	100	24
Oonaukande	18 hf ch	bro pek	900	39 id
	3 do	dust	210	29
Mousa	2 hf ch	bro or pek	140	31 bid
	5 ch	bro pek	550	40
	6 do	pek	570	36
	1 do	pek sou	85	33
	1 do	pek No 1	95	withd'n
	2 hf ch	pek fans	140	28
	1 do	dust	80	27
	2 do	or pek	90	40
Selvawatte	6 ch	pek	600	33
	1 hf ch	pek sou	55	31
	3 do	fans	240	
Manangoda	4 ch	bro pek	403	33
	6 do	pek	603	32
	2 do	pek sou	200	30
	2 do	fans	215	31
	1 do	red leaf	103	21
Kanantota	9 ch	pek	720	33
	6 do	pek sou	480	32
	1 do	dust	106	21
F	5 ch			
	1 hf ch	unassorted	595	29
	7 do	fans	455	30
	8 do	dust	680	out
Kapudoowa	8 ch	pekoe	715	31
	1 do			
	1 hf ch	pek sou	125	23
Aluthena	8 ch	pek	760	31
Weygalla	13 hf ch	bro pek	780	38
	6 ch	pek sou	600	34
	4 hf ch	dust	320	26
Rambodde	13 hf ch	bro or pek	780	46
	15 do	pek sou	720	36
	4 do	fans	200	31
	3 do	dust	255	28
M	2 ch	bro pek	212	38
	2 do	pek	188	34
	1 hf ch	bro pek fans	90	28
Glenalmond	2 ch	pek sou	180	33 bid
	2 do	fans	200	28 bid
	2 hf ch	dust	160	28
Kurunegalla	10 hf ch	or pek	650	37
	1 ch	pek sou	95	33
	2 hf ch	dust	200	27
Nellicollaywatte	1 ch	pek	90	34
H R W	1 *hf ch*	*siftings*	85	12

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
P K T	6 bags	red leaf	456	21
Bogatoda	7 ch	bro pek	630	36
	6 do	pek	480	33
	3 do	pek sou	240	32
	4 hf ch	pek dust	260	23 bid
Tismada	12 hf ch	bro or pek	600	41
	3 ch	pek sou	285	34

	Pkgs.	Name.	lb.	c.
Perth	*2 ch*	*hyson No 2*	180	34
	2 do	*fans*	228	19
	1 do	*dust*	150	11
Theresia	5 ch	bro pek	500	38
Merrow	3 ch	pek sou	300	33
	2 hf ch	fans	146	28
Osborne	8 ch	pek	720	40
Reading	1 ch	bro or pek	98	34
	1 do			
	1 hf ch	bro pek	143	34
	2 ch	pek	180	33
	1 do	pek sou	64	32
	1 hf ch	bro pek fans	59	28
	1 do	pek fans	73	27
	1 do	dust	46	23
Glentilt	11 ch	pek	990	44
B K	3 ch	bro pek	408	35
	6 do	bro tea	534	36
Oonoogaloya	6 hf ch	dust	510	26
	4 do	bro or pek No 2	280	35
	7 do	fans	490	31
Ottery	8 ch	bro or pek	760	40
	4 do	or pek	320	38
	3 hf ch	dust	240	27
Bowella	4 ch	pek	340	34
	5 hf ch	dust	375	28
Eila	*4 ch*	*hyson No 2*	380	35
	4 do	*green fans*	400	17
	4 do	*dust*	400	11
Mocha	12 hf ch	fans	960	32
Craigingilt	10 hf ch	bro or pek	550	44 bid
	3 do	or pek	300	40
	5 do	pek No 1	450	37
	4 do	or pek fans	260	33
	1 do	dust	85	29
Orwell	11 hf ch	or pek	990	36
	10 do	bro or pek	560	40
	10 ch	pek	840	35
	5 do	pek fans	375	28
Mahanilu	3 hf ch	dust	255	27
	8 do	bro pek fans	542	32
M L W	7 hf ch	pek	595	34
	7 ch	pek sou	525	33
Stonyhurst	9 hf ch	bro or pek	495	51
	7 ch	pek	588	36
	5 hf ch	pek fans	335	32
Tarawera	*2 ch*	*hyson No 2*	190	33
	11 hf ch	*hyson siftings*	880	15
Cabin Ella	4 hf ch	bro pek fans	280	29
	2 do	pek dust	170	26
Lynford	8 ch	pek	760	36
Syston	2 hf ch	bro or pek	114	37
	1 ch	or pek	88	37
	3 do	pek No 1	243	34
Eton	3 ch	sou	300	38
	1 hf ch	dust	90	28
Dalhousie	16 hf ch	bro pek	880	46
	12 do	pek sou	640	35
	5 do	bro pek fans	325	32
Bowhill	8 ch	bro or pek	800	43
	4 do	or pek	360	39
	2 do	dust	200	28
Stubton	2 ch	bro pek fans	230	32
	5 do	pek	500	35
	6 do	pek sou	600	33
	1 do	pek dust	150	25
M B	11 ch	sou No 1	990	22
	3 do	fans No 1	300	14
Oakwell	7 ch	pek sou	595	36
	5 do	fans	290	30
	2 do	dust	170	29
Taunton	4 hf ch	dust	360	26
	2 ch	fans	240	27
Eladuwa	7 ch	bro pek	770	37
	10 do	pek	950	34
	5 do	pek sou	475	32
Kahagalla	9 ch	pek	855	39
	10 do	pek sou	900	35
	3 hf ch	dust	252	30
Eversfield	8 ch	bro pek	793	34
	7 do	pek	672	33
	4 do	pek sou	393	32
	1 do	dust	112	24
Rookwood	2 ch	bro pek	140	30
	5 do	pek dust	440	24

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, MARCH 6th.

"Patrician."—Alloowiharie London OO, 1 barrel sold at 54s; ditto O, 1 cask out; ditto 1, 1 cask and 1 tierce out; ditto 2, 1 barrel sold at 35s; ditto PB, 1 barrel out; ditto T, 1 cask out; AW London Bulk, 1 barrel out.

No Rubber or Plumbago sales held this week.

CEYLON COCOA SALES IN LONDON.

"Clan Cameron."—Meegama No. A, 102 bags out at 75s; No. 1, 14 out at 54s; No. B, 8 sold at 50s; No. B1, 1 out at 35s.

"Glenartney."—Meegama A No. A, 6 bags out.

"City of Madrid."—Marakona, 110 bags out.

"Britannia."—WB, 47 bags sold at 68s; 8 sold at 55s 6d.

"City of Athens."—North Matale Ceylon Cocoa F & C, 30 bags out at 57s; 4 sold at 49s 6d; 2 sold at 54s; Mawalaganga, 20 bags sold at 67s.

"Patrician."—North Matale Ceylon Cocoa, 24 bags out at 40s; D CGE in estate mark London, Ceylon Cocoa, 120 bags out; Woodthorpe, 22 bags out at 66s; 38 sold at 54s.

"City of Athens."—F OBEC in estate mark, Kondasalle Ceylon O, 31 bags sold at 66s; F ditto 1, 6 sold at 51s 6d; 10 sold at 54s 6d; ditto O, 7 sold at 77s 6d; 2 sold at 51s 6d; ditto 1, 2 sold at 54s; F ditto D2, 3 sold at 49s; G ditto, 3 sold at 42s 6d.

"Patrician."—Strathisla Ceylon Cocoa A, 13 bags sold at 88s 6d; ditto B, 15 sold at 81s; ditto C, 2 sold at 54s: ditto D, 6 sold at 48s 6d; ditto E, 4 sold at 49s 6d; Goonambil, 101 bags out at 66s.

"Shropshire."—HK 1, 25 bags out.

"Patrician."—A1 Yattawatta, 27 bags out at 65s; B1 ditto, 9 sold at 56s 6d; C1 ditto, 8 sold at 51s 6d; A2 ditto, 4 sold at 47s; B2 ditto, 1 sold at 47s; Broken, 13 sold at 36s; Kahawatte 1, 14 bags sold at 63s 6d; ditto 2, 8 sold at 41s; Dynevor A, 17 bags out at 62s; B, 19 out at 62s; C, 33 sold at 54s; D, 17 sold at 52s; E, 4 sold at 35s 6d; Coodoogalla, 57 bags out at 66s; 13 out at 56s; Kepitigalla, 37 bags out; KPG, 77 out at 59s; Bandarapola, 14 bags out at 58s; XY, 2 sold at 35s.

"Lancashire."—Yattawatte, 37 bags cut at 62s; Broken, 21 sold at 35s 6d.

"Shropshire."—Coodoogalla, 35 bags out at 64s; Old Haloya, 10 bags out at 56s.

"Historian."—Rockhill B, 8 bags sold at 35s; Bandarapola 1, 16 bags out.

"Socotra."—Bandarapola, 10 bags out.

"Clan Cameron."—Old Haloya, 28 bags out.

"Kanagawa Maru."—Old Haloya, 20 bags out.

"Kamakura Maru."—KM in estate mark, 60 bags out at 50s.

"Statesman."—Dynevor B, 10 bags out.

"Warwickshire."—KM in estate mark, 60 bags out at 50s; Ratwatte, 41 bags sold at 65s; 48 out at 61s; 30 out at 50s.

"Patrician."—1 MAK in estate mark, 130 bags out at 63s; A MH in estate mark, 17 bags out at 63s; Dammeria, 12 bags out at 63s.

"Magician."—AM in estate mark, 94 bags out at 51s; 2 sold at 43s.

"Duke of Westminster."—RP London 1, Ceylon Cocoa, 14 bags out at 53s 6d; ditto 2 ditto, 17 sold at 53s

"Hitachi Maru."—RP London A, Ceylon Cocoa, 2 bags sold at 52s; RPB London, Ceylon Cocoa, 4 bags out; RP ditto, 24 bags out.

"Magician."—1 MAK in estate mark Estate Cocoa 96 bags sold at 60s; 1 MM in estate mark, 43 bags out.

"Kanagawa Maru."—1 MAK in estate mark Estate Cocoa, 85 bags out.

"Sado Maru."—1 NN in estate mark Estate Cocoa, 31 bags out; KM in estate mark, 120 bags out; 5 sold at 45s.

"Glenartney."—1 MM in estate mark, 141 bags out.

"Derbyshire."—1 AM in estate mark, Estate Cocoa, 92 bags out.

"Kanagawa Maru."—Gilbury, 28 bags out.

"Inaba Maru."—Andella, 16 bags out; BBB, 27 bags out; CCC, 31 sold at 54s; Gilbury, 19 bags out.

CEYLON CARDAMONS SALES IN LONDON.

"Benmohr."—WDS Malabar, 16 cases out; ditto L, 3 cases sold at 8d; ditto L, 1, 1 case sold at 8d; 2 cases at 8d; ditto 1 Seeds, 2 at 1s 2d; MM, 10 cases (shells) sold at 1⅜d, 41 cases (shells) at 1½d.

"Ulysses."—NJDS in estate mark, 5 cases out at 1s 2d.

"Historian."—WDS Malabar, 7 cases out at 1s 1d; 13 at 1s 3d; ditto Seeds, 4 at 1s 5d.

"Duke of Westminster."—AL OO, 2 cases out.

"Peiho."—AL OO, 4 cases out.

"Benlawers."—AL 1, 4 cases out at 1s 3d.

"Donro."—AL I, 5 cases out.

"Peleus."—1 Hoolo Group, 8 cases out at 1s 6d; 2 ditto, 2 cases sold at 1s; 3 ditto Seed, 8 at 1s 4d; A & Co. in estate mark, 6 cases out.

"Sado Maru."—Gallantenne Cardamoms A, 2 cases sold at 2s; ditto C, 1 at 1s 5d; ditto D, 3 at 1s; ditto E, 2 at 1s 4d; 3 cases out; Pingarawa Cardamoms 1, 14 cases sold at 1s 3d; ditto Browns, 2 at 1s 5d; 1 at 11d; Altwood Mysore Cardamoms, Grade No. 1, 3 at 1s 11d; ditto Grade No. 2, 2 at 1s 4d; ditto Grade No. 3, 2 at 1s.

"Patrician."—Vedehette Cardamoms EX, 3 cases out at 2s 10d; ditto AA. 7 cases sold at 1s 8d; ditto A, 2 at 1s 1d; ditto B, 5 at 1s; ditto C, 2 at 1s; Pingarawa Cardamoms No. OO, 1 at 2s 1d; ditto No. 1, 4 at 1s 4d; ditto Brown, 1 at 1s.

"Warwickshire."—Katooloya Cardamoms AA, 2 cases sold at 1s 7d; ditto A, 6 cases out.

"Kanagawa Maru."—Nawanagalla 1, 2 cases sold at 2s 2d; ditto 2, 6 at 1s 4d; ditto 3, 4 at 1s; ditto Seed, 1 at 1s 4d.

"Arabia."—GS in estate mark, 10 cases out at 1s 8d.

"Mazagon."—D in estate mark, 22 cases out.

"Peleus."—Gallantenne Cardamoms B, 2 cases sold at 1s 3d; 2 cases out.

"Patrician."—Wariagalla Mysore A, 3 cases sold at 1s 9d; 4 at 1s10d; 2 at 2s; ditto B, 2 at 1s 2d; ditto C, 1 at 11d; ditto D, 5 at 11½d; St. Martin's, 2 at 1s 10d; 3 at 1s 7d; 4 at 1s 1d; 2 at 1s; 1 at 11d

"City of Athens."—M A Y & Co., O, 7 cases sold at 2s; ditto 1, 10 out at 1s 9d; ditto 2, 8 out at 1s 3d; ditto 3, 4 out at 1s 1d.

"Peleus."—WDS, 12 cases sold at 1s 4d; 4 cases out.

"Kawachi Maru."—New Peacock, 2 cases out.

"China."—CS, in estate mark, 5 cases out at 1s 6d

"Patrician."—DAM 1, 1 case sold at 1s 10d; 1 at 2s 1d; ditto 2, 2 at 1s 4d; ditto 3, 4 at 1s 1d; ditto S, 2 at 1s; Wattakelly Mysore A, 2 cases out at 1s 4d; ditto B, 2 out; ditto C, 1 out; ditto D, 3 out; Midlands O, 5 cases sold at 2s; ditto 1, 2 at 1s 4d; ditto 1, 4 at 1s 3d; ditto 2, 1 at 1s; B & S, 1 at 1s; Elkaduwa O, 2 at 1s 5d; ditto 1, 6 at 1s; ditto 2, 2 at 11d; B & S, 1 at 11d; ditto Seed, 1 at 1s 3; ditto 2, 1 at 9d.

"Historian."—Elkaduwa O, 3 cases out; ditto 1, 8 cases sold at 1s; ditto 2, 2 at 11½d; B & S, 1 at 1s.

"Asia."—Elkaduwa 1, 12 cases sold at 1s.

"City of Madrid."—OBEC, in estate mark, Dankande, 15 cases sold at 1s 6d.

"City of Athens."—OBEC, in estate mark, Nilloomally Mysore O, 3 cases sold at 1s 10d; ditto 1, 7 at 1s 3d; ditto 2, 2 at 11½; ditto 3, 1 at 11½d; B & S, 4 at 11½d; 1 bag (Seed) at 1s 3d.

Mincing Lane Ceylon Produce.

5 p.m., 6th March, 1903.

All Ceylon Produce keeps steady quiet.

Ceylon Cinnamon—latest values for assortment 8¼ to 8¾d c. i. f. terms, but sellers cautious thereat.

Ceylon Cocoa—very steady. Sales Ceylon about 1520 bags.

Ceylon Plumbago—quiet from 3/ to 51/.

Ceylon Rubber—Fine, 4/1 to 4/3; scrab clean 2/10 to 3/5.

Ceylon Pepper—fair. Ceylon sold at 9d and rather darkish 8⅝d. Sugar should be firmer and should be bought in flat markets; also Coffee. Cotton should be sold up.

The general state of trade is quiet in England, but in America things there have been booming, and the accounts read like fairy tales, and the prospects there for balance of the year, good.

Gold in Ceylon.—In Old Moore's London Almanack and in his predictions for April he writes:—"The public will, about now, receive news of a wonderful find of gold and precious stones in Ceylon. A great rush will take place, but few seekers after fortune will be lucky enough to obtain a paying claim."

No. 13. COLOMBO, APRIL 1st, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[14,433 lb.]

	Pkgs.	Name	lb.	c.
Langley	20 hf ch	bro or pek	1120	50 bid
	25 ch	or pek	2375	41 bid
	23 do	pek No 1	2300	40 bid
Mapitigama	20 ch	*young hyson*	2000	38
	14 do	*hyson No 1*	1288	34
Ranella	18 ch	bro pek	1620	33 bid
	21 do	pek sou	2070	31

Messrs. Forbes & Walker.

[308,627 lb.]

	Pkgs.	Name.	lb.	c.
Galleberia	13 ch	bro or pek	1300	54
	15 do	or pek	1200	43 bid
	25 do	pek	2125	39 bid
	13 do	pek sou	1235	28
Kincora	17 ch	bro or pek	1700	45 bid
	22 do	or pek	2090	42 bid
	22 do	pek	1980	39
Glengariff	37 ch	bro or pek	2146	45
	16 do	or pek	1360	42
	18 do	pek	1764	40
St. Heliers	25 hf ch	bro or pek	1450	45
	11 ch	pek	1078	40
Roeberry	12 ch	bro or pek	1200	52
	35 do	bro pek	3220	40
	35 do	pek	3150	37
	12 do	pek sou	1020	36
	17 hf ch	fans	1105	32
Roeberry	22 ch	bro or pek	2200	52 bid
	42 do	bro pek	3864	39 bid
	43 do	pek	3870	37 bid
	12 do	pek sou	1020	36
Agra	38 ch	bro pek	3610	withd'n.
Marlborough	29 hf ch	bro or pek	1682	48
	12 ch	bro pek	1200	42
	17 do	pek	1700	40
Aberdeen	12 ch	bro pek No 1	1044	42
	16 do	bro pek No 2	1600	38
	16 do	or pek	1280	39
	38 do	pek	2926	36
Polatagama	21 ch	bro or pek	2100	43
	28 do	bro pek	2800	38 bid
	80 do	pek	7600	35 bid
High Forest	33 hf ch	or pek No 1	1650	61
	63 do	bro pek	3780	51 bid
	52 do	or pek	2652	49
Battawatte	17 hf ch	bro or pek	1105	40
	36 ch	bro pek	3600	40
	26 do	pek	2600	39
High Forest	69 hf ch	or pek No 1	3450	61
	35 do	bro pek	2100	53 bid
	38 do	pek	1824	49
Gampaha	22 ch	bro or pek	2420	45
	17 ch	bro pek	1598	43
	13 do	or pek	1248	42
	24 do	pek	2040	39
	12 do	pek sou	1080	38
Erracht	16 ch	bro or pek	1600	42
	26 do	pek	2080	36
St. Helen	27 hf ch	fans	1755	32
Ingrogalla	15 ch	bro pek	1500	40
	14 do	pek	1260	37
Nakiadenia	16 ch	*young hyson*	1080	44
	15 do	*hyson*	1350	38
	12 do	*hyson No 2*	1020	37
Dunblane	31 hf ch	bro or pek	1705	55
	17 ch	bro pek	1700	43
	12 do	pek	1200	42
Kerenvilla	13 ch	bro pek	1300	34 bid
	12 do	pek	1200	32
Kitulgalla, Invoice No 4	14 ch	bro or pek	1428	40
	14 do	or pek	1330	38
	18 do	pek	1584	37
Good Hope, Invoice No 4	40 hf ch	bro or pek	2240	42
	24 ch	or pek	2280	38
	20 do	pek	1900	36
	14 do	pek sou	1260	36

	Pkgs.	Name.	lb.	c.
Yelatenne, Invoice No 2	15 ch	or pek	1500	39
Gonapatiy	24 hf ch	or pek	1296	50
	22 do	bro or pk	1386	64 bid
	38 do	pek	2014	47
W V R A Inv. No 2	30 hf ch	bro or pek	1650	48
O N N, Inv. No B	12 ch	pek sou	1104	41
Hanwella	*31 ch*	*young hyson*	3255	37
	15 do	*hyson No 1*	1575	36
Puspone	21 ch	or pek	2100	37 bid
	32 do	bro pek	2520	41 bid
	18 do	pek	1710	36
Passara Group	19 ch	bro or pek	1900	41
	40 do	pek	3800	39
Digdola	22 ch	pek	1760	37
Gourt Lodge	9 ch	bro or pek	1023	47 bid
Glencorse	14 ch	bro pek	1470	41
	19 do	or pek	1710	39
	23 do	pek	1955	37
Freds Ruhe	19 ch	bro pek	1995	41
	15 do	pek	1425	37
	10 do	pek sou	1000	34
Monterey	17 hf ch	fans	1187	31
Maha Eliya	28 hf ch	bro or pek	1677	54 bid
K	13 ch	dust	1070	12
Putupaula	10 ch	bro or pek	1000	50
	55 do	or pek	4950	37 bid
	42 do	pek	3360	35
	8 do	bro pek fans	1000	31
H L S	43 hf ch	bro pek	2236	30 bid
	49 do	dust	3332	26 bid
Tempo	10 ch	bro or pek	1000	41
	12 do	or pek	1080	37
	13 do	pek	1105	35
L, in estate mark	24 hf ch	pek fans	1488	29 bid
R M	13 ch	dust	1947	29
Bandara Eliya	33 hf ch	or pek	1584	40
	26 do	br or pek No 1	1404	46 bid
	40 do	br or pek No 2	2400	40 bid
	70 do	pek	3360	42
High Forest	32 hf ch	or pek No 1	1600	64
	31 do	bro pek	1860	58
	46 do	or pek	2392	51
Bandarapola	54 hf ch	br or pek No 1	3132	38
	52 do	br or pek No 2	2860	36 bid
	51 do	bro pek	2703	36
	23 do	pek	1319	35
Glengyle	25 ch	pek	2375	35 bid
Inverness	18 ch	bro or pek	1800	65 bid
	36 do	or pek	3420	80
	28 do	pek	2520	57
	17 hf ch	bro or pek fans	1105	41
Innes	13 ch	or pek	1300	38
	17 do	bro pek	1700	39
	36 do	pek	3240	35
	13 do	pek sou	1105	34
Silesia	24 ch	pek	2280	35 bid
Preston	42 hf ch	bro or pek	2352	55
	24 do	or pek	1152	49
	14 ch	pek	1190	45
Altona	23 ch	bro pek fans	2599	26 bid
Elgaloya	56 ch	bro pek	5600	39 bid
	32 do	pek	2560	37
	30 do	pek sou	2607	35
Oakleigh	*24 ch*	*young hyson*	2400	39 bid
	21 do	*hyson*	1890	35 bid
	1 do	*hyson No 2*	1550	35 bid
O B E C, in est mark Newmarket	53 hf ch	bro or pek	2915	50
	48 ch	bro pek	5184	42
	23 do	or pek	2024	44
	32 do	pek	2944	41

Messrs. Keell and Waldock.

[52,305 lb.]

	Pkgs.	Name.	lb.	c.
J W	30 ch	bro pek	2910	30 bid
Woodend	29 ch	bro pek	2900	38
	31 do	pek	2790	35
T K A	23 ch	bro pek	1800	32 bid
Aigburth	11 ch	or pek	1012	33
Fern	17 ch	bro pek	1530	34 bid
Katugastota	10 ch	bro pek	1050	39
	22 do	pek	1760	35
Kalagama	18 ch	pek	1792	32 bid
Anningkande	27 ch	bro pek	2700	40
	13 do	pek sou	1235	35
W G W	11 ch	br or pek	1219	34 bid
L E	35 ch	pek	2825	31 bid

	Pkgs.		Name.	lb.	c.
Ambakande	25	ch	bro or pek	2572	36
	23	do	or pek	2070	34
	25	do	pek	2247	30 bid
K in est mark	18	ch	sou	1527	out
Uratenne	31	ch	bro pek	3100	38 bid
	26	do	pekoe	2340	36
	14	do	pek sou	1260	35
R	16	hf ch	bro pek fans	1101	29 bid
T in est mark	13	ch	bro pek	1323	32 bid
L M	22	ch	pek sou	1537	out

Messrs. Somerville & Co.

[157,400 lb.]

	Pkg		Name.	lb.	c.
Elchico	23	ch	bro or pek	2300	41
	14	do	or pek	1260	36 bid
	13	do	pek	1235	36
	12	do	pek sou	1080	34
Jak Tree Hill	26	ch	bro pek	2730	39
	22	do	pekoe	2200	36
Nyanza	12	ch	or pek	1020	41 bid
	19	hf ch	bro or pek	1045	47
	10	ch	pek	1000	40
Dalveen	10	ch	bro or pek	1100	38
	15	do	or pek	1500	37
	20	do	pek	1700	36
Ravenscraig	18	hf ch	bro or pek	1008	45
	25	do	or pek	1250	40
	30	do	pek	1500	36
Maragalla	14	ch	bro pek	1400	38 bid
R K P	26	ch	bro or pek	2600	39
	24	do	pek	2160	36
Lagalla	27	hf ch	dust	2160	24 bid
Siriniwasa	23	ch	or pek	2415	39
	31	ch	pekoe	2790	37
Agra Tenne	24	ch	bro pek	2400	45
	24	do	pek	1980	42
Ingeriya	18	ch	bro or pek	1800	39
	20	do	or pek	1800	37
	23	do	pek	2185	36
	18	do	pek sou	1710	35
Neboda	21	ch	bro or pek	2100	41
	19	do	or pek	1748	38
	26	do	pek	2600	36
Neuchatel	16	ch	bro or pek	1520	39 bid
	53	do	or pek	4505	36
	23	do	pek	1840	35
	24	do	bro pek	2520	37
Maskeliya	16	*ch*	*young hyson*	1600	36 bid
	13	*do*	*hyson No 1*	1170	35
Kallebokka	24	ch	bro or pek	2400	48 bid
	38	do	bro pekoe	3800	38
Hobart	16	ch	bro or pek	1600	37
	25	do	pek	2000	36
Kelani	40	ch	bro or pek	4000	38
	36	do	pek	3240	36 bid
	18	do	pek sou	1440	34
Avisawella	20	hf ch	bro or pek	1000	43
	18	ch	or pek	1710	38
	22	do	pek	1980	36
	14	do	pek sou	1120	34
Marie Land	30	hf ch	bro or pek	1630	43
	40	ch	br pek	4000	39
	32	do	pek	2720	38
Hapugasmulla	13	ch	br pek	1430	39
Narangoda	31	ch	bro pek	2945	38
	25	do	pek	2250	35
	19	do	pek sou	1710	34
Lyndhurst	24	hf ch	bro pek	1320	39
	25	do	pek	1250	35
	24	do	pek sou	1080	34
Deniyaya	22	ch	br pek	2200	39
M T	20	ch	bro or pek	1997	35
Dikmukalane	43	hf ch	pek sou	2064	34
Farnham	37	*hf ch*	*young hyson*	2072	38
	11	*ch*	*hyson No 1*	1100	35
M N in est mark	16	ch	bro or pek	1680	31 bid
Forest Hill	18	ch	bro pek	1692	with'n
	16	do	pek	1344	with'n
	14	do	pek sou	1148	with'n
Mabatenne	13	ch	bro or pek	1300	43
	11	ch	or pek	1030	39
Tunisgalla	20	ch	pek sou	1700	33

Messrs. E. John & Co.

[107,755 lb.]

	Pkgs.		Name.	lb.	c.
Poilakande	13	ch	bro or pek	1050	37
	21	do	bro pek	1890	36
	19	do	pek	1520	35
Kandahar	23	hf ch	bro or pek	1258	50
	25	do	or pek	1325	46
	44	do	pek	2420	38

	Pkgs.		Name.	lb.	c.
Winwood	23	hf ch	bro or pek	1380	47
	33	ch	or pek	3300	39 bid
	39	do	pek	3510	37
Mossend	35	hf ch	bro or pek	1552	49 bid
	23	do	or pek	1158	50
	26	do	pek	1430	44
Acrawatte	11	ch	bro pek	1045	43
Gonavy	15	ch	pek sou	1050	39
Ottery	13	ch	bro or pek	1300	45 bid
	19	do	pek	1710	38
Brownlow	20	hf ch	bro or pek	1120	55
	22	ch	or pek	1980	43 bid
	20	do	pek	1700	41
Avington	29	*ch*	*young hyson*	2900	38
	22	*do*	*hyson*	1980	36
Mocha	58	hf ch	bro or pek	3477	52 bid
Kolapatna	18	hf ch	bro or pek	1008	56 bid
	17	do	bro pek	1037	45
	20	do	or pek	1000	44
	20	do	pek	1000	40 bid
Waragalande	11	ch	bro or pek	1100	44 bid
	13	do	pek	1235	36 bid
Hiralouvah	25	ch	bro pek	2400	38 bid
	21	do	pek	1848	35
D'Bula	11	ch	pek sou	1097	32
	18	do			
	1	hf ch	pek fans	2333	32
Myraganga	20	ch	or pek	1800	39
	25	do	bro or pek No 1	2500	44
	38	do	bro or pek No 2	3800	40
	16	do	pek	1360	38
Ohiya	20	hf ch	bro or pek	1010	47 bid
	61	do	bro pek	3172	49 bid
	20	ch	or pek	1900	42
	24	do	pek	1968	41
Ratwatte	30	ch	bro pek	3000	38
	14	do	pek	1260	37
Elston	17	ch	pek	1360	38
	25	do	pek sou	2125	36
Brownlow	23	hf ch	bro or pek	1288	57
	20	ch	or pek	1800	47
	16	do	pek	1360	44
Balado	12	ch	pek	1080	38
	18	do	pek sou	1440	36
St. John's	36	hf ch	bro or pek	2085	withd'n

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.		Name.	lb.	c.
Mapitigama	4	ch	*hyson No 2*	380	33
	2	do	*fans*	210	15
	1	do	*dust*	110	12
Ranella	12	ch	pek	960	36

Messrs Forbes & Walker.

	Pkgs.		Name.	lb.	c.
B W	11	hf ch	dust	990	28
Queensland	5	ch	pek	400	36 bid
Galleheria	1	ch	dust	100	30
Roberry	7	hf ch	dust	630	27
Agra	12	hf ch	bro or pek	600	with'n
	4	ch	bro pek No 2	360	with'n
	6	do	or pek	510	with'n
	3	do	pek	255	with'n
Pingarawa	8	hf ch	dust	720	29
Bundland	16	do	bro or pek	944	55 bid
	9	do	bro pek	522	51 bid
	3	ch	pek	267	42 bid
	2	do	pek sou	180	41 bid
Berrewella	6	ch	pek sou	540	33
	6	hf ch	bro tea	510	28
Mudamana	6	ch	fans	600	19
Asgeria	1	ch	bro tea	105	32
	1	do	dust	165	28
Aberdeen	9	ch	sou	675	33
	10	hf ch	bro pek fans	700	30
Polatagama	3	ch	dust	450	28
	11	do	pek sou	990	35
	2	box	dust	200	28
Erracht	10	ch	or pek	900	39
	8	do	pek sou	680	34
	5	do	bro pek fans	700	30
	1	do	pek fans	125	27
Ardross	2	ch	sou	160	28
Nakiadenia	4	do	*siftings*	360	15
	1	hf ch	*twanky*	45	19
Horagaskelle	7	hf ch	bro pek	448	37
	5	do	pek	2-0	34
	8	do	pek sou	476	33

	Pkgs.	Name.	lb.	c.
Kerenvilla	5 ch	pek sou	500	31
	1 do	fans	100	22
Kitulgalla, Invoice No 4	2 ch	dust	297	28
	3 do	bro or pek fans	360	29
Good Hope, Invoice No 4	4 ch	fans	260	29
	6 hf ch	dust	570	29
	2 do	bro pek fans	140	31
	4 ch	pek sou No 2	380	33
Yclatenne, Invoice No 2	7 hf ch	bro or pek	385	45
	4 do	bro or pek fans	280	33
	2 do	dust	180	28
Gonapitiya	6 hf ch	dust	513	30
W V R A, Inv. No 2	4 hf ch	fans	320	28
Hanwella	*9 hf ch*	*hyson No 2*	585	36
	5 do	*hyson siftings*	450	13
Rukethenne	*7 hf ch*	*young hyson*	392	35
	6 do	*hyson*	312	33
	2 do	*hyson No 2*	104	33
	1 hf ch	*fans*	55	16
	1 do	*dust*	65	10
Parsloes	1 hf ch	dust	87	29
	1 do	fans	70	32
Puspone	11 ch	pek sou	935	35
	5 hf ch	fans	425	29
Passara Group	9 ch	pek sou	855	37
Digdola	4 ch	bro or pek	400	40
	6 do	bro pek	570	40
	1 ch	bro pek	95	36
	6 do	pek sou	450	38
	1 do	bro pek fans	110	27
Putupaula	1 ch	pek sou	94	32
	1 do	dust	155	27
	1 do	sou	95	22 bid
L R O	3 hf ch	pek fans	138	30 bid
St Martins	11 hf ch	bro or pek	440	withd'n
	10 do	bro pek	400	
	20 do	pek	860	
	2 do	pek sou	80	
	5 do	fans	300	
Clunes	4 ch	pek fans	400	32
	5 do	dust	675	27
Preston	6 hf ch	bro or pek fans	408	39
Pengalla	3 hf ch	dust	270	30
	5 do	fans	375	33
Uragalla	4 ch	bro pek	400	35
	5 do	pek	460	33
Oakleigh	3 ch	pek fans	303	19

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
A T	3 ch	bro or pek	300	36
	9 do	pek sou	810	33
	2 do	dust	240	24 bid
Galkanda	9 ch	bro or pek	900	37
	9 do	pek	765	36
	4 do	pek sou	360	33
	1 do	dust	100	26
Kandahar	3 hf ch	dust	189	28
Winwood	15 hf ch	bro pek fans	900	33
	10 do	dust	900	30
Mossend	4 hf ch	pek sou	200	40
	3 do	bro or pek fans	180	33
Gonavy	2 ch	pek sou No 2	160	35
	14 hf ch	fans	840	37
	4 do	dust	340	28
Ottery	7 ch	or pek	560	40
	3 hf ch	dust	240	30
Oonoogaloya	7 hf ch	fans	490	32
Kehelwatte	5 hf ch	dust	425	29
	2 ch	fans	220	35
Yapame	2 ch	dust	190	26
	2 do	fans	190	29
Kehelwatte	2 ch	fans	220	35
	3 hf ch	dust	255	30
Shawlands	4 hf ch	dust	560	27
Avington	*4 ch*	*hyson No 2*	360	35
	2 do	*green fans*	200	18
	3 do	*green dust*	300	11
Kolapatna	2 ch	pek sou	184	39
	4 hf ch	bro pek fans	272	25
	3 do	pek fans	249	31
Waragalande	10 ch	or pek	950	43
	8 do	pek sou	720	35
Hiralouvah	9 ch	pek sou	810	33
	4 hf ch	dust	328	27
	2 do	fans	128	29
	4 do	bro pek No 2	196	34
	1 ch	pek No 2	90	33
	1 do	pek sou	70	32
H H	2 ch	sou	164	27
M, in estate mark	4 hf ch	bro pek	260	40
	8 do	pek	440	38

	Pkgs.	Name.	lb.	c.
D'Bula	3 ch			
	1 hf ch	bro pek	336	38
Myraganga	7 ch	pek sou	525	36
	2 do	bro mix	180	32
	3 do	dust	570	29
	3 do	bro or pek fans	435	34
Ohiya	3 ch	pek sou	252	37
	12 hf ch	dust	912	30
Ratwatte	3 ch	pek sou	270	34
	3 hf ch	dust	240	27
Brownlow	9 hf ch	bro pek fans	675	35

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
T T	4 ch	dust	400	29
K L in est mark	6 hf ch	pek sou	450	24
	1 do	pek sou	60	12
	1 do	fans	63	13
Woodend	12 ch	pek sou	960	33
	1 do	bro pek fans	84	20
	2 do	dust	280	27
Fern	4 ch	pek No 1	340	36 bid
	do	pek	170	34 bid
Katugastota	6 ch	or pek	540	34
	7 do	pek sou	525	33
	2 do	sou	152	32
	2 hf ch	dust	166	26
Anningkande	10 ch	pekoe	900	36 bid
	3 do	sou	285	34
A F	2 ch	bro pek	200	38
	3 do	pek	300	33
Kotuagoda	*3 hf ch*	*young hyson*	150	30 bid
	3 do	*hyson No 1*	150	35
	2 do	*hyson*	100	32 bid
L in est mark	13 hf ch	pek sou	660	34 bid

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Kurulogalla	8 ch	bro pek	800	37
	11 do	pek	990	35
	4 do	pek sou	360	31
	1 do	bro pek fans	100	32
	1 do	pek dust	150	28
Jak Tree Hill	3 ch	pek sou	300	34 bid
	1 do	fans	123	31
	2 do	dust	250	29
Nyanza	2 ch	pek sou	190	38
	4 hf ch	fans	280	33
	1 do	dust	90	30
Dalveen	5 ch	pek sou	400	34
	3 do	bro pek fans	300	33
	2 do	dust	300	28
Ravenscraig	5 hf ch	dust	400	28
Cooroondoowatte	3 ch	bro pek	300	40
	8 do	pek	800	35
	5 do	pek sou	500	34
	3 do	pek fans	390	28
Maragalla	8 ch	or pek	680	36 bid
	8 do	pek	720	35
	2 do	pek sou	150	34
	1 do	dust	150	28
R K P	12 ch	pek sou	960	34
	4 do	dust	400	28
Siriniwasa	5 ch	bro pek	600	35
	12 do	pek sou	900	34
	1 do	sou	105	30
	8 do	fans	840	34
	2 do	dust	300	28
Makluway	4 hf ch	bro pek	200	42
	6 do	pek	264	33
	7 do	sou	294	32
	3 do	fans	120	out
Agra Tenne	5 ch	pek sou	450	37
	6 hf ch	fans	480	33
Ingeriya	2 ch	dust	200	28
Neboda	2 ch	pek sou	200	34
	5 hf ch	dust	425	28
Neuchatel	4 ch	dust	600	29
R in est mark	1 hf ch	bro or pek	62	39
	2 do	pek	195	33
	1 do	fans	56	out
Dalukoya	1 hf ch	bro pek fans	935	34
	10 do	pek fans	550	30
	4 do	dust	220	28
Maskaloya	*5 ch*	*hyson No 2*	450	34
	8 do	*siftings*	800	16
Nagaganga	5 hf ch	bro pek	277	34
S	1 ch	bro pek	107	35
	1 do	pekoe	91	34
	2 hf ch	pek sou	109	33
	1 ch	dust	127	20 bid
	1 hf ch	*hyson*	40	20
Kelani	6 ch	dust	600	29

	Pkgs.	Name.	lb.	c.
S W	1 hf ch	bro pek	61	34
	1 ch			
	1 hf ch	pek	159	31
	1 do	pek sou	59	withd'n
	1 ch	dust	109	18 bid
Dunbar	8 ch	pek sou	661	withd'n
Marie Land	16 hf ch	or pek	800	39
	9 ch	pek sou	810	34
	1 do	sou	100	33
	5 hf ch	fans	300	31
	2 ch	dust	200	29
Hapugasmulla	10 ch	pek	920	34
Oonangalla	8 hf ch	dust	640	29
	4 do	fans	280	29
Farnham	*1 ch*	*hyson No 2*	100	33
	5 hf ch	*fans*	350	18
	1 do	*dust*	90	12
M N in est mark	6 hf ch	fans	340	31 bid
M	1 hf ch	unassorted	50	20
Mahatenne	1 hf ch	fans	85	withd'n
	1 do	dust	90	"
C	8 ch	fans	800	"
D V	7 ch	pek fans	805	26 bid

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, MARCH 13th.

"Peleus."—C T P & Co. Pita Ratmalie Ceylon A, 1 barrel sold at 110s ; ditto B, 2 casks sold at 90s ; ditto C, 1 barrel out ; ditto PB, 1 barrel out ; ditto T, 1 barrel out ; Mausagalla A, 1 cask sold at 115s ; ditto B, 1 barrel, 1 cask and 1 tierce sold at 100s ; ditto C, 1 barrel sold at 47s ; ditto PB, 1 at 103s ; ditto T, 1 at 43s.

"Patrician."—North Matale London OO, 6 barrels out.

"Patrician."—KMA in estate mark, 152 bags sold at 50s ; KA in estate mark, 170 bags sold at 50s.

"Peleus."—Muwagalla No. 1, 20 bags sold at 60s ; No. 2, 19 at 50s ; Rockhill AA, 20 bags sold at 67s ; 65 at 66s 6d ; B, 11 bags out ; C, 12 bags sold at 47s ; Bandarapola, 10 bags out ; T, 1 bag sold at 29s ; Bandarapola 1, 27 bags out ; T, 2 bags sold at 29s 6d.

"Kawachi Maru."—Ingurugalle A, 94 bags sold at 66s ; T, 9 at 39s 6d ; Asgeria A 1, 32 bags sold at 72s ; A, 20 at 66s 6d ; 26 at 66s ; B, 22 at 65s ; Maragalla Y, 13 bags out ; ditto R, 7 bags out ; T, 2 bags sold at 47s 6d ; Kumaradola A, 17 bags out ; T, 2 bags sold at 58s ; Dangan Estate No. 1, 15 bags sold at 61s 6d ; No. 2, 11 at 55s 6d ; O, 6 at 51s 6d ; B, 5 at 31s ; No. 2 D, 1 at 31s.

"Thames."—N/M in estate mark, 1 bag sweepings sold at 52s.

"Patrician."—Udapolla A, 68 bags sold at 58s ; ditto G, 13 at 49s ; ditto B, 4 at 34s ; ditto Pieces, 1 at 50s.

"Kawachi Maru."—A Glenalpin, 30 bags out ; B ditto, 32 bags sold at 48s ; Hylton 1, 15 bags sold at 80s 6d ; 53 bags out ; ditto 1 D, 28 bags out ; ditto D 32 bags out.

"Benmohr."—Beredewelle C O C Ex No. 1, 16 bags sold at 73s 6d ; ditto 1, 21 bags out.

"Austral."—Beredewelle C O C Ex No. 1, 14 bags sold at 80s ; ditto 1, 1 at 54s ; ditto B, 6 at 35s ; ditto T, 1 at 40s.

"Land Carriage."—No. 1 Meegama, 39 bags sold at 64s 6d ; 2 at 59s ; North Matale, 12 bags sold at 69s 6d ; ditto B, 20 at 65s 6d ; 47 at 65s ; 2 at 60s 6d ; No. 1 K R D G, 34 bags sold at 64s 6d ; 2 at 63s ; (*KMA in estate mark, 53 bags sold at 55s 6d ; 8 at 54s.

CEYLON RUBBER SALES IN LONDON

"Kawachi Maru."—Culloden, Best Para Rubber, 6 cases sold at 4s 2d ; ditto Scrap, 2 at 3s 5½d ; ditto No. 2 Scraps, 1 at 3s ; Heatherleig, Para Rubber, 4 cases sold at 4s 2½d ; ditto Scrap, 1 at 3s 6½d ; 1 at 3s 3½d ; Glanrhos, 1 case sold at 4s 2½d ; 1 bag sold at 3s 3d.

"Peleus."—Para Rubber Yataderia First Quality Biscuits, 1 case sold at 4s ; ditto Scrap, 1 at 3s.

No public Plumbago or Cardamom sales held this week.

MINCING LANE CEYLON PRODUCE MARKETS.

For Week ending 5 p.m., 13th March, 1903.

CEYLON PRODUCE generally keeps quiet, but Ceylon Rubber is active and dearer and Ceylon coir.

CEYLON COCOA sold irregularly, 1,400 bags sold, fine 80s to 88s.

CEYLON PEPPER small parcel 51 bags, good Ceylon fetched 6d.

CEYLON NUTMEGS 4 packages sold, Ceylon 98's uneven and some rather darkish 1s 2d to 1s 3d.

CEYLON COFFEE is steady and prices likely to be dearer.

SUGAR is uncertain.

COTTON is quieter from a Manchester point of view. American crop is 11 to 11,300,000. Consumption 10,900,000. Indian Supply 400,000 greater from Ceylon and Tuticorin 1,000 are at sea *via* Bombay. F G F spot tinys 4⅝d and 4½d c i f to Liverpool. Increase in next American crop with fertilisers and acreage about same. So next crop might be 10 to 12½ millions. Trade in England is quieter and one or two failures reported.

CEYLON PLUMBAGO quiet and unchanged from last report.

CEYLON RUBBER 25 packages sold well. Fine Para 3s 10d to 4s 2½d. Scrappy lots sold at 3s 0¾d to 3s 4½d per lb.

COIR CEYLON fine dearer, values common to inferior £15 to £30.

OBSERVER PRINTING WORKS.

TEA, COFFEE, CINCHONA, COCOA, AND CARDAMOM SALES.

No. 14. COLOMBO, APRIL 8th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[26,844 lb.]

	Pkgs.	Name	lb.	c.
Southwark	14 cb	bro pek	1400	36
	15 do	pek	1245	32 bid
Dartry	24 ch	fans	1800	30
Hornsey	29 hf ch	bro pek	1885	53
	13 ch	or pek	1235	44
	24 do	pek	2280	42
Battalgalla	20 ch	bro pek	2300	40
	18 do	or pek	1620	43
	15 do	pek	1275	42
Bunyan and Avoca	38 hf ch	bro or pek	2280	45 bid
	52 do	or pek	2600	41 bid
	22 ch	pek	2090	40
	13 do	pek No 2	1235	42
	19 do	pek sou	1710	40

Messrs. Forbes & Walker.

[634,601 lb.]

	Pkgs.	Name.	lb.	c.
G K	16 hf ch	dust	1280	30
Munukettia, Ceylon in est mark	12 ch	or pek	1140	42
	32 hf cb	bro pek	2048	52
	28 ch	pek	2520	41
Bellongalla	15 ch	bro pek	1575	37
	29 do	pek	2610	34
	15 do	bro or pek fan	1575	33
Rickarton, Invoice No 16(Vensta Packages)	19 ch	bro or pek	2090	44 bid
	20 do	or pek	2000	43
	14 do	bro pek	1540	41
	20 do	pek	2000	41
O B E C, in estate mark	70 ch	pek	6160	38
	20 do	bro pek	2000	39 bid
	16 do	or pek	1312	45
	10 do	fans	1000	35
Mousakelle	12 ch	bro or pek	1200	46
	14 do	pek	1260	43
Eastland	38 hf ch	bro or pek	2280	40 bid
	62 do	or pek	2976	36 bid
Barmley	21 bf ch	bro or pk No 1	1092	53
	32 do	or pek No 1	1600	51
	27 do	bro pek No 1	1566	45
Unugalla	14 ch	bro pek	1428	38
	21 do	pek	1785	34
Glendon	13 ch	bro pek	1300	51
	48 do	or pek	4800	37
	52 do	pek	4680	36
	21 do	pek s u	1995	34
Irex	23 ch	bro or pek	2300	40
	16 do	or pek	1280	38
	20 do	pek	1800	37
Ingrogalla	14 ch	bro pek	1400	39
	13 do	pek	1170	36 bid
Hatton	30 do	bro pek	3300	50
	30 do	pek	2700	44
O B E C, in est mark Sindumallay	10 ch	bro or pek	1000	56
	19 do	bro or pek	2090	39 bid
	15 do	or pek	1500	43
	32 do	pek	2880	41
	16 do	pek sou	1200	37
Poonagalla	20 ch	or pek	1910	42 bid
	166 bf ch	bro pek	6572	48 bid
	34 ch	pek	3298	42
Marlborough	39 hf ch	bro or pek	2184	46 bid
	21 ch	bro pek	2100	41
	27 do	pek	2646	39
Mahawale, Inv No 5	18 ch	bro pek	1800	38
	20 do	or pek	2000	36 bid
	26 do	pek	2340	34 bid
	13 do	pek sou	1170	34
Stafford	13 ch	bro or pek	1560	53 bid
	21 do	or pek	2100	43 bid
	15 do	pek	1275	43 bid
O B E C, in est mark Darrawella	29 hf ch	bro or pek	1624	56
	17 ch	bro pek	1785	43
	21 do	or pek	1932	44
	48 do	pek	4560	41
	21 do	pek sou	1785	39
	27 bf ch	fans	189	37

	Pkgs.	Name.	lb.	c.
Kotagaloya	34 ch	bro pek	3570	41
	32 do	pek	3040	37
Drayton	17 ch	or pek	1615	49
	21 do	pek	1785	45
	12 do	pek sou	1020	42
K P W	23 hf ch	bro or pek	1380	43 bid
	33 do	bro pek	1650	38
	23 do	or pek	1035	37
	41 do	pek	2050	36
	20 do	pek sou	1000	34
Digdola	11 ch	bro pek	1045	38
Sunnycroft	73 cb	*young hyson*	6570	37
	58 do	*hyson*	4930	35
	28 do	*hyson No 2*	2380	34 bid
	16 do	*gunpowder*	1360	33
Harrow	20 hf ch	bro or pek	1200	54
	15 ch	or pek	1650	46
	20 do	pek	2000	45
Handford, Invoice No 3	20 ch	bro pek	2000	38
Middleton	22 bf ch	bro or pek	1320	84
	30 ch	bro pek	3000	59
	28 do	or pek	2520	56
	23 do	pek	2070	52
	12 do	pek	1020	45
High Forest	44 hf ch	or pek No 1	2.83	53 bid
	58 do	bro pek	3480	47 bid
	52 do	or pek	2704	48
St. Vigeans	23 hf ch	bro or pek	1426	49
	18 ch	pek	1728	42
Bandarapola	47 ht cb	bro or pe No 1	2726	withdn.
	46 do	do do No 2	2438	withdn.
	23 ch	bro pek	2231	withdn.
	17 do	pek	1479	withdn.
Carfax	18 ch	bro or pk	1800	47 bid
	19 do	or pek	1710	42
	20 do	pek	1800	42
Great Valley, Ceylon in estate mark	26 bf ch	bro or pek	1560	41 bid
	14 ch	or pek	1400	38
	35 do	pek	3150	36
	19 do	pek sou	1596	34
Great Valley, Ceylon in est mark	31 hf ch	bro or pek	1860	40 bid
	16 ch	or pek	1600	38
	37 do	pek	3404	37
	21 do	pek sou	1764	34
Harrington	19 hf ch	bro or pek	1045	60
	11 ch	bro pek	1232	44
	10 do	or pek	1000	44
	12 do	pek	1200	44
O B E C, in est mark Invoice No 25, Forest Creek	21 ch	bro or pek	2142	58
	50 do	bro pek	5100	42
	22 do	or pek	1980	41 bid
	43 do	pek	4300	38
Deviturai	9 cb	pek fans	1080	30
Elfindale	10 ch	bro pek fans	1000	31
Monkswood, Invoice No 4	27 hf ch	bro or pek	1620	65
	54 do	or pek	2970	53
	52 ch	pek	5200	48
Sevanmally	57 hf cb	bro or pek	3420	41 bid
	50 do	do do	3000	41 bid
	48 cb	bro pek	5040	41 bid
	40 do	do	4200	41 bid
	34 do	or pek	3060	37 bid
	30 do	do	2700	37 bid
Sevanmally	78 do	pek	7020	36 bid
	60 do	do	5400	36 bid
	40 do	pek sou	3200	34 bid
	32 do	do	2560	34 bid
	29 hf ch	fans	1885	31 bid
	12 do	dust	1080	24 bid
Delta, Inv. No 5	20 hf ch	bro or pek	1283	42
	42 cb	bro pek	4410	38
	38 do	pek	3420	36
	16 do	pek sou	1408	35
Mansfield	68 bf cb	bro pek	4080	48
	20 ch	pek	2000	42
Vogan, Inv No 9	15 ch	bro or pek	1500	48
	24 do	or pek	2280	38
	34 do	pek	3060	36
Vogan, Inv. No 8	24 cb	bro or pek	2400	46
	42 do	or pek	3990	38
	53 do	pek	4770	36
	13 ch	pek No 2	1170	35
Nugagalla	41 hf ch	bro pek	2050	38
	51 do	pek	2550	34
O B E C, in est mark Forest Creek	51 ch	pek dust	4080	32

	Pkgs.		Name.	lb.	c.
O B E C, in est mark Forest Creek, Invoice No 27	10	ch	bro or pek	1020	61
	22	do	bro pek	2244	42
	12	do	or pek	1080	44
	20	do	pek	2000	42
Walpita	28	ch	bro pek	2800	39
	26	do	pek	2340	34
Roseberry, E	62	ch	pek	5580	37
	65	do	bro pek	6175	40
	14	do	bro or pek	1400	53
St. Heliers	33	hf ch	bro or pek	1914	41
	13	ch	pek No 1	1274	38
Palmerston	26	hf ch	bro or pek	1560	69
	18	do	bro pek	1080	53
	22	ch	pek	1870	50
Shrubs Hill	27	ch	bro pek	2700	40
	24	do	pek	2280	36 bid
Marlborough	46	hf ch	bro or pek	2576	48
	21	ch	bro pek	2100	42
	33	do	pek	3234	40
Castlereagh	70	hf ch	bro or pek	3850	46
	18	ch	bro pek	1800	39 bid
	16	do	or pek	1280	42
	16	do	pek	1360	40
	13	hf ch	fans	1105	32
Waldemar	27	hf ch	bro or pek	1728	53
	20	ch	bro pek	2320	39 bid
	24	do	or pek	2352	42 bid
	12	do	pek	1080	41
	17	hf ch	fans	1428	32
Florence	36	hf ch	bro or pek	1980	60
	27	ch	or pek	2700	46 bid
	98	do	pek	9310	42
Dunbar	19	hf ch	bro or pek	1064	54
	22	do	bro pek	1254	42
	32	do	pek	2880	42
	17	hf ch	bro pek fans	1207	38
Bogahagodawatte	10	ch	bro or pek	1000	37
	10	do	pek	1000	33
Nakiadeniya	14	*ch*	*young hyson*	1470	44
	13	*do*	*hyson*	1170	39
Mousa Eliya	30	ch	bro or pek	2000	38
	11	do	bro pek	1100	38
	11	do	pek	1020	36
Mabopitiya	17	*ch*	*young hyson*	1700	38
	19	*do*	*hyson*	1710	35
Agra Oya	33	hf ch	or pek	1650	42
	35	do	bro pek	2100	42
	12	ch	pek	1080	40
Preston	43	hf ch	bro or pek	2408	52
	16	ch	pek	1344	47
Hentleys	37	hf ch	bro pek	1961	37
	37	ch	pek	2701	33
Glencorse	11	ch	bro pek	1155	43
	16	do	or pek	1440	39
	13	do	pek	1049	37
	16	do	pek sou	1200	35
Talgaswella	24	ch	bro or pek	2400	44
	23	do	pek	1840	36
	22	do	pek sou	1650	35
	17	do	or pek	1360	40
Hayes	28	ch	bro pek	2800	38
	15	do	or pek	1275	39
	61	do	pek	5795	33 bid
Weoya	16	ch	bro or pek	1680	40 bid
	45	do	bro pek	4500	37
	35	do	pek	2975	36
	14	do	pek sou	1120	35
Clunes	14	ch	bro pek	1400	37
	13	do	or pek	1235	37
	22	do	pek	1980	35
Polatagama	20	ch	bro or pek	2000	40 bid
	23	do	bro pek	2300	39
	63	do	pek	5985	35 bid
	12	do	pek sou	1140	34
Ganapalla	13	ch	bro or pek	1365	39
	13	do	bro pek	1157	33
	12	do	or pek	1056	38
	25	do	pek	2050	35
	13	hf ch	dust	1053	29
Killarney	20	hf ch	bro or pek	1 00	57
	26	do	bro pek	1508	45
	14	ch	or pek	1190	44 bid
	16	do	pek	1408	44
Luckyland	22	ch	bro or pek	2420	39 bid
	20	do	bro pek	1880	41
	26	do	pek	2210	39
	12	do	pek sou	1080	38
Queensland	20	ch	bro pek	2000	42 bid
	15	do	pek	1425	40 bid
Polatagama	19	ch	bro or pek	1900	46 bid
	19	do	bro pek	1900	38
	15	do	or pek	1500	36 bid
	43	do	pek	4085	35 bid
	12	do	pek sou	1200	35

	Pkgs.		Name.	lb.	c.
Kincora	17	ch	bro or pek	1700	47
	16	do	or pek	1440	41 bid
	27	do	pek	2565	39
Bandara Eliya	24	hf ch	or pek	1440	37 bid
	63	do	pek	3024	36 bid
Erlsmere	33	hf ch	bro or pek	1815	53
	14	do	pek	1260	43
Sunnycroft	58	*ch*	*young hyson*	5220	36 bid
	46	*do*	*hyson*	3910	35 bid
	38	*do*	*hyson No 2*	3230	34 bid
Ravenswood	15	ch	or pek	1350	39
	23	ch	bro pek	2415	42
	19	do	pek	1710	36
Kerenvilla	13	ch	bro pek	1297	31 bid
Waldemar	22	hf ch	bro or pek	1320	withd'n
	14	ch	bro pek	1610	withd'n
	19	do	or pek	1862	withd'n
	12	do	pek	1080	withd'n
	16	do	pek sou	1403	withd'n
Poonagalla	18	ch	or pek	1761	41 bid
Agra	38	ch	bro pek	3610	26 bid

Messrs. Keell and Waldock.

[76,665 lb.]

	Pkgs.		Name.	lb.	c.
Minna	40	hf ch	bro pek	2400	41 bid
	16	ch	or pek	1520	40
	24	do	pek	2160	38
	13	do	pek sou	1235	35
Galla	18	ch	bro pek	1800	37
	13	do	pekoe	1170	35
G K in est mark	19	hf ch			
	17	ch	bro pek	2849	44
	22	do	pek	1980	38 bid
	23	do	pek sou	2070	35 bid
Rothes	21	hf ch	bro pek	1155	40
Hyde	19	ch	or pek	1615	41
	30	hf ch	bro or pek	1650	44
	20	ch	pekoe	2000	38 bid
M	15	*hf ch*	*young hyson*	1048	39 bid
Panilkande	21	hf ch	br or pek No 1	1050	53
	19	ch	br or pek No 2	1900	42 bid
	22	do	or pek	1980	38
	14	do	pek sou	1260	35
Orion	30	hf ch	or pek	1500	38
	34	ch	pek No. 2	3060	35 bid
Glenwood	13	ch	bro pek	1196	35 bid
	34	do	or pek	2720	37 bid
	21	do	pek	1680	33 bid
	16	do	pek sou	1280	32 bid
P	16	ch	bro pek	1600	out
K G	56	ch	pek sou	5096	32 bid
M B	22	ch	bro pek	2112	32 bid
Hangranoya	15	ch	bro or pek	1425	53
	19	do	or pek	1520	40
	24	do	bro pek	2400	38
M	21	ch	bro pek	2058	out
H G N	19	ch	bro pek	1843	36 bid
	2	do	pek	1650	32 bid
	27	do	pek sou	2322	30 bid

Messrs. Somerville & Co.

[258,408 lb.]

	Pkg		Name.	lb.	c.
L	16	hf ch	dust	1360	29
G A	18	ch	bro mixed	1530	27 bid
Forest Hill	18	ch	bro pek	1092	38
	16	do	pek	1344	35
	14	do	pek sou	1148	33 bid
Owilikande	15	ch	bro or pek	1500	38
	12	do	or pek	1080	36
	18	do	pek	1620	37
Highfields	33	hf ch	bro pek No 1	1848	41 bid
	40	hf ch	pek	1920	38
Ellerslie	42	hf ch	bro or pek	2310	42 bid
	19	do	or pek	1710	40
	17	do	pek	1360	39
Yarrow	60	*hf ch*	*young hyson*	3000	38
	46	*do*	*hyson*	2303	35
Raglan	13	ch	bro pek	1300	36
	17	do	pek	1615	34
Rahatungoda	23	hf ch	bro or pek	1288	42 bid
	13	ch	or pek	1287	41
	21	do	pekoe	1974	39
Highfields	22	hf ch	bro pek No 2	1232	40
	29	do	pek	1392	38
Munangalla	20	hf ch	bro pek	1000	38
	33	do	pek	1650	34
	22	do	pek sou	1100	33
Kallebokka	26	ch	pek	2600	38
	16	do	or pek	1600	40 bid

	Pkgs.		Name.	lb.	c.
Oonanagalla	20	ch	or pek	1700	withd'n
	24	do	bro or pek	2400	withd'n
	20	do	pek No. 1	2000	withd'n
	20	do	pek No 2	1700	withd'n
Laxapanagalla	21	ch	bro or pek	2100	38 bid
	13	do	or pek	1235	38
Depedene	72	hf ch	bro pek	4320	37
	33	do	pek	1980	35
	18	do	pek sou	1080	34
Avisawella	20	hf ch	br or pek	1000	43
	12	ch	or pek	1140	37
	17	do	pek	1530	35
	13	do	pek sou	1040	34
Pindeni Oya	14	ch	bro or pek	1400	37
	23	do	or pek	2185	35 bid
	40	do	pek	3200	34
	18	do	pek sou	2530	33
Scawfell	23	ch	bro or pek	2300	40 bid
	18	do	bro pek	1890	39 bid
	12	do	bro or pek	1260	41 bid
	16	do	or pek	1440	40
Kurulugalla	10	ch	bro pek	1000	37
	16	do	pek	1440	36
Mahatenne	18	ch	pek	1710	34 bid
Udagoda	11	ch	bro pek	1056	out
Beausejour	10	ch	bro or pek	1000	42
	14	do	bro pek	1320	36 bid
Damblagolla	23	ch	pek	1955	34 bid
	10	do	pek sou	1280	33 bid
Galphele	10	ch	bro or pek	1000	45 bid
	22	do	or pek	1980	42
	10	do	bro pek No 1	1000	40
	10	do	bro pek No. 2	1000	38
	32	do	pekoe	2880	39
Bodawa	42	hf ch	bro pek	2100	37
	13	ch	pek	1170	38
	12	ch	pek sou	1020	33
Kelani	29	ch	bro pek	2897	37
Torbay	26	hf ch	pek sou	1092	35 bid
	20	do	br or pk fans	1400	35
	15	do	fans	1050	33
Walla Valley	38	hf ch	bro or pek	2090	50 bid
	24	ch	or pek	2160	53
	32	do	pek	2880	46
Walahanduwa	23	ch	bro or pek	2300	39 bid
	17	do	or pek	1700	36
	35	do	pekoe	3325	34
Monrovia	30	ch	bro pek	3000	37
	15	do	pek	1425	33 bid
Citrus	32	ch	br pek	3040	37
	33	do	pek	2970	33 bid
I P	19	hf ch	dust	1786	30
Weygalla	18	hf ch	bro or pek	1008	48 bid
	18	ch	pek	1800	36 bid
Yahalatenne	26	ch	bro pek	2600	39 bid
	12	do	pek sou	1092	36
Ferndale	10	ch	bro or pek	1000	41 bid
	25	do	pek	2250	33 bid
Fairfield	24	ch	pek sou	1920	42
Meeriatenne	20	hf ch	bro pek	1000	39 bid
	20	do	pek sou	1000	36
S R K	16	ch	pek	1600	41
Mount Temple	25	ch	br pek	2500	37
	29	do	pek	2378	36
	27	do	bro or pek	2700	34
Deniyaya	23	ch	bro pek	2300	38 bid
	20	do	pek	19 0	36
	21	do	pek sou	1890	34
	22	do	br pek	2200	38 bid
	17	do	pek	1615	36
	14	do	pek sou	1260	34
Oonankande	22	hf ch	bro pek	1100	40 bid
	36	do	pek	1980	34 bid
Havilland	35	*ch*	*young hyson*	3500	37 bid
	28	*do*	*hyson No 1*	2520	35
	13	*do*	*hyson No 2*	1170	34
Dooroomadella	18	*ch*	*young hyson*	1710	38
	16	*do*	*hyson*	1552	35
Labugama	18	hf ch	bro or pek	1080	33 bid
	22	ch	pek	1870	33 bid
Annandale	19	¾ ch	bro or pek	1596	50 bid
	16	do	or pek	1248	48
	23	do	pek	1840	43
Cooroondoowatte	13	ch	bro pek	1300	39
	24	do	pekoe	2400	36
	11	do	pek sou	1100	33
Silverts	11	ch			
	1	hf ch	pek	1040	34 bid
Ferriby	18	ch	or pek	1710	30 bid
	25	do	pek	2375	34
	16	do	pek sou	1440	33
Rahatungoda	21	ch	pek	2100	40
	13	do	or pek	1287	41
	21	hf ch	bro or pek	1176	42 bid
	16	do	br pek	1101	32

Messrs. E. John & Co.

[242,705 lb.]

	Pkgs.		Name.	lb.	c.
Dubena	15	ch	pek	1500	33 bid
Bowella	34	hf ch	bro pek	1700	35 bid
Castle Hill	14	ch	pek	1260	34
Comar	19	*hf ch*	*young hyson*	1026	38 bid
	13	*ch*	*hyson*	1235	35 bid
Warleigh	23	hf ch	bro or pek	1288	57 bid
	22	ch	or pek	2156	44
	34	do	pek	2890	40
Tismoda	45	hf ch	bro pek	2250	39
	27	ch	pek	2295	37
Natuwakelle	10	ch	bro or pek	1000	41 bid
	24	do	or pek	2160	38
	22	do	pek	1980	37
Eila	42	*ch*	*young hyson*	4200	37
	24	*do*	*hyson*	2160	36
Glentilt	48	hf ch	bro or pek	2640	51 bid
	25	ch	or pek	2300	46
	23	do	pek	2070	42 bid
St. John's	30	hf ch	bro or pek	2088	45
	20	ch	or pek	1840	48 bid
	30	do	pek	2850	46
	23	hf ch	pek fans	1564	34 bid
S J	25	hf ch	bro pek	1500	36 bid
	10	ch	pek	1568	34 bid
M L K	11	ch	bro pek	1034	33
Glassaugh	32	hf ch	or pek	1888	71
	34	do	bro or pek	2346	55 bid
	20	ch	pek	2200	56
Tarawera	28	*ch*	*young hyson*	2800	37
	23	*do*	*hyson*	2185	35
Agra Ouvah	39	ch	bro or pek	3900	56
	26	do	or pek	2470	44
	20	do	pek	1840	
Gonavy	28	hf ch	bro or pek	1540	46
	15	ch	bro pek	1275	41
	30	do	pek	3168	41
Oonoogaloya	22	ch	or pek	1760	40
	23	do	broor pek	2185	44
	12	do	pek	1080	39
Devon	26	hf ch	bro or pek	1664	65 bid
	23	ch	or pek	2300	49
	12	do	pek	1200	45
Ormidale	19	hf ch	bro or pek	1007	64
	54	do	bro pek	3240	39 bid
	32	do	pek	2944	42
Gingranoya	16	ch	bro or pek	1760	45
	12	do	pek	080	39
Bowella	22	hf ch	bro pek	1100	36
Mt. Vernon	31	ch	pek	3 07	42 bid
	27	do	pek	2430	42 bid
Peru	13	ch	bro pek	1300	40 bid
	14	do	pek	1260	37
Mocha	40	hf ch	bro or pek	2400	52 bid
	24	ch	or pek	2400	47
	34	hf ch	bro pek	2410	38 bid
	21	ch	pek	2310	45
Myragauga	30	ch	or pek	2700	39
	14	do	bro or pek No 1	1400	43
	32	do	bro or pek No 2	3200	40
	15	do	pek	1275	37
Kelaneiya & Braemar	13	ch	bro or pek	1300	46 bid
	10	do	bro pek	1000	40
	18	do	pek	1710	40
Cocoawatte	14	ch	bro pek	1460	28
	18	do	pek	1800	31
Wawoolawatte	10	ch	bro pek	1070	31 bid
	10	do	dust	1450	28
Kandaloya	20	hf ch	pek No 2	1597	33 bid
Agra Ouvah	13	ch	pek sou	1167	37 bid
Ben Nevis	16	ch	pek	1440	41 bid
Rondura	14	ch	bro or pek	1540	43 bid
	21	do	bro pek	2163	37 bid
	16	do	or pek	1632	38
	32	do	pek	2880	30
Theresia	45	hf ch	bro or pek	2700	43 bid
	39	ch	or pek	3510	43 bid
	48	do	pek	4080	42 bid
	10	do	bro pek fans	1000	36
Brownlow	22	hf ch	bro or pek	1232	51 bid
	16	ch	or pek	1410	44
	14	do	pek	1190	40
Balado	19	ch	pek sou	1520	34
	15	hf ch	dust	1200	31
Gangawatte	18	ch	bro or pek	1800	53
	15	do	bro pek	1500	41 bid
	30	do	pek	2700	42
Westhall	11	ch	dust	1120	29
	14	do	fans	1050	36
Doonbinde	45	ch	or pek	4500	38 bid
	41	do	bro pek	4100	45
Glassaugh	23	hf ch	or pek	1380	80
	25	do	bro or pek	1750	58
	16	ch	pek	1760	61
Longville	26	hf ch	bro pek	2600	38 bid

	Pkgs.	Name.	lb.	c.
	14 do	pek	1409	36
Elston	31 ch	pek	2480	38
	22 do	pek sou	1870	36
Mossend	35 hf ch	bro or pek	2152	withd'n
Hiralouvah	25 ch	bro pek	2397	37
Captains Garden	19 ch	pek	1710	32

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Southwark	2 ch	pek sou	152	33
Dartry	1 ch	sou	90	30
	4 do	dust	360	30
R	8 hf ch	dust	640	30
Mawanella	2 hf ch	bro pek	112	40
	3 do	pek	159	34
	7 do	pek sou	350	33
	1 do	dust	26	26

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
G K	11 ch	pek sou	770	34
	1 do	sou	65	32
	6 do	fans	570	32
H (Venesta pkgs.)	6 ch	pek	456	32 bid
Vincit	4 ch	*young hyson*	360	39
	4 do	*hyson*	320	35
	8 do	*hyson No 2*	640	34
	2 do	*gunpowder*	180	32
	1 do	*fans*	125	18
Gabbella	9 hf ch	bro pek	450	37
	13 do	pek	650	34
	10 do	pek sou	550	32
	5 do	fans	250	29
Rickarton, Invoice No 16	1 ch	pek sou	100	33
	4 do	fans	480	34
	2 do	dust	260	31
O B E C, in est mark Nillomally	3 ch	dust	270	31
St. Martins	11 hf ch	bro or pek	440	36
	10 do	or pek	400	35
	20 do	pek	800	34
	2 do	pek sou	80	32
	5 do	fans	300	31
B F B, in est mark	1 ch	fans	128	23
	4 do	pek	352	30 bid
Mousakellie	2 hf ch	bro pek fans	130	34
	2 do	dust	150	32
Eastland	3 hf ch	pek dust	264	32
Unugalla	8 ch	pek sou	656	33
	1 hf ch	dust	80	26
Irex	7 ch	pek sou	560	35
	3 do	fans	330	34
	2 do	dust	170	26
Hatton	3 ch	pek sou	255	39
	2 do	dust	300	33
Marlborough	1 ch	pek fans	100	31
T T	6 ch	fans	450	16
V O A	5 hf ch	dust	425	32
Mahawale, Invoice No 5	4 ch	bro mix	380	29
	7 hf ch	fans	420	32
	8 do	dust	640	30
Stafford	2 ch	fans	260	33
C	6 ch	sou	570	29
K	3 ch	unas	270	18
	1 hf ch	dust	50	9
Chesterford	1 ch	*hyson No 2*	80	33
Kotagaloya	7 hf ch	dust	595	33
K P W	3 hf ch	pek fans	225	32
	2 do	dust	180	30
Digdola	5 ch	bro or pek	500	39
	4 do	pek	320	34
Sunnycroft	12 hf ch	*siftings*	900	12
Rarrow	3 ch	pek sou	285	40
	3 hf ch	fans	210	32
Handford, Invoice No 3	7 ch	pek	630	34
	8 do	pek sou	760	34
	2 do	sou	190	32
	1 do	bro pek fans	100	32
	1 do	dust	100	30
	1 do	red leaf	70	24
Great Valley, Ceylon in est mark	7 hf ch	dust	588	31
Great Valley, Ceylon in estate mark	8 hf ch	dust	656	32
Beddegama	1 ch	bro pek	100	37
Laxapana	1 ch	or pek	80	37
	1 do	pek	89	35
Harrington	2 hf ch	bro pek fans	160	33
	1 do	dust	95	32
Devitural	1 hf ch	dust	90	26
Elfindale	3 ch	fans	285	26
	4 do	dust	400	22
Monkswood, Invoice No 4	10 ch	pek sou	850	44
Ivies	7 ch	sou	665	31
	2 do	dust	310	24
	4 do	fans	360	30
Mansfield	7 ch	pek sou	630	37
	7 do	dust	665	33
Vogan, Inv. No 9	9 ch	pek No 2	810	34
	4 do	pek sou	360	33
	3 do	pek fans	375	32
	5 hf ch	dust	400	30
Vogan, Inv. No 8	8 ch	pek sou	720	33
	4 do	pek fans	500	32
	9 hf ch	dust	720	30
Nugagalla	4 hf ch	dust	360	30
Walpita	7 ch	pek sou	560	32
	3 do	sou	240	27
	2 do	dust	300	29
Roberry E	9 ch	pek sou	810	35
St. Heliers	7 do	pek	735	34
Marlborough	1 ch	pek fans	100	31
Dunbar	9 hf ch	or pek	450	43
	12 ch	pek sou	984	37
Dickdeliya	4 ch	bro pek	380	36
	1 do	bro pek	70	35
	4 do	or pek	400	37
	8 do	pek	720	33
	9 do	pek sou	720	32
Jonnydale	2 ch	unassorted	230	22
Nakiadeniya	3 *ch*	*siftings*	270	13
Mousa Eliya	1 ch	pek sou	100	32
	2 do	dust	200	29
Lowerkanka	7 ch	bro pek	695	38
	8 do	pek	800	34
	2 do	pek sou	200	32
Agra Oya	1 hf ch	bro or pek	55	52
Mabopitiya	8 *ch*	*hyson No 2*	720	34
	2 *hf ch*	*fans*	200	18
	2 *do*	*dust*	160	11
K W D, in est mark	7 hf ch	fans	420	30
	6 do	dust	450	31
Ugieside	7 ch	pek fans	665	32
	10 ch	bro tea	850	31
Preston	20 ch	or pek	960	51
	6 do	fans	408	56
Hentleys	1 hf ch	pek sou	44	32
	6 do	fans	438	30
	1 do	pek dust	97	26
B W	8 hf ch	pek	448	34
M, in estate mark	1 hf ch	bro mix	56	20 bid
Talgaswella	10 hf ch	bro pek No 2	6'0	34
Hayes	13 hf ch	br or pek fans	845	37
Weoya	5 ch	bro pek fans	600	32
	2 do	dust No 2	300	27
Clunes	3 ch	pek fans	300	31
	3 do	dust	270	28
Polatagama	8 ch	fans	800	31
	2 do	dust	300	29
Killarney	5 hf ch	fans	375	33
C R S	6 ch	bro pek	611	33
	1 hf ch	dust	52	27
Queensland	7 ch	pek sou	560	38
	3 hf ch	dust	240	33
Polatagama	2 ch	dust	300	30
Bandara Eliya	10 hf ch	pek sou	450	35
Erlsmere	10 ch	bro pek	980	50
	2 ch	pek sou	176	37
	3 hf ch	dust	240	33
Sunny Croft	5 *ch*	*gunpowder*	425	33
	10 *do*	*siftings*	750	12
Ambanpitiya	1 ch	dust	165	26
Agra	16 hf ch	bro or pek	800	40 bid
	12 do	bro or pek	600	42 bid
	4 ch	bro pek No 2	360	34 bid
	6 do	or pek	540	36 bid
	3 do	pek	255	35 bid

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Dubena	3 ch	bro or pek	273	40
	4 do	bro pek	400	35
	1 do	pek fans	78	26
	1 do	dust	93	27
Bowella	4 ch	pek	360	35
	4 hf ch	dust	300	28
Castle Hill	5 ch	bro pek	500	37
	8 do	or pek	800	33
	11 do	pek sou	990	33
	6 do	dust	600	29
	3 do	congou	270	20 bid

	Pkgs.	Name.	lb.	c.
Comar	4 *ch*	*hyson No 2*	376	35
	1 *do*	*hyson No 3*	63	31
	3 *do*	*sifiings*	300	18
Warleigh	9 hf ch	fans	567	24
	3 do	dust	255	31
Natuwakelle	7 ch	pek sou	630	34
	2 do	dust	200	30
B F	1 ch	pek dust	100	18
	2 bags	red leaf	134	26
G B	7 hf ch	bro pek	385	30
	6 do	fans	360	30
	3 do	dust	180	29
Eila	4 *ch*	*hyson No 2*	360	35
	3 *do*	*fans*	300	17
	3 *do*	*dust*	300	11
M L K	4 ch	fans	488	30
A T	3 hf ch	dust	279	16
Tarawera	3 *ch*	*hyson No 2*	285	33
	3 *do*	*hyson siftings*	330	16
M R	11 hf ch	dust	990	30
E D	1 ch	pek sou	90	33
C	1 ch	p k	90	39
Oonoogaloya	6 hf ch	dust	510	27
Devon	4 hf ch	fans	308	32
Kosgalla	14 hf ch	bro pek	840	34
	13 do	pek	650	32
	6 do	pek sou	300	28
	1 do	sou	50	26
	1 do	bro pek fans	75	24
Ormidale	5 hf ch	bro pek fans	390	32
Katukurundugoda	9 ch	or pek	900	36
	8 do	bro pek	760	33
	4 do	pek	380	32
	1 do	pek No 2	97	28
	2 do	bro dust	246	24
Bowella	3 ch			
	1 hf ch	pek (not bkd.)	315	34
	4 do	dust	500	30
Ramsgill	1 hf ch	bro pek	45	21
Danawkande	2 ch	or pek	220	38
	3 do	bro pek	300	36
	4 do	pek	400	34
	4 do	pek sou	400	33
	1 do	dust	80	26
	2 do	fans	210	30
M, in estate mark	2 ch	fans	210	33
	4 do	dust	640	29
Peru	5 ch	pek sou	475	35
	1 do	bro pek fans	140	33
Galpotta	1 ch	unas	37	15
O F E	4 ch	bro or pek	400	40
	5 do	pek sou	500	31
	5 do	pek	500	33
	5 do	pek sou	500	32
	6 do	sou	600	31
	1 do	bro or pek fans	75	26
Tarawera	1 ch	dust	104	13
M	2 boxes	dust	41	9
W R	11 hf ch	dust	934	32
Myraganga	2 ch	pek fans	280	33
C. coawatte	9 ch	pek sou	9 0	33
Wawoolawatte	7 ch	bro or pek	700	31
	5 do	or pek	414	39
	5 do	pek sou	510	21 bid
	12 hf ch	fans	840	19 bid
	5 ch	bro tea	630	10 bid
	4 bags	t. fluff	437	5 bid
	2 do	unas	126	14
Paddington	3 ch	bro pek	250	37 bid
	8 do	or pek	760	35 bid
	8 do	pek	816	32 bid
	7 hf ch	bro pek fans	539	21 bid
	5 do	dust	455	20
Alawewa	4 *ch*	*hyson*	204	18
	9 *hf ch*	*fans*	810	9 bid
Ben Nevis	8 hf ch	bro or pek	456	69
	15 do	bro pek	900	44
	15 do	or pek	750	46
	5 ch	pek sou	455	40
	2 hf ch	dust	180	32
Rondura	4 ch	fans	420	32
Craigingilt	10 hf ch	bro or pek	547	43 bid
Theresia	4 ch	sou	360	39
	6 hf ch	dust	480	32
Brownlow	9 ch	pek sou	774	38
M, in est. mark	8 hf ch	dust	688	31
Gangawatte	8 ch	pek sou	720	37
	8 hf ch	fans	520	36
Chapelton	3 hf ch	dust No 1	240	31
	7 do	dust No 2	665	31
	5 ch	sou	425	38
Doonhinde	8 ch	pek	800	40
	4 do	dust	400	31
	2 do	fans	200	31
Glassaugh	5 ch	pek sou	540	46
	5 hf ch	dust	465	33
	4 do	fans	312	38

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	
A W A	2 ch	bro pek	183	29
	2 do	pek	172	29
Ovitta	8 ch	bro or pek	800	37
	9 do	pek	828	36
	5 do	pek sou	400	32
	1 hf ch	bro tea	37	23
	1 do	dust	67	28
Minna	9 hf ch	fans	675	32
	6 do	dust	480	31
Galla	3 ch	bro pek fans	375	31
G K in est mark	8 hf ch	fans	600	32
Wadhurst	8 hf ch	bro pek	440	36 bid
	4 ch	pek	180	33
A in est mark	2 hf ch	dust	150	14
Hyde	5 ch	pek sou	480	35
	6 hf ch	bro or pek fans	408	35
	3 do	dust	243	32
Orion	2 ch	bro mix	200	30
	5 do	fans	550	31
	7 hf ch	dust	595	32
H T	9 *hf ch*	*twanky*	837	14
Meath	16 hf ch	bro or pek	880	48
	8 ch	or pek	800	40
	10 do	pek	980	38
	3 do	bro pek	210	33
	1 do	dust	86	31
Hangranoya	8 ch	pek	640	34

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
L	10 ch	bro mix	800	28 bid
Owilikande	4 ch	pek sou	360	32
	3 hf ch	dust	255	27
Highfields	8 hf ch	bro or pek No 1	448	44 bid
Yarrow	2 *hf ch*	*hyson No 1*	104	14
	7 *do*	*green tea siftings*	525	18
	1 *do*	*green tea dust*	75	14
Yarrow	5 hf ch	pek	240	33
Raglan	1 ch	fans	100	28
	1 do	dust	132	24
Munangalla	15 hf ch	fans	750	36
	10 do	dust	700	32
Kallebokka	4 ch	pek sou	440	36
	2 ch	fans	250	32
Laxapanagalla	3 ch	pek	270	34
	2 do	pek fans	200	32
	1 do	dust	100	31
Depedene	7 hf ch	dust	560	31
Disbedde	5 ch	bro pek	503	31
	8 do	pek	800	30
	2 do	pek sou	203	27
	2 do	bro pek fans	213	29
	2 do	unasst	156	14
Koswatte	2 hf ch	bro pek	110	34
	2 do	pek	100	32
	1 do	pek sou	80	31
	1 do	dust	74	27
Avisawella	4 ch	sou	320	31
	4 hf ch	fans	280	31
Pindeni Oya	5 ch	fans	674	31
Seawell	9 ch	pek	828	46
	1 do	pek sou	95	35
	2 do	bro or pek fans	320	32
Hegalla	8 hf ch	bro pek	464	37
	11 do	pek	544	33
	7 do	pek sou	378	32
	1 do	congou	56	30
Kurulugalla	3 ch	pek sou	300	33
	1 do	pek dust	150	30
Udagoda	2 ch	bro or pek	194	34
	6 do	pek	576	31
	2 do	bro pek fans	204	26
	1 do	dust	155	32
Beausejour	12 ch	pek	960	34
	5 do	pek sou	375	32
Ravenoya	7 ch	pek sou	700	36
	4 ch	fans	600	34
H R	1 ch			
	1 hf ch	bro pek	163	33
	2 ch	pekoe	178	31
	1 hf ch	*hyson*	74	14
	1 ch	dust	135	24
Bodawa	1 hf ch	bro mix	50	26
	3 hf ch	bro pek fans	225	31
H J S	14 hf ch	pek sou	840	32
	4 do	dust	300	26
Torbay	5 hf ch	dust	450	32
Wewalakande	15 hf ch	bro pek	840	35
	6 do	pek	324	32
	3 do	pek sou	156	31
Walahanduwa	7 ch	pek sou	665	32

	Pkgs.	Name.	lb.	c.
W in est mark	3 ch	fans	345	30
	3 do	pek fans	360	28
	3 do	sou	219	30
	1 do	dust	160	26
Monrovia	4 ch	pek sou	360	32
	2 do	bro pek fans	180	33
	8 do	pek fans	760	33
	1 do	pek dust	160	28
	4 do	bro tea	340	22
Citrus	5 ch	pek sou	425	33
	4 do	bro pek fans	382	30
	1 do	dust	155	26
Gampolawatte	5 ch	bro or pek	500	40
	2 do	bro pek	200	36
	4 do	or pek	380	37
	5 do	pek No 1	450	36
	7 do	pek No. 2	6[illegible]0	36
	4 do	pek sou	3[illegible]0	34
	1 do	fans	110	31
	4 do	bro mixed	400	31
	1 hf ch	dust	85	30
I P	8 ch	pek souchong	640	34
Chaldon	3 *hf c*	*hyson*	146	out
	7 *do*	*siftings*	343	16
M D T	1 ch	bro pek	86	33
	1 box	pek	25	32
Weygalla	6 ch	pek sou	600	34
F F	3 ch	pek souchong	300	33
J W	3 ch	unast	237	32
S R K	3 ch	dust	480	31
Mount Temple	10 ch	pek sou	750	33
Invery	14 hf ch	bro pek	952	36
	9 ch	pekoe	900	36
Deniyaya	8 ch	sou	720	32 bid
	3 hf ch	dust	285	30
	5 ch	pek fans	500	32
	8 do	sou	720	33
	5 do	pek fans	500	32
Oonankande	5 ch	pek sou	350	32 bid
	4 hf ch	dust	280	32
Havilland	6 *ch*	*siftings*	660	15 bid
G	4 ch	bro mixed	372	13
Labugama	7 ch	or pek	595	36 bid
	11 ch	pek sou	880	32 bid
T in est mark	15 hf ch	bro pek	810	32 [illegible]
	5 do	pek souchong	280	28 [illegible]
Ferriby	12 hf ch	bro or pek	660	39 bid
	3 ch	sou	285	32
	10 hf ch	fans	600	32
Rahatungoda	8 hf ch	dust	680	32 bid
Labuduwa	5 ch	bro pek	500	35
	3 do	pek	300	33
	6 do	pek sou	540	32
Aluthena	3 ch	bro pek	300	34
	9 do	pek	855	32
	2 do	pek sou	180	29 bid
	2 do	fans	220	out

CEYLON COFFEE SALES IN LONDON.

MINCING LANE, MARCH 20th.

"Benmohr,"—Wiharagalla F, 1 cask sold at 118s; ditto 1, 1 sold at 110; ditto 2, 2 sold at 96s; ditto S, 1 barrel sold at 42s; ditto PB, 1 sold at 97s; WHG T in estate mark, 1 barrel out.

"Java."—Nahavilla S, 1 tierce sold at 40s; ditto PB, 1 barrel out; NV, 1 barrel out; NV T in estate mark, 1 tierce and 1 bag out.

"Tactician."—NB T in estate mark, 1 cask and 1 tierce out; NB PB, 1 cask out.

"Dalmatia."—Gowrakellie 2, 1 cask & 1 barrel out.

"Yorkshire."—NB T in estate mark, 1 cask out.

"Clan Farquhar."—Meeriabedde F, 1 cask sold at 110s; ditto 1, 1 tierce sold at 102s; ditto 2, 2 casks and 1 barrel sold at 82s; ditto S, 1 barrel sold at 41s; ditto PB, 1 sold at 76s; MB T in estate mark, 2 tierces out.

"Peleus."—Pilla Valley 1, 1 tierce out; 18 casks out; 1 barrel out; 3 bags out. All are East Indian Coffee, cured in Ceylon.

CEYLON COCOA SALES IN LONDON.

"City of Benares."—F OBEC in estate mark, Kondesalle Ceylon O, 20 bags sold at 59s 6d; F ditto O, 10 sold at 58s 6d; F ditto 1, 7 sold at 54s 6d; F ditto D2, 5 sold at 49s 6d.

"Workman."—Owella Ceylon Cocoa A, 20 bags sold at 70s 6d; ditto A, 18 sold at 70s; ditto B, 3 sold at 49s.

"Kawachi Maru."—HK 1, 38 bags out; ditto 2, 4 bags sold at 50s 6d; ditto T, 2 sold at 48s.

"Shropshire."—HK 1, 25 bags out.

"Kawachi Maru."—Batagolla A, 14 bags out; B, 19 bags sold at 47s; C, 4 sold at 40s 6d; D, 17 sold at 25s; Yellangowry A, 10 bags sold at 68s; B, 8 bags out; T, 6 bags out; Strathclyde, 300 bags out at 75s.

"City of Madrid."—Yellangowry A, 2 bags out.

"Ulysses."—Marakona, 53 bags out.

"Austral."—Blythwood, 44 bags out.

"Tactician."—Allagalla A1, 22 bags out; A2, 1 bag sold at 49s 6d; B1, 41 bags out; B2, 1 bag sold at 49s 6d; C1, 14 bags out; C2, 2 bags sold at 49s 6d; C, 1 sold at 51s; Broken D1, 3 sold at 59s 6d; Golconda 1, 9 bags out; 2, 2 bags sold at 49s 6d; Broken, 1 sold at 51s; Dammeria London Ceylon Cocoa, 15 bags sold at 64s.

"Workman."—Guava Hill, 77 bags out; 20 bags sold at 53s; 14 bags out; 6 bags sold at 50s.

"Clan Farquhar."—A & J Hantane, 20 bags sold at 77s; 24 sold at 76s 6d; 11 sold at 54s; 2 sold at 49s; 5 sold at 50s; 4 sold at 40s.

"Lancashire."—Maria, 1 bag sold at 49s.

Sundry Ships.—LM, 3 bags sold at 62s 6d.

"Hitachi Maru."—Warriapolla, 161 bags out.

"Austral."—Wariapolla 26 bags sold at 92s 6d; 13 at 71s; 7 at 70s; 87 at 78s; 7 at 51s 6d; 38 at 53s; 64 at 89s.

"Tactician."—North Matale Ceylon Cocoa F & C Washed, 8 bags out; Unwashed, 7 bags out.

"Bavaria."—North Matale Ceylon Cocoa F, 32 bags out.

"Alcinous."—Wariapolla, 20 bags out.

"Yorkshire."—Monerakelle 1, 21 bags out; ditto 2, 4 bags sold at 47s.

"City of Benares."—Woodthorpe, 36 bags out; 4 bags sold at 50s 6d.

"Workman."—Dickeria Ceylon Cocoa A, 64 bags out; ditto A, 33 bags sold at 62s; ditto B, 10 at 48s.

"Yorkshire."—Benveula No. 1, 20 bags sold at 63s; ditto 20 at 63s; 20 at 63s 6d.

"City of Benares."—Sunnyside, 15 bags out; Greenwood BB 1, 29 bags out; ditto BB 2, 59 bags sold at 62s 6d; ditto BB 3, 17 at 58s.

"Ulysses."—Wiharagama 1, 11 bags out; ditto T, 8 bags sold at 52s.

"Workman."—Polwatte A, 42 bags out.

"Kawachi Maru."—1 KM, in estate mark, 80 bags out.

"City of Athens."—1 M, in estate mark, 72 bags sold at 50s; 93 at 48s.

"Cheshire."—KMA, in estate mark, 159 bags out.

CEYLON CARDAMONS SALES IN LONDON.

"Kawachi Maru."—New Peacock, 1 case sold at 1s 8d; 1 at 1s 2d.

"Clan Macmillan."—M HJL in estate mark, Wetalawa Mysore Special, 5 case out at 2s 6d; ditto O, 11 out at 1s 10d; ditto 1, 9 out at 1s 4d; ditto 2, 9 out at 1s 2d; ditto BS, 4 out at 1s.

"Bingo Maru."—J T D S HJ, in estate mark, Glenburn Malabar, 30 cases out at 1s 1d.

"Yorkshire."—New Peacock, 1 case and 1 box sold at 1s 7d; 1 case and 1 box at 1s 2d; 1 case and 1 box at 10d; 1 bag at 1s 2d.

"Prinzess Irene."—FT Ceylon Cardamoms O, 3 cases out at 2s.

"Austral."—Forest Hill O, 1 case sold at 2s 6d; ditto 1, 1 at 2s 1d; ditto 2, 6 at 1s 7d; ditto 3, 6 at 1s 1d; Gammaduwa 1, 1 case sold at 2s 1d; 2, ditto 1 at 2s; 2 at 1s 8d; 5 at 1s 7d; ditto 3, 7 cases out at 1s 3d; ditto Seed, 2 cases sold at 1s 4d; 2 at 1s 3d.

"Benmohr."—WDS Malabar, 10 cases out at 1s 3d; ditto seed, 5 cases out at 1s 4d.

"Austral."—Ravensword VVA No. 1, 2 cases sold at 2s; ditto No. 2, 2 at 1s 4d; 2 at 1s 3d; ditto No. 3, 1 at 11d; ditto No. 4, 1 at 1s 4d; ditto No. 5, 2 at 1s; ditto No. 7, 1 bag sold at 1s 4d.

"Bingo Maru."—W S L C A&Co in estate mark, 2 cases sold at 1s 9d; 2 cases out.

"Clan Farquhar."—Wariagalla Mysore A, 10 cases sold at 1s 11d; ditto B, 3 at 1s 2d; ditto C, 1 at 1s; ditto D, 5 at 11d.

"Kawachi Maru."—Knuckles Group A, 4 cases out at 2s 9d; ditto B, 20 cases sold at 1s 7d; ditto C, 2 at 1s 1d; ditto D, 6 at 1s 1d; ditto E seeds, 2 cases out at 1s 3d.

"Inaba Maru."—Knuckles Group B, 9 cases out.

"Clan Macarthur."—Delpotonoya, 1 case sold at 2s 9d; 4 at 2s; 4 at 1s 5d, 4 at 1s 1d; 1 at 11d; 1 at 1s 3d; 2 at 1s 4d; 1 at 1s.

"Clan Farquhar."—Wattakelly Ceylon 1, 1 case out at 1s 9d; ditto 2, 1 at 1s 6d; ditto 3, 1 case sold at 1s; ditto 4, 1 at 11½d; ditto 5, 1 at 11½d; ditto seed 1 case out.

Ceylon Produce Outlook.

London, 20th March.

Your Ceylon markets keep extremely quiet this end, bar Ceylon cocoa which sold very well.

Cotton—is also active, but trade in England declining.

Ceylon Cardamoms—112 cases sold Mysore. Ceylon extra bold pale browny 2s 6d to 2s 9d.

Ceylon Ginger—should pay to ship here.

Ceylon Coconut—dull at £26 10s, and for shipment dull at £24 to £24 5s c.i.f. terms.

Ceylon Cocoa—1,300 bags sold, and some privately Fine 85s to 92s 6d; Native 49s to 51s.

Ceylon Coffee—firm tone, and higher prices expected from May to December.

Ceylon Cotton—dearer "F G F" Tinnivelly 49/16 c i f. Spot good 5d F G F 4⅞d. Manchester quieter no short time. This crop looks American 10,990,000 bales maximum—supplies to Liverpool until 28th August look brighter. Bulls talk 6d per lb.

No Sales of Plumbago or Rubber—this week, but shippers of Ceylon Rubber will do well to blaze away shipping all they can as the demand here privately and publicly is neat—and the future looks very bright.

OBSERVER PRINTING WORKS.

No. 15. COLOMBO, APRIL 22nd, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[50,480 lb.]

	Pkgs.	Name	lb.	c.
Battalgalla	18 ch	bro pek	1980	41
	19 do	or pek	1710	41 bid
	16 do	pek	1360	39 bid
	20 do	pek sou	1600	38
Coodoogalla	36 hf ch	bro pek	1800	37
Yullefield	27 hf ch	bro or pek	1620	40 bid
	17 ch	or pek	1700	39 bid
	32 do	pek	3040	37 bid
Kenilstone	18 ch	*young hyson*	1800	out
	18 do	*hyson*	1800	out
Hornsey	22 hf ch	bro pek	1320	46 bid
	20 ch	pek	2000	42
	12 do	pek sou	1020	41
Battalgalla	18 ch	bro pek	1980	41
	18 do	or pek	1620	39 bid
	12 do	pek	1020	37 bid
N G R	12 ch	sou	10.0	34 bid
Bunyan and Ovoca	52 hf ch	bro or pek	3120	43 bid
	73 do	or pek	3650	42
	32 ch	pek	3040	37 bid
	25 do	pek sou	2250	36 bid
	26 hf ch	pek fans	1690	34
	14 ch	dust	1190	33

Messrs. Keell and Waldock.

[102,158 lb.]

	Pkgs.	Name.	lb.	c.
Glenfern	13 ch	bro pek	1365	37
	12 do	pek	1020	35
Fairlawn	71 hf ch	bro or pek	4260	38 bid
	30 do	bro pek	1800	38
	33 ch	pekoe	2805	35
Woodend	30 ch	bro pek	3000	37
	32 do	pek	2880	34
Maldeniya	32 *ch*	*young hyson*	3200	37 bid
	31 *do*	*hyson*	2790	34 bid
Minna	30 hf ch	bro or pek	1800	40 bid
	17 ch	or pek No. 2	1530	38
	24 do	pek	2160	38
	11 do	pek sou	1045	35
Kurugalla	21 ch	bro pekoe	2100	36
	14 do	pek	1190	34
G K in est mark	23 hf ch	bro pek	1380	39 bid
	22 ch	pekoe	1980	36 bid
	23 do	pek sou	2070	33 bid
Ampitiyathana	46 *ch*	*young hyson*	4600	36 bid
	84 *do*	*hyson*	7980	34 bid
	21 *do*	*hyson No 2*	1890	33 bid
Anningkande	22 ch	bro pek	2200	38
Alpha	34 hf ch	bro pek	1870	37 bid
	16 ch	pek	1280	35
Dunnottar	56 hf ch	bro or pek	3080	42 bid
	36 ch	pek	3060	35
Orion	12 ch	bro or pek	1200	38
	12 do	bro pek	1200	36
	24 hf ch	or pek	1200	38
	21 ch	pek No 1	1890	34 bid
	15 do	pek No 2	1350	34 bid
	15 do	pek sou	1275	32 bid
Rosawatte	23 ch	bro or pek	2300	36 bid
	20 do	pek	1700	33 bid
Hangranoya	21 ch	bro pek	2100	36 bid
	16 do	pek	1280	34

Messrs. Forbes & Walker.

[1,186,303 lb.]

	Pkgs.	Name.	lb.	c.
O B E C, in estate mark Newmarket	46 hf ch	bro or pek	2530	46
	43 ch	bro pek	4644	39
	18 do	or pek	1584	41
	26 do	pek	2392	38
	18 do	fans	2250	23
	12 do	dust	1872	31
Siriwatte	30 hf ch	bro or pek	1680	39
	10 ch	bro pek sou	1000	33
Holton	24 ch			
	1 hf ch	bro pek	1320	39
	19 ch	bro pek	1900	38
	25 do	pek	2250	35
Coldstream Group, Invoice No 5	40 hf ch	bro pek	2200	40
	33 ch	pek	2640	37
Nawalapitiya	12 hf ch	dust	1020	26
Choisy	18 ch	bro or pek	1890	46
	16 do	or pek	1440	41
	37 do	pek	3515	38
Coldstream Group, Invoice No 4	40 hf ch	bro pek	2000	40
	31 do	pek	2480	38
Karawakettia	16 ch	bro pek	1670	33
	11 do	pek	1121	29
Dolahena	34 hf ch	*hyson*	1700	33 bid
Drayton, Inv No 11	17 ch	or pek	1615	50
	34 do	pek	2590	45
	14 do	pek sou	1190	40
O B E C, in est mark Invoice No 20, Summerhill	55 hf ch	bro or pek	3245	43
	42 do	bro pek	2562	41
	23 do	or pek	2070	45
	31 do	pek	2821	39
Wilpita	10 ch	bro or pek	1050	26
New Peacock	23 ch	bro pek	1150	42
	42 do	pek fans	2940	33
Vincit	15 ch	*hyson No 2*	1200	33
O B E C, in est mark Invoice No 19 Sindumallay	10 ch	bro or pk No 2	1000	41
	16 do	or pek	1600	43
	29 do	pek	2610	40
	20 do	pek sou	1500	36
	14 do	fans	1680	33
	10 do	dust	1400	31
Moray, Inv. No 7	53 hf ch	or pek	2385	44 bid
	46 do	bro or pek	2530	47 bid
	28 ch	bro pek	2940	40
	37 do	pek	3330	39
	12 do	pek No 2	1020	37
Harrington, Invoice No 6	19 hf ch	bro or pek	1045	62
	13 do	bro pek	1430	46
	13 do	pek	1300	44
O B E C, in est mark Forest Creek, Invoice No 28	13 ch	bro or pek	1326	66
	38 do	bro pek	3876	44
	14 do	or pek	1400	41
	16 do	pek	1600	38
Rickarton, Inv No 17	17 ch	bro or pek	2040	45
	18 do	or pek	2070	41
	17 do	bro pek	2040	39
	14 do	pek	1540	38
Great Valley, Ceylon in estate mark, Invoice No 8	39 hf ch	bro or pek	2340	42
	16 ch	or pek	1600	39
	51 do	pek	4590	36
	31 do	pek sou	2480	34
O B E C, in est mark Invoice No 26 Darrawella	10 ch	bro pek	1050	42
	51 do	pek	4845	40
	25 do	pek sou	2125	37
	38 do	dust	3391	32
Baddegama, Inv. No 3	16 do	bro or pek	1600	42 bid
	16 do	or pek	1440	40
Freds Ruhe	19 ch	bro pek	1900	38
	14 do	pek	1330	36
Waldemar	22 hf ch	bro or pek	1320	48
	14 ch	bro pek	1610	41
	19 do	or pek	1862	43
	12 do	pek	1080	41
	16 do	pek sou	1408	39
Ardlaw and Wishford	18 ch	bro or pek	2070	57
	25 do	bro pek No 1	2875	45
	12 do	bro pek No 2	1200	43
	25 do	or pek	2150	45
	39 do	pek	3432	41
Sylvakandy	12 ch	bro pek	1200	37
	14 do	or pek	1400	40
	26 do	pek	2600	36
	11 do	bro or pe No 1	1100	43
	21 do	do do No 2	2100	38 bid
Madulkelle	14 ch	bro or pk	1400	46
	20 do	pek	1800	37 bid
	15 do	pek sou	1125	34
Amblakande	10 ch	bro pek	1000	40
	18 do	pek	1530	34 bid

	Pkgs.	Name.	lb.	c.
Attampettia, Invyice No 4	14 ch	bro pek	1540	41 bid
	14 do	or pek	1330	37 bid
	17 do	pek	1615	29
Attampettia, Invoice No 3	20 ch	bro pek	2300	40 bid
	22 do	or pek	2090	37 bid
	26 do	pek	2470	36 bid
W V R A	30 hf ch	bro or pek	1646	50
Delta, Inv No 6	17 hf ch	bro or pek	1088	43
	35 ch	bro pek	3850	38
	34 do	pek	3060	36
	15 do	pek sou	1380	34
Middleton, Invoice No 11	17 hf ch	bro or pek	1020	85
	25 ch	bro pek	2500	65
	27 do	or pek	2430	56
	19 do	pek	1710	54
	13 hf ch	dust	1105	33
Deaculla, Inv No 12	20 hf ch	bro or pek	1200	60
	21 do	or pek	1050	49
	45 ch	pek	3375	36
Strathspey	14 ch	or pek	1358	40
	17 do	pek	1632	37
Opalgalla	18 hf ch	dust	1440	31
Good Hope, Invoice No 5	20 hf ch	bro or pek	1160	39
	14 ch	or pek	1330	38
Hanwella, Inv No 7	20 ch	*young hyson*	2100	35
	11 do	*hyson No 1*	1165	34
C R D, Inv No 12	10 hf ch	dust	1000	26
Kitulgalla, Invoice No 5	11 ch	bro or pek	1188	38
	12 do	pek	1104	36
Nahalma, Inv No 6	13 ch	or pek	1274	40
	14 do	bro or pek	1400	38
	17 do	pek	1700	35
	13 do	bro pek	1300	35
B D W P, Inv No 4	16 ch	bro or pek	1760	36
Yatiana	9 ch	or pek	1008	34 bid
	12 do	bro pek	1212	31 bid
Clarendon, Dimbula	41 hf ch	bro pek	2460	47 bid
	47 ch	pek	4465	43 bid
	36 do	pek sou	3240	38 bid
Broughton	30 ch	or pek	2850	41 bid
	28 hf ch	bro or pek	1568	48 bid
	22 ch	pek	2038	37 bid
Welkandala	15 hf ch	dust	1200	30
P R M	31 ch	sou	1700	35
	24 do	dust	2040	32
Templehurst	35 ch	bro pek	3500	45
	18 do	pek	1620	40
Tonacombe	46 ch	or pek	4140	37
	43 do	bro pek	4300	40 bid
	77 do	pek	6545	36
	29 do	pek sou	2320	33
Mawiligangawatte	41 ch	bro pek	4100	35
	22 do	pek sou	1760	33
Atgalla	10 ch	pek dust	1000	32
Tempo	10 ch	bro or pek	1000	38 bid
	11 do	or pek	1045	38
	12 do	bro pek	1200	37 bid
	20 do	pek	1700	34
	15 do	pek sou	1125	34
Bowlana	16 ch	bro or pek	1760	43
	18 do	or pek	1710	38 bid
	24 do	pek	2280	37
Lebanon Group	33 ch	bro pek	3465	37 bid
	23 do	pek	1955	36
	20 do	pek sou	1700	34 bid
Ireby	44 hf ch	bro pek	2640	53
	24 ch	pek	2160	52
Matale	56 hf ch	bro pek	3360	38
	24 ch	pek	2160	35
	15 do	pek sou	1350	33
Donnybrook	16 ch	bro or pek	1008	41 bid
	14 do	pek	1400	39 bid
Tunisgalla	50 hf ch	bro pek	3000	38
	34 do	or pek	2060	38
	30 ch	pek	1700	36
Mahawale, Inv No 6	18 ch	bro pek	1800	38
	20 do	or pek	1900	37
	34 do	pek	3060	35
	17 do	pek sou	1530	33
W	17 hf ch	dust	1400	31
Yelverton	16 ch	or pek	1392	42
	21 do	pek	1995	37 bid
	29 hf ch	bro pek fans	2030	36
Poonagalla	43 do	bro pek	4916	47 bid
	30 ch	pek	2820	39 bid
	17 do	fans	1445	33
Laurawatte	28 ch	bro pek	2800	38
	18 do	pek	1692	37
	11 do	pek sou	1015	34
	16 hf ch	fans	1392	31
Marlborough	54 hf ch	bro or pek	3024	45
	36 ch	bro pek	3600	39
	51 do	pek	4998	38
	27 do	pek sou	2484	35 bid
	16 hf ch	bro pek fans	1200	33
V O A	12 hf ch	dust	1080	31
New Peradeniya	16 hf ch	dust	1120	30
Leangawatte	10 ch	bro pek	1000	35 bid
	10 do	pek	1000	34
Ingrogalla	12 ch	bro pek	1200	38
	12 do	pek	1080	35
Court Lodge	12 ch	bro or pek	1380	48
	13 do	pek	1248	44
Dunkeld	50 hf ch	bro or pek	2850	44
	15 ch	or pek	1350	39
	21 do	pek	1890	37
Aberdeen	12 ch	bro pek No 1	1080	38
	18 do	bro pek No 2	1800	36
	41 do	pek	3280	35
Bandarapola	45 hf ch	bro or pk No 1	2610	38
	48 do	do do No 2	2592	36
	26 ch	bro pek	2574	34 bid
	19 do	pek	1710	34
Dunkeled	52 hf ch	bro or pek	2964	43 bid
	16 do	or pek	1440	39
	22 do	pek	1980	37 bid
Bandarapola	47 hf ch	bro or pk No 1	2726	35 bid
	46 do	do do No 2	2438	35 bid
	23 ch	bro pek	2231	34 bid
	17 do	pek	1479	34
B W D	24 ch	pek sou	1800	33 bid
	15 hf ch	dust	1050	32
Maha Uva	41 do	bro or pek	2460	37 bid
	20 ch	or pek	2000	41
	47 do	pek	4230	38
High Forest	48 hf ch	or pek No 1	2544	56
	36 do	bro pek	2160	50
	39 do	pek	1911	47
Kirklees	53 do	bro or eek	2915	41
	22 ch	or pek	2090	40
	36 do	pek	3168	36
Maha Uva	84 hf ch	bro or pek	5040	37 bid
	34 do	or pek	3400	42
	65 do	pek	5850	38
	27 do	pek sou	2160	34
Gampaha	50 hf ch	bro or pek	3000	42
	20 ch	bro pek	1900	41
	15 do	or pek	1440	42
	38 do	pek	3230	39
	12 do	pek sou	1080	35
	12 hf ch	pek fans	1929	33
High Forest	43 hf ch	or pek	2322	53
	47 do	pek	2303	45
	66 do	pek fans	5280	35
Erracht	14 ch	bro or pek	1400	38
	12 do	or pek	1020	39
	24 do	pek	1920	36
High Forest	59 hf ch	or pek No 1	3127	58
	60 do	bro pek	3660	51
	32 do	or pek	1760	50
	35 do	pek	1750	47
Dammeria	33 ch	bro pek	3292	38
	33 do	or pek	2970	36
	25 do	pek	2250	34
	31 do	pek sou	2786	33
Digdola	32 ch	pek	2560	34
	18 do	pek sou	1360	33
Robgill	36 ch	bro pek	3240	44
	22 do	pek	1760	42
Tembiligalla	25 ch	bro or pek	2750	38 bid
	12 do	pek	1248	36
K P W	27 hf ch	bro or pek	1620	39
	24 do	bro pek	1200	38
	25 do	pek	1250	36
Penrbos	42 hf ch	bro or pek	2394	42
	37 do	or pek	1850	42
	41 ch	pek No 1	3362	35
	42 do	pek No 2	3570	35
Shrubs Hill	45 ch	bro pek	4500	38 bid
	23 do	pek	2231	34 bid
	11 do	bro pek fans	1078	32
Bowlana	16 ch	bro or pek	1760	withd'n
	16 do	or pek	1600	withd'n
	24 do	pek	2280	withd'n
S K	14 ch	pek fans	1960	32
Cloyne	28 ch	bro or pek	2800	40
	30 do	or pek	3000	37
	33 do	pek	2904	35
Laxapana	15 hf ch	bro pek fans	1200	31
Kandaloya	*52 hf ch*	*young hyson*	2340	38 bid
	82 do	*hyson*	3280	35 bid
	26 do	*hyson No 2*	1300	35 bid
Maha Eliya	27 hf ch	bro or pek	1620	56
	45 do	bro pek	2700	42 bid
	12 ch	or pek	1080	49
	40 do	pek	3600	42 bid

	Pkgs.	Name.	lb.	c.
Inverness	18 ch	bro or pek	1800	59 bid
	18 do	or pek	1800	55 bid
	39 do	bro pek	3705	62 bid
	33 do	pek	2970	52
Middleton	15 ch	bro pek	1500	68
	17 do	or pek	1530	56
	12 do	pek	1080	52
Algooltenne	21 hf ch	bro or pek	1155	48
	24 do	bro pek No 1	1200	43
	10 ch	bro pek	1050	36
	19 do	or pek	1615	39
	23 do	pek No 1	2185	35
	25 do	pek	2500	34
B D W P	14 ch	bro or pek	1540	36
Tymawr	35 hf ch	or pek	1925	54
	18 do	bro or pek	1080	60 bid
	63 do	pek	3465	45
North Cove	21 hf ch	bro or pek	1218	65
	56 do	bro pek	3360	50 bid
	19 do	pek	1805	45 bid
Errollwood	38 hf ch	bro or pek	2280	41 bid
	20 ch	pek	2000	34 bid
	14 do	pek sou	1470	33 bid
Mansfield	67 hf ch	bro pek	4020	44 bid
	20 do	pek	2000	40
Bickley	27 ch	pek sou	1728	35
	21 hf ch	dust	1575	33
Sirikandure	33 ch	bro pek	3300	37
	33 do	pek	3135	34
	27 do	pek sou	2295	33
Florence	16 ch	or pek	1600	53
	42 do	pek	3990	41
	39 do	pek sou	3705	39
	11 do	sou	1001	38
	23 hf ch	bro or pek fans	2145	40
Knavesmire	20 ch	or pek	1800	37
	52 do	bro pek	5460	38
	64 do	pek	5440	35
	29 do	pek sou	2320	33
	50 hf ch	bro pek No 2	2500	36
Sunnycroft	60 *ch*	*young hyson*	5400	37
	48 *do*	*hyson*	4080	34
	36 *do*	*hyson No 2*	3060	33
Passara Group	25 ch	bro or pek	2500	38 bid
	48 do	pek	4800	39
	11 do	pek sou	1100	34
Udaveria	18 hf ch	bro or pek	1080	52 bid
	50 do	br or pek No 2	3000	41 bid
	12 ch	or pek	1200	42
Puspone	19 ch	or pek	1900	38
	29 do	bro pek	3190	37
	19 do	pek	1805	36
	12 do	pek sou	1080	33
Nillomally	45 ch	pek	3960	38
	13 do	pek sou	1040	34
	11 do	bro or pek	1100	48
	14 do	or pek	1148	43
	11 do	bro pek	1100	38
Choisy	18 ch	bro or pek	1890	44
	14 do	or pek	1260	42
	35 do	pek	3325	40
Detenegalla	25 ch	or pek	1400	43 bid
	26 do	pek	2600	39 bid
	11 do	pek sou	1100	36
Hanwella	22 ch	*young hysen*	2200	35 bid
Nahalma	14 hf ch	bro or pek	1400	38 bid
C A N	43 hf ch	bro or pek	2365	37 bid
Castlereagh	54 hf ch	bro or pek	2970	45
	14 ch	bro pek	1400	37 bid
	17 do	or pek	1300	39
	15 do	pek	1275	36 bid
Irex	20 ch	bro or pek	2000	38
	15 do	pek	1350	35
Mousl ellie	12 ch	bro or pek	1200	43 bid
	13 do	pek	1170	38 bid
Bramley	20 hf ch	bro pek No 1	1080	40 bid
	17 do	pek	3850	41
Lebanon Group	20 ch	pek sou	1700	33 bid
	22 do	pek	1870	36
	32 do	bro pek	3360	38
Dunbar	26 hf ch	bro pek	1430	43 bid
	18 ch	pek	1476	39
Unugalla	21 ch	bro pek	2142	
	38 do	pek	3230	withd'n
	25 do	pek sou	2000	
Ravenswood, Uva	13 ch	or pek	1170	33
	18 do	bro pek	1890	41
	16 do	pek	1440	35
Macaldenia	34 hf ch	bro pek	2210	38
	30 do	pek	1800	34
Palmerston	20 hf ch	bro or pek	1200	80
	20 ch	pek	1700	56
Poonagalla	28 ch	bro or pek	2660	39 bid
	161 hf ch	bro pek	9982	45 bid
	54 ch	pek	5292	39 bid
	14 do	fans	1232	33

	Pkgs.	Name.	lb.	c.
N W D	20 hf ch	or pek	1200	40
	15 ch	pek	1320	35
Coreen	74 hf ch	bro pek	4140	49 bid
	30 ch	or pek	2700	45
	22 do	pek	1980	45
Galapitakande	19 ch	or pek	1900	38
	29 do	bro pek	2900	38
	51 do	pek	4590	36
	12 do	bro pek No 1	1200	43 bid
Bandara Eliya	25 hf ch	or pek	1250	50
	21 do	br or pek No 1	1155	42 bid
	48 do	br or pek No 2	2976	38
	86 do	pek	4128	41
Deaculla	26 hf ch	bro or pek	1560	47
	76 ch	pek	5472	37
Hanwella	12 *ch*			
	1 *hf ch*	*young hyson*	1315	35
Battawatte	23 hf ch	bro or pek	1405	36 bid
	51 ch	bro pek	5100	38
	32 do	pek sou	3200	37
Inverness	17 ch	bro or pek	1700	61 bid
	36 do	or pek	3420	71
	27 do	pek	2430	54
	15 hf ch	dust	1200	35
Non Pariel	51 hf ch	bro or pek	2856	38
	26 do	or pek	1456	36 bid
	20 do	pek	1000	34
Killarney	20 hf ch	bro or pek	1200	58
	30 do	bro pek	1800	42
	12 ch	or pek	1020	43
	14 do	or pek	1190	43
	16 do	pek	1440	40
St. Vigeans	28 hf ch	bro or pek	1764	46
	20 ch	or pek	1700	39 bid
	30 do	pek	2880	43
Seenagolla	29 hf ch	bro or pek	1740	48
	42 do	pek	2310	43
C	14 ch	dust	1960	32
B P C	13 hf ch	dust	1040	28
Maha Eliya	18 hf ch	bro or pek	1080	60
	25 do	bro pek	1550	51
	27 ch	pek	2430	47
	19 do	bro pek fans	1520	33
Kandaloya	33 *hf ch*	*young hyson*	1650	38 bid
	59 *do*	*hyson*	2360	35 bid
	20 *do*	*hyson* No 2	1000	34 bid
Nugagalla	35 hf ch	bro pek	1750	39
	50 do	pek	2500	35
Robgill	27 ch	bro pek	2130	44
	20 do	pek	1600	42
Purana	12 ch	bro pek	1200	37
	24 do	pek	1920	34
H G M	53 hf ch	bro or pek	3180	37 bid
	25 ch	bro pek	2500	37
	27 do	pek	2430	35
Glaslyn	20 ch	bro or pek	2000	40 bid
	19 do	or pek	1710	39
Condia	16 hf ch	dust	1184	32
W N	13 hf ch	dust	1040	31
Watawella	16 ch	pek sou	1472	24
Bellongalla	14 ch	bro pek	1470	35
	24 do	pek	2160	34
	10 do	fans	1150	31
Drayton	12 ch	or pek	1140	50
	28 do	pek	2380	44
Galkande	13 ch	or pek	1235	41
	21 do	pek	1995	39
Y S P A	16 ch	pek	1600	36
	38 hf ch	bro pek fans	2774	34
Preston	38 hf ch	bro or pek	2128	48 bid
	12 ch	or pek	1080	52
	14 do	pek	1176	42 bid
Kincora	22 ch	or pek	2090	37 bid
Stockholm	66 ch	bro pek	6600	40 bid
	32 do	pek	2880	38 bid
	15 do	pek sou	1350	35 bid
N	9 ch	pek fans	1170	29
Galleheria	14 ch	bro or pek	1400	
	23 do	or pek	1955	withd'n
	35 do	pek	3150	
	12 do	pek sou	1200	
Nakiadeniya	21 *hf ch*	*young hyson*	1365	42 bid
	24 *do*	*hyson*	1200	38
Kundasale	10 ch	bro pek	1000	40 bid
	22 do	pek	1760	36
Walton	21 ch	bro pek	2100	38
	13 do	or pek	1105	36
	12 do	pek	1080	35
Passara Group	20 ch	bro or pek	2000	39
	46 do	pek	4600	37
	15 do	pek sou	1350	35
	18 hf ch	fans	1350	35
Sunny Croft	73 *ch*	*young hyson*	6570	36
	57 *do*	*hyson*	4845	35
	38 *do*	*hyson No 2*	3230	34
	24 *hf ch*	*siftings*	1680	19
Erlsmere	34 hf ch	bro or pek	1904	52 bid

	Pkgs.	Name.	lb.	c.
	22 ch	bro pek	2156	43 bid
	14 do	pek fans	1260	43
Ayr	20 *ch*	*young hyson*	2300	withd'n
	18 *do*	*hyson*	1800	
Harrow	33 hf ch	bro or pek	1980	51 bid
	19 ch	or pek	2090	45
	27 do	pek	2700	43
B W	37 *hf ch*	*twankey*	1850	20
Carfax	18 ch	bro or pek	1800	48
	19 do	or pek	1710	43
	17 do	pek	1530	39
Massena	74 hf ch	bro or pek	3700	40
	46 do	br pek	2300	39
	27 do	pek	1350	34
Gonapatiya	37 hf ch	or pek	1961	59
	34 do	bro or pek	2142	54
	50 do	pek	2800	44
Handford	20 ch	bro pek	2000	37
algaswela	10 ch	bro or pek	1000	46
	14 do	pek	1120	36

Messrs. Somerville & Co.

[494,589 lb.]

	Pkgs.	Name.	lb.	c.
H G L	23 hf ch	dust	1840	29
Hatdowa	10 ch	bro pek	1000	37
	15 ch	pek sou	1350	32
Polgahakande	14 ch	bro pek	1400	36
Oonanagalla	20 ch	or pek	1700	39 bid
	24 do	bro or pek	2400	40 bid
	20 do	pek No 1	2000	39
	20 do	pek No 2	1700	36
Lonach	28 hf ch	br or pek	1568	39 bid
	23 ch	or pek	2070	37 bid
	37 do	pekoe	3145	35 bid
	30 do	pek sou	2550	33 bid
Nyanza	17 ch	or pek	1445	39 bid
	36 hf ch	bro or pek	1980	44 bid
	20 ch	pek	2000	33
Blinkbonnie	34 hf ch	bro or pek	2040	51
	14 hf ch	or pek	1260	47
	25 ch	pek	2325	44
	12 do	pek sou	1020	40
	12 hf ch	dust	1104	28
Mahavilla	13 ch	bro pek	1404	40
	17 do	pek	1734	38
Hanagama	23 ch	or pek	2300	36
	35 do	pekoe	3500	34
Theberton	12 ch	bro pek	1200	38
	24 ch	pek	2280	37
Lonach	30 hf ch	bro or pek	1740	39 bid
	24 ch	or pek	2280	38
	37 do	pek	3219	35 bid
	28 do	pek sou	2436	33 bid
Columbia	37 hf ch	bro or pek	2220	40 bid
	35 ch	or pek	3325	39 bid
	29 do	pek	2610	36 bid
Warakamure	27 ch	bro or pek	2700	37
	20 do	or pek	1600	35 bid
	24 do	pekoe	2040	33
Florida	11 ch	bro pek	1144	34 bid
	11 do	pek	1100	32 bid
Warakamure	26 ch	bro or pek	2600	36 bid
	13 do	or pek	1040	36 bid
	13 do	pek	1105	34
Hanagama	11 ch	bro or pek	1050	43
	12 do	pek	1200	34
	25 do	pek sou	2500	32
Neboda	21 ch	bro or pek	2100	38 bid
	20 do	or pek	1840	38
	32 do	pek	3200	35
R K P	22 ch	bro or pek	2200	37
	16 do	pek	1520	35
Gona	17 ch	pek	1445	35
	16 do	pek sou	1280	33
	17 do	or pek fans	1785	33
Glenanore	77 hf ch	bro or pek	4774	41 bid
	11 ch	or pek	1078	41
	14 do	pek	1330	40
Kelani	40 ch	bro or pek	4000	37
	30 do	pek	2850	36
	16 do	pek sou	1280	33
Lammermoor	10 ch	bro pek	1000	38
	14 do	or pek	1190	36
New Angamana	20 ch	bro or pek	2000	37 bid
	15 do	or pek	1350	38
	36 do	pek	3240	34
Cooroondoowatte	15 ch	pek	1500	35
B A T in est mar	13 ch	pek fans	1580	13
Heatherleigh	26 ch	pek	2210	34
Walla Valley	27 hf ch	bro or pek	1485	55
	15 ch	or pek	1426	50 bid
	30 do	pek	2850	45
Ellerslie	44 hf ch	br or pek	2420	41 bid
	16 ch	or pek	1440	39 bid
	18 do	pek	1530	36 bid
Laxapanagalla	18 ch	bro or pek	1800	38
	14 do	or pek	1330	35
Walla Valley	41 hf ch	bro or pek	2378	50 bid
	25 ch	or pek	2375	50 bid
	38 do	pekoe	3610	46
B and D	15 hf ch	dust	1275	32
Highfields	60 hf ch	bro pek	3360	41 bid
	60 do	pek	3000	37 bid
Agra Elbedde	68 hf ch	bro or pek	3808	44 bid
	56 do	or pek	3136	43
	42 do	pek	2100	42
Salawa	11 ch	bro pek	1100	38
	11 do	pek	1045	35
	12 do	pek sou	1020	32
Allacollawewa	24 hf ch	bro or pek	1248	41 bid
Marigold	28 hf ch	bro or pek	1456	41 bid
	21 do	or pek	1008	42
	22 do	pek	1078	39
	21 do	pek sou	1092	36
Paradise	10 ch	bro pek No 1	1050	37 bid
	11 do	bro pek No. 2	1155	35 bid
Tavalamtenne	20 ch	bro or pek	2500	37 bid
	23 do	or pek	2300	35 bid
	20 do	pek	1720	34
	13 do	pek sou	1040	33
Highfields	42 hf ch	bro pek No 1	2352	41 bid
	51 do	pekoe	2550	39
	17 do	br or pek No 1	1003	39 bid
	24 do	br or pek No 1	1296	40 bid
	37 do	pek	1850	40
Grange Gardens	21 ch	bro or pek	2100	42 bid
	16 do	or pek	1600	40 bid
	24 do	pek	2280	36 bid
Kinross	22 ch	bro or pek	2420	40 bid
	30 do	or pek	3000	36 bid
	28 do	pek	2688	34
Vilgoda	29 ch	bro pek	2755	32 bid
	14 do	pek	1260	30 bid
Old Maddegama	30 hf ch	bro or pek	1680	41 bid
	21 ch	pek	1890	39
Welgampola	16 ch	bro or pek	1760	36
Udagoda	11 ch	bro pek	1052	32 bid
Harrangalla	29 ch	bro or pek	2610	38
	10 do	bro pek	1000	37
	21 do	pek	1785	34
Kurunegalla	18 ch	bro pek	1440	37
	15 do	pekoe	1350	36
Dodantella	10 ch	bro pek	1050	38
	21 do	pek	2037	36
Ambalawa	10 ch	bro or pek	1000	37
	17 do	pek sou	1360	33
Hobart	13 ch	bro or pek	1300	36
	15 do	bro pek	1425	34
Kapuduwa	10 ch			
	1 hf ch	pek	1050	29 bid
Walla Valley O	21 hf ch	bro or pek	1170	52 bid
	13 ch	or pek	1195	50 bid
	19 do	pek	1755	44 bid
Gwernet	16 ch	bro pek	1600	39
	23 do	pek	1955	35
Carshalton	66 ch	bro pek	6600	37
	44 do	pek	3770	35
Simla	25 ch	bro pek	2600	49 bid
	26 do	pek	2366	36 bid
Richlands	10 ch	bro or pek	1000	52 bid
	12 do	pek No. 1	1200	38
	12 do	pek sou	1200	36
Carney	25 hf ch	bro pek	1250	38
	25 do	pek	1250	35
	20 do	pek sou	1000	33
Yarrow	19 hf ch	bro pek	1026	39
	30 do	or pek	1410	35
	50 do	pekoe	2350	31
Damblagolla	47 hf ch	bro pek	2820	37½ bid
	29 ch	pek	2465	33½ bid
	12 do	or pek	1080	40
	18 do	pek sou	1440	34 bid
Salem	14 ch	bro or pek	1400	36 bid
	11 do	pek	1100	35
R A W	30 ch	bro pek	2520	38 bid
	15 ch	or pek	1290	40
New Valley	59 hf ch	bro or pek	3245	46
	26 ch	pek	2470	41
	36 do	pekoe	3420	39
Mora Ella	18 hf ch	bro pek	1008	40 bid
	17 do	pek	1530	36 bid
	11 do	pek sou	1001	34 bid
St. John's Wood	20 hf ch	bro or pek	1120	38 bid
Monte Christo	32 ch	bro pek	3200	47
	25 do	pek	2375	40
Scarborough	25 hf ch	bro or pek	1425	50 bid
	20 ch	or pek	1920	44
	32 do	pek	3200	39 bid

	Pkgs.	Name.	lb.	c.
Meddegoda	38 hf ch	bro pek	2470	39
	49 do	pek	2695	35
	29 do	pek sou	1450	34
Mora Ella	24 hf ch	bro or pek	1320	38 bid
Ravenscraig	10 ch	bro or pek	1000	44
	12 do	pek	1080	36
Torbay	26 hf ch	pek sou	1058	33 bid
Glenanore	43 ch	bro pek	4300	42 bid
	11 do	or pek	1078	41
	16 do	pek	1520	40
Monrovia	15 ch	pek	1421	35
Avisawella	20 hf ch	bro or pek	1000	40 bid
	14 ch	or pek	1320	37
	18 do	pek	1620	35
	13 do	pek sou	1040	33
Citrus	33 ch	pek	2966	34
Jak Tree Hill	35 ch	bro pek	3675	37 bid
	23 do	pekoe	2300	34 bid
Ferndale	10 ch	bro or pek	1000	40 bid
	24 do	pek	2160	35
	13 do	pek sou	1235	32
Yahalatenne	21 ch	bro pek	2100	39
	19 do	pek	1748	37
Weygalla	12 ch	br or pek	1200	38
	18 do	pek	1800	34 bid
Rambodde	30 hf ch	br pek	1650	40
	49 do	pek	2450	36
Mount Temple	13 ch	br pek	1300	37
	18 do	pek	1530	35
	17 do	bro or pek	1700	35
Murraythwaite	23 ch	br pek	2300	38
	14 do	pek	1260	34
Deniyaya	13 ch	bro pek	1300	39
	28 do	pek	2620	36
	23 do	pek sou	2070	33
Selvawatte	39 hf ch	bro pek	2145	37
Mahatenne	13 ch	bro or pek	1300	38 bid
	22 do	pek	2090	36
Harrangalla	22 ch	bro or pek	2200	37
	10 do	bro pek	1000	36
	93 do	pek	7905	35
	24 do	pek sou	1920	33
Oonankande	27 ch	pekoe	1485	33
Forest Hill	19 hf ch	bro or pek	1026	40
	13 do	bro pek	1209	36
	38 ch	pek	3248	35
	17 hf ch	fans	1224	30

Messrs. E. John & Co.

[451,527 lb.]

	Pkgs.	Name.	lb.	c.
Pollakande	31 ch	bro pek	2790	34
	23 do	pek	1840	33
Melvilla	37 hf ch	bro pek	1850	35
	23 do	pek	1150	33
Kandahar	27 hf ch	pek	1845	36 bid
Osborne	23 ch	or pek	2070	40
	21 do	pek	1890	40
Oonoogaloya	24 ch	or pek	2160	42
	22 do	bro or pek	2200	44
	12 do	pek	1080	39
Winwood	23 hf ch	bro or pek	1265	49
	31 ch	or pek	3100	41
	43 do	pek	3570	37
	12 do	sou	1080	34
Perth	*27 ch*	*young hyson*	2700	37
	21 do	*hyson*	1890	34 bid
Navangama	16 ch	bro or pek	1600	36
Oonoogaloya	23 ch	or pek	2070	40
	22 do	bro or pek	2200	42
	17 do	pek	1530	41
Dotale	19 hf ch	bro or pek	1045	45 bid
	15 ch	pek	1350	40
	12 do	pek sou	1140	35 bid
Mt. Everest	47 hf ch	bro or pek	2585	50 bid
	49 do	or pek	2450	46
	49 ch	pek	4900	40
Tismoda	34 hf ch	bro or pek	1700	38 bid
	24 do	bro pek	1200	37
	22 ch	pek	1870	35
Dickapitiya	25 ch	bro pek	2497	38 bid
Glentilt	45 hf ch	bro or pek	2475	47 bid
	22 ch	or pek	2024	41 bid
	21 do	pek	1890	42 bid
	15 hf ch	fans	1200	34
Templestowe	23 hf ch	bro or pek	1288	51
	26 do	bro pek	1560	45
	23 do	or pek	1058	45
	21 ch	pek	1890	42
	12 ch	pek sou	1140	40
	14 hf ch	fans	1008	35
G W	11 ch	pek sou	1122	40
	39 hf ch	dust	3315	34

	Pkgs.	Name.	lb.	c.
Glentilt	30 hf ch	bro or pek	1650	47 bid
	17 ch	or pek	1364	40 bid
	17 do	pek	1530	42
St. John's	36 hf ch	bro or pek	2088	45 bid
	20 ch	or pek	1860	50 bid
	30 do	pek	2940	47
	18 do	pek sou	1548	39
	24 hf ch	pek fans	1632	35
Morton	21 ch	bro or pek	2100	37
	24 do	or pek	2040	26 bid
	22 do	pek	1760	34
St. Andrew's	17 ch	pek sou	1360	31
Lameliere	40 hf ch	bro or pek	2400	50
	42 ch	pek	3780	42
Ashburton	18 ch	bro or pek	1890	42 bid
	35 do	bro pek	3780	39 bid
	16 do	or pek	1408	39 bid
	25 do	pek	2300	38
Agra Ouvah	51 hf ch	bro or pek	3060	54 bid
	28 do	or pek	3052	46
	15 ch	pek	1380	46
	22 hf ch	pek fans	1760	34
Cleveland	33 hf ch	fly or pek	1881	47 bid.
	55 do	pek	3245	40
Dalhousie	21 hf ch	bro pek	1155	40 bid
	26 do	or pek	1300	36 bid
	39 do	pek	1755	34 bid
Callander	28 hf ch	bro or pek	1540	42 bid
	35 do	bro pek	2100	39
	32 do	or pek	1536	40
	13 do	bro pek fans	1040	34
Agra Ouvah	41 hf ch	bro or pek	2460	56
	27 do	or pek	1458	43
	11 ch	pek	1012	46
Perth	*28 ch*	*young hyson*	2800	withd'n
	22 do	*hyson*	1980	withd'n
Dubena	15 ch	pe	1296	30 bid
Rookwood	41 hf ch	fly bro or pek	2501	39 bid
	33 do	fly or pek	1914	45
	44 ch	pek	4224	37 bid
	56 hf ch	pek	2632	35 bid
Waragalande	14 ch	pek	1400	36
Galleola	30 ch	bro pek	3000	38 bid
	41 do	pek	3690	35 bid
	28 do	pek sou	2520	35
Cocoawatte	*15 ch*	*young hyson*	1500	37 bid
	15 do	*hyson*	1500	35
Comar	*19 hf ch*	*young hyson*	1022	withd'n
	13 ch	*hyson*	1231	withd'n
Brownlow	25 hf ch	bro or pek	1400	47 bid
	18 ch	or pek	1710	43
	18 do	pek	1530	40
O W	25 ch	bro pek	2300	36
	16 do	pek	1360	34
Birnam	38 ch	pek sou	2660	43
Higham	27 ch	bro pek	2700	37
	17 do	pek	1700	36
	17 do	pek sou	1615	34
Gausarapolla	26 hf ch	bro or pek No 1	1508	36 bid
	26 do	bro or pek No 2	1404	35 bid.
	13 ch	bro pek	1248	36
Gonavy	27 hf ch	bro or pek	1566	45
	32 ch	pek	2880	39
Ottery	19 ch	bro or pek	1900	42
	38 do	pek	3420	39
Gonavy	20 ch	or pek	1800	43
	21 hf ch	bro pek	1218	42
	40 ch	pek	3600	39
Gingranoya	18 ch	bro or pek	1950	40 bid
	13 do	or pek	1235	41
	12 do	pek	1080	37
Natuwakelle	29 ch	or pek	2610	37
	31 do	pek	2790	37
Theresia	39 ch	or pek	3003	42
	48 do	pek	4076	40 bid
Myraganga	20 ch	or pek	1900	40
	16 do	bro or pek No 1	[illegible]	42
	23 do	bro or pek No 2	[illegible]	38 bid
	16 do	pek	[illegible]	37
Bittacy	25 ch	bro pek	2744	43 bid
	26 do	pek	[illegible]	43
Kelaneiya & Braemar	17 ch	bro or pek	1700	50
	14 do	bro pek	1400	38 bid
	22 do	pek	[illegible]	37
Mocha	49 hf ch	bro pek	[illegible]	59
	26 ch	or pek	[illegible]	44
	17 do	pek	1755	41
	20 hf ch	fans	1400	33
Wanarajah	18 hf ch	bro pek fans	1504	34
Mt. Vernon	33 ch	pek	[illegible]	44
	21 do	pek sou	1890	40
Hiralouvah	62 hf ch	bro pek	[illegible]	36
	23 ch	pek	1955	34
Wawoolawatte	10 ch	bro pek	[illegible]	[illegible] bid
Lameliere	60 hf ch	bro or pek	[illegible]	42 bid
	16 ch	or pek	[illegible]	46
	46 do	pek	4140	42

	Pkgs.	Name.	lb.	c
Mt. Vernon	31 ch	pek	3007	44
	15 hf ch	dust	1260	34
B G T, Ceylon	16 ch	bro pek	1440	30 bid
Bowella	23 hf ch	bro pek	1150	35
Ben Nevis	15 ch	pek	1350	41
Brownlow	22 hf ch	bro pek	1232	51
	16 ch	or pek	1520	43
	18 do	pek	1656	39
Elston	24 ch	pek	2040	37
	15 hf ch	dust	1350	33
	24 ch	pek sou	2040	36
	14 hf ch	bro mix	1050	32
Cabin Ella	61 ch	bro pek	6100	38 bid
	43 do	pek	4935	40
Nahavilla	29 ch	or pek	2900	41
	40 do	bro pek	4000	42
	31 do	pek	3100	38
	17 do	pek sou	1530	35
Biram	22 hf ch	pek sou	1540	44
	22 do	dust	1936	34
	62 do	fans	4340	36
N	22 hf ch	dust	1870	31
Kadienlena	35 hf ch	br or pek fans	2625	33
Elemane	29 ch	bro pek	2900	38 bid
	25 do	or pek	2250	35 bid
Woodside	10 ch	bro pek	1000	33
	14 do	pek	1316	31
W D	16 ch	red leaf	1120	22
Avington	39 *ch*	*young hyson*	3900	37
	29 *do*	*hyson*	2465	34 bid
Gangawatte	23 ch	bro or pek	2300	49 bid
	19 do	bro pek	1900	40 bid
	39 do	pek	3510	36
Lynford	18 ch	bro pek	1890	38 bid
	11 do	pek	1045	36 bid
G B	24 ch	fans	1680	34
Eversfield	11 ch	pek	1100	34
Theresia	22 hf ch	bro or pek	1320	43 bid
	26 ch	pek	2210	36 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Coodoogalla	18 hf ch	pek	900	34
	7 do	dust	560	31
Yuillefield	10 hf ch	bro pek	550	40 bid
	1 ch	pek No 2	100	34 bid
	3 do	pek sou	285	33
	10 hf ch	fans	650	35
	1 ch	sou	80	29
	3 hf ch	dust	290	32
Kenilstone	9 ch	*hyson No 2*	900	39
Hornsey	9 hf ch	bro pek fans	630	35
Kenilstone	9 ch	*twanky*	900	16
	5 do	*dust*	500	9
	7 do	*siftings*	700	12
Bunyan and Ovoca	1 ch	red leaf	105	25

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Glenfern	6 ch	pek souchong	480	33
	1 do	dust	86	28
Kinohin	10 hf ch	br or pek	600	42
	14 do	bro pek	840	38
	18 do	or pek No 1	900	39
	12 ch	or pek	960	37
	14 ch	pekoe	1260	35
	4 do	pek sou	320	33
	2 hf ch	dust	170	29
Fairlawn	3 ch	pek sou	210	33
	7 hf ch	dust	630	28
Woodend	9 ch	bro or pek	990	39
	12 do	pek sou	960	33
	2 do	dust	280	29
Maldeniya	10 *ch*	*hyson No 1*	850	33 bid
	4 *do*	*fans*	420	17
	2 *do*	*dust*	200	9 bid
Kitulakanda	12 hf ch	bro pek	672	35
	13 do	pek	650	34
	16 do	pek sou	720	32
	3 do	br pk fans	180	28
Minna	15 hf ch	or pek	795	44
Kurugalla	5 ch	pek sou	400	32
	1 do	fans	110	30
	3 hf ch	dust	240	28
Fassifern	2 hf ch	dust	140	28
G K in est mark	13 hf ch	or pek	650	43
	16 do	pek	864	36
	11 do	pek sou	528	33 bid
Ampitiyathana	4 *hf ch*	*fans*	280	15
	5 *do*	*dust*	400	10

	Pkgs.	Name.	lb.	
Anningkande	9 ch	pek	810	35
	10 do	pek sou	950	34
	3 do	souchong	285	32
	4 do	bro pek fans	400	32
	4 do	dust	400	32
Alpha	8 ch	pek sou	680	33
	3 hf ch	fans	255	31
	1 ch	dust	95	29
	1 do	red leaf	50	25
Orion	5 ch	fans	510	32
	4 hf ch	dust	340	32
Rosawatte	2 ch	pek sou	148	31
	4 do	fans	480	30

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Arnaimallai	8 ch	pek	800	32
	4 do	pek sou	400	
	1 hf ch	dust	85	31
K C, in est mark	1 do	pek	63	32
	1 do	pek sou	54	31
	2 ch	bro tea	270	28
	2 hf ch	*green tea hyson*	119	30
	1 do	*green tea dust*	53	10
B F B, in est mark Newmarket	1 ch	pek	83	36
	1 hf ch	fans	53	34
Sriwatte	10 ch	or pek	900	39
	12 do	pek	960	37
	4 hf ch	bro pek fans	280	34
	4 do	dust	320	32
Strathisla, Invoice No 18	4 ch	fans	440	35
	5 do	dust	425	25
Holton	1 ch	pek sou	85	33
	6 do	bro pek fans	330	26
	3 hfch	dust	255	28
Coldstream Group, Invoice No 5	14 hf ch	bro or pek	770	43
	4 ch	pek sou	320	35
	4 hf ch	bro or pe fans	260	35
	2 do	dust	160	33
Nawalapitiya	6 ch	congou	510	27
Coldstream Group Invoice No 4	18 ch	bro or pek	990	44
	5 hf ch	pek sou	400	34
	2 ch	bro or pe fans	160	34
	1 do	dust	80	32
Karawakettia	3 ch	bro mi	303	28
Dolahena	11 hf ch	*young hyson*	605	36
	4 do	*hyson*	200	32
	3 do	*fans*	150	19
	2 do	*siftings*	140	14
Wilpita	8 ch	or pek	760	34
	5 do	pek	500	33
	3 do	bro or pe fans	345	28
	1 do	sou	100	30
	2 do	bro mix	210	25
Vincit	9 ch	*young hyson*	810	38
	7 do	*hyson*	595	34
	2 do	*gunpowder*	180	33
	3 do	*fans*	345	33
	2 do	*siftings*	250	19
Paddawala	3 ch	bro pek	300	35
	5 do	pek	500	33
	6 do	sou	600	31
	2 do	congou	200	27
O B E C, in est mark, Invoice No 19 Sindumally	9 ch	bro or pek	900	52
North Matale	6 hf ch	dust	480	28
Harrington, Invoice No 6	9 ch	or pe	900	44
	1 hf ch	bro pe fans	80	34
	1 do	dust	95	33
Attabagie Inv. No 6	1 hf ch	dust	90	25
	8 do	bro mix	384	26
O B E C, in est mark Forest Creek, Invoice No 28	10 ch	dust	783	33
	4 hf ch	bro mix	380	30
Rickarton, Inv No 17	1 ch	pek sou	107	35
	5 do	fans	750	33
Great Valley, Ceylon in est mark Invoice No 8	5 hf ch	dust	400	31
O B E C, in est. mark Invoice No 26 Darrawella	15 hf ch	bro or pe	840	56
	10 ch	or pe	900	45
	9 do	fans	630	35
Baddegama Invoice No 8	8 ch	pek	680	36
	5 do	pek sou	400	35
	3 do	fans	330	33

	Pkgs.	Name.	lb.	c.
Freds Ruhe	7 ch	pek sou	700	32
W A	4 ch	dust	530	29
	1 do	bro mix	110	24
Hillwatte	4 ch	or pe	392	36
	6 do	bro pek	630	36
	8 do	pek	800	36
	2 do	pek sou	200	33
	5 do	sou	450	32
	2 hf ch	dust	150	27
	4 ch	bro mix	400	26
Ardlaw and Wishford	3 ch	fans	405	24
	1 do	dust	150	33
Sylvakandy	3 ch	dust	300	31
Attampittia, Invoice No 4	4 ch	pek sou	360	34
	5 hf ch	dust	450	31
Attampittia, Invoice No 3	7 ch	pek sou	658	34
	2 do	fans	270	31
Deaculia, Inv. No 12	3 hf ch	dust	240	30
	1 do	red leaf	55	25
	1 ch	do	80	25
Strathspey	6 ch	bro or pe	600	52
	8 do	bro pe	800	51
	2 do	dust	230	32
Opalgalla	6 ch	congou	552	30
Good Hope, Invoice No 5	10 ch	pek	950	35
	7 do	pek sou	665	34
	1 do	do No 2	100	33
	4 hf ch	fans	260	33
	4 do	dust	360	32
	1 do	bro pe fans	75	32
Hanwella, Inv No 7	11 hf ch	*hyson No 2*	715	34
	3 do	*hyson siftings*	270	14
Ookoowatte, Invoice No 4	1 ch	pek fans	120	31
	1 do	pek sou	85	33
	2 hf ch	dust	200	27
C R D Inv No 4	5 ch	sou	400	30
	3 do	pek	270	32
Nahalma, Inv No 6	8 ch	fans	800	33
	5 hf ch	dust	425	32
B D W P, Inv No 1	4 ch	pek fans No 1	400	28
Yatiana	3 do	pek	294	30
	1 do	pek sou	108	28
	1 do	dust	112	26
Ridgmont	9 ch	bro or pe	495	41
	7 do	bro pe	770	34
	6 do	or pe	600	37
	5 do	pe	485	35
Clarendon, Dimbula	2 ch	sou	174	34
	2 hf ch	pek dust	176	34
Broughton	10 ch	pe No 1	980	39 bid
	8 hf ch	dust	640	32
Glengariffe	10 do	fans	700	35
Nynangodde	3 do	dust	345	25
Kelburne, Invoice No 4	5 hf ch	dust	425	20
Templehurst	3 do	fans	210	33
Mawiligangawatte	3 ch	dust	315	32
Kelburne, Inv. No 5	5 hf ch	dust	425	30
Nona Totum	2 do	bro pe	120	35
	3 do	or pe	150	37
	7 ch	pe	595	34
	1 do	pek sou	90	34
	2 hf ch	dust	190	32
	5 ch	fans	675	35
	3 hf ch	bro pe fans	210	25
K, in estate mark	1 ch			
	1 hf ch	unas	135	21
	1 box	dust	25	10
Temno	4 ch	dust	440	30
Pansalatenne	2 do	dust	300	29
Bowlana	10 ch	pek sou	900	35
Ireby	11 ch	pek sou	990	41
	2 do	sou	180	36
	3 hf ch	fans	225	38
	5 do	dust	425	34
Matale	3 do	fans	210	33
	3 do	dust	240	30
	2 ch	sou	180	31
Donnybrook	10 ch	bro pe fans	700	34
	5 do	dust	435	30
Tunisgalla	16 hf ch	bro or pe	800	44
	10 ch	pe sou	850	34
	6 hf ch	dust	570	30
Mahawale, Inv No 6	6 ch	bro mix	510	34
	6 do	fans	580	33
	6 do	dust	480	30
M	2 ch	fans	140	34
R	6 hf ch	dust	480	28
Yelverton	5 ch	pe sou	450	36
Kabragalla	4 hf ch	bro pe	220	51
	5 do	pek	260	35
	4 do	dust	240	30
Laurawatte	5 hf ch	fans	425	32
Aegeria (Venesta packages)	1 ch	bro tea	105	30
	1 do	dust	165	28
V O A	3 ch	bro tea	360	21
New Peradeniya	2 ch	red leaf	140	25
I N G, in est mark	4 ch	pe fans	400	34
	2 do	bro po dust	280	30
Court Lodge	10 ch	or pe	950	48
Erracht	8 ch	pe sou	680	33
	1 do	bro pe fans	110	34
	2 do	pe fans	230	29
	2 do	dust	310	28
Dammeria	10 hf ch	bro or pe	700	40
	6 do	bro pe fans	480	33
	3 do	dust	200	28
Digdola	7 ch	bro or pe	700	39
	8 do	bro pe	760	37
	1 do	bro pe fans	120	34
	2 do	dust	170	29
Tembiligalla	1 ch	pe sou	105	33
	1 do	bro or pe fans	111	33
	3 do	pe dust	450	30
K P W	14 hf ch	or pe	630	38
	12 do	pe sou	600	34
	4 do	pe fans	300	32
	3 do	dust	270	31
Penrhos	4 hf ch	pek sou	192	34
	8 do	fans	560	33
	2 do	pek dust	190	30
W	1 hf ch	dust	80	27
Dawatakelle	7 ch	sou	700	33
	6 do	dust	900	31
C E	1 ch	pek fans	90	32
	2 do	broken tea	260	26
	2 do	dust	292	27
Laxapana	7 hf ch	dust	630	31
Kandaloya	6 hf ch	gun powder	300	33
	10 do	fans	500	19
	7 do	fans No 2	280	18
	7 do	dust	350	11
Aden	7 ch	bro pek	770	38
	7 do	pek	630	36
R	2 ch	pek dust	240	29
Inverness	11 hf ch	dust	880	34
Algooltenne	4 hf ch	fans	200	32
	6 do	dust	420	23
B D W P	3 ch	pek fans No 1	300	30
	6 hf ch	dust	600	30
North Cove	3 hf ch	fans No 1	195	34
	4 do	fans	332	33
	3 do	or pe	177	36
	4 do	sou	380	33
Errollwood	9 ch	or pe	945	39
	14 do	or pe fans	980	34
	6 hf ch	dust	540	30
Mansfield	6 ch	pek sou	540	38
Bickley	8 hf ch	fans	504	35
H B L	17 hf ch	bro pe	935	37
	10 do	bro or pe	570	39
	10 ch	pe	880	34
	6 do	pe sou	504	33
	1 hf ch	dust	86	31
Sirikandure	4 ch	bro pe dust	518	33
	1 do	bro pe fans	91	33
	1 do	pe fans	104	33
	1 do	fans	98	32
	2 do	sou	196	31
	5 do	bro tea	428	27
Florence	17 hf ch	bro or pek	935	56
	11 do	dust	935	34
Sunnycroft	1 *ch*	*hyson*	84	33
	6 *do*	*gun powder*	510	32
	12 *hf ch*	*siftings*	900	15
El Teb	2 ch	pek sou	190	32
	10 hf ch	dust	800	29
Udaveria	6 ch	pek	570	40
	4 do	bro or pek fans	280	33
	3 do	fans	240	32
Puspone	3 hf ch	dust	240	31
Nillomally	4 do	fans	400	34
	8 hf ch	dust	720	30
B W	3 hf ch	dust	270	29
Rockside	10 ch	pek sou	800	35
	5 ch	pek fans	600	34
	3 do	dust	405	33
Wewewatte	10 ch	bro pek	650	37 bid
	9 do	pek	495	34 bid
	1 hf ch	dust	75	28
Detenagalla	4 ch	fans	320	32
Irex	12 ch	or pek	960	37
	6 do	pek sou	480	33
	1 do	fans	110	31
	2 hf ch	dust	170	25
Mousakellie	3 hf ch	bro pek fans	195	34
	4 do	dust	300	32

	Pkgs	Name.	lb.	c.
Dunbar	6 ch	pek sou	474	35
	9 hf ch	bro pek fans	657	37
B B B	9 hf ch	dust	720	30
Kalupahana	9 ch	bro pek	945	34
	5 do	pek	500	32
	4 do	pek sou	392	31
	3 do	bro pek fans	330	28
	1 do	bro mixed	120	25
Unugalla	2 hf ch	dust	160	withd'n
Ravenswood, Uva	5 ch	pek sou	450	33
	3 do	bro pek fans	240	32
	2 hf ch	dust	140	30
Lindoola	1 ch	pek	88	36
I N G in est mark	1 ch	pek sou	100	32
Palmerston	2 ch	pek sou	160	45
Poonagalla	2 ch	pek sou	180	37
Berewella	8 ch	pek sou	720	33
	5 do	bro tea	425	26
N W D	4 ch	pek sou	376	35
	9 hf ch	dust	936	34
V O A D	4 hf ch	dust	328	31
Coreen	8 hf ch	pek fans	640	34
	3 do	dust	270	34
Galapitakande	9 ch	pek sou	900	33
	8 hf ch	dust	680	30
Deaculla, Inv No 13	17 hf ch	or pek	833	48
	3 do	dust	240	28
	3 ch	red leaf	250	25
Hanwella	5 ch			
	1 hf ch	*hyson No 1*	560	34
	3 do	*hyson No 2*	180	34
	2 do	*hyson siftings*	160	13
Moray	5 do	bro or pek	275	withd'n.
Battawatte	8 ch	pek sou	720	34
	5 hf ch	dust	400	27
Non Pareil	9 do	pek sou	450	33
	6 do	fans	420	30
	5 do	dust	400	30
Killarney	4 ch	pek sou	388	36
St. Vigeans	5 hf ch	dust	450	33
Seenagolla	18 do	or pek	900	52
	4 do	du2t	328	34
Kandaloya, Invoice No 5	8 hf ch	fans	400	17
	7 do	fans No 2	280	17
Robgill	17 do	bro or pek	850	60
	10 ch	pek sou	800	38
	6 hf ch	bro or pek fans	360	34
	6 do	dust	480	33
Purana	8 ch	pek sou	576	33
	1 hf ch	dust	80	30
	2 do	fans	190	34
	1 do	unas	50	31
H G M	9 ch	pek sou	810	34
Glaslyn	7 do	pek	665	38
	1 do	pek sou	100	34
	1 do	fans	155	30
W N	5 ch	bro pek sou	500	32
O B E C, in est mark Watawella	13 hf ch	bro pe fans	910	34
	7 ch	dust	595	32
Bellongalla	3 oh	dust	450	25
Drayton	9 ch	pe sou	810	40
Y S P A	11 hf ch	pe dust	990	32
Rosebury	18 do	or pe	990	35
	2 do	fans	120	28
Memorakande	11 ch	pek fans	880	30
	4 do	dust	400	28
Preston	6 ch	fans	408	37
	4 hf ch	bro tea	240	35
Stockholm	7 do	dust	560	28
	6 do	fans	600	34
	9 ch	sou	900	34
	3 do	bro tea	300	28
Galleheria	1 ch	congou	90	withd'n.
Norfolk	5 ch	pe sou	475	33
	2 do	dust	190	30
G	5 oh	pek	500	34
Bogahagodawatte	3 ch	bro pek	300	37
	4 do	pe	400	34
	2 do	pe sou	260	33
	1 do	fans	125	28
Nakiadenia	3 hf ch	*siftings*	255	17
Kondasale	9 ch	pe sou	648	31
	2 hf ch	dust	160	26
	2 do	fans	180	35
lton	3 ch	sou	225	38
	2 do	dust	280	26
N	4 ch	bro or pe	400	36
	5 do	pek	450	33
	1 do	fans	70	29
Pansalatenne	1 ch	dust	150	28
Passara group	6 hf ch	dust	540	32
Sunnycroft	9 ch	*gunpowder*	765	32
Erismere	3 ch	pe sou	261	33
	4 hf ch	dust	320	31

	Pkgs.	Name.	lb.	c.
Ayr	3 ch	*hyson No 2*	330	withdn.
	5 do	*siftings*	400	
Harrow	4 ch	pe sou	376	36
	4 hf ch	fans	320	33
Massena	8 do	pe sou	400	34
Gonapatiya, Invoice No 4	17 hf ch	pe sou	884	42
	13 do	pe fans	962	36
Handford, Inv No 4	7 ch	pek	630	34
	2 do	sou	190	33
N P, Inv No 11	2 ch	bro mix	200	24
Ceylon, in est mark	2 ch	*siftings*	283	12
Talgaswela	12 ch	pe sou	900	34
	12 do	or pe	960	39
	11 hf ch	bro pe No 2	540	38
	4 do	dust	340	30

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
H G L	4 ch	sou	400	27
Narangoda	10 ch	bro pek	950	37
	9 do	pek	810	34
	7 do	pek sou	630	32
Hatdowa	6 ch	pek	570	34
	2 hf ch	dust	150	30
Polgahakande	10 ch	or pek	800	38
	9 do	pek	675	35
	2 do	pek sou	150	32
	2 do	pe kfans	220	30
	1 do	dust	150	29
Theberton	5 ch	red leaf	425	20
	1 do	red leaf dust	60	15
Nyanza	3 ch	pek sou	285	25
	5 hf ch	fans	350	34
	2 do	dust	180	33
Blinkbonnie	9 hf ch	fans	648	34
Mahavilla	5 hf ch	dust	400	33
California	5 ch	bro pek	490	36
	8 do	pek	800	32
	4 do	pek sou	380	29
	1 do	dust	120	25
Theberton	1 ch	pek sou	90	33
	3 do	bro pek fans	300	34
	2 do	pek fans	200	28
	1 do	dust	100	30
	8 do	bro pek	800	37
	11 do	or pek	935	36
	2 do	pek	200	28
Mahawella	8 ch	bro pek	800	39
	7 do	pek	630	35
	6 do	pek sou	540	32
Columbia	8 hf ch	pek fans	624	34
Warakamure	8 ch	pek sou	640	32
	1 hf ch	dust	90	26
Florida	8 ch	pek sou	763	32
	3 do	bro fans	372	28
	1 do	red leaf	105	24
Warakamure	5 ch	pek sou	400	32
	1 hf ch	dust	90	26
Hanagama	4 ch	or pek	400	37
	3 do	fans	360	31
	4 do	dust	500	26
Neboda	3 ch	pek fans	300	32
	5 do	pek sou	500	33
	7 hf ch	dust	595	32
R K P	9 ch	pek sou	720	33
	3 do	dust	300	29
Gona	12 hf ch	bro or pek	696	40
Glenanore	3 hf ch	dust	255	33
Kahatagalla	4 ch	bro or pek	400	37
	3 do	pek	285	35
	2 do	pek sou	160	33
Kelani	4 ch	dust	400	32
Lammermoor	2 ch	pek	200	30
New Angamana	8 ch	pek sou	720	34
	5 do	pek fans	650	30
	1 do	dust	165	28
Cooroondoowatte	9 ch	bro pek	900	38
	6 do	pek sou	600	33
Ellerslie	16 hf ch	fans	960	34
	3 do	dust	210	31
Manangoda	4 ch	bro pek	403	34
	7 do	pek	702	31
	3 do	pek sou	300	30
	2 do	fans	200	28
	2 do	red leaf	162	21
Galata	2 ch	pek sou	200	31
	6 hf ch	bro pek fans	468	31
Laxapanagalla	5 ch	pek	450	34
	2 do	pek fans	200	32
	1 do	dust	100	30
G	2 ch	bro tea	142	25
Cooroondoowatte	3 ch	pek faus	390	28
B and D	13 hf ch	fans	845	34
	7 ch	unasst	605	34

	Pkgs.	Name.	lb.	c.
Donside	5 ch	sou	570	32
	3 hf ch	fans	165	30
	2 do	dust	160	32
Mowbray	8 ch	bro pek	800	38 bid
	10 do	pek	850	35 bid
	4 do	pek sou	340	33 bid
Talgabawatte	2 ch	bro pek	156	33
	2 do	pekoe	153	32
	1 do	pek sou	69	31
Torbay	17 hf ch	pek sou	748	35
	10 do	bro pek fans	720	35
	1 do	dust	95	32
X X	6 hf ch	or pek fans	390	34
	1 do	pek dust	85	31
Salawa	5 ch	unast	400	30
	2 do	pe fans	270	33
Allacollawewa	15 hf ch	or pek	750	44
	1 do	pek	900	39
	18 do	pek sou	936	36
	5 do	bro pek fans	325	37
	5 do	pek dust	375	32
Marigold	11 hf ch	bro pek fans	693	36
	7 do	pek dust	525	33
Paradise	10 ch	pek	950	34
	10 do	pek sou	900	33
	1 do	bro tea	117	27
	2 do	dust	264	26
Tavalamtenne	5 ch	bro pek fans	580	33
	2 do	dust	320	30
	2 do	pe fans	184	31
Highfields	7 hf ch	bro or pek No 1	420	45
Kudaganga	9 ch	bro pek	900	37
	7 do	pek	630	35
	6 do	pek sou	480	34
	1 do	fans	95	31
	1 do	pek dust	125	31
K	2 ch	dust	240	20 bid
Grange Gardens	5 ch	pek sou	475	34 bid
	4 do	fans	400	35
	8 hf ch	dust	255	30
Carriglea	14 hf ch	bro pek fans	924	33
	15 do	pek	840	34
	7 ch	pek sou	665	33
	3 hf ch	dust	264	31
Vilgoda	1 ch	sou	95	29
Old Maddegama	6 ch	pek sou	540	36
	4 hf ch	bro or pek fans	300	35
	2 do	dust	160	30
Welgampola	3 ch	bro or pek	330	36
	1 do	sou	110	33
	1 do	congou	110	30
	1 do	dust	163	out
Kurunegalla	9 hf ch	or pek	585	37
	1 ch	pek sou	95	34
	3 do	dust	200	29
Dodantella	4 ch	pek sou	400	32
	3 hf ch	dust	225	30
Ambalawa	9 ch	bro pek	900	34
	5 do	or pek	450	35
	10 do	pek	850	36
Sancio	7 ch	sou	630	30
	4 hf ch	dust	236	27
	2 do	congou	170	26
	1 do	fans	42	out
Aluthena	2 ch	pek sou	177	29 bid
	2 do	fans	217	28
Hobart	1 ch	sou	75	30
Torbay	14 hf ch	pek sou	630	34
	7 do	fans	504	34
	2 do	dust	190	28
Koswatte	1 hf ch	bro pek	56	35
	1 do	or pek	56	34
	1 do	pekoe	56	33
Kapuduwa	8 hf ch	bro pek	432	34
	4 ch	pek sou	380	29 bid
B and O	2 hf ch	dust	170	33
	1 do	fans	65	34
Gwernet	10 ch	pek sou	800	34
	2 do	sou	162	32
	2 do	dust	270	32
Carshalton	9 ch	bro or pek	900	42 bid
	8 do	pek sou	760	34
	2 do	sou	200	32
	9 hf ch	fans	630	33
	5 do	dust	400	30
Simla	1 hf ch	dust	94	27
A	4 ch			
	1 hf ch	bro pek	550	40
	5 ch	pek	465	36
Carney	3 hf ch	bro pek fans	150	32
	3 do	sou	150	32
	3 do	dust	150	30
Yarrow	6 hf ch	fans	396	34
Beausejour	7 ch	bro pek	635	withd'n
	12 do	pek	960	
	2 do	pek sou	150	

	Pkgs.	Name.	lb.	c.
D B G	1 ch	bro mixed	90	24
	4 hf ch	dust	320	28
	4 ch	fans	400	33
G B	6 hf ch	dust	480	33
	8 do	bro pek fans	480	34 bid
Salem	6 ch	sou	510	32
	3 do	dust	300	30
R A W	11 ch	pek	990	35
	6 do	pek sou	480	35
	5 do	fans	405	34
	3 hf ch	dust	207	31
New Valley	1 hf ch	dust	65	30
Mora Ella	2 hf ch	dust	170	31
	9 do	bro or pek fans	585	34
F A in est mark	2 hf ch	pek sou	100	36
	1 do	dust	80	30
St John's Wood	10 ch	pek	850	37
	3 do	pek sou	273	34
	1 hf ch	dust	71	32
	3 do	br or pk fans	183	34
Scarborough	6 hf ch	dust	480	32
	10 do	fans	690	33
Meddegoda	4 hf ch	dust	300	30
	6 do	bro pek fans	330	34
Ravenscraig	10 ch	or pek	990	39
N S C	3 hf ch	dust	240	32
Highfields	8 hf ch	bro or pek No 1	415	45
Avisawella	6 hf ch	dust	450	30
Jak Tree Hill	5 ch	pek sou	500	32 bid
	1 do	fans	123	out
	2 do	dust	320	20
Weygalla	4 hf ch	dust	320	28
Rambodde	19 hf ch	bro or pek	950	44
	18 do	pek sou	810	34
	5 do	fans	330	33
	4 do	dust	320	32
Hurstpierpoint	3 ch			
	1 hf ch	bro pek	350	28
	3 ch	pek	324	23 bid
	4 do			
	1 hf ch	pek sou	450	out
Ankande	6 hf ch	dust	480	29
	2 ch	sou	200	31
Murraythwaite	2 ch	pek sou	160	32
Deniyaya	9 ch	sou	810	32
Selvawatte	9 ch	pek	900	33
	1 hf ch	pek souchong	60	32
	1 ch	dust	105	24
	3 do	fans	240	28
Mahatenne	11 ch	or pek	990	36
	2 do	dust	224	31
	2 do	fans	200	32
F in est mark	1 ch	pek souchong	40	25
	3 hf ch	dust	240	30
Harrangalla	2 hf ch	dust	160	33
	4 ch	bro pek fans	400	34
Glenalla	4 hf ch	or pek	200	33
	2 do	bro pek	112	30
	7 ch	pek	595	31

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
A A	5 ch	dust	500	28
A T	5 ch	dust	600	26
	3 do	congou	225	30
Horagalla	6 ch	bro pek	589	36
	7 do	pek	667	35
	1 do	bro pek fans	120	30
	1 do	br pe dust No 1	113	29
Poilakande	11 ch	bro or pek	990	37
P K T	7 ch	pek sou	580	32
	9 hf ch	dust	720	27
Melville	17 hf ch	pek sou	850	32
	1 do	congou	60	27
Oonoogaloya	8 hf ch	bro or pek No 2	560	35
Winwood	10 hf ch	bro or pe fans	600	34
	5 do	dust	450	31
Perth	*2 ch*	*hyson No 2*	183	34
	2 do	*fans*	240	18
	2 do	*dust*	300	10
Navangama	6 ch	pek	600	34
	6 do	pek sou	540	32
	1 do	dust	100	28
H F D	5 ch	dust	500	29
Oonoogaloya	3 hf ch	dust	690	27
Tismoda	9 ch	pek sou	855	34
Morton	8 ch	pek sou	640	33
	5 hf ch	dust	400	29
Coslande	9 hf ch	or pek	540	40
	9 do	bro pek	540	42
	4 ch	pek	400	36
	2 do	pek sou	200	34
	1 hf ch	fans	70	32
	1 do	dust	75	27
St. Andrew's	10 hf ch	dust	550	28

	Pkgs.	Name.	lb.	c.
Lameliere	10 ch	or pek	920	46
	8 hf ch	bro pek fans	560	33
E E E	2 ch	sou	180	33
	6 hf ch	dust A	540	28
	1 do	dust B	62	28
	2 ch	bro mix	180	25
B K	4 ch	bro tea	384	26
	7 hf ch	dust	742	33
Ashburton	4 ch	fans	500	33
	4 do	dust	624	33
Agra Ouvah	11 hf ch	pek sou	990	42
	2 do	dust	200	33
Koslande	9 hf ch	bro pek	540	38 bid
	9 do	or pek	510	42
	4 ch	pek	400	36
	2 do	pek sou	200	34
	1 hf ch	fans	70	22
	1 do	dust	75	28
Cleveland	9 hf ch	bro or pek	522	66
	5 do	fans	410	32
C L	3 hf ch	bro mix	186	25
Dalhousie	18 hf ch	pek sou	810	35
	8 do	bro pek fans	520	34
Perth	1 *ch*	*hyson No 2*	94	withd'n
	2 *do*	*fans*	240	withd'n
	1 *do*	*dust*	150	withd'n
Rookwood	10 hf ch	pek No 1	900	33
	2 do	bro pek	140	32
	6 do	red leaf	528	out
Waragalande	7 ch	bro or pek	700	40
	7 do	or pek	700	39
	9 do	pek sou	810	34
Galloola	3 ch	dust	300	31
	4 do	fans	400	34
Cocoawatte	9 *ch*	*hyson No 1*	900	34
	2 *do*	*green dust*	200	11
Brownlow	8 hf ch	dust	680	33
O W	1 ch	pek sou	84	32
	1 hf ch	dust	90	28
	9 do	pek fans	585	31
M G	11 hf ch	fans	858	36
E T	6 ch	bro pek	660	36
	6 do	pek	600	36
G K	2 ch	pek	150	34
Higham	8 hf ch	bro or pek	480	44
	1 do	dust	95	28
	2 do	bro pek fans	140	34
	2 ch	sou	200	30
Gansarapolla	9 ch	pek	810	34
T K	2 hf ch	bro or pek	112	52
Alplakande	5 ch	sou	470	29
Ottery	11 ch	or pek	990	47
	4 hf ch	dust	340	33
Natuwakelle	9 ch	bro or pek	900	42
	11 do	pek sou	990	34
	3 do	dust	300	33
Loughton	1 *ch*	*young hyson*	100	38
	2 *do*	*hyson*	200	30
	1 *do*	*hyson No 1*	100	30
Eton	2 ch	bro or pek	236	43
	7 do	or pek	770	42
	4 do	pek sou	440	35
	5 do	sou (H)	500	34
	1 do	unas (H)	103	33
	2 hf ch	dust (H)	182	31
Heeloya	11 *hf ch*	*young hyson*	825	36
	11 *do*	*hyson*	770	30
	4 *do*	*hyson No 2*	260	25
	2 *do*	*green tea dust*	190	10
Bittacy	8 hf ch	bro or pek	400	51 bid
	9 do	fans	540	34
	1 ch	pek sou	90	35
	3 hf ch	dust	252	34
Kelaneiya & Braemar	5 ch	pek sou	475	34
	6 do	bro pek fans	600	35
	4 do	dust	320	34
Wanarajah	6 hf ch	dust	552	33
Hiralouvah	8 ch	pek sou	704	32
	4 hf ch	dust	320	28
Oakwell	8 ch	pek sou	720	33
	5 do	fans	300	30
	2 do	dust	170	29
Taunton	4 ch	fans	480	28
	3 hf ch	dust	270	26
Wawoolawatte	5 ch	or pek	414	37
	12 hf ch	fans	840	withd'n
Lameliere	9 hf ch	bro pek fans	630	34
Mt. Vernon	9 hf ch	fans	630	35
	1 ch	red leaf	85	27
Paddington	3 ch	bro pek	259	39
	8 do	or pek	760	35
Alawewee	9 hf ch	fans	810	28
B G T, Ceylon	12 ch	pek	960	31
	4 do	pek sou	320	29
	6 hf ch	pek dust	390	out
Bowella	3 do	pek	255	33
	2 hf ch	dust	151	26

	Pkgs.	Name.	lb.	c.
Ben Nevis	7 hf ch	bro or pek	406	60
	15 do	bro pek	900	40
	15 do	or pek	700	47
	6 ch	pek sou	480	36
	2 hf ch	dust	176	24
Brownlow	8 hf ch	bro pek fans	624	34
Gansarapolla	4 hf ch	dust	320	28
Shawlands	3 hf ch	bro pek fans	225	33
Cabin Ella	6 hf ch	bro pek fans	420	33
Elemane	9 ch	pek	810	36
	3 do	fans	200	32
M P S	8 ch	bro pek	810	30 bid
	5 do			
	1 hf ch	pek	520	28
	8 ch	fans	800	19 bid
Woodside	2 ch	pek sou	130	28
Avington	5 *ch*	*hyson No 2*	400	33
	3 *do*	*fans*	300	15
	4 *do*	*dust*	400	10
Gangawatte	7 ch	pek sou	600	36
	8 do	dust	680	32
	12 do	fans	780	35
	4 do	sou	360	32
Lynford	16 hf ch	bro or pek	880	47
G B	9 ch	dust	810	32
Eversfield	5 ch	bro or pek	500	38
	8 do	or pek	800	35
	6 do	pek sou	600	32

CEYLON COCOA SALES IN LONDON.

MINCING LANE, MARCH 20th.

"City of Benares."—1*) MAK in estate mark, 20 bags sold at 50s 6d ; 107 sold at 50s.

"Tactician."—1 M in estate mark, 149 bags sold at 50s ; 1 sold at 45s.

"Clan McLean."—KA in estate mark, 82 bags out ; 1 KS in estate mark, 40 bags sold at 48s ; 38 bags out ; Grove A, 101 bags out.

"Magician."—AM in estate mark, 94 bags out ; Crystal Hill, 6 bags out.

"Hitachi Maru."—RP London Ceylon Cocoa, 19 bags out.

"Workman."—Orion London, 23 bags sold at 63s ; 9 sold at 51s ; 2 sold at 46s 6d ; Sylvia, 133 bags out.

"Kawachi Maru."—Palli London F, 174 bags out.

"Derbyshire."—Palli London F, 156 bags out.

"Austral."—Palli London 1, 20 bags out.

"Shropshire."—Pathregalla London 1, 156 bags out.

"Clan McMillan."—B in estate mark, J J V & Co., 180 bags out.

"Patrician."—1 KM in estate mark, Estate Cocoa, 107 bags out.

"Clan MacArthur."—1 MGM in estate mark, London, 30 bags out.

"Workman."—Owella Ceylon Cocoa A, 1 bag sold at 55s.

"Bingo Maru." —Hylton B, 37 bags out ; ditto D 2, 5 bags sold at 47s 6d ; ditto Broken, 15 sold at 56s.

"Austral."—Beredewelle COC B, 1 bag sold at 45s.

"Clan Farquhar."—Sudugaṅga, 14 bags sold at 90s ; 3 sold at 75s ; 48 sold at 74s 6d ; 9 sold at 50s ; 8 sold at 52s ; 15 sold at 38s 6d.

"Bingo Maru."—North Matale, Ceylon Cocoa C, 88 bags sold at 85s ; 1 sold at 50s ; ditto F, 69 sold at 70s ; ditto F & C, 26 bags out ; ditto C, 6 bags sold at 67s ; ditto F & C, 1 sold at 57s.

"Workman."—Dickeria, Ceylon Cocoa A, 2 bags sold at 69s 6d ; ditto B, 3 sold at 51s 6d.

"Clan MacArthur."—RP 1, 7 bags sold at 57s ; ditto 2, 41 bags out.

"Kawachi Maru."—Maria 1, 58 bags out ; ditto 2, 10 bags sold at 48s ; Middlemarch, Forester No. 1, 4 bags out ; ditto 2, 3 bags sold at 54s ; 5 sold at 52s 6d ; 5 sold at 49s ; ditto Caracas, 1 bag out ; ditto Mixed, 2 bags sold at 48s ; ditto Black, 2 sold at 21s.

"Bavaria."—Meegama, No. A, 90 bags out ; No. 1, 11 bags sold at 52s 6d ; No. B, 15 bags out ; No. B 1, 1 bag sold at 24s.

"Yorkshire."—KRDG, 113 bags sold at 68s ; ditto Karandagalla, 44 bags out ; F Estate Cocoa, 44 bags out.

"Clan Farquhar."—Marakona, 59 bags out.

"Clan MacArthur."—Katugastota, 348 bags sold at 70s 6d.

"Canton."—Maousava AA, 59 bags out; 28 bags sold at 54s; A, 14 sold at 62s; 2 sold at 50s 6d; B, 30 bags out; C, 5 bags sold at 49s; D, 5 sold at 50.

"Yorkshire."—1, Kahawatte 2, 24 bags sold at 74s; 2 sold at 47s 6d; Kepitigalla, 39 bags sold at 72s; 21 sold at 54s; Betworth, 17 bags sold at 62s; 3 sold at 46s 6d.

"Clan McLean."—Betworth, 9 bags sold at 56s; OHO, 1 sold at 56s; Coodoogalla, 16 bags sold at 56s 6d; 19 sold at 59s 6d; 6 sold at 53s; Kepitigalla, 20 bags sold at 51s 6d: 20 bags out; Old Haloya, 30 bags out; 1 bag sold at 50s.

"Patrician."—Coodoogalla, 1 bag sold at 49s.

"Glenlochy."—Bandarapola 1, 18 bags out; ditto T, 2 bags sold at 37s.

CEYLON RUBBER SALES IN LONDON LONDON.

"Yangtzse."—Yatipauwa Estate Biscuit, 5 cases sold at 4s 1½d; ditto Scrap, 1 at 3s 3¾d.

"Clan McArthur."—Arapolakande Para Rubber, SMK, A1, 6 cases sold at 4s 2d; ditto SMK A2, 1 at 3s 3d; SMK B1, 1 at 3s 2d.

"Yorkshire."—Igalkande, 1 case sold at 4s 1½d; Deviturai, 1 at 3s; 1 at 4s.

"Warwickshire."—Tudugulla, 3 cases out at 4s 3d.

No Public Cardamom, Plumbago and Coffee sales this week.

WEEKLY LONDON REVIEW OF CEYLON PRODUCE FOR WEEK ENDING 27TH MARCH (5 P.M.), 1903.

CEYLON MARKETS—remain generally very quiet.

CEYLON CINNAMON CHIPS—lower. 200 bags fetched 2½d for fully fair quality.

CEYLON COCONUT OIL—quiet dull. For shipment business done at £24 5s C.I.F. and we close thereat. Spot slow at £26 10s.

CEYLON COCOA—quiet, steady sales. 2,300 bags Fine 85s to 90s.

CEYLON OR TUTICORIN COTTON—quieter. Manchester poor. Liverpool good. Spinning Cotton scarce and a squeeze about August not unlikely. New crop planting 3 to 4 weeks late.

CEYLON COFFEE—firm in tone. Supplies poor. Demand great.

CEYLON COCOA SALES IN LONDON.

MINCING LANE, APRIL 3rd.

"Yangtsze."—A 1, 40 bags out; B 1, 25 bags sold at 64s 6d; 2, 7 sold at 51s; D 1, 30 sold at 49s 6d; B Broken, 2 sold at 54s 6d; Ross 1, 37 bags out; 2, 6 bags sold at 54s; 1 Kahawatte, 21 bags sold at 64s; 2, 2 sold at 48s; Rockhill AA, 76 bags out; ditto A, 3 bags sold at 53s 6d; ditto B, 4 sold at 20s; ditto C, 4 sold at 49s.

"Peleus."—Rockhill B, 11 bags out.

"Omrah."—HV No. 1, 32 bags out; No. 2, 13 bags sold at 54s 6d.

"Austral."—Blythwood, 44 bags sold at 63s.

"Clan MacArthur."—Muwagalla No. 1, 17 bags sold at 60s; No. 2, 15 sold at 57s.

"Workman."—Guava Hill, 77 bags out.

"Tactician."—Allagala B1, 41 bags out; ditto C1, 14 bags sold at 53s.

"Kawachi Maru."—Maragalla Y, 13 bags sold at 61s; ditto R, 7 bags out; ditto YA, 1 bag sold at 56s, Kumaradola A, 1 bag sold at 56s.

"Kamakura Maru."—KM in estate mark, 60 bags out.

"Warwickshire."—KM in estate mark, 60 bags out; Lower Haloya, 22 bags out; Rajah Totum 1, 16 bags out.

"Kanagawa Maru."—Old Haloya, 20 bags out; 1 M in estate mark, 87 bags out.

"Shropshire."—Old Haloya, 10 bags sold at 52s; Coodoogalla, 20 bags out; 5 bags sold at 55s.

"Patrician."—Coodoogalla, 13 bags sold at 52s; Kepitigalla, 20 bags out; 17 bags sold at 51s 6d.

"City of Madrid."—OBEC in estate mark, Kondesalle Ceylon O, 252 bags out.

"Benmohr."—OBEC in estate mark, Kondesalle Ceylon O, 87 bags out.

"Yangtsze."—Mawakona, 123 bags out; ditto A, 57 bags out.

"Tamba Maru."—Battagolla A, 44 bags out; B, 2 bags sold at 49s 6d; C, 5 sold at 52s; 1 sold at 49s 6d; D, 6 bags out; Warriapolla, 58 bags sold at 93s; 11 sold at 72s; 120 sold at 78s; 17 sold at 78s; 6 sold at 53s 6d; 20 sold at 53s; 17 sold at 52s 6d; 79 bags out; North Matale Ceylon Cocoa F, 59 bags sold at 73s; ditto C1, 29 sold at 71s; ditto C2, 43 sold at 85s 6d.

"Yangtsze."—North Matale Ceylon Cocoa F, 82 bags out; A in estate mark, Moddegodda 1 Ceylon, 81 bags out; ditto 2, 68 bags sold at 60s; ditto 3, 8 sold at 50s 6d; ditto 4, 6 sold at 48s 6d; ditto 5, 1 sold at 45s.

"Clan MacArthur."—KMA in estate mark, 230 bags out.

"Workman."—Polwatte A, 20 bags out.

"Clan Robertson."—Wiharagama 1, 33 bags sold at 70s; ditto T, 5 sold at 51s 6d.

"Tamba Maru."—1 MAK in estate mark, 80 bags out; 20 bags sold at 48s; S ditto, 17 bags out; 6 bags sold at 32s.

"Yangtsze."—KMA in estate mark, 54 bags out.

"Ulysses."—KA in estate mark, 8 bags out.

"Bingo Maru."—PKV London 1, 19 bags out; ditto 2, 2 bags sold at 51s; ditto T, 1 sold at 53s; Rosebery London 1, 56 bags out; ditto 2, 4 bags sold at 49s; ditto T, 3 sold at 53s; Wiltshire London 1, 61 bags out; ditto 2, 2 bags sold at 49s; ditto T, 1 sold at 53s; Hampshire London 1, 63 bags out; ditto 1, 20 bags sold at 49s 6d; ditto 2, 3 sold at 49s; ditto T, 2 sold at 49s 6d; Kaduwella 1, 54 bags out; ditto 2, 3 bags sold at 49s; ditto T, 2 sold at 52s 6d.

CEYLON CARDAMONS SALES IN LONDON.

"Clan Macarthur."—Vicartons A, 13 cases out.

"Yorkshire."—Yellangowry Grade No. 2, 4 cases sold at 1s 9d; 10 cases out.

"Persia."—CS, in estate mark, 10 cases out.

"Clan Chisholm."—N in estate mark, 18 cases out.

"Benmohr."—W D S Malabar, 12 cases out.

"Ulysses."—NJDS, in estate mark, 5 cases out.

"Historian."—WDS Malabar, 15 cases out.

"Benlawers."—AL OO, 3 cases out.

"City of Corinth."—M in estate mark, 4 cases out.

"Clan Robertson."—M in estate mark, 1 case out.

"Yangtsze."—Yellam Mullai, 14 cases out.

"Clan Ross."—A in estate mark, 1 case sold at 10d.

"Bingo Maru."—Gallanteune Cardamoms AA, 1 case sold at 3s; ditto A, 8 bags out; ditto C, 2 cases sold at 1s 3d; ditto D, 2 at 11d; 2 cases out; ditto E, 3 cases sold at 1s 2d.

"Canton."—Vedehette Cardamoms Ex, 8 cases out; ditto AA, 3 cases sold at 1s 7d; ditto B, 3 at 1s; 2 at 1s 1d; ditto C, 1 at 10d; ditto D, 2 at 1s 2d; Pingarawa Cardamoms No. OO, 1 case out; ditto No. 1, 8 cases sold at 1s 3d; ditto Browns, 1 at 10s; ditto seeds, 1 at 1s 2d.

"Bingo Maru."—Galaha Cardamoms Ex, 10 cases out; ditto B, 2 cases sold at 1s; 5 at 11d; ditto C, 3 at 10d; ditto D, 1 at 1s 2d.

"Yangtsze."—Doteloya Cardamoms A, 8 cases out; ditto D, 1 case sold at 10d; ditto DBS, 1 at 10d; 6 cases out; ditto seed, 1 case sold at 1s 2d.

"Warwickshire."—Nicholsoya Cardamoms OO, 9 cases out; ditto 2, 1 case sold at 10d; 3 at 1s 2d; Katooloya AA, 3 cases sold at 1s 4d; Katoolmoola Cardamoms FX, 3 cases out; ditto AA, 1 case sold at 1s 7d; ditto B, 4 at 11d; ditto C, 2 at 10d; ditto D, 1 at 1s 2d; Danally Cardamoms EX, 5 cases out; ditto A, 1 case sold at 11d; ditto B, 3 at 1s; ditto C, 1 at 10d; ditto D, 1 at 1s 2d.

"Sado Maru."—Pingarawa Cardamoms NO OO, 2 cases out.

"Prometheus."—Pingarawa Cardamoms NO OO 1, 4 cases out.

"Inaba Maru."—Gallanteune D, 4 cases out.

"Dardanus."—Katooloya AA, 5 cases out.

"Bingo Maru."—Kobo OO, 14 cases out; ditto 2, 10 cases sold at 1s 3d; Kobo 1 Splits, 3 at 1s 7d; ditto 2 Splits, 5 at 1s 1d; ditto OO Browns, 5 cases

out: ditto Seed, 6 cases sold at 1s 3d; 1 at 1s.

"Clan MacArthur."—Kabragalla, 21 cases out; M ditto, 2 cases sold at 1s 3d; Unassorted, 1 at 1s; 1 at 10d; ditto 1 A, 1 Pocket at 1s; No. 4 D, 2 cases out.

"Yangtsze."—Gallaheria 1, 5 cases out at 1s 10d; ditto 2, 6 cases sold at 1s 1d; ditto Seed, 3 at 1s 3d.

"Bingo Maru."—Midlands O, 3 cases sold at 1s 10d; ditto 1, 2 at 1s 3d; ditto 1, 2 cases out; ditto 2, 3 cases sold at 10½d; Elkadna O, 2 at 1s 9d; ditto 1, 3 at 1s 3d; ditto 2, 2 at 10d; Seed, 1 case out.

"Peleus."—Yoxford, 7 cases out.

"Glenlochy."—Deyanalla Seed, 1 case sold 1s 2d.

"Clan Robertson."—Lauderdale, 2 cases sold at 1s 8d; 6 at 1s 5d; 2 at 1s; 2 at 1s 2d; 4 cases out.

"Shannon."—A A, SRD, FFOS, in estate mark, Seeds, 1 case sold at 1s 3d; ditto Seeds, 4 at 1s 4d.

"Lancashire"—Delpotonoya, 2 cases out.

"Duke of Argyle"—Delpotonoya, 2 cases out.

"Awa Maru"—Delpotonoya, 2 cases out.

"Minnetonha"—S F C, 3 cases out; 3 cases sold at 2s 9d.

"City of Athens"—M, A Y & Co., 2 cases out.

"Peleus"—W D S, 4 cases out.

"Yangtsze"—Wewelmadde A, 7 cases out; ditto C, 3 cases out; ditto B, 3 cases sold at 10d; ditto F, 1 bag sold at 1s; Galgawatte, A to E, 2 cases 3 bags sold at 10d.

"Clan Farquhar"—Wattakelly, Ceylon, 3 cases out.

"Tamba Maru"—1, Tonacombe Special, 3 cases out; ditto 1, 8 cases sold at 1s 9d; ditto 2, 2 cases sold at 1s 2d; ditto 2, 5 cases sold at 1s 3d; ditto 3, 5 cases sold at 1s 1d; ditto splits, 2 cases sold at 1s; ditto seeds, 1 case sold 1s 2d.

"Kamakura Maru"—Wariagalla, Mysore A, 3 cases out.

CEYLON PRODUCE FOR WEEK ENDING
3rd April, 1903.

Ceylon markets remain very quiet without much alteration. No sales of Ceylon Rubber or Ceylon Plumbago this week.

CEYLON COTTON—and Tuticorin f g f, c i f, M—J Tinnivelly 4½; spot value 4¾ per lb.; 500 bales at sea *via* Bombay-Manchester quiet. Corner in Liverpool in August not certain.

CEYLON CARDAMOMS—sold 1d to 2d easier. Good bold pale Ceylon Mysore sold at 3s.

CEYLON CROTON SEEDS—69 bags withdrawn.

CEYLON COFFEE—quiet steady and chances favor a rise later on.

CEYLON COCOA—2,979 bags in sale—1,750 sold. Prices somewhat lower.

CEYLON COCONUT OIL—for shipment £24 2s 6d C I F done, but today sellers firmer asking 7s 6d to 12s 6d more money, but buyers won't follow afloat from Ceylon and Cochin 2,300 tons against 850 and 600 tons previous 2 years.

No. 16. COLOMBO, APRIL 29th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[20,447 lb.]

	Pkgs.	Name	lb.	c.
Battalgalla	14 ch	bro pek	1540	38 bid
	24 do	or pek	2160	39 bid
Overton	12 ch	fans	1440	34
	7 do	dust	1050	33
Hornsey	22 hf ch	bro pek	1320	50
	12 ch	or pek	1080	42
	20 do	pek	1800	39 bid
	12 hf ch	dust	1020	34
Mapitigama	21 ch	*young hyson*	2100	36
	16 do	*hyson No 1*	1630	34
Kenilstone	18 ch	*young hyson*	1796	30 bid
	18 do	*hyson*	1796	out

Messrs. Forbes & Walker.

[691,012 lb.]

	Pkgs.	Name.	lb.	c.
Avoca	21 ch	bro or pek	2226	54
	20 do	or pek	3120	41
	19 do	pek	1786	38
	9 do	bro pe fans	1224	37
Lindupatna	15 ch	bro or pek	1690	53
	27 do	or pek	2808	41
	16 do	pek	1472	39
Eriacolla	10 ch	*young hyson*	1000	37
	13 do	*hyson*	1235	34
Moray	22 hf ch	or pek	1082	45
	22 do	bro or pek	1232	48
	22 ch	bro pek	2310	40
	19 do	pek	1710	38
	17 do	bro or pk No 1	1105	37
	13 hf ch	dust	1040	33
Broughton	45 ch	or pek	4275	39
	30 hf ch	bro pek	1680	48
	35 ch	pek	3290	36 bid
Sylvakandy	19 do	bro or pe No 1	1900	41
	33 do	do do No 2	3300	39
	19 do	bro pek	1900	37
	20 do	or pek	2000	39
	39 do	pek	3900	35 bid
Edward Hill	39 ch	bro pek	3900	38
	25 do	or pek	2125	35 bid
	20 do	pek	1840	35
Madulkelle	11 ch	bro or pek	1100	42
	15 do	or pek	1200	43
	17 do	pek	1530	36
	15 do	pek sou	1125	34
Ardlaw and Wishford	11 ch	bro or pek	1232	52 bid
	13 do	bro pek No 1	1456	43 bid
	11 do	bro pek No 2	1155	40
	11 do	or pek	1078	43
	20 do	pek	1760	40
Attampettia	14 ch	bro pek	1540	40
	14 do	or pek	1330	37
	18 do	pek	1710	35
Amblakande	24 ch	pek	2040	33
	15 do	pek sou	1200	32
Wallaha	11 ch	bro or pek fan	1254	34
	22 hf ch	bro tea	2200	31
Halbarawa	19 ch	bro pek	1748	36
	24 do	pek	2138	34
Gonapitiya, Invoice No 13	25 hf ch	or pek	1525	54 bid
	31 do	bro or pek	1953	52
	36 do	pek	1980	45 bid
Middleton, Invoice No 13	17 hf ch	bro or pek	1020	withdn.
	11 ch	bro pek	1100	withdn.
	12 do	or pek	1080	withdn.
	12 do	pek	1140	withdn.
Illagalla	13 ch	pek sou	1040	withdn.
O B E C, in est mark Summerhill	33 ch	bro or pek	2280	49 bid
	41 do	bro pek	2624	41 bid
	49 do	pek	4655	39 bid
Dromoland	24 ch	bro pek	2304	37
	25 do	pek	2125	34
Marlborough	51 hf ch	bro or pek	3024	45
	31 ch	bro pek	3100	39
	37 do	pek	3626	37
Dunblane	29 hf ch	bro or pek	1595	51 bid
	18 do	bro pek	1800	43
	13 do	pek	1300	40
Glencorse	10 ch	bro pek	1050	41
	12 do	or pek	1080	38
	19 do	pek	1015	35
Great Valley, Ceylon in estate mark,	31 hf ch	bro or pek	2040	41
	13 ch	or pek	1300	38
	40 do	pek	3600	35 bid
	20 do	pek sou	1600	33
Bramley	21 hf ch	bro or pe No 1	1092	44 bid
	31 do	or pek No 1	1550	46
Sunnycroft	51 ch	*young hyson*	4590	36
	48 do	*hyson*	3840	34 bid
	34 do	*hyson No 2*	2720	33 bid
	19 hf ch	*siftings*	1330	18
Udaveria	11 ch	bro or pek	1210	49 bid
	31 do	bro or pe No 1	3410	41 bid
	11 do	or pek	1100	41 bid
Penrbos	24 hf ch	bro or pk	1368	46
	21 do	or pek	1050	40
	26 ch	pek No 1	2158	35
	26 do	pek No 2	2210	34
Nugagalla	40 hf ch	bro pek	2000	38
	72 do	pek	3600	34
St. Heliers	40 hf ch	bro or pek	2320	43
	17 ch	pek	1666	36
Queensland	19 hf ch	bro or pek	1045	69
	18 ch	bro pek	1800	44
	20 do	pek	1900	39 bid
Y S P A	15 hf ch	bro pek fans	1095	34
Waitalawa	92 hf ch	bro pek	4600	40 bid
	146 do	pek	7300	36
	21 do	pek sou	1050	34
Parsloes	15 ch	bro or pek	1725	38
	12 do	bro pek	1380	37
	26 do	pek	2600	35
Stamford Hill	32 hf ch	bro pek	1920	42
	31 do	or pek	1550	50
	28 ch	pek	2520	41 bid
Vogan	31 ch	bro or pek	3100	45
	46 do	or pek	4140	39
	61 do	pek	5490	35
	17 do	pek No 2	1530	34
Poonagalla	87 hf ch	bro pek	5394	46
	29 ch	pek	2668	39
Glengariffe	24 hf ch	bro or pek	1320	40 bid
	39 ch	bro pek	3900	38 bid
	12 do	pek	1020	37
Delta Invoice No 7	17 hf ch	bro or pek	1085	46
	33 ch	bro pek	3564	40
	26 do	pek	2392	35
	17 do	pek sou	1530	35
	14 do	fans	1680	33
	13 hf ch	dust	1118	30
Devonford, Invoice No 3	17 hf ch	bro or pek	1037	51 bid
	11 do	or pek	1001	45 bid
	16 do	pek	1616	45 bid
Kitulgalla, Invoice No 6	10 ch	bro or pek	1050	38
	12 do	or pek	1140	35
	12 do	pek	1104	35
Monkswood, Invoice No 5	26 hf ch	bro or pek	1560	57 bid
	54 do	or pek	2970	53
	48 ch	pek	4800	45
	26 hf ch	fans	1820	40
Templehurst	22 ch	bro pek	2200	43
	20 hf ch	pek	1000	38
Tonacombe	61 ch	or pek	5490	38
	50 do	bro pek	5000	38
	83 do	pek	7180	35
	38 do	pek sou	3040	33
	15 hf ch	dust	1275	30
Tymawr, Inv. No 5	23 hf ch	or pek	1265	58
	29 do	pek	1595	44
Nahalma, Inv No 8	13 ch	bro or pek	1300	withdn.
	13 do	or pek	1274	withdn.
	17 do	pek	1700	withdn.
Court Ledge	9 ch	bro or pek	1022	out
O B E C, in est mark Loolecondesa	15 ch	bro or pek fan	1875	36
	13 do	pek fans	1753	31
	9 do	dust	1494	29
Rickarton, Invoice No 18	17 ch	bro or pek	2040	45
	18 do	or pek	2070	40
	13 do	bro pek	1560	37 bid
	13 do	pek	1430	38
Waitalawa	24 hf ch	bro pek	1200	39 bid
Nawalapitiya	32 ch	bro mix	2880	26
Vogan	24 do	bro or pek	2393	48 bid
Holton	26 hf ch	bro pek (Momi packages)	1430	40
	21 do	pek (Momi packages	1008	35

	Pkgs.	Name.	lb.	c.
Nakiadenia	16 *ch*	*young hyson*	1040	42
	22 *hf ch*	*hyson*	1100	37 bid
Nabalma	13 ch	bro or pek	1300	39
	13 do	or pek	1274	38
	12 do	bro pek	1200	37
	21 do	pek	2100	35
	11 do	fans	1100	35
Galleheria	14 ch	bro or pek	1400	50
	23 do	or pek	1955	41
	35 do	pek	3150	39 bid
	12 do	pek sou	1200	36 bid
Dunkeld	55 hf ch	bro or pek	3300	41
	23 ch	or pek	2070	38
	30 do	pek	2700	36
Morankande	23 hf ch	bro or pek	1380	37
	19 ch	or pek	1710	36
	36 do	pek	3420	33
Morankande	21 ch	pek sou	1554	32
Aberdeen	12 ch	bro pek No 2	1164	37
	16 do	or pek	1360	38
	32 do	pek	2560	34
Gampaha	50 hf ch	bro or pek	3200	39
	21 ch	bro pek	1995	40 bid
	21 do	or pek	2016	40 bid
	36 do	pek	3060	38
	12 do	pek sou	1080	37
High Forest	66 hf ch	or pek No 1	3498	56
	52 do	bro pek	3172	47 bid
	41 do	or pek	2255	44 bid
	38 do	pek	1900	42
Kirklees	60 hf ch	bro or pek	3480	41
	28 ch	or pek	2660	38
	46 do	pek	3910	35
	17 do	pek sou	1445	34
	10 do	fans	1100	33
Erracht	17 ch	bro or pek	1700	37
	17 do	or pek	1445	38
	33 do	pek	2640	34
Weyungawatte	14 ch	bro pek	1400	37
G	20 hf ch	dust	1600	30
Bowlana	16 ch	bro or pek	1760	40 bid
	16 do	or pek	1600	39
	24 do	pek	2280	37
St. Martins	42 hf ch	pek	1680	34
H G M	27 hf ch	bro or pek	1620	40
	25 ch	bro pek	2500	37
	26 do	pek	2470	35
Detenegalla	25 ch	or pek	1397	42 bid
	26 do	pek	2597	37 bid
Karagaha	19 hf ch	bro or pek	1140	46
	41 ch	pek	2870	36
Wella	58 hf ch	bro pek	3366	38
	34 do	pek	1700	36
Agra Oya	19 hf ch	bro or pek	1140	49
	26 do	or pek	1430	41
	29 do	bro pek	1856	42
	11 ch	pek	1045	40
Kirklees	17 ch	pek sou	1357	34 bid
Goldstream Group	21 ch	pek	1680	35
Mousa Eliya	30 ch	bro or pek	3000	38
	12 do	bro pek	1200	36
	11 do	pek	1045	35
G	58 hf ch	sou	5220	31
Fredsruhe	14 ch	bro pek	1400	39
	11 do	pek	1045	36
Tempo	11 ch	or pek	1045	38
	39 do	pek	3315	34
	17 do	pek sou	1275	33
Putupaula	11 ch	bro or pek	1155	45
	75 do	or pek	6750	37 bid
	51 do	pek	4080	34 bid
	9 do	bro pek fans	1125	30 bid
Torwood	23 ch	bro or pek	2300	39
	24 do	or pek	2280	36
	28 do	pek	2520	34
	19 do	pek sou	1710	33
Rutherford	64 *hf ch*	*young hyson*	4032	38
	23 *ch*	*hyson*	2415	36
	17 *hf ch*	*hyson No 2*	1224	41
Letchmey	13 ch	pek sou	1092	34
Bandarapolla	47 hf ch	br or pek No 1	2679	37
	48 do	br or pek No 2	2592	35
	47 do	bro pek	2444	34
	29 do	pek	1334	33
Clunes	13 ch	bro pek	1300	38
	14 do	or pek	1330	38
	27 do	pek	2430	34
Polatagams	20 ch	bro or pek	1996	41
Polatagama	19 do	bro or pek	1896	41
	15 ch	or pek	1496	38
	43 do	pek	4081	35
	63 do	pek	5981	34 bid
Bandara Eliya	24 hf ch	or pek	1248	43
	19 do	br or pek No 1	1026	43
	50 do	br or pek No 2	3200	38
	62 do	pek	4264	39
	11 do	dust	1023	29
	38 do	fans	2698	31

	Pkgs.	Name.	lb.	c.
Tunisgalla	41 hf ch	bro pek	2460	39 bid
	39 do	or pek	2145	37 bid
	30 ch	pek	2700	36
Attampettia	44 hf ch	bro pek	2552	39
	26 ch	or pek	2392	38
	30 do	pek	2800	35
Erlsmere	34 ch	bro or pek	1904	47 bid
	22 do	bro pek	2156	42 bid
	12 do	pek	1080	42
Knavesmire	50 ch	bro pek	5250	38 bid
	45 do	pek	3825	34 bid
	25 do	pek sou	2000	33
	16 do	bro pek fans	1350	32
Ayr	18 *ch*	*young hyson*	1980	36 bid
	18 *do*	*hyson*	1800	35 bid
Bickley	19 hf ch	bro or pek	1045	47 bid
	24 do	or pek	1800	42 bid
	27 do	pek	1755	39
Poonagalla	43 ch	bro pek	4945	47
	28 do	or pek	2660	39
Maha Uva	62 hf ch	bro or pek	3720	36
	28 ch	or pek	2800	40
	47 do	pek	4230	37
High Forest	46 hf ch	pek sou	2208	40
	33 do	pek fans	2739	36
	46 do	or pek No 1	2392	52 bid
	34 do	bro pek	2040	47
	25 do	or pek	1325	44 bid
	21 do	pek	1008	40 bid
St. Vigeans	18 hf ch	bro or pek	1152	45
	14 ch	pek	1344	38 bid
Ganapalla	15 ch	or pek	1220	38
	19 do	bro pek	1957	37 bid
	29 do	pek	2378	34 bid
	12 do	bro pek fans	1272	34
Inverness	20 ch	bro or pek	2000	49 bid
	37 do	or pek	3330	58
	26 do	pek	2340	48 bid
Waldemar	20 ch	or pek	1920	41 bid
	16 do	bro pek	1840	40 bid
	13 do	pek	1170	37 bid
	24 hf ch	bro or pek	1440	44 bid

Messrs. Somerville & Co.

[272,757 lb.]

	Pkgs.	Name.	lb.	c.
S R K	14 ch	pek	1400	37
Dryburgh	22 hf ch	bro or pek	1232	37
	17 ch	or pek	1564	37
	31 do	pekoe	2604	34
Mousa	18 ch	bro pek	2070	37
	12 do	pek	1200	34
Lonach	25 hf ch	bro or pek	1450	38
	21 ch	or pek	1995	37
	32 do	pek	2880	36
	31 do	pek sou	2790	32 bid
Laxapanagalla	14 ch	bro or pek	1400	36 bid
Mincing Lane	26 hf ch	bro pek	1560	47
	23 ch	or pek	1955	40
	29 do	pek	2610	38
	20 do	pek	1800	35
Invery	33 hf ch	bro or pek	2145	44 bid
	20 do	or pek	1140	45
	40 ch	pek	4000	40
	11 do	sou	1100	37
Strathdon	62 hf ch	bro pek	3720	43
	56 ch	pek	5040	35 bid
	28 do	pek sou	2464	34
S	29 hf ch	souchong	1450	28
Dalukoya	25 hf ch	pek sou	1250	33
Mary Hill	38 hf ch	bro pek	2090	37
	35 do	pek	1820	35
	20 do	pek sou	1000	33
Bopitiya	80 ch	bro pek	8400	38
	38 do	pek	3420	35 bid
	30 do	pek sou	2700	34
Nyanza	16 ch	or pek	1360	36 bid
	30 hf ch	bro or pek	1650	41 bid
	14 ch	pek	1400	35
Meeriatenne	17 hf ch	bro or pek	1003	42
	28 do	pek sou	1372	36
	27 do	pek No 1	1296	37
Maragalla	21 ch	bro pek	2100	38
	13 do	or pek	1105	35 bid
	12 do	pek	1080	33 bid
Wattumulla	46 hf ch	bro pek	2760	36
	23 ch	pek	2070	34
Roseneath	19 ch	bro pek	1900	36
	20 do	pekoe	1800	33 bid
Richlands	13 ch	or pek	1170	38
	12 do	bro or pek	1200	41
	19 do	pek No. 2	1615	36
Oonangalla	16 ch	or pek	1440	38
	20 do	bro or pek	2000	40
	24 do	pek No 1	2400	36

	Pkgs.	Name.	lb.	c.
Kallebokka	18 ch	bro or pek	1800	44 bid
	24 do	bro pek	2400	38
	17 do	or pek	1700	41
	16 ch	pek	1600	37
Owilikande	15 ch	bro or pek	1500	36
	12 do	or pek	1080	36
	18 do	pek	1620	34
Walla Valley	34 hf ch	bro or pek	1870	45 bid
	19 ch	or pek	1805	49
	32 do	pekoe	3040	39 bid
Highfields	19 hf ch	bro pek No. 1	1026	39
	29 hf ch	pek	1450	37
St. Catherine	20 hf ch	bro pek	1103	39
	25 ch	pek	2278	34
Glenalmond	20 ch	bro pek	2000	37 bid
	19 do	pek	1800	34 bid
New Valley	61 hf ch	bro or pek	3355	42 bid
	25 ch	or pek	2375	40
	31 do	pek	2945	37 bid
	14 do	pek sou	1260	35
Annandale	15 ¾ ch	bro or pek	1275	49 bid
	23 do	or pek	1794	43
	23 do	pekoe	1840	40
Monte Christo	15 ch	bro or pek	1500	45
Citrus	16 ch	bro pek	1600	37
	17 do	pek	1530	34
Yarrow	34 hf ch	pek	1564	34
W K P	14 ch	bro pek	1400	38
	32 do	pek	2560	34
Blinkbonnie	32 hf ch	bro or pek	1920	51
	15 ch	or pek	1350	50
	22 do	pek	2046	45
Yahalatenne	21 ch	bro pek	2100	38
	12 do	pek sou	1092	34
Weygalla	19 ch	bro or pek	1045	67
	10 do	pekoe	1000	35
	10 do	pek sou	1000	33
Old Maddegama	16 ch	pek	1440	36 bid
Farnham	39 *hf ch*	*young hyson*	2340	37
	11 *ch*	*hyson*	1100	34
Dalukoya	36 hf ch	bro or pek	2160	39 bid
	25 do	or pek	1375	36 bid
	32 do	pek	1760	35
	53 do	pek sou	2915	33
Beausejour	22 ch	pek	1760	34
Monrovia	16 ch	bro pek	1600	36
Lammermoor	10 ch	bro pek	1000	38
	13 do	or pek	1105	34
Neboda	18 ch	bro or pek	1800	40
	14 do	or pek	1288	37
	23 do	pek	2300	35
Neuchatel	11 ch	bro or pek	1100	39
	17 do	bro pek	1785	36
	45 do	or pek	3825	34
	16 do	pek	1280	33
Kelani	30 ch	bro or pek	3000	37
	23 do	pek	2185	35
	14 do	pek sou	1120	34
Scarborough	23 hf ch	br or pek	1311	49 bid
	11 ch	or pek	1023	41 bid
	25 do	pek	2250	37 bid
Oonanagalla	24 ch	bro or pek	2396	41 bid
Ellerslie	44 hf ch	bro or pek	2416	40 bid
	16 ch	or pek	1436	38 bid
	18 do	pek	1526	36
Walla Valley	41 hf ch	bro or pek	2374	50 bid
	13 ch	orange pekoe (not bulked)	1191	51
	19 do	pekoe (not bulked)	1751	43
Jak Tree Hill	35 ch	bro pek	3671	36 bid
	23 ch	pek	2296	34 bid

Messrs. Keell and Waldock.

[76,901 lb.]

	Pkgs.	Name.	lb.	c.
Bargany	30 hf ch	bro or pek	1800	38
	13 ch	pek	1105	35
Galla	32 ch	br pek	3200	37
	28 do	pek	2520	35
Hyde	12 ch	or pek	1176	42
	26 hf ch	br or pek	1560	43
	26 ch	pek	2600	38
Moneragalla	17 ch	bro or pek	1326	41
	15 do	or pek	1125	39
	32 do	pek	2400	36
Fairlawn	38 hf ch	bro or pek	2280	43
	20 ch	pek	1700	37
Woodend	29 ch	br pek	2900	36
	31 do	pek	2790	34
Kurugalla	15 ch	br pek	1500	35
Anningkande	27 ch	bro pek	2696	39

	Pkgs.	Name.	lb.	c.
Morahela	24 ch	bro or pek	2736	38
	53 do	bro pek	5300	40
	39 do	or pek	3627	35 bid
	43 do	pek	3870	33 bid
Paniyakande	11 ch	bro pek	1100	39
Panilkande	20 hf ch	bro or pek No 1	1000	56 bid
	18 ch	br or pek No 2	1800	40 bid
	25 do	or pek	2250	39
	15 ch	pek sou	1350	36
Kalagama	18 ch	pek	1778	32 bid

Messrs. E. John & Co.

[261,916 lb.]

	Pkgs.	Name.	lb.	c.
Dubena	17 ch	pek	1700	30 bid
Nahavilla	12 ch	or pek	1080	37 bid
Oonoogaloya	19 ch	or pek	1710	39 bid
	25 do	bro or pek	2500	40 bid
	22 do	pek	1980	38
Perth	28 *ch*	*young hyson*	2800	36 bid
	22 *do*	*hyson*	1980	34
Killin	29 *hf ch*	*young hyson*	1624	36 bid
	23 *ch*	*hyson*	2070	32 bid
Glentilt	43 hf ch	bro or pek	2365	48 bid
	21 ch	or pek	1932	42
	23 do	pek	2070	40
Templestowe	22 hf ch	bro or pek	1276	50
	36 do	bro pek	2160	44
	29 do	or pek	1334	45
	14 ch	pek	1260	40 bid
Mahanilu	76 hf ch	or pek	4023	40 bid
	32 do	bro or pek	1824	47
	53 ch	pek	5035	34 bid
M L W	22 ch	bro pek	2200	35 bid
	13 do	pek	1105	34
	14 do	pek sou	1050	33
Stonyhurst	16 ch	pek	1488	36
Kahagalla	25 hf ch	bro pek	1500	39
Ratwatte	27 ch	bro pek	2700	37
	12 do	pek	1080	35
Glassaugh	37 hf ch	or pek	2146	67 bid
	33 do	bro or pek	2277	51 bid
	22 ch	pek	2420	47 bid
Dickapitiya	25 ch	bro pek	2500	38
	13 do	pek	1170	36
	34 do	pek sou	3060	33
Kandahar	23 hf ch	bro or pek	1288	43
	27 do	or pek	1431	39 bid
	27 do	pek	1341	36
Comar	20 *hf ch*	*young hyson*	1080	36 bid
	11 ch	*hyson*	1023	34
Natuwakelle	20 ch	or pek	1800	36
	19 do	pek	1710	36
Mocha	29 hf ch	bro or pek	1682	55
	16 ch	or pek	1600	43
	36 do	pek	3780	38 bid
	15 hf ch	fans	1200	34
Kolapatna	18 hf ch	bro or pek	1008	66
	17 do	bro pek	1037	42 bid
	20 do	or pek	1000	38 bid
	20 do	pek	1000	38 bid
Mossend	35 hf ch	bro or pek	2151	withd'n
	18 do	bro or pek	1170	45 bid
	19 do	or pek	1045	46
	30 do	pek	1650	42
Bowhill	14 ch	pek	1260	35
Coslande	18 hf ch	bro pek	1080	49
	13 ch	pek	1300	36
Rondura	14 ch	bro or pek	1536	38 bid
	11 do	bro or pek	1210	39 bid
	31 do	bro pek	2159	38
	28 do	bro pek	2884	38
	21 do	or pek	2142	36
	41 do	pek	3895	35
	17 do	pek sou	1445	33
	10 do	dust	1680	30
	18 do	bro pek	1854	38
	10 do	or pek	1020	37
	20 do	pek	1900	35
Agra Ouvah	49 hf ch	bro or pek	2940	60 bid
	33 do	or pek	1782	41 bid
	13 ch	pek	1196	43
Koslande	18 hf ch	bro pek	1080	50
	13 ch	pek	1300	36
Ormidale	40 hf ch	bro pek	2400	42
	21 ch	pek	1932	41
G K W	25 hf ch	bro pek	1500	37 bid
	16 ch	pek	1568	35
Devon	26 hf ch	bro or pek	1661	50 bid
Mt. Vernon	29 ch	pek	2610	39 bid
St. John's	38 hf ch	bro or pek	2204	45 bid
	20 ch	or pek	1840	50 bid
	38 do	pek	3724	42 bid
	14 hf ch	dust	1232	33
	16 do	pek fans	1088	36

	Pkgs.	Name.	lb.	c.
A L	9 ch	pek fans	1166	27 bid
Gonavy	24 ch	pek sou	1728	34
Tarawera	88 *ch*	*young hyson*	8800	36 bid
	70 *do*	*hyson*	6300	34½ bid
	34 *do*	*hyson No 2*	3060	32 bid
	16 *do*	*hyson siftings*	1920	17
Elston	23 ch	pek	1955	36
	21 do	pek sou	1785	34
Doonhinde	45 ch	or pek	4495	35 bid
Tarawera	33 *ch*	*young hyson*	3300	36 bid
	28 *do*	*hyson*	2660	34 bid
	16 *do*	*hyson No 2*	1440	32 bid
Ohiya	20 hf ch	bro or pek	1036	42 bid
	61 do	bro pek	3168	39
Balado	15 ch	pek No 2	1350	35
	17 do	pek sou	1360	34
Cabin Ella	61 ch	bro pek	6096	39
Balado	14 ch	pek sou	1120	34
	12 hf ch	dust	1020	31
Lynford	18 hf ch	bro pek	1886	38
Alawewa	13 ch	bro pek	1300	31 bid
	12 do	pek	1200	30 bid
Paddington	21 hf ch	or pek fans	1470	28 bid
	20 do	bro pek dust	1700	25
Tismoda	20 hf ch	bro or pek	1000	39
	34 do	bro pek	1700	37
	22 ch	pek	1870	36
Killin	12 *ch*	*hyson No 2*	1044	32 bid
Dickapitiya	25 ch	bro pek	2493	37 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Battalgalla	10 ch	pek	850	36
Overton	3 ch	pek sou	270	32
Mapitigama	2 ch	*hyson No 2*	190	out
	4 do	dust	480	9 bid
	1 box	bro mix	25	10

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Nagaganga	5 hf ch	bro pek	266	34
	3 do	pek	150	32
	3 do	pek sou	135	31
	1 do	fans	56	25 bid
Avoca	9 ch	pek sou	900	36
Lindupatna	8 do	pek sou	800	36
	7 do	bro pek fans	952	34
Eriacolla	2 ch	*hyson No 2*	190	33
	3 do	*siftings*	180	18
	1 do	*green dust*	80	12
Lyegrove	8 ch	bro pek	880	38
	5 do	pek	450	35
	2 do	pek sou	160	33
	1 do	dust	85	29
L G	1 ch	red leaf	56	25
Broughton	11 ch	pek sou	935	35
	6 hf ch	dust	480	30
Sylvakandy	6 ch	pek sou	600	33
	5 do	dust	500	31
Edward Hill	6 hf ch	dust	486	31
Madulkelle	3 ch	fans	300	33
	3 do	dust	300	30
S W	2 ch	bro pek	230	36
	3 do	pek	270	34
Attampittia	5 ch	pek sou	475	34
Pingarawa	5 hf ch	dust	450	31
W	2 ch	bro or pek	118	36
	2 do	or pek	202	35
Chesterford	3 do	fans	375	12
	2 do	dust	200	9
Halbarawa	7 ch	pek sou	560	32
	6 do	bro pek sou	660	32
	2 do	dust	340	30
A M I, in est mark	5 ch	bro pek	500	32
	6 do	pek	600	30
	4 do	pek sou	380	28
	1 do	fans	130	22
	1 do	sou	115	27
Gonapatiya, Invoice No 5	15 hf ch	pek sou	810	41
Hunugalla	9 ch	pe sou	900	31
	3 do	bro pe fans	250	31
	4 hf ch	dust	300	26
Dromoland	16 do	bro or pek	816	43
	5 ch	pek sou	415	33
	5 hf ch	fans	320	32
	4 do	dust	320	31
Marlborough	1 ch	pek fans	100	28
Dumblane	3 do	pek sou	270	38

	Pkgs.	Name.	lb.	c.
Great Valley, Ceylon in est mark	8 hf ch	dust	640	31
Sunnycroft	11 ch	*gunpowder*	880	32
Udaveria	5 do	pek	475	38
	4 hf ch	bro or pe fans	280	33
	3 ch	fans	246	32
Sunnycroft	8 ch	*young hyson*	760	36
	6 do	*hyson*	510	33 bid
	5 do	*hyson No 2*	540	33
	1 do	*gunpowder*	90	32
	3 hf ch	*siftings*	210	16
Penrhos	3 do	pek sou	147	32
	5 do	fans	350	33
	1 do	pek dust	96	29
Nugagalla	7 hf ch	dust	630	31
St. Heliers	7 do	bro pek fans	602	31
Queensland	7 ch	pek sou	560	37 bid
	3 hf ch	bro pek dust	240	33
	1 ch	bro mix	95	25
Y S P A	7 ch	pek	630	33
	4 hf ch	pek dust	360	31
Waitalawa	8 hf ch	dust	720	33
Parsloes	4 ch	dust No 1	400	29
Stamford Hill	13 hf ch	bro or pek	754	69
	7 ch	pek sou	630	37
	4 hf ch	dust	360	34
Vogan	9 ch	pek sou	810	31
	10 hf ch	dust	800	30
	6 ch	pek fans	750	32
Poonagalla	8 hf ch	fans	704	33
Agra Oya	3 do	dust	285	32
	5 do	fans	375	34
Devonford, Invoice No 3	5 hf ch	pek sou	450	26 bid
Kitulgalla, Invoice No 6	2 ch	dust	300	30
	4 do	bro or pe fans	480	33
Monkswood, Invoice No 5	10 ch	pek sou	800	41
	3 ch	dust	270	35
Tymawr, Inv. No 5	17 hf ch	pek sou	850	38
	5 ch	dust	450	35
	12 do	fans	840	36
Nahalma, Inv No 8	7 ch	fans	700 }	withd
	5 hf ch	dust	425 }	
Udapolla	4 ch	*young hyson*	380	out
	4 do	*hyson*	360	out
	2 do	*hyson No 2*	170	out
	1 hf ch	*fans*	65	15
	1 do	*dust*	80	10
O B E C, in est mark Loolecondera	3 ch	bro mix	240	25
Rickarton, Invoice No 18	1 ch	pek sou	110	34
	5 do	fans	750	33
H	6 ch	pek	456	23
Holton	2 hf ch	pek sou	180	32
	5 do	fans	275	33
	1 do	dust	85	28
Nakiadenia	2 hf ch	*siftings*	175	16
Nahalma	6 hf ch	dust	510	30
Galleheria	1 ch	congou	90	26
Morankande	6 hf ch	bro or pek fans	426	33
	4 do	dust	343	29
Aberdeen	11 hf ch	bro pek fans	770	31
Kirklees	9 hf ch	dust	810	32
Erracht	8 ch	pek sou	680	33
	2 do	dust	300	29
	2 do	pek fans	230	30
Weyungawatte	8 ch	pek sou	640	32
K	2 hf ch	unassorted	154	22
	1 box	dust	27	10
Wewawatte	10 ch	bro pek	647	36
Oakfield	1 hf ch	dust	58	10
St. Martins	23 hf ch	bro or pek	920	36
	24 do	or pek	960	34 bid
	4 do	pek sou	160	32
	7 do	fans	420	30
H G M	9 hf ch	dust	810	30
	2 ch	sou	180	31
D G	7 hf ch	dust	476	26 bid
Karagaha	14 hf ch	or pek	700	46
	1 do	red leaf	43	22
Ettapolla	19 hf ch	or pek	450	35
	16 do	pek	720	33
	8 do	pek sou	360	33
	8 do	bro tea	400	29
	4 do	congou	260	27
	1 do	dust	50	25
Mousa Eliya	1 ch	pek sou	100	32
	3 do	dust	300	30
Fredsruhe	4 ch	pek sou	400	31
Tempo	4 ch	dust	440	31
Torwood	2 ch	fans	240	32
	1 do	dust	130	29
Rutherford	6 hf ch	*twankay*	366	18

	Pkgs.	Name.	lb.	c.
	5 do	*green tea dust*	420	9 bid
Letchmey	2 hf ch	sou	100	28
	5 do	pek fans	360	33
	2 do	dust	180	32
C	3 ch	dust	390	33
Clunes	11 ch	pek sou	935	32
Poengalla	6 hf ch	dust	540	30
	11 do	fans	825	34
Augusta	1 ch	pek fans	140	31
	2 do	dust	300	28
M	1 bf ch	bro or pek	60	66
Vincit	*ch*	*siftings*	500	18
Wyamita	ch	bro pek	770	37
	do	pek	7 5	34
	4 do	pek sou	380	32
S G	9 ch	pek	855	32
	2 do	pek sou	170	31
Bandara Eliya	19 hf ch	pek sou	855	35
	36 do	red leaf	138	22 bid
Tunisgalla	9 ch	pek sou	765	33
	10 bf ch	bro or pek	000	50
	2 ch	sou	160	32
	7 hf ch	dust	665	30
Attampettla	8 ch	pe sou	720	33
Erlsmere	2 ch	pek sou	176	36
	4 do	dust	320	33
Ayr	*3 ch*	*hyson No 2*	345	35
	5 hf ch	*siftings*	400	17
New Galway	15 ch	bro pek	900	48 bid
	14 do	pek	770	41 bid
	1 do	pek sou	50	38
B B in est mark	10 bf ch	dust	900	34
	4 ch	pek	320	32
	4 do	bro pek	400	32

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
J W	1 ch	unasst	65	30
St Leys	1 ch	pek sou	106	32
	2 do	sou No 2	105	26
	2 hf ch	fans	164	31
	1 do	dust	86	28
S R K	3 ch	dust	480	33
Dryburgh	4 ch	pek sou	360	32
	6 hf ch	fans	444	30
Laxapanagalla	8 ch	or pek	760	36
	4 do	pek	360	34
	1 do	pek fans	100	30
	1 hf ch	dust	93	31
Mincing Lane	5 bf ch	pek fans	375	34
	4 do	dust	360	33
	1 ch	souchong	100	24
A	4 hf ch	dust	340	33
	7 ch	souchong	700	27
S	8 hf ch	dust	680	34
Mary Hill	10 hf ch	bro or pek	560	40
	7 do	bro pek fans	476	33
	3 do	dust	270	33
Bopitiya	6 hf ch	dust	480	32
Nyanza	2 ch	pek sou	190	33
	5 bf ch	fans	350	24
	1 do	dust	90	31
Charlie Hill	11 hf ch	bro pek	605	38
	15 do	or pek	750	35
	9 do	pek	450	34
	1 do	pek sou	50	withd'n
	1 do	dust	80	28
Homelea	1 ch	gunpowder	97	32
Maragalla	3 ch	pek sou	225	32
	2 do	dust	300	30
Munangalla	19 hf ch	bro pek	950	39
	14 do	pek	700	33
	12 do	pek sou	600	32
	3 do	fans	180	34
	2 do	dust	140	29
Roseneath	2 hf ch	dust	200	20
	2 do	fans	170	20 bid
Patulpana	6 ch	bro pek	600	34
	7 do	pek	700	33
	8 do	pek sou	700	31
	2 hf ch	dust	160	20
P P	5 ch	pek	500	32
Gurubabillawatte	10 ch	pek sou	860	32
	3 do	dust	300	28
Kallebokka	2 ch	pek sou	210	34
	2 do	fans	250	33
Owililande	4 ch	pek sou	360	32
	2 hf ch	dust	170	28
Highfields	9 hf ch	bro or pek No 1	540	41
F F	4 hf ch	dust	340	34
	3 ch	pek sou	300	33
St Catherine	17 hf ch	or pek	853	39
	5 do	fans	353	30
Glenalmond	6 ch	pek sou	510	33 bid
	3 do	fans	300	31
	2 hf ch	dust	160	31
G A	3 ch	pek sou	291	31
	3 do	souchong	207	30
	9 hf ch	dust	720	28
D B R	1 ch	pek	93	32
	1 hf ch	pek sou	58	31
	1 ch	*hyson*	81	13 bid
Evalgolla	5 ch	fans	430	34
	8 do	dust	820	31
New Valley	1 hf ch	dust	95	31
Annandale	10 hf ch	fans	660	34
	11 do	dust	935	32
Monte Christo	3 ch			
	1 hf ch	fans	255	33
	5 do	dust	425	33
	5 ch	bro tea	500	34
Citrus	4 ch	pek sou	300	32
Cooroondoowatte	5 ch	bro pek	500	40
	8 do	pek	800	34
	5 do	pek sou	500	32
Yarrow	14 hf ch	bro pek	756	41
	18 do	or pek	846	36
	5 do	fans	325	34
	2 do	dust	180	30
W K P	11 ch	or pek	990	37
	10 do	pek sou	750	32
	3 do	sou	228	31
	2 hf ch	dust	134	26
C in est mark	1 ch	bro pek	60	34
	1 do	pek sou	90	30
	2 hf ch	fans	128	31
Agaltota	5 ch	bro pek	525	32
	2 do			
	1 hf ch	pek	225	31
	2 ch	pek sou	190	29
	1 do	souchong	75	22
Blinkbonnie	11 ch	pek sou	935	40
Old Madegama	13 hf ch	bro or pek	728	48
	7 ch	or pek	595	40
	6 ch	pek sou	540	34
	2 hf ch	bro or pek fans	144	33
	1 do	dust	90	28
Farnham	*1 ch*	*hyson No 2*	100	33
	1 do	*fans*	125	18
	1 do	*dust*	150	9
Beausejour	7 ch	bro pek	665	38 bid
	11 do	pek sou	825	32
	1 do	bro or pek	100	42
	1 do	fans	120	32
	2 hf ch	dust	170	29
Monrovia	8 ch	pek	760	33
	2 do	pek sou	180	31 bid
	3 do	br pk fans	300	30
	3 do	bro fans	270	32
	1 do	pek dust	143	26
Lammermoor	1 ch	pek sou	85	31
	1 do	fans	100	33
Theberton	9 ch	bro pek	900	37
	11 do	or pek	935	35
	1 do	pek sou	85	32
	1 do	fans	100	33
Neboda	1 ch	pek fans	100	31
	1 ch	pek sou	100	31
	4 hf ch	dust	340	30
Neuchatel	2 ch	dust	290	29
Kelani	3 ch	dust	300	29
B R W	1 hf ch	fans	95	12
	1 ch	imperial	120	19

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Dubena	3 ch	bro or pek	324	38
	7 do	or pek	700	33
	1 do	dust	154	25
	1 hf ch	unas	62	26
Oonoogaloya	4 bf ch	bro or pek No 2	280	33
Bowhill	8 ch	bro or pek	800	42 bid
Perth	*1 ch*	*hyson No 2*	94	33
	2 do	*fans*	240	15
	1 do	*dust*	150	10
E T	1 ch	bro or pek	90	38
	2 do	pek	160	33
	1 do	pek sou	87	32
Killin	*8 hf ch*	*green dust*	600	11
Mahanilu	3 hf ch	dust	240	31
	12 do	bro pek fans	834	34
Orwell	10 ch	or pek	930	35
	9 hf ch	bro or pek	504	39
	9 ch	pek	837	34
	5 do	pek sou	450	32
	6 hf ch	pek fans	390	31
B K	9 hf ch	pek dust	765	34

	Pkgs.	Name.	lb.	c.
M L W	2 hf ch	dust	180	26
	9 do	pek fans	675	33
Stonyhurst	10 ch	or pek	980	38
	9 hf ch	bro or pek	549	45
	8 do	pek fans	560	30
Kabagalla	10 ch	pek	950	37
	9 do	pek sou	810	32
	4 hf ch	dust	336	33
Ratwatte	3 ch	pek sou	270	32
	5 hf ch	dust	400	25
Talawakelle	3 ch	pek sou	264	28
Dickapitiya	6 hf ch	dust	420	33
H	7 ch	bro mix	533	22
Kandahar	4 hf ch	dust	240	34
Harrisland	8 hf ch	bro or pek	455	38
	7 do	or pek	350	38
	11 do	pek	880	33
	1 do	pek sou	48	31
	1 do	fans	60	29
	1 do	pek dust	82	28
Natuwakelle	7 ch	bro or pek	700	40
	8 do	pek sou	720	33
	2 do	dust	200	32
Kolapatna	2 hf ch	pek sou	100	35
	4 do	bro pek fans	272	34
	4 do	pek fans	332	34
Mossend	6 hf ch	pek sou	300	39
	3 do	bro or pek fans	195	35
Bowhill	5 ch	bro or pek	500	44
	8 do	bro pek	800	36
	4 do	or pek	360	38
	1 do	dust	100	30
Kosgalla	11 hf ch	bro pek	605	37
	15 do	pek	750	31
	13 do	pek sou	585	29
	3 do	unas	135	27
	1 do	bro pek fans	70	26
Coslande	2 ch	pek sou	220	33
	1 hf ch	fans	70	32
	1 do	dust	85	29
Rondura	3 ch	fans	315	33
Eton	2 ch	sou	200	32
	1 do	dust	93	31
Koslande	2 ch	pek sou	220	33
	1 hf ch	fans	70	32
	1 do	dust	85	30
Ormidale	10 hf ch	bro or pek	500	73
	3 ch	bro or pek No 1	300	60
	4 hf ch	bro pek fans	300	34
K O	6 ch	bro tea	480	withd'n
Yahalakelle	9 ch	unas	855	32
	8 do	bro dust	756	30
	4 do	dust	620	26
Craigingilt	9 hf ch	bro or pek	540	42
	3 ch	or pek	285	37
	4 do	pek No 1	360	36
	5 do	pek No 2	400	35
	3 hf ch	or pek fans	210	33
	2 ch	sou	150	32
	1 hf ch	dust	85	32
B N	1 ch	fans	119	24
	5 do	dust	547	26 bid
Gonavy	13 hf ch	fans	780	34
	6 do	dust	540	30
B G T	6 hf ch	pek dust	387	28
E T	4 ch	bro pek	440	38
Westhall	1 ch	pek fans	85	32
	7 do	pek sou	595	32
	6 do	dust	840	25 bid
	8 do	fans	920	32
	2 do	bro mix	170	24
Tarawera	3 *ch*	*fly young hyson*	220	35
	8 *hf ch*	*hyson siftings*	576	14
Alad	1 ch	bro tea	57	21
Alawewa	4 ch	bro tea	395	20 bid
Assaduwawatte	9 hf ch	dust	765	22 bid
Paddington	15 hf ch	bro pek fans	975	26 bid
	10 ch	dust	950	23 bid
Killin	4 *ch*	*hyson No 3*	520	out
	3 do	*hyson fans*	300	19
Galkande	8 ch	bro or pek	840	37
	6 do	or pek	510	35
	11 do	pek	935	34
	6 do	pek sou	540	32
	1 do	congou	85	30
	1 do	dust	120	25
A T	8 hf ch	bro or pek	840	36
	6 ch	or pek	510	34
	11 do	pek	935	33
	6 do	pek sou	540	32
	1 do	dust	120	26

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
K G	4 ch	souchong	400	30
Bargany	12 hf ch	bro pek	720	36
	4 ch	pek sou	340	33
	1 hf ch	dust	75	25

	Pkgs.	Name.	lb.	c.
Galla	5 ch	bro pek fans	650	30 bid
	1 ch	dust	160	26
Hyde	8 ch	pek sou	776	34
	6 hf ch	bro pek fans	414	34
	2 do	dust	170	30
Moneragalla	10 ch	pek sou	700	33
	2 do	bro or pek fans	170	38
	9 do	or pek fans	927	34
	2 do	red leaf	126	26
Fairlawn	16 hf ch	bro pek	960	39
	10 ch	pek sou	850	33 bid
	1 hf ch	dust	90	28
G K E	15 hf ch	or pek	930	36
	2 do	pekoe	144	out
	6 do	dust	450	31 bid
Malsa	9 ch	bro pek	945	39
	3 do	or pek	270	37
	10 do	pek	900	33
	5 do	pek sou	425	32
	1 do	dust	115	24
Woodend	9 ch	bro or pekoe	990	38
	12 do	pek sou	960	32
	2 do	dust	280	27
Kurugalla	8 ch	pek	680	34
	2 do	pek sou	170	31 bid
	2 hf ch	dust	170	28
	1 ch	fans	110	24
Morahela	2 ch	souchong	190	31
	8 hf ch	dust	672	28
Paniyakanie	10 ch	pek	900	34
	5 do	pek sou	450	32 bid
	1 do	sou	90	31
A in est mark	5 hf ch	dust	392	27
L H in est mark	9 do	bro or pek	516	36 bid
	10 do	fans	551	out
	4 do	dust	581	30

CEYLON COCOA SALES IN LONDON.

Mincing Lane, April 9th.

"Telemachus."—PP 1, 37 bags sold at 52s 6d; ditto 2, 11 sold at 49s.

"Kawachi Maru."—Hylton 1, 25 bags out at 61s; ditto D, 37 bags out.

"Clan Robertson."—Ukuwela A, 27 bags out.

"Benledi."—C 1 in estate mark, 71 bags out.

"Omrah."—Bandarapola 1, 17 bags out; T, 2 bags sold at 34s.

"Clan Shaw."—Kepitigalla, 100 bags out; 5 bags sold at 53s.

"Benledi."—OBEC in estate mark F, Kondesalle Ceylon O, 80 bags sold at 68s; F ditto O, 40 sold at 68s 6d; 60 sold at 68s; F ditto 1, 27 sold at 55s 6d; ditto O, 34 sold at 85s; ditto 1. 2 sold at 62s; F ditto D2, 4 sold at 53s; G ditto, 8 sold at 44s.

"Clan MacArthur."—MGM in estate mark 1, 30 bags out at 60s.

"Kawachi Maru."—London HK 1, 38 bags out.

"Peleus."—AA in estate mark 1, 8 bags out.

"Clan Robertson."—MM in estate mark 1, 125 bags out.

"Omrah."—AM in estate mark, London, 93 bags out.

"Tamba Maru."—KMA in estate mark, 165 bags out.

"Inaba Maru."—Andella, 62 bags out.

REPORT ON CEYLON PRODUCE MARKETS FOR WEEK ENDING 9TH APRIL.

The markets are quiet and steady.

Coffee has dropped—Santos to the lowest on record. May 25s, now 25s 9d and healthier. The opinion is after May we may be better.

Ceylon Plumbago quiet. Sugar firmer.

Cardamoms irregular. Cinchona Bark dearer.

Ceylon Rubber dearer.

Ceylon Cocoa fully steady rates.

Ceylon Cinnamon firm at 2½d to 1s 6d.

Ceylon Coffee.—Good lots strongly competed for on the spot. 60 casks sold. Bold 85s to 118s. Medium 67s to 96s. Peas 67s to 99s.

Ceylon Nutmegs 101's at 1s 1d.

Ceylon Shells M O P Lingah; thin and good stout sorts 13s to 21s.

Ceylon Tortoiseshell small to medium dark mottle 17s to 22s. Stock 171 against 96 in 1902.

Ceylon Cotton.—Tinnevellys f g f 4¾, c i f 4½. This American crop 10¾d to 11¼d; next 10 to 12 millions. Supplies to Liverpool increasing. Trade returns brighter.

No. 17. COLOMBO, MAY 6th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[26,655 lb.]

	Pkgs.	Name	lb.	c.
Hornsey	22 hf ch	bro pek	1320	46 bid
	14 ch	pek	1260	37 bid
Battalgalla	15 do	pek sou	1275	36
Yuillefield	11 ch	or pek	1100	39
	23 do	pek	2185	38
Glenavy	16 ch	pek	1504	32
Kenilstone	16 ch	*young hyson*	1600	out
	22 do	*hyson*	2200	out
	12 do	*hyson No 2*	1200	42
Bunyan and Ovoca	42 hf ch	bro or pek	2520	45 bid
	59 do	or pek	2950	41 bid
	26 ch	pek	2470	36 bid
	11 do	pek No 2	1045	39 bid
	22 do	pek sou	1980	35 bid

Messrs. Forbes & Walker.

[530,974 lb.]

	Pkgs.	Name.	lb.	c.
Blarneywatte	11 ch	bro pek	1100	39 bid
	14 do	pek	1260	36
Galleheria	15 ch	bro or pek	1500	42 bid
	17 do	or pek	1445	41
	27 do	pek	2430	37
	13 do	pek sou	1300	35
	28 hf ch	or pek	1334	43
	35 do	bro or pek	1952	45
	26 ch	bro pek	2600	38 bid
	25 do	pek	2200	39
	14 do	pek No 2	1232	37
F O, in est mark	14 ch	bro pek	1456	36
	17 do	pek	1768	33
Unugalla	21 ch	bro pek	2142	38
	38 do	pek	3230	34
	25 do	pek sou	2000	33
O B E C, in est mark Summerhill	23 ch	or pek	2162	46
	21 hf ch	fans	1528	35
	60 ch	pek sou	4980	37 bid
G K	14 ch	pek sou	1050	34
	27 do	dust	2160	32
O B E C, in estate Forest Creek	14 ch	bro or pek	1428	67
	46 do	bro pek	4784	47 bid
	16 do	or pek	1632	42
	16 do	pek	1520	37
Bowlana	17 hf ch	bro or pek	1870	39
	13 ch	or pek	1300	39
	23 do	pek	2185	36
	18 do	pek sou	1620	34
Mousakollie	17 ch	bro or pek	1700	44
	17 do	pek	1530	35 bid
Lebanon Group	30 ch	bro pek	3000	37
	25 do	pek	2125	35
	29 do	pek sou	2465	33
Eastland	46 ch	bro or pek	2760	39 bid
	62 do	or pek	3038	38
K	24 hf ch	dust	2040	31
Welkandala	15 hf ch	dust	1200	29
Torwood	24 ch	bro or pek	2400	38
	20 do	or pek	1800	34 bid
	29 do	pek	2610	34
	20 do	pek sou	1600	32
Hertleys	20 hf ch	bro pek	1080	39
	22 ch	pek	1650	33
Yelverton	19 ch	bro pek	1976	39 bid
	13 do	or pek	1196	40
	20 do	pek	1900	36
	12 do	pek sou	1080	34
Dromoland	32 hf ch	bro pek	1728	38
	21 ch	pek	1785	35
Roberry F	28 ch	bro or pek	2800	43
	76 do	bro pek	7220	39
	86 do	pek	7740	36
	19 do	pek sou	1710	34
	20 hf ch	fans	2000	33
Reberry G	10 ch	bro or pek	1000	43
	43 do	bro pek	4085	39
	41 do	pek	3690	37
St. Heliers	29 hf ch	bro or pek	1682	40
	11 ch	pek	1078	36
Marlborough	49 hf ch	bro or pek	2695	43 bid
	26 ch	bro pek	2600	38
	36 do	pek	3528	35
	12 do	pek sou	1020	34

	Pkgs.	Name.	lb.	c.
Pungetty	19 ch	bro or pek	2280	46 bid
	32 do	pek	3200	40 bid
	20 do	pek sou	1660	36 bid
Dambagastalawa	19 ch	bro or pek	2014	51
	29 do	or pek	3016	40
	22 do	pek	1980	36 bid
	10 do	pek sou	1030	35
	8 do	bro pe fans	1088	34
Middleton, Invoice No 14	12 ch	bro pek	1200	53 bid
	12 do	or pek	1080	46 bid
	12 do	pek	1080	46
Mansfield	63 hf ch	bro pek	3780	43 bid
	15 ch	pek	1500	37 bid
Munukettia Ceylon in estate mark	11 ch	or pek	1045	40
	32 hf ch	bro pek	2016	46
	22 ch	pek	1980	37
Dunbar	26 hf ch	bro pek	1430	46
	19 ch	pek	1615	38
Florence	17 ch	or pek	1700	50
	41 do	pek	3895	39 bid
Castlereagh	41 hf ch	bro or pek	2050	42
	10 ch	bro pek	1000	38
	13 do	or pek	1040	36 bid
	12 do	pek	1020	36
Batakella	13 ch	bro pek	1300	33
	14 do	pek	1400	34
Hayes	36 hf ch	bro pek	3600	35
	20 do	or pek	1700	41
	74 do	pek	7030	34
Polatagama	25 ch	bro or pek	2500	40
	27 do	bro pek	2700	38
	55 do	pek	4950	35
	18 do	pek sou	1800	33
Sennagolla	20 hf ch	bro or pek	1100	47 bid
	20 do	pek	1080	41
Clunes	13 ch	bro pek	1300	39
	13 do	or pek	1235	39
	25 do	pek	2250	35
Dunblane	35 hf ch	bro or pek	1925	52
	19 ch	bro pek	1900	41
	13 do	pek	1235	39
Sunnycroft	56 ch	*young hyson*	5040	35 bid
	44 do	*hyson*	3740	33 bid
	28 do	*hyson No 2*	2380	33
	18 do	*siftings*	1260	17
Pus one	15 ch	bro pek	1575	37
	14 do	pek	1330	33
C A N	43 hf ch	bro or pek	2361	35 bid
M L K	14 ch	pek No 1	1260	37
Middleton, Invoice No 31	17 hf ch	bro or pek	1020	73 bid
	11 ch	bro pek	1100	62
	12 do	or pek	1080	57
	12 do	pek	1140	54
Hanwella, Inv No 9	26 ch	*young hyson*	2600	35
	10 do	*hyson No 1*	1000	34
G L W	17 ch	or pek	1479	33 bid
Arnaimullai	28 do	bro pek	2800	35
	13 do	pek	1300	30
Baddegama	16 ch	bro or pek	1597	39 bid
K P W	23 hf ch	bro or pek	1380	40
	28 do	or pek	1400	36
	40 do	pek	2000	35
Dunkeld	18 hf ch	pek fans	1221	38
St. Heliers	22 hf ch	bro or pek	1276	41
	12 ch	pek	1176	36
Queensland	19 hf ch	bro or pek	1045	66
	18 ch	bro pek	1800	44
	16 do	pek	1520	39
Choisy	17 ch	bro or pek	1785	43
	14 do	or pek	1260	39
Sylva Kandy	14 ch	bro pek	1400	37
	15 do	or pek	1500	39
	27 do	pek	2700	35
	18 do	br or pek No 1	1800	41
	25 do	br or pek No 2	2600	39
Holton	19 hf ch	bro pek	1045	39
Nillomally	13 ch	bro pek	1300	39
	10 do	bro or pek	1000	46
	24 do	or pek	1968	41
	26 do	pek	2288	33
	13 do	pek sou	1040	35
Vogan	28 ch	bro or pek	2800	45
	43 do	or pek	3870	39
	54 do	pek	4860	35
	14 do	pek No 2	1260	33
Deacalla	17 hf ch	bro or pek	1020	46
	46 ch	pek	3220	36
Ganapatiya	20 hf ch	pek fans	1500	37

	Pkgs.	Name.	lb.	c.
Monkswood	20 hf ch	bro or pek	1200	withd'n
	40 do	or pek	2200	withd'n
	24 ch	pek	3230	withd'n
Talgaswela	11 ch	bro or pek	1100	44
	14 do	pek	1120	35
	16 do	pek sou	12 0	24
Kincoia	18 ch	or pek	1710	39
	24 do	pek	2160	37
	9 do	bro pek fans	1080	34
	12 hf ch	dust	1020	31
Attampettia	14 ch	bro pek	1540	39 bid
	14 do	or pek	1330	39
	26 do	pek	2470	36
Donny Brook	14 ch	bro or pek	1552	42
Vellana	23 ch	bro pek	2070	38
	17 do	pek	1445	35
High Forest	44 hf ch	or pek No 1	2234	54 bid
	25 do	or pek	1321	41 bid
	21 do	pek	1004	44
Relugas	7 ch	dust	1200	29
Tempo	11 ch	bro or pek	1078	37 bid
	12 do	or pek	1080	37
	11 do	bro pek	1100	37
	23 do	pek	1886	34
Summerhill	38 ch	bro or pek	2277	47 bid
Bandaraeliya	34 hf ch	or pek	1700	45
	22 do	br or pek No 2	1188	42
	65 do	br or pek No 2	3465	28
	81 do	pek	4212	33
Kotagaloya	24 hf ch	bro pek	1320	36
	29 do	pek	1450	36
	32 do	pek sou	1600	34
Swinton	18 ch	bro or pek	1800	40 bid
	21 do	or pek	2100	40
	19 do	pek	1710	36
Ambalangoda	16 ch	bro or pek	1600	40 bid
	18 do	or pek	1800	39
	17 do	pek	1530	36
Tunisgalla	41 hf ch	bro pek	2457	37 bid
Macaldeniya	32 hf ch	bro pek	2080	39
	41 do	pek	2460	35
Dea Ella	36 hf ch	or pek	1980	35
	23 do	pek	1150	34
Erracht	11 ch	bro or pek	1100	39
	12 do	or pek	1070	39
	19 do	pek	1520	34
Rutherford	*70 hf ch*	*young hyson*	4200	37
	24 ch	*hyson*	2520	45 bid
Galleheria	35 ch	pek	3150	37 bid
Ganapalla	18 ch	bro or pek	1800	38
	18 do	bro pek	1548	36
	18 do	or pek	1512	38
	37 do	pek	3034	35
	12 do	bro pek fans	1248	34
Killarney	20 hf ch	bro or pek	1200	54
	30 do	bro pek	1800	42
	14 ch	or pek	1190	42 bid
	20 do	pek	1800	40
Bandarapella	54 hf ch	br or pk No 1	3078	37
	50 do	br or pk No 2	2750	34
	41 do	bro pek	2050	34
	22 ch	pek	1100	34
Amblakande	10 ch	bro pek	1000	39
	19 do	pek	1615	3
St. Clare	23 ch	pek sou	1978	37 bid
Ninfield	12 ch	bro or pek	1200	37
Udaveria	31 ch	br or pk No 1	3410	39 bid
	11 do	or pek	1100	39 bid
Harrow	26 ch	bro or pek	1508	46
	29 do	or pek	1682	40
	19 do	pek	1862	37
Udaveria	22 hf ch	bro or pek	1320	52
	52 do	br or pk No 1	3120	41
Erlsmere	34 hf ch	bro or pek	1904	48
	22 ch	bro pek	2156	42
MonksWood	26 hf ch	bro or pek	1560	49 bid
	20 do	bro or pek	1200	50 bid
	40 do	pek	2200	51
	34 do	pek	3230	42 bid
Digdola	23 hf ch	bro or pek	1150	38
	18 ch	pek	1440	34
	17 do	pek sou	1275	32
H G M	24 ch	bro or pek	1440	39 bid
	25 do	bro pek	2500	37
	21 do	pek	1995	35

Messrs. Somerville & Co.

[218,510 lb.]

	Pkgs.	Name.	lb.	c.
Depedene	96 hf ch	bro pek	5760	36
	38 do	pek	2280	34
Warakamure	19 ch	bro or pek	1900	36
	14 do	or pek	1120	34
	17 do	pek	1445	32 bid
Mahabavilla	10 ch	bro pek	1080	29

	Pkgs.	Name.	lb.	c.
	11 do	or pek	1100	40
	15 do	pek	1650	37
Ellerslie	47 hf ch	bro or pek	2585	39
	13 ch	or pek	1170	39
	16 do	pek	1360	36
Oonanagalla	23 ch	bro or pek	2300	39
	19 do	or pek	1710	39
	14 do	bro pek	1260	38
	20 do	pek No 1	2000	37
	15 do	pek sou	1500	35
Marie Land	34 hf ch	bro or pek	1904	39
	60 ch	bro pek	6000	37
	14 do	or pek	1148	38
	42 do	pek	3570	36
Glenanore	37 ch	bro pek	3700	41
	11 do	or pek	1045	40
	13 do	pek	1170	39
Columbia	38 hf ch	bro or pek	2280	39
	24 ch	or pek	2280	38 bid
	27 do	pekoe	2430	28
Agra Tenne	20 ch	bro pek	2000	40 bid
	27 ch	pek	2450	35 bid
Highfields	17 hf ch	bro or pek	1020	42
	27 do	bro pek	1404	40
	31 do	pek	1550	40
Laxapanagalla	14 ch	bro or pek	1400	37
Morantenne	19 hf ch	bro pek	1045	37
Heragoda	13 ch	pek	1183	34
Ingeriya	15 ch	bro or pek	1500	37
	13 do	or pek	1170	35
	14 do	pek	1350	32
	14 do	pek sou	1260	31
Dalukoya	54 hf ch	or pek	2970	37
Lyndhurst	24 hf ch	bro pek	1320	37
	25 do	pek	1250	34
	25 do	pek sou	1125	33
R K P	22 ch	br or pek	2200	37
	17 do	pekoe	1530	33 bid
Damblagolla	12 ch	pek	1020	34 bid
	13 do	pek sou	1040	33 bid
Hobart	24 ch	pek	1920	32 bid
L	12 hf ch	dust	1020	28
Scawfell	14 ch	bro or pek	1400	39 bid
	12 ch	or pek	1080	40 bid
Oonankande	28 hf ch	bro pek	1400	39
Havilland	*57 ch*	*young hyson*	5700	out
	61 do	*hyson*	5490	33 bid
	12 do	*siftings*	1320	16
Dooroomadella	*12 ch*	*young hyson*	1200	35 bid
	39 do	*hyson*	3846	33 bid
Rahatungoda	41 hf ch	bro or pek	2296	40
	15 do	bro pek	1035	34
	29 ch	or pek	2871	40
	44 do	pek	4400	37 bid
Avisawella	28 hf ch	bro or pek	1400	40
	15 ch	or pek	1425	37
	16 do	pek	1440	34
	14 do	pek sou	1120	33
Siriniwasa	17 ch	or pek	1870	39
	12 do	bro or pek	1440	37
	41 do	pek	3690	34
	19 do	pek sou	1425	33
	14 do	fans	1470	34
Monte Christo	50 hf ch	pek sou	2500	36
Ferndale	12 ch	bro or pek	1200	40 bid
	18 do	pek	1620	32 bid
	15 do	pek sou	1425	31 bid
Highfields	60 hf ch	bro pek	3356	39 bid
Invery	14 hf ch	pek dust	1204	32
Highfields	18 hf ch	bro or pek	1080	42
	27 do	bro pek	1404	38 bid
	36 do	pek	1800	38
Torbay	26 hf ch	pek sou	1084	35
Maskaloya	*19 ch*	*youny hyson*	1900	34
	20 do	*hyson*	1800	33
A T	30 hf ch	pek	1530	32
Harrangalla	15 ch	bro or pek	1350	38
	10 do	bro pek	1000	36
	45 do	pek	3825	35
	25 do	pek sou	2000	33
Nyanza	16 ch	or pek	1356	37
D M O. G in est mark	27 hf ch	bro pek	1485	40
	33 do	or pek	1650	42
	21 do	pek	1680	35
	34 do	pek sou	2550	33
Kallebokka	18 ch	bro or pek	1796	44 bid
Torbay	34 hf ch	pek sou	1496	34
Walla Valley	32 ch	pek	3036	40 bid
Bollagalla	36 ch	bro pek	3600	28
	29 do	pek	2320	36 bid
	16 do	pek sou	1360	33

Messrs. Keell and Waldock.

[74,742 lb.]

	Pkgs.	Name.	lb.	c.
Rothes	19 hf ch	bro pek	1045	35 bid
	14 ch	pek	1260	33bid

	Pkgs.	Name.	lb.	c.
B T	17 ch	bro fans	2091	28 bid
Dambagalla	25 hf cb	bro or pek	1600	38
	28 hf ch	pekoe	1372	33 bid
Taprohana	24 hf ch	bro or pek	1200	37 bid
	20 ch	pek	1600	34
Woodend	26 ch	bro pek	2600	36
	28 do	pek	2520	23 bid
	13 do	pek sou	1040	32
Taprobana	28 hf cb	bro or pek	1400	38
	20 ch	pek	1600	34
Anningkande	29 ch	hro pek	2900	38 bid
M	11 ch	dust	1562	22 hid
Katugastota	13 ch	hr pek	1300	39
	25 do	pek	2000	33 bid
G R	9 ch	dust	1215	22 hid
Fairlawn	46 hf ch	bro or pek	2760	41 bid
	23 ch	pekoe	1955	38
Panilkande	13 ch	or pek	1170	36 bid
	13 do	br pek	1200	38 bid
Y	25 ch	dust	1875	out
E D in est mark	19 ch	pek sou	1653	36
L R in est mark	16 ch	bro or pek	1632	35 bid
X X X	12 ch	dust	1620	30
Hangranoya	13 ch	bro or pek	1235	45 hid
	13 do	or pek	1040	38
	22 do	br pek	2200	36
	15 do	pek	1200	33 bid
Glenwood	19 ch	hro pek	1843	37 hid
	34 do	or pek	2720	36 bid
	16 do	pek	1280	33 bid
Minna	32 hf ch	bro or pek	1920	41
	14 ch	or pek	1260	39
	25 do	pek	2250	37
G	9 ch	fans	1116	out

Messrs. E. John & Co.

[192,643 lb.]

	Pkgs.	Name.	lb.	c.
Poilakande	17 ch	bro pek	1530	34
	14 do	pek	1120	33
Peru	21 do	bro pek	2100	39
	24 do	pek	2160	36
Gonavy	32 hf ch	bro or pek	1856	38 bid
	15 ch	or pek	1275	39 bid
	40 do	pek	3600	38
Glentilt	30 hf ch	bro or pek	1650	51
	16 do	or pek	1472	40 bid
	14 ch	pek	1260	37 hid
	15 hf ch	fans	1200	33
Rockampton	12 ch	pek	1200	42
Rookwood	27 hf ch	fly bro or pek	1701	38 bid
	24 do	fly or pek	1392	45
	31 ch	pek	2976	35 bid
	47 do	pek No 1	4230	35
Winwood	34 hf ch	bro or pek	1870	49
	26 ch	or pek	2600	39
	43 do	pek	3870	36
Mocha	29 hf ch	bro or pek	1653	59
	14 ch	or pek	1330	40 bid
	14 do	pek	1400	37 hid
	23 hf ch	fly or pek	1219	51 hid
Gisla	31 ch	bro or pek	4030	30 bid
Devon	28 hf ch	hro or pek	1792	54
	25 ch	or pek	2500	43 bid
	12 do	pek	1200	45
Tarawera	*44 ch*	*young hyson*	4400	36
	26 do	*hyson*	3400	34
	18 do	*hyson No 2*	1620	32
Dickapitiya	12 ch	hro pek	1200	37
	31 do	pek	2790	34
	16 do	pek sou	1440	33
Agra Ouvah	49 hf ch	bro or pek	2936	65
	33 do	or pek	1778	41
Brownlow	30 ch	pek	2580	33 bid
Kelaneiya & Braemar	13 ch	bro or pek	1300	45
	10 do	bro pek	1000	38
	20 do	pek	1900	35
Theresia	17 hf ch	bro or pek	1020	41
	17 ch	pek	1615	38
	48 do	pek	4072	37 bid
	18 do	pek No 2	1530	35
Ottery	13 ch	hro or pek	1300	41
	30 do	pek	2700	35
Rookwood	41 hf ch	fly. hro or pek	2497	39
	44 do	pek	4320	38
Bowella	27 hf ch	hro pek	1350	35
Gingranoya	13 ch	bro or pek	1430	41
	11 do	pek	1012	37
Navangama	11 ch	bro or pek	1100	37
Mt. Vernon	25 ch	pek	2250	38 bid
	29 do	pek	2606	40 bid
St. John's	38 hf ch	bro or pek	2200	47 bid
	36 do	bro or pek	2084	out
	20 ch	or pek	1836	48 bid
	20 do	or pek	1856	51 bid

	Pkgs.	Name.	lb.	c.
Tismoda	30 hf ch	bro pek	1600	37
	16 ch	pek	1360	36
Dotala	19 hf ch	bro or pek	1041	withd'n
	12 ch	pek sou	1136	withd'n
Lameliere	50 hf ch	bro or pek	2936	43 bid
A L	9 hf ch	pek fans	1162	26 bid
Warleigh	19 hf ch	bro or pek	1064	61
	16 ch	or pek	1552	44
	28 do	pek	2380	37
Agra Ouvah	43 hf ch	bro or pek	2580	49 bid
	31 do	or pek	1674	41
	12 ch	pek	1104	40
Gansarapolla	26 hf ch	bro or pek No 2	1400	35
Gangawatte	20 ch	bro or pek	2000	50
	16 do	bro pek	1600	39
	33 do	pek	2970	37
Brownlow	35 hf ch	bro or pek	1960	53
	30 ch	or pek	2850	42
	28 do	pek	2576	58 bid
Ratwatte	29 ch	bro pek	2900	36
	13 do	pek	1170	34
Elston	16 ch	pek	1360	36
	21 do	pek sou	1785	34
Mahanilu	76 hf ch	or pek	4024	withd'n
	53 ch	pek	5031	35
Kahagalla	23 ch	bro pek	1380	39
Glassaugh	33 hf ch	or pek	1818	65
	30 do	bro or pek	2010	45 bid
	18 ch	pek	1926	51
M J	12 ch	bro tea	1200	13 bid
	14 hf ch	bro pek dust	1190	out
W D	31 hf ch	dust	2728	22 bid
H B K	34 hf ch	hro pek	1700	35 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
M	9 hf ch	dust	765	33
Battalgalla	8 hf ch	dust	720	29
S. in est. mark	1 ch	bro pek	94	32
	4 do	pek	336	29
	1 do	dust	108	24

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Blarneywatte	2 ch	pek fans	160	32
Galleheria	1 ch	dust	100	
Ardross	3 do	sou	255	32
New Peradenia	7 hf ch	dust	581	30
Vincit	6 ch	*young hyson*	540	36
	4 do	*hyson*	340	34
	9 do	*hyson No 2*	720	33
	1 do	*gunpowder*	90	31
	1 do	*fans*	120	22
	1 do	*siftings*	125	17
Elfindale	5 ch	fans	450	28
	8 do	hro pek fans	800	32
	4 do	dust	400	25
F O, in est mark	5 ch	bro or pek	500	40
	6 do	or pek	564	33
	5 do	pek sou	570	31
Unugalla	2 hf ch	dust	160	26
R	2 ch	pek dust	210	23
O B E C, in est mark Summerbill	9 ch	dust	810	24
G K	2 ch	sou	160	32
	7 hf ch	fans	465	33
Bowlana	11 hf ch	dust	957	32
	13 do	fans	910	33
Mousakelle	3 hf ch	bro pek fans	195	34
	3 do	dust	225	23
Lebanon Group	8 ch	bro pek	840	37
Kelburne	4 hf ch	dust	340	31
	4 do	fans	268	31
Kelvin	7 ch	pek sou	665	33
	7 hf ch	dust	595	31
Pingarawa	8 ch	sou	560	32
Hentleys	1 hf ch	pek sou	37	32
	2 do	fans	150	32
	1 do	pek dust	90	26
Y O A	7 hf ch	dust	630	32
	1 ch	bro tea	120	25
Yelvert n	9 hf ch	bro pek fans	630	35
	3 do	dust	255	26
Roeberry F	11 hf ch	dust	935	30
Roeberry G	10 ch	pek sou	900	34
	6 hf ch	dust	510	30
	7 do	fans	455	32

	Pkgs.	Name.	lb.	c.
Pungetty	3 ch	unas	300	34 bid
	4 do	pek fans	340	32
Mansfield	6 ch	pek sou	540	35
	5 hf ch	dust	500	33
Dunbar	9 ch	pek sou	702	36
	7 hf ch	bro pe fans	525	36
Batakelle	3 ch	pek sou	300	30
	4 do	bro pek fans	464	31
	1 do	bro mix	108	24
	1 do	pek dust	140	23
Hayes	11 hf ch	pek sou	935	34
Polatagama	3 ch	dust	450	28
Seenagolla	6 hf ch	pek sou	348	37
Clunes	7 ch	pek sou	595	33
	4 do	fans	400	33
	3 do	dust	405	29
Sunnycroft	6 ch	*gunpowder*	480	31
Hanwella, Invoice No 9	6 hf ch	*hyson No 2*	330	36
	4 do	*hyson siftings*	320	17
Ookoowatte, Invoice No 5	1 ch	pek sou	85	31
	1 do	pek fans	120	31
	1 hf ch	dust	100	26
N	1 ch	dust	147	10 bid
Arnaimallai	6 ch	pek sou	600	29
	2 hf ch	dust	170	28
K P W	4 hf ch	pek No 2	280	33
	12 do	pe sou	600	23
	1 do	dust	90	30
St. Heliers	4 hf ch	bro or pek fans	344	32
Queens Land	3 hf ch	bro pe dust	240	34
Sylva Kandy	4 ch	dust	400	31
Holton	11 hf ch	pek	528	35
	1 ch	pek sou	90	33
	3 hf ch	bro pek dust	165	32
B A	3 hf ch	dust	255	29
Nillomally	4 ch	fans	400	31
	3 do	dust	270	34
Ardross	4 ch	fans	440	33
Rockside	6 ch	pek fans	480	34
	2 do	bro pek fans	2 0	
	2 do	dust	270	33
Vogan	6 ch	pek sou	510	32
	4 do	pek fans	500	31
	9 hf ch	dust	720	30
Deaculla	15 hf ch	or pek	750	47
	4 do	dust	320	29
Gonapatiya	10 hf ch	dust	930	34
Handford	8 ch	pek sou	760	34
	2 do	bro pek fans	180	34
	2 do	dust	200	32
Talgaswela	10 ch	or pek	800	38
	5 hf ch	bro pek NO 2	300	34
Vellana	11 ch	pek sou	880	32
	1 do	bro pe fans	120	30
	1 do	dust	160	26
Relugas	7 ch	pek sou	630	33
	4 do	sou	100	32
Ugieside	10 ch	pek fans	950	33
	10 do	dust	850	30
Tempo	4 ch	dust No 1	440	32
	1 do	dust No 2	110	28
Kotagaloya	8 hf ch	fans	520	34
	6 do	dust	480	34
Swinton	10 ch	pek sou	900	34
	3 do	fans	300	32
	2 do	dust	220	26 bid
Ambalangoda	9 ch	pek sou	810	34
	2 do	fans	200	32
	2 do	dust	220	27
Dea Ella	15 hf ch	bro or pek	825	38
	9 do	pek sou	450	33
	5 do	fans	350	30
Erracht	9 ch	pek sou	720	33
	1 do	or pe fans	115	31
	1 do	pe fans	122	31
	1 do	dust	155	28
Rutherford	7 *hf ch*	*hyson No 2*	476	44
	8 *do*	*twankey*	472	19
	4 *do*	*green tea dust*	332	13
Killarney	8 hf ch	fans	592	35
Ninfield	10 ch	or pek	850	38
	12 do	pek	960	35
	8 do	pek sou	600	33
	2 hf ch	dust	150	28
Harrow	3 ch	pek sou	270	34
	2 do	fans	170	31
Udaveria	7 ch	or pek	700	41
	4 do	pek	380	38
	4 hf ch	bro or pek fans	300	33
	3 do	fans	264	33
R	2 ch	pek dust	237	28
Digdola	10 ch	bro pek	950	36
H G M	7 ch	pek sou	630	33
	12 hf ch	fans	840	32

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Allakolla	4 hf ch	dust	400	24
Kannatota	2 ch	bro pek	210	36
	4 do	or pek	340	34
	3 do	pek	225	33
	1 do	pek sou	85	32
	1 hf ch	fans	90	31
Depedene	14 hf ch	pek sou	840	32
	7 do	dust	560	30
	3 do	bro pek fans	195	30
Warakamure	8 ch	pek sou	640	30
	1 hf ch	dust	90	26
Marie Land	11 ch	pek	935	withd'n
	9 do	pek sou	810	33
	2 do	sou	200	31
	6 hf ch	fans	450	34
	2 ch	dust	300	32
Glenanore	6 hf ch	dust	510	32
Columbia	6 hf ch	pek fans	498	32
Huluganga	4 ch	or pek	360	37
	6 do	bro pek	660	36
	7 do	pekoe	595	35
	5 do	pek sou	375	32
	2 hf ch	dust	186	26
Agra Tenne	6 hf ch	fans	450	31
Laxapanagalla	9 ch	or pek	855	34
	3 do	pek	270	32
	1 do	pek fans	100	31
	1 hf ch	dust	83	28
Morantenne	17 hf ch	pek	850	34
	11 do	pek sou	550	32
	2 do	dust	160	26
	1 do	sou	50	28
Horagoda	4 ch	bro or pek	448	39
	4 do	or pek	400	35
	2 do	pek sou	170	32
	1 hf ch	dust	98	26
	1 ch	congon	78	29
R in est mark	1 ch	bro or pek	92	35
	3 hf ch	pekoe	128	31
	1 do	dust	69	26
	1 do	*hyson*	55	15
D in est mark	2 ch	bro pek	150	35
	2 do	pek	150	31
	2 do	pek fans	210	25
R K P	11 ch	pek sou	880	32
	2 do	dust	200	29
A B C	1 ch			
	1 hf ch	bro pek	139	35
	1 ch			
	1 hf ch	pek	123	31
	1 ch	bro or pek fans	121	26
N	1 hf ch	bro pek	60	36
	1 do	pek	60	32
L	6 ch	bro mixed	570	28
Scawfell	5 ch	pek	475	33
Oonankande	4 ch	pek sou	280	32
	5 hf ch	dust	350	33
Dooroomadella	8 *ch*	*hyson No 2*	760	32 bid
	6 *hf ch*	*siftings*	510	13
Ferriby	6 hf ch	dust	480	28
Rahatungoda	4 hf ch	pek dust	340	34
Avisawella	3 ch	sou	240	29
	4 hf ch	fans	280	39
Manangoda	4 ch	bro pek	403	35
	7 do	pek	700	30
	2 do	pek sou	208	29
	3 do	mixed	290	27
	1 do	fans	125	23
	1 do	red leaf	100	22
Siriniwasa	2 ch	dust	310	26
	1 do	sou	90	29
Hegalla	10 hf ch	bro pek	600	37
	13 do	pek	650	32
	13 do	pek sou	650	31
	3 do	unast tea	150	28
	2 do	congou	100	26
	3 do	dust	220	24
	5 do	bro mixed	250	20
Deville	8 ch	bro pek	800	38
	6 do	pekoe	540	33
	4 do	pek sou	360	31
	1 hf ch	dust	80	29
	1 do	sou	50	26
Maskaloya	4 ch	*siftings*	440	16
C in est mark	1 ch			
	1 hf ch	unast	135	out
Suthwold	1 *hf ch*	*green tea siftings*	61	16
	3 *do*	*green tea dust*	190	10
Oaklands	2 ch	bro or pek	212	36
	2 do	or pek	171	36
	2 do	pek	192	33
	1 do	pek sou	69	30
Torbay	13 hf ch	bro or pek fans	949	35
	3 do	dust	285	33

	Pkgs.	Name.	lb.	c.
S in est mark	1 ch			
	1 hf ch	bro pek	147	34
	1 ch			
	1 hf ch	pek	143	31
	1 ch			
	1 hf ch	pek sou	161	30
	1 ch	dust	160	25
	1 hf ch	green tea	48	10
Bollagalla	13 hf ch	fans	910	33
	5 do	dust	450	26
F A in est mark	1 hf ch	pek sou	55	31
	1 do	dust	80	30

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
S in est mark	5 ch	bro pek	450	34
	3 do	pek	249	31
	4 do	pek sou	341	28
	2 ch			
	1 hf ch	dust	370	out
Kotusgoda	*2 hf ch*	*young hyson*	190	out
	2 do	*hyson No 1*	100	out
	2 do	*hyson*	100	out
Belgeda	*4 hf ch*	*young hyson*	220	out
	2 do	*hyson No 1*	100	out
	2 do	*hyson*	100	out
Dambagalla	17 hf ch	bro pek	901	37 bid
	9 ch	pek sou	720	32 bid
	6 hf ch	or pek	282	38
	5 ch	bro mixed	410	29
	2 do	dust	170	28
Taprobana	4 ch	pek sou	320	32
	6 hf ch	or pek fans	360	31
Nawanagalla	12 hf ch	bro pek	600	38
	4 ch	pek	320	33
	2 do	pek sou	180	31 bid
Woodend	9 ch	bro or pek	990	37 bid
	2 do	dust	280	30
Anningkande	9 ch	pek	810	35
	9 do	pek sou	855	34
	2 do	sou	190	32
	2 do	bro pek fans	200	33
	3 do	dust	300	33
Katugastota	7 ch	or pek	630	36
	5 do	pek sou	375	31 bid
	2 do	souchong	152	30
	2 hf ch	dust	111	28
Fairlawn	16 hf ch	bro pek	960	40 bid
	10 ch	pek sou	800	34
	2 hf ch	dust	180	23
Panilkande R	8 ch	pek sou	720	25
	4 ch	pek dust	559	28

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Stubton	6 ch	bro pek	600	33
	10 do	or pek	900	38
	9 do	pek	900	34
	5 do	pek sou	500	33
	1 do	pek dust	150	28
M B, in estate mark	11 ch	sou No 1	990	20
	4 do	fans No 1	400	15
Poilakande	7 ch	bro or pek	630	36
Peru	6 ch	pek sou	570	34
	2 do	bro pek fans	240	33
Rochampton	7 ch	bro or pek	840	43
	8 do	pek sou	664	36
	1 hf ch	pek fans	91	34
Rockwood	1 hf ch	bro pek	70	31
	2 do	pek dust	176	29
Winwood	8 ch	sou	720	33
	8 hf ch	bro pek fans	480	34
Tarawera	*7 hf ch*	*hyson fans*	504	16
	4 ch	*hyson siftings*	320	11
Chapelton	2 ch	sou	180	29
	7 hf ch	dust No 2	665	30
Dickapitiya	8 hf ch	dust	553	32
	3 do	fans	195	34
Theresia	10 ch	or pek	900	43
	9 do	bro pek fans	900	35
	3 do	sou	270	33
	6 hf ch	dust	480	29
Oltery	10 ch	or pek	900	42
	4 hf ch	dust	360	29
	2 ch	bro or pek	200	40
	1 do	or pek	90	40
	7 do	pek	630	34
	1 hf ch	dust	90	27
Bowella	3 ch	pek	255	34
	4 hf ch	dust	280	31
Gingranoya	1 ch	fans	110	34
	3 do	dust	465	33

	Pkgs.	Name.	lb.	c.
Ullandupitiya	2 hf ch	bro or pek	110	42
	3 do	bro pek	150	36
	3 do	pek	135	34
	2 do	sou	86	32
Navangama	6 ch	pek	600	33
	5 do	pek sou	450	31
	2 do	dust	200	28
M	3 ch	dust	480	29
Tismoda	7 hf ch	fans	490	34
	3 do	dust	270	32
G B	9 hf ch	bro pek	510	32
	6 do	fans	390	31
	2 do	dust	180	20
B N	6 ch	dust	513	27
Warleigh	10 hf ch	fans	620	38
Gansarapolla	9 ch	pek	806	33
Gangawatte	8 ch	pek sou	720	33
	8 hf ch	fans	520	34
Kehelwatte	11 hf ch	dust	935	31
	5 ch	fans	550	32
Ratwatte	3 ch	pek sou	270	33
	3 hf ch	dust	240	30
Kahagalla	8 ch	p k	760	34
	8 do	pek sou	720	33
	2 hf ch	dust	168	34
Woodside	2 ch	bro pek	224	35
	2 do	or pek	162	33
	5 do	pek sou	450	29
W D	4 bags	red leaf	280	16
Katukurundugoda	6 ch	or pek	600	withd'n
	6 do	bro pek	534	withd'n
	3 do	pek	232	withd'n
	1 do	pek dust	150	withd'n

CEYLON RUBBER SALES IN LONDON.

Mincing Lane, April 17th.

"Warwickshire."—Tudugalla, 3 cases sold at 4s 2½d.
"Prometheus."—Para Rubber, 4 cases sold at 4s 3d; 1 sold at 3s 4½d.
"Workman."—No mark, 1 case sold at 3s 3d.
"Cheshire."—Best Para Rubber, 6 cases sold at 4s 3d; Scrap, 1 sold at 3s 6½d; No. 1 Doranakande, 1 case sold at 4s 2¾d.

No public sales of Cocoa, Coffee, Cardamom and Plumbago this week.

CEYLON PRODUCE FOR WEEK ENDING 17TH APRIL, 1903.

Ceylon Coconut Oil spot slow £26 10s, c i f £24 7s 6d at 10s sellers.

Ceylon Tinnevelly f g f old 4 9-16d, new 4½d per lb. Manchester steady. This American crop 11 millions, next acreage same, but fertilisers you can count on 9 per cent. increase. Bears expect Americans to see 4d in November-December, but if bad weather 7d per lb. Messrs. Ralli Bros. have given up dealing in American Cotton and yet the shares of the Liverpool Cotton Association have lately risen considerably.

From Ceylon and Tuticorin 400 bales Cotton at sea, for Liverpool, and 1208 bales for Continent. Stock in Liverpool and London about nil.

Ceylon Coffee firm. Santos May 25s 9d, December 27s 9d. Some talk of seeing the record lowest again viz. 24s 9d, but Coffee looks a purchase in flat markets.

Ceylon Rubber sold today splendidly 4s 2½d to 4s 2¾d and at 4s 3d; tone good; tendency upwards.

Ceylon Coir—demand poor; tendency downwards. Ballots, however, in fair request; prices uneven; tendency in favour of sellers.

NEXT AUCTIONS 23rd April, 1903.

RESULT OF THIS DAY'S COIR SALES 26TH MARCH, 1903.

Yarn.—769 bales sold, 1,827 bales offered: 91 tons ballots sold, 103 tons ballots offered; 29 dholls sold, 35 tons dholls offered; 8¼ bundles sold, 8¼ bundles offered. There was a good attendance of buyers attracted by the moderate quantity of all descriptions of Yarn offered, about half of which changed hands. Cochins.—Allapat, Anjingo, soft weaving and mat shewed no quotable change, but Roping dholls were in considerable demand and sold at an advance of quite

10s. Ceylons.—Bales little enquiry and mostly withdrawn. Ballots in good request at irregular prices tendency being in sellers favour.

FIBRE.—48 bales sold, 265 bales offered, only part sold without change; 35 bales sold, 85 bales offered, partly sold, no change; 27 tons ballots sold, 66 tons ballots offered. London advanced 10s. Liverpool flat, neglected and withdrawn.

COIR ROPE.—None offered.

YARN.—Fine to extra fine £21 10s to £26 per ton; Good £17 10s to £20 do.; Medium £13 to £17 5s do.; Common £7 15s to £12 15s do.; Roping £13 10s to £13 15s do.

FIBRE.—Good to fine £18 15s to £20 per ton; Ceylon mattress ballots £5 12s 6d to £6 10s do.

ROPE.—Bales £7 5s.

COCHIN YARN.—Bales in green OB Anjingo SSSSS, £23 15s; ditto SSSS, £21; ditto SSS, £17 10s; ditto SS, £16 15s; ACM in estate mark B, £12; ditto C, £12; NG in estate mark MB, £17 5s; ditto MC, £16 5s; RG in estate mark, AAAAA Alapat, £25 15s; ditto 1 AAAAA, £26. Dholls FX XF, £18 10s; ditto F, £17 15s; PK, £13 15s.

COCHIN FIBRE.—P in estate mark F, £20.

CEYLON YARN.—Bales C & S in estate mark S U P, £24; ditto FINE, £23; ditto 4, £22 15s; ditto M5, £19 5s; B in estate mark C, £23 15s; ditto WC, £23 15s. Ballots D Black, £21; H ditto, £18; O ditto, £15 15s; 3 ditto, £18; 4 ditto, £16 10s.

COILS.—C & S in estate mark 5352, £16 5s.

OBSERVER PRINTING WORKS.

No. 18. COLOMBO, MAY 13th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[19,181 lb.]

	Pkgs.	Name	lb.	c.
Battalgalla	16 ch	bro pek	1600	38 bid
	18 do	or pek	1530	37 bid
	17 do	pek	1360	36
Hornsey	18 hf ch	bro pek	1180	48
	12 ch	or pek	1080	41
	13 do	pek	1170	38 bid
Bunyan and Ovoca	59 hf ch	or pek	29 6	42
	26 ch	pek	2466	37
	22 do	pek sou	1996	34 bid
Mapitigama	13 ch	*young hyson*	13(0	out
	15 do	*hyson No 1*	1425	out

Messrs. Forbes & Walker.

[549,497 lb.]

	Pkgs.	Name.	lb.	c.
Fatteresso	16 hf ch	dust	1360	30
O B E C, in est mark				
Darrawella	48 hf ch	bro or pek	2688	50
	23 ch	bro pek	2300	39
	14 do	or pek	1288	42
	40 do	pek	3800	38
	28 do	pek sou	2240	34
Drayton	20 ch	or pek	1900	45
	32 do	pek	2720	40
	14 do	pek sou	1260	36
Ingrogalla	14 ch	bro pek	1400	38
	12 do	pek	1080	36
Devonford, Invoice No 3	17 hf ch	bro or pek	1037	48 bid
	11 ch	or pek	1001	43 bid
Munukettia, in est mark	12 ch	dust	10 0	34
Maha Eliya	20 hf ch	bro or pek	1240	63
	28 do	bro pek	1680	47 bid
	29 ch	pek	2610	46
Kandaloya	60 hf ch	*young hyson*	2700	35 bid
	78 do	*hyson*	3120	34 bid
	31 do	*hyson No 2*	1550	38
Lebanon Group	22 ch	bro pek	2200	37
	33 do	pek	2805	35
	20 do	pek sou	1700	33
Matale	43 hf ch	bro pek	2580	38
	18 ch	pek	1620	35
	12 do	pek sou	1020	33
Glendon	14 ch	bro pek	1400	45
	44 do	or pek	4400	37
	45 do	pek	4050	35
	19 do	pek sou	1805	33
	8 do	dust	1240	29
Carlabeck	27 ch	pek	2592	39
	17 do	pek sou	17(0	36
	16 do	bro pe fans	2144	34
Welkandala	20 hf ch	fans	1400	33
Lochiel	19 hf ch	dust	1672	35
Penrhos	27 hf ch	bro or pek	1512	45
	22 do	or pek	1100	40
	23 ch	pek No 1	1840	35
	20 do	pek No 2	1600	34
Bowlana	38 hf ch	bro or pek	2280	40
	26 ch	pek	2470	36
	16 do	or pek	1600	39
	14 do	pek sou	1190	34
Mahawale, Invoice No 7	22 ch	bro pek	2200	37 bid
	19 do	or pek	1805	37 bid
	38 do	pek	3420	34 bid
	13 do	pek sou	1170	33
Rickarton, Invoice No 20	19 ch	bro or pek	2090	42
	20 do	or pek	2300	42
	15 do	bro pek	1650	38
	12 do	pek	1332	38
Stockholm	42 ch	bro pek	4200	39 bid
	22 do	pek	1870	38
Baddegama	19 ch	bro or pek	1900	38
	18 do	or pek	1620	39
	12 do	pek	1020	35
Reghill	29 ch	bro pek	2610	44 bid
	21 do	pek	168(	38 bid
Kitulgalla, No 7 Invoice	10 ch	bro or pek	1060	37
	11 do	or pek	1034	38
	12 do	pek	1056	35
Tymawr, Inv No 6	19 hf ch	or pek	1045	49
	18 do	bro or pek	1030	63
	33 ch	pek	1815	46
Ganapatiya, Invoice No 6	47 hf ch	or pek	2491	41 bid
	55 do	bro or pek	3410	41 bid
	59 do	pek	3186	40
Yelatenne, Invoice No 3	20 ch	bro pek	2200	40
	12 do	pek	1200	35
North Cove	20 hf ch	bro or pek	1160	66
	57 ch	bro pek	34:0	45
	19 do	pek	1805	44
Delta, Inv. No 8	25 hf ch	bro or pek	1550	45
	43 ch	bro pek	4515	38
	30 do	pek	2700	39
	17 do	pek sou	1493	35
Sunnycroft	37 ch	*young hyson*	3515	34
	26 do	*hyson*	2340	33
	17 do	*hyson No 2*	1530	32
Passara Group	32 ch	bro or pek	3200	39
	61 do	pek	6200	37
	16 do	pek sou	160)	34
Mousa Eliya	12 ch	bro or pek	1190	41
	19 do	bro pek	1900	38
	15 do	pek	14:5	35
Poonagalla	22 ch	or pek	2178	39
	116 hf ch	bro pek	73(8	45
	40 ch	pek	3920	35
Marlborough	37 hf ch	bro or pek	19.8	47
	19 ch	bro pek	1900	39
	32 do	pek	31.6	35
Laurawatte	25 ch	bro pek	2500	39
	16 do	pek	1504	34
	18 hf ch	fans	1530	31
F W	29 ch	pek	2465	35
Hatton	31 ch	bro pek	3410	46 b
	30 do	pek	2700	40
I K V	10 ch	dust	1300	32
	10 do	bro pe fans	1150	34
N'Pitiya	16 hf ch	pek fans	1040	out
	16 do	dust	1360	out
Bellongalla	10 hf ch	or pek	1005	38
	21 ch	pek	1680	32
	19 do	bro pek	19(0	36
	11 do	bro or pek fan	1210	33
Agra	26 ch	bro pek	2340	35 bid
Torwood	26 ch	bro or pek	2600	38
	22 do	or pek	1980	33
	18 do	pek	1440	32 bid
	18 do	pek sou	1440	32
Palmerston	18 hf ch	bro or pek	1044	76 bid
	17 do	bro pek	1020	60
	12 ch	pek	1020	55
Bickley	23 hf ch	bro or pek	1265	43 bid
	27 do	or pek	1890	39
	27 do	pek	1701	37
Dunkeld	52 hf ch	bro or pek	2964	42 bid
	37 do	bro or pek	2220	40 bid
	15 ch	or pek	1350	39
	23 do	pek	2070	36
Gampaha	47 hf ch	bro or pek	2914	
	20 ch	bro pek	1900	41
	13 do	or pek	1248	43
	40 do	pek	3400	37
	12 do	pek sou	1080	34
Battawatte	25 hf ch	bro or pek	1625	37
	48 ch	bro pek	4800	40
	28 do	pek	2800	37
	12 do	pek sou	1080	34
Vegan	41 ch	or pek	3690	37
	51 do	pek	4590	34
	13 do	pek No 2	1170	33
Bramley	20 hf ch	bro pek No 1	1120	46
	76 do	pek	3800	39
Preston	20 hf ch	bro or pek	1120	48
Ugieside	12 ch	pek fans	1140	32
Rosebury	16 hf ch	or pek	1040	34
Tunisgalla	36 hf ch	bro pek	2160	38
	50 do	or pek	2750	37
	23 ch	pek	2070	36
Walpita	37 ch	bro pek	3700	38
	34 do	or pek	3060	33 bid
	19 do	pek	1710	33
	20 do	pek sou	1600	32
Moray	23 hf ch	or pek	1035	44
	31 do	bro or pek	1705	48
	22 ch	bro pek	2310	39
	41 do	pek	3690	37
	13 hf ch	pek dust	1040	34
Nillomally	69 ch	pek	6072	37
	15 do	or pek	1230	41
	16 do	bro pek	1600	39

	Pkgs.		Name.	lb.	c.
Rogahagodawatte	12	ch	bro pek	1200	37
	13	do	pek	1300	33
Kincora	32	ch	bro or pek	3200	44 bid
	17	do	pek	1530	36
Cloyne	18	ch	bro or pek	1890	36 bid
	27	do	or pek	2700	35 bid
	39	do	pek	3510	33 bid
Norton	13	ch	pek	1196	37
	18	do	bro pek fans	1296	36
Deaculla	19	hf ch	bro or pek	1140	49
	53	ch	pek	3710	35
Cyd	54	*hf ch*	*young hyson*	2700	34 bid
	47	*do*	*hyson*	2256	33 bid
Kor	24	*hf ch*	*young hyson*	1512	33 bid
	47	*do*	*hyson*	2183	34 bid
Digdola	13	ch	bro pek	1 35	37
	20	do	pek	1700	33
Poonagalla	19	ch	pek	1862	37
	60	hf ch	bro pek	3720	45
Pungetty	19	ch	bro or pek	2276	46 bid
	20	do	pek sou	1656	36
Ridgmount	15	ch	fans	1200	31
Passara Group	31	ch	bro or pek	3100	39 bid
	69	do	pek	6900	36 bid
	19	do	pek sou	1900	34
Ayr	29	*ch*	*young hyson*	3190	34 bid
	18	*do*	*hyson*	1800	34
Poonagalla	63	hf ch	bro pek	3906	45
	19	ch	pek	1862	37
	15	hf ch	fans	1320	34
St He'en	22	hf ch	fans	1430	34
Bandara Eliya	30	hf ch	or pek	1500	43
	41	do	bro or pek	2542	38
	77	do	pek	3850	38
	22	do	or pek	1012	48
	23	do	br or pk No 1	1196	40 bid
	51	do	br or pk No 2	3060	38
	63	do	pek	3160	37
St Vigeans	18	hf ch	bro or pek	1152	41 bid
	13	ch	or pek	1105	39
	19	do	pek	1824	36
Bandarapola	57	hf ch	br or pk No 1	3481	36
	39	do	br or pek No 2	2145	35
	28	do	bro pek	1456	34
	23	do	pek	1150	33
Inverness	20	ch	bro or pek	2000	48 bid
	15	do	bro or pek	1500	48 bid
	32	do	or pek	2880	50 bid
	25	do	pek	2125	46
	13	do	pek sou	1235	43
Maha Uva	60	hf ch	bro or pek	3600	38
	29	ch	or pek	2900	39 bid
	66	do	pek	5940	37
	26	do	pek sou	2210	34
	27	hf ch	dust	2295	31
High Forest	65	hf ch	or pek No 1	3380	46 bid
	45	do	bro pek	2700	44
	35	do	or pek	1820	42
	31	do	pek	1488	39
Kirklees	72	hf ch	bro or pek	4320	40
	15	ch	or pek	1500	39 bid
	33	do	pek	3135	35 bid
Dammeria	18	hf ch	bro or pek	1260	37
	41	ch	bro pek	4100	33 bid
	49	do	or pek	4410	34 bid
	46	do	pek	4140	34
	35	do	pek sou	3150	32 bid
Dumblane	29	ch	bro or pek	1595	51
	15	do	bro pek	1500	40 bid
	12	do	pek	1140	37 bid
Ardlaw, Wishford	18	ch	bro or pek	2070	49 bid
	20	do	bro pek No 1	2240	46
	11	do	bro pek No 2	1100	43
	15	do	or pek	1380	43
	24	do	pek	2016	37

Messrs. Keell and Waldock.

[46,739 lb.]

	Pkgs.		Name.	lb.	c.
Oodoowera	24	ch	bro pek	2400	37
	22	do	pek	2090	36
Paniyakande	10	ch	bro pek	1000	38
	12	do	pek	1080	36
Panilkande	22	ch	bro pek No. 2	2220	39½ bid
	33	do	or pek	2970	38
	16	do	pek sou	1440	36
Woodend	24	ch	bro pek	2400	37
	26	do	pek	2340	34
Dunnottar	23	hf ch	bro pek	1610	38
Bargany	25	hf ch	bro or pek	1500	41
	13	ch	pekoe	1105	35
D in est mark	18	ch	dust	1781	out

	Pkgs.		Name.	lb.	c.
Gampai	42	hf ch	or pek	1974	35
	60	do	bro or pek	3240	38
	39	ch	pek	3042	
	38	do	pek sou	2888	33

Messrs. E. John & Co.

[186,037 lb.]

	Pkgs.		Name.	lb.	c.
Castle Hill	11	ch	or pek	1100	36
Kandahar	30	hf ch	pek	1650	37
Osborne	19	ch	or pek	1615	37 bid
	15	do	pek	1275	37
Ohiya	28	hf ch	bro or pek	1540	40 bid
	88	do	bro pek	4840	38 bid
	37	ch	or pek	3441	36 bid
	36	do	pek	2952	36
	18	hf ch	dust	1350	29
Balado	12	ch	pek	1080	31
	17	do	pek sou	1360	33
S J	21	hf ch	bro pek	1260	35
	13	ch	pek	1222	36
Glentilt	45	hf ch	bro or pek	2475	53
	21	do	or pek	1932	40
	22	do	pek	1980	37
St. John's	30	hf ch	bro or pek	1740	45
	18	ch	or pek	1620	49
	32	do	pek	3008	40
	14	do	pek sou	1148	38
	16	hf ch	pek fans	1088	35
Tismoda	22	hf ch	bro or pek	1100	40
	28	do	bro pek	1400	38
	16	ch	pek	1360	34
Poilakande	16	ch	bro or pek	1440	35
	30	do	bro pek	2700	33
	24	do	pek	1920	33
Oonoogaloya	15	ch	or pek	1350	39
	21	do	bro or pek	2100	43
	20	do	pek	1800	37
Comar	20	*hf ch*	*young hyson*	1080	33 bid
Mariana	13	ch	bro or pek	1300	35
M L K	12	ch	bro pek	1128	31
Agra Ouvah	38	hf ch	bro or pek	2280	49
	27	do	or pek	1458	43
	22	do	bro or pek fans	1650	35
Ella	42	*ch*	*young hyson*	4200	33
	32	*do*	*hyson*	2560	34
M V N	12	ch	pek	1071	32 bid
Captains Garden	22	ch	pek	1980	31 bid
K'Oya	12	ch	pek sou	1071	33
Lameliere	38	hf ch	bro or pek	2280	43
	50	do	bro or pek	2092	43
	15	ch	or pek	1380	41
	23	do	pek	2070	38
Mt. Vernon	33	ch	pek	2970	38
	15	do	pek sou	1320	37
Galpotte	66	hf ch	unas	2970	12 bid
Mt. Vernon	25	ch	pek	2246	39 bid
	12	hf ch	dust	1008	34
M J	14	ch	bro pek dust	1186	22
W D	31	hf ch	dust	2724	27
Bowella	20	hf ch	bro pek	1000	36
Galloola	28	ch	bro pek	2800	45
	42	do	pek	3780	36
	32	do	pek sou	2880	35
Callander	35	hf ch	bro or pek	1855	48
	62	do	bro pek	3720	40
	28	do	or pek	1344	41
	21	do	pek	1134	38
Dotala	12	ch	pek	1136	35
Brownlow	28	hf ch	bro or pek	1568	55
	19	ch	or pek	1805	41
	16	do	pek	1472	38
Higham	21	ch	bro pek	2100	37 bid
Ettricle	18	ch	bro pek	1818	39
	27	do	pek	2484	35
	18	do	pek sou	1440	33
Ohiya	25	hf ch	bro pek	1300	38 bid
	38	ch	pek	3116	36
Birnam	18	ch	pek sou	1260	41
	27	do	fans	1890	35
Myraganga	30	ch	or pek	2700	38
	18	do	bro or pek No 1	1800	39 bid
	50	do	bro or pek No 2	5000	37 bid
	22	do	pek	1870	35
	15	do	pek sou	1125	33
	7	do	dust	1190	34
	9	do	pek fans	1305	35
Lameliere	38	hf ch	bro or pek	2280	45
	15	ch	or pek	1380	4
	23	do	pek	2070	

Messrs. Somerville & Co.

[254,715 lb.]

	Pkgs.	Name.	lb.	c.
Ossington	12 ch	bro pek	1200	36
	13 do	pek	1170	32 bid
Hatdowa	14 ch	pek sou	1260	32
Nellicollaywatte	34 hf ch	bro pek	1972	39
	21 do	bro or pek	1260	45
	17 ch	pek	1598	35
Heatherleigh	12 ch	bro or pek	1260	38
	31 ch	bro pek	3100	37
	24 do	pek	2040	34
	13 do	pek sou	1040	33
	33 hf ch	bro or pek	1716	42
	23 do	or pek	1127	43
	25 do	pek	1300	38
	31 do	pek sou	1550	37
Allacollawewa	24 hf ch	bro or pek	1248	41
	21 do	or pek	1029	43
	20 do	pek	1000	38
	24 do	pek sou	1248	37
Kinross	20 ch	bro or pek	2200	39 bid
	49 do	or pek	4900	34 bid
	26 do	pekoe	2496	34
Waganila	14 ch	bro pek	1400	42
	18 do	pek	1800	36
Kallebokka	20 ch	bro or pek	2000	44 bid
	24 do	bro pek	2400	38
	13 do	or pek	1300	40 bid
	17 ch	pek	1700	36 bid
Mount Temple	13 ch	bro pek	1300	37
	19 do	pek	1520	34
	19 do	bro or pek	1805	33
Ravenscraig	27 hf ch	bro or pek	1536	46
	14 ch	or pek	1260	38
	12 do	pekoe	1080	34
Karangalla	13 ch	bro pek	1365	38
	14 do	pek	1190	33 bid
Cooroondoowatte	16 ch	bro pek	1600	39
	23 do	pek	2300	34 bid
Nyanza	14 ch	or pek	1120	37
	20 hf ch	bro or pek	1100	45
	11 ch	pek	1015	36
Mahatenne	12 ch	bro or pek	1200	40
	13 do	pek	1235	33 bid
Deniyaya	26 ch	bro pek	2600	39
	21 do	pek	1995	37
	14 do	pek sou	1260	34
Kurulugalla	33 ch	bro pek	3300	37
	40 do	pek	4000	33
	11 do	pek sou	1100	32
Dikmukalana	50 hf ch	bro pek	2750	36
Elchico	20 ch	bro or pek	2000	39 bid
	16 do	or pek	1440	35
	12 do	pek	1140	34
	12 do	pek sou	1080	32
Highfields	24 hf ch	bro or pek	1392	41
	31 do	bro pek	1550	38
	59 do	pek	2832	37
Galpbele	13 ch	or pek	1170	41
	23 do	pek	2070	38
Walla Valley	27 hf ch	bro or pek	1485	48
	16 ch	or pek	1520	45
	21 do	pek	1995	39
Oonangalla	13 ch	or pek	1170	36 bid
	22 ch	bro or pek	2200	37 bid
	23 do	pek No 1	2070	35 bid
	13 do	bro or pek	1300	48 bid
	17 do	pek	1445	34 bid
	19 do	pek sou	1710	34
Hanagama	24 ch	or pek	2400	34
	26 do	pek	2600	32
St. Andrews K	22 hf ch	bro pek	1320	37
Columbia	28 hf ch	bro or pek	1680	42
	19 ch	or pek	1805	38 bid
	21 do	pek	1890	37 bid
Yarrow	21 hf ch	bro pek	1134	42
	35 do	pek	1680	34
Dubena	11 ch	pek	1100	30 bid
Theberton	11 ch	bro pek	1100	38
	14 do	or pek	1190	36
Monrovia	26 ch	bro pek	2600	36
	13 do	pek	1235	32 bid
Damblagalla	18 hf ch	bro pek	1080	38
	20 ch	pekoe	1700	34 bid
	16 do	pek sou	1200	32 bid
Laxapanagalla	14 ch	bro or pek	1397	38
Hobart	18 ch	br or pek	1800	36
	16 ch	pek	1280	32 bid
Owillkande	20 ch	bro or pek	2000	37
	12 do	or pek	1080	35
	20 do	pek	1800	33
Vilgoda	16 ch	bro pek	1520	34
Kapuduwa	14 ch	br pek	1400	29 bid
Warakamure	33 ch	bro or pek	3300	36
	23 do	or pek	1840	34
	19 do	pek	1615	32

	Pkgs.	Name.	lb.	c.
Annandale	15 ch	bro or pek	1260	61
	18 do	or pek	1404	46
	23 do	pek	1840	45
Welgampola	15 ch	bro or pek	1650	34
Oonankande	37 hf ch	pekoe	2035	33
Forest Hill	14 ch	pek	1190	32 bid
	13 do	pek sou	1066	32
Baldo	12 ch	pek sou	1020	32 bid
Vahalatenne	24 ch	br pek	2400	39
	17 do	pek	1534	27
Rambodde	25 hf ch	br pek	1500	39
	36 do	pek	1800	36
Citrus	28 ch	bro pek	2800	38
	22 do	pek	2088	34
Highfields	60 hf ch	bro pek	3352	33 bid
Deniyaya	27 ch	bro pek	2700	38 bid
	16 do	pek	1520	36
	12 do	pek sou	1080	33
Ellerslie	44 hf ch	bro or pek	2412	39 bid
	16 ch	or pek	1432	38 bid
California	11 do	pek	1100	33
Nyanza	17 do	or pek	1444	37
Hapugasmulle	12 ch	unast	1104	33
Avisawella	30 hf ch	bro or pek	1500	46
	20 ch	or pek	1900	36
	24 do	pek	2160	33
	16 do	pek sou	1280	32
Ferriby	21 hf ch	bro or pek	1155	40 bid
	22 ch	or pek	2200	36
	22 do	pek	2090	35
	16 do	pek sou	1440	33

SMALL LOTS.

Messr. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
B in estate mark	1 ch	bro pek	70	34
	3 hf ch	pek	117	31
	1 do	dust	95	22
	1 do	green tea	62	14
	1 do	green tea dust	29	10
Mapitigama	5 ch	*hyson No 2*	500	out
	3 do	*dust*	375	9 bid

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
	9 ch	*young hyson*	513	out
	9 do	*hyson*	495	32
	2 do	*hyson No 2*	110	32
	1 do	*fans*	55	18
	1 do	*dust*	70	12
Devonford, Invoice No 3	5 ch	pe sou	450	38 bid
E D P	9 ch	sou	765	29
Kandaloya	4 hf ch	fans	200	17
	12 do	dust	600	14
T B	1 hf ch	or pek	60	35
	2 do	pek	100	31
	7 do	dust	525	28
	3 do	fans	180	29
Matale	3 hf ch	dust	240	25
Glendon	4 ch	bro pek fans	472	32
	2 do	bro tea	230	withdn
	2 do	sweeping	234	withdn
Kelvin	4 ch	pek sou	380	31
	2 hf ch	dust	140	33
	2 do	fans	130	34
	2 ch	bro mix	190	38
Welkandala	4 hf ch	dust	340	25
Lochiel	9 ch	pek sou	837	36
Remhos	3 hf ch	pek sou	138	31
	5 do	fans	375	32
	1 do	pek dust	96	26
Mahawale Invoice No 7	4 ch	bro mix	460	32
	6 hf ch	fans	360	34
	4 do	dust	340	29
(Venesta Pkgs) H	3 ch	bro pek	231	35
	5 do	pek	378	32
Ricarton, Invoice No 20, Venesta pkgs.	5 ch	fans	750	34
Stockholm	8 do	pek sou	720	34 bid
	6 hf ch	dust	375	34
	4 ch	fans	400	25
Baddegama	6 ch	pek sou	480	33
	2 do	fans	240	33
Kitulgalla, Invoice No 7	2 hf ch	dust	170	30
	3 do	bro or pe fans	150	31
Gonapatiya, Invoice No 6	15 hf ch	pek sou	750	37

	Pkgs.	Name.	lb.	c.
Yelatenne, Invoice No 3	5 ch	pek sou	480	33
	2 hf ch	bro or pek fans	140	34
	1 do	dust	90	32
Sunnycroft	6 ch	*gunpowder*	540	30
	7 do	*siftings*	840	17
Mousa Eliya	1 ch	pek sou	100	32
	2 do	dust	209	30
Hope	1 ch	pek	109	34
	1 do	pek sou	109	31
Asgeria	2 ch	bro tea	210	31
	1 do	dust	165	29
Wevekelle	6 ch	bro tea	600	31
	6 hf ch	dust	510	30
Laurawatte	9 ch	pek sou	864	32
	5 hf ch	fans	426	31
Hatton	3 ch	pek sou	255	35
	2 do	dust	290	31
I K V	4 ch	sou	400	31
C T in estate mark	1 hf ch	*hyson*	52	out
	1 do	*siftings*	32	12
Hologama	1 hf ch	or pek	56	36
	2 do	bro or pek	122	35
	3 do	pek	148	32
	1 ch			
	1 hf ch	pek sou	115	30
	2 do	dust	183	25
Agra	4 hf ch	bro or pek	192	37
Kandeney	1 ch	bro or pek	99	31
Berragalla	2 do	desicator sweeping	192	31
Kabragalla	19 hf ch	dust	595	31
Halpey	1 ch	bro or pek	90	33
Letchemey	7 hf ch	bro or pek	392	42
	9 ch	bro pek	838	38
	8 hf ch	or pek	400	38
	10 ch	pek	880	36
	4 hf ch	pek sou	294	32
	1 do	sou	50	31
	2 do	pek fans	130	34
	1 do	dust	92	31
Battawatte	4 hf ch	dust	320	29
Hendeniya	1 ch	bro or pek	95	34
Vogan	6 ch	pek sou	540	31
	4 do	pek fans	600	31
	8 hf ch	dust	640	20
Queensland	7 ch	pek sou	557	34 bid
C B L	3 do	bro or pek	285	35
	4 do	pek	340	33
	4 do	sou	320	31
	4 do	pek fans	400	30
Ugieside	8 ch	bro mixed	680	28
Rosebury	2 ch	fans	140	25 bid
	1 hf ch	dust	85	27
Tunisgalla	13 hf ch	bro or pek	780	48
	8 ch	pek sou	680	32
	5 hf ch	dust	475	30
W in est mark	6 ch	sou	480	29
	1 do	pek	90	31
	2 do	dust	300	27
	1 do	fans	110	30
Trewardena	9 ch	bro or pek	900	36
	8 do	or pek	800	33
	8 do	pek	800	31
	6 do	pek sou	600	30
	1 do	sou	100	29
	2 do	fans	200	29
	1 do	dust	120	26
Bogahagodawatte	6 ch	pek sou	600	31
	1 do	fans	125	28
Cloyne	2 ch	fans	260	out
	1 do	dust	140	27
Norton	6 hf ch	dust	510	25
Deaculla	19 hf ch	or pek	912	46
	4 do	dust	330	29
	1 do	red leaf	60	29
Cyd	14 *hf ch*	*hyson No 1*	658	34
	9 do	*siftings*	585	19 bid
Kor	1 *hf ch*	*hyson No 2*	56	33 bid
	6 *do*	*gun powder*	384	37 bid
	6 *do*	*siftings*	450	19 bid
Digdola	10 hf ch	bro or pek	500	38
	3 do	fans	195	30
	4 do	dust	340	29
Middleton	8 ch	pek	679	38
Wilpita	9 ch	bro or pek	945	35
	7 do	or pek	665	31
	4 do	pek	400	29
	2 do	bro or pek fans	230	27
	1 do	bro mixed	100	24
Ridgmount	6 ch	dust	540	25
Ayr	4 *ch*	*hyson No 2*	460	36 bid
	8 *hf ch*	*siftings*	560	18
D M	1 ch	or pek	90	44
	2 hf ch	pek	88	33 bid
	1 do	dust	66	31
St Helen	7 hf ch	dust	595	30
St Vigeans	1 hf ch	bro mixed	75	28

	Pkgs.	Name.	lb.	c.
B W	11 ch	pek sou	855	
	4 hf ch	red leaf	180	
	5 do	dust	350	
Maha Uva	4 hf ch	pek fans	285	
Dammeria	8 hf ch	bro pe fans	640	
	3 do	dust	298	out
Troy	7 ch	siftings	784	18
	3 do	dust	258	12
Dumblane	4 ch	pek sou	360	34
N	1 ch	green tea sifting	147	12
B B in est mark	2 ch	bro pek	200	29
	4 do	pek	360	29
Ardlaw Wishford	3 ch	fans	405	35
	1 do	dust	150	34
S W	3 ch	bro pek	315	33
	2 do	pek	174	30

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Kobila	1 ch	bro pek	115	33
	1 do	pek	115	32
	1 hf ch	dust	83	out
D	8 ch	bro pek	800	34 bid
	6 do	pek	570	31
	7 do	pek sonchong	630	30
Oodoowera	2 ch	dust	224	28
Taniyakaude	5 ch	pek sou	450	32 bid
Panilkande	10 hf ch	flo. or pek	500	65
Kotuagoda	2 *hf ch*	*young hyson*	100	out
	2 *do*	*hyson No 1*	100	out
	2 *do*	*hyson*	100	out
Assaddumawatte	8 hf ch	bro or pek	900	36
	5 ch			
	1 hf ch	pek	500	32
	3 ch	dust	255	out
A W A	2 ch	bro pek	200	out
	2 ch			
	1 hf ch	pek	230	out
	1 ch	dust	92	out
Woodend	8 ch	bro or pek	880	38 bid
	11 ch	pek souchong	880	33
	2 ch	dust	260	28
Dunnottar	7 ch	pek souchong	595	36
Bargany	9 hf ch	bro pek	540	37
	6 ch	pek sou	510	33
	2 hf ch	dust	160	28
Gampai	5 ch	dust	500	31
Nawauagalla	14 hf ch	bro pek	700	38
	5 ch	pek	400	33
	2 do	pek sou	180	31
	2 hf ch	dust	160	30

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
G A	6 ch	bro mix	510	27
S W	1 ch			
	1 hf ch	bro pek	170	30
	1 ch	bro pek	172	28
	1 hf ch	dust	79	24
Ossington	5 ch	pek sou	400	31
Hatdowa	8 ch	bro pek	800	36
	3 do	pek	285	33
	2 hf ch	dust	150	29
Nellicollaywatte	9 ch	pek sou	756	33
	2 hf ch	dust	160	31
	5 do	br or pk fans	360	33
Heatherleigh	6 ch	bro pek fans	660	32
	3 do	pek dust	480	30
Kinross	1 ch	pek son	96	31
	1 do	bro tea	130	31
	1 do	dust	160	28
Wagnila	3 ch	pek sou	258	34
	3 do	dust	270	31
Kallebokka	2 ch	pek sou	220	33
	1 do	fans	125	33
Mount Temple	13 ch	pek sou	975	32
N S C	1 ch	bro mixed	92	withd'n
	3 hf ch	fans	128	33
	8 do	dust	240	29
Karangalla	5 ch	pek sou	475	31
	2 do	dust	160	28
Cooroondoowatte	4 ch	pek sou	400	31
Nyanza	1 ch	pek sou	95	32
	3 hf ch	fans	210	35
	1 do	dust	90	28
H J S	6 hf ch	pek	360	33
	8 do	pek sou	480	32
Deniyaya	5 ch	souchong	450	32
	5 do	dust	475	30
	3 do	pek fans	300	32
Kurulugalla	3 ch	bro pek fans	300	30
	2 do	pek du t	300	29
G A in est mark	5 ch	red leaf	475	20

	Pkgs.	Name.	lb.	c.
Charlie Hill	9 hf ch	bro pek	405	36
	15 do	or pek	750	35
	9 do	pek	450	32
	2 do	pek sou	100	30
Bukanda	2 ch	bro or pekoe	200	42
	2 do	bro or pek No 2	174	37
	3 do	or pek	285	36
	7 do	pek	595	34
	3 do	pek sou	225	32
	1 hf ch	dust	75	28 bid
Farnham	3 *sacks*	*twanky*	132	9
Galphele	8 ch	bro or pek	800	47
	6 do	br pek No 1	600	35
	5 do	br pek No. 2	500	35
Ravenoya	5 ch	pek sou	500	33
	1 do	souchong	90	21
	2 do	fans	300	30
St Andrews K	16 hf ch	pek	800	33
	3 do	pek sou	150	31
Columbia	5 hf ch	pek fans	400	32
Yarrow	19 hf ch	or pek	893	36
	6 do	fans	402	34
	2 do	dust	180	31
Theberton	1 ch	pek sou	80	36
	2 do	fans	200	33
	1 do	dust	100	28
Atherton	1 ch	bro tea	62	24
	10 hf ch	dust	800	28
Monrovia	5 ch	pek sou	425	31
	3 do	bro pek fans	300	30
	3 do	pek fans	270	30 bid
G B	16 hf ch	dust	800	31
Gampolawatte	4 ch	bro or pek	400	40
	2 do	bro pek	200	35
	7 hf ch	or pek	350	38
	11 ch	pekoe	990	35
	5 do	pek sou	450	32
	1 hf ch	dust	85	28
	1 ch	fans	110	30
Owilikande	5 ch	pek sou	450	31
	3 hf ch	dust	240	28
Vilgoda	5 ch	pek	450	29
	2 do	pek sou	180	27
Kapudnwa	10 ch	pek	880	31
Warakamure	9 ch	pek sou	720	30
	1 hf ch	dust	95	26
Welgampola	7 ch	pek	770	33
	4 do	pek sou	440	31
	2 do	congou	220	28
	2 do	dust	252	27
Yeletenne	4 ch	pek sou	400	31
Rambodde	16 hf ch	bro or pek	800	46
	14 do	pek sou	630	33
	4 do	dust	320	30
P G	1 ch	fans	100	30 id
Mahageda	6 ch	bro pek	650	29
D B G	3 ch	fans	300	30
Citrus	11 ch	pek sou	990	32
	3 do	fans	346	30
	1 do	pek dust	180	24
	3 do	bro tea	186	17
M, in est mark	1 hf ch	unasst	48	29
Deniyaya	5 ch	souchong	450	31
	2 do	dust	190	30
	4 do	pek fans	400	31
California	7 ch	bro pek	700	36
	6 do	pek sou	600	28
Hapugasmulle	4 ch	bro pek	400	38
	9 do	pek	837	34
	5 do	pek sou	375	31
Avisawella	6 hf ch	dust	480	32
Ferriby	11 hf ch	fans	715	33
Donside	6 ch	souchong	540	29 bid
	3 hf ch	dust	255	30
	3 do	fans	165	30

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
P P P	5 ch	bro pek	550	35
	4 do	pek	360	33
	2 do	pek sou	170	31
	1 do	fans	100	29
	4 do	red leaf	210	20
Katukurundugoda	6 ch	or pek	600	35
	6 do	bro pek	564	31
	3 do	pek	282	29
	1 do	pek dust	150	27
Castle Hill	8 ch	bro pek	800	38
	11 do	pek	990	34
	7 do	pek sou	630	32
	7 do	dust	700	32
Gonavy	14 ch	pek sou	952	32
	10 hf ch	fans	620	34
	5 do	dust	425	32
Ohiya	6 ch	pek sou	492	34

	Pkgs.	Name.	lb.	c.
Chapelton	5 do	bro pek	550	36
	6 do	pek	570	34
P K T	5 ch	pek sou	400	31
	7 hf ch	dust	560	29
Oonoogaloya	9 hf ch	dust	765	27
Comar	10 *ch*	*hyson*	930	34
	6 *do*			
	1 *hf ch*	*hyson No* 2	606	33
	6 *ch*	*siftings*	600	15
Mariana	9 ch	pek sou	900	30
	6 do	pek	600	32
	2 do	dust	200	26
Horagalla	7 ch	bro pek	742	35
	7 do	pek	700	32
	1 do	bro pek dust	135	26
M L K	5 ch	fans	610	28
A T	4 hf ch	dust	372	17
	5 do	fluff	385	23
Agra Ouvah	9 ch	pek	823	40
	8 do	pek sou	720	37
	8 do	pek fans	720	35
Eila	4 *ch*	*hyson No* 2	320	32
	3 *do*	*green fans*	300	17
	3 *do*	*green dust*	300	13
Captains Garden	8 ch	bro pek	800	34
	1 do	pek sou	90	26
Lameliere	5 hf ch	bro pek fans	350	35
Mt. Vernon	5 hf ch	fans	350	35
Bowella	2 ch			
	1 hf ch	pek	215	32
	2 do	dust	150	23
Galloola	4 ch	dust	400	30
	3 do	fans	300	33
Alawewa	6 ch	bro pek	552	35
	2 do	pek	192	30
	1 do	red leaf	85	16
	4 do	bro tea	395	17
Brownlow	8 hf ch	bro pek fans	600	36
Higham	6 hf ch	bro or pek	360	39
	7 ch	pek	665	33
	5 do	pek sou	475	32
	1 hf ch	dust	75	29
	1 do	sou	55	30
	2 do	bro pek fans	140	32
W, in estate mark	4 hf ch	dust	336	33
Ettricle	5 hf ch	dust	370	30
S, in estate mark	1 ch	bro or pek	105	38
Myraganga	3 ch	bro mix	270	23
Assadumawatte	8 ch			withd'n
	1 hf ch	bro pek	900	withd'n
	5 ch			withd'n
	1 hf ch	pek	500	withd'n
	3 ch	bro pek dust	255	withd'n
Awa	2 ch	bro pek	200	withd'n
	2 do			withd'n
	1 hf ch	pek	280	withd'n
	1 do	dust	97	withd'n
Lameliere	5 hf ch	bro pek fans	350	35

CEYLON COFFEE SALES IN LONDON.

Mincing Lane, April 17th.

EAST INDIA COFFEE CURED IN CEYLON.

"Telemachus."—Pilla Valley 1, 1 barrel out; ditto 2, 5 casks and 1 tierce out at 28s; ditto S, 5 casks out at 35s; 2 casks out; ditto PB, 1 cask out; PVT in estate mark, 1 bag out.

"Peleus."—Ditto PB, 1 cask out.

No public sales of Ceylon Coffee this week.

CEYLON COCOA SALES IN LONDON.

"Prometheus."—Marakona, 112 bags out; 19 sold at 40s 6d.

"Sanuki Maru."—Ankanda 1, 30 bags out; 3, 6 sold at 25s; B, 7 sold at 43s; Hunugalla 1, 13 bags out; 2, 1 sold at 41s.

"Yangtsze."—Marakona, 65 bags out at 65s; 19 out at 56s; ditto A, 51 out.

"Tamba Maru."—Batagolla A, 44 bags out; Warriapolla, 1 bag sold at 64s.

"Ulysses."—Meegama A, 96 bags out at 35s; B, 16 out at 50s; B 1, 2 out at 40s.

"Bavaria."—Meegama A, 80 bags out.

"Prometheus."—Walarambe 1, 20 bags out; T, 4 sold at 47s 6d.

"Clan Shaw."—Katugastota, 130 bags out at 72s.

"Hardwicke Hall."—Dynevor A, 17 bags out; B, 27 sold at 59s 6d; C, 39 out at 59s; D, 33 out; E, 3 sold

at 27s ; 2 A, 19 sold at 51s ; D, 8 sold at 46s.

"Prometheus."—1 Kahawatte, 20 bags sold at 75s ; 2, 2 sold at 47s 6d.

"Yeoman."—Bandarapola 1, 12 bags out at 51s ; T, 1 sold at 31s.

"Kawachi Maru."—Maragalla R, 7 bags out.

"Ormuz."—Old Haloya, 12 bags out ; OHO, 4 sold at 56s ; Kepitigalla, 20 bags sold at 70s ; 96 out ; 27 sold at 53s ; 9 sold at 49s ; 38 sold at 48s ; 1 sold at 42s.

"Yeoman."—North Matale Ceylon Cocoa F 1, 27 bags out at 75s ; 2 sold at 51s ; ditto F 2, 33 out ; 1 sold at 51s ; ditto F & C, 13 out.

"Jumna."—Warriapolla, 20 bags out ; Dickeria Ceylon Cocoa A, 29 bags out at 30s.

"Hardwicke Hall."—F OBEC in estate mark, Kondesalle Ceylon O, 51 bags sold at 67s ; F ditto 1, 8 sold at 56s ; G ditto, 5 sold at 40s.

"Clan Shaw."—Highwalton, 45 bags out ; ditto B, 5 sold at 53s ; ditto C, 1 sold at 51s.

"India."—Grove A, 125 bags out.

"Benledi."—1 M in estate mark, 135 bags out at 49s.

"Prometheus."—MM in estate mark, 105 bags out.

"Sanuki Maru."—KMA in estate mark, 40 bags out; DB in estate mark, 37 bags out.

"Telemachus."—1 MAK in estate mark, 149 bags sold at 50s.

"Clan McArthur."—1 MM in estate mark, 68 bags out at 50s ; 1 MAK in estate mark, 110 bags sold at 49s ; 1 sold at 41s.

"Yeoman."—Polwatta A, 22 bags out.

"Workman."—Ditto A, 20 bags out.

"Prometheus."—Sirigalla 1, 20 bags out ; ditto T, 8 out.

"Sanuki Maru."—1 M in estate mark, 196 bags sold at 51s.

"Clan Leslie."—H J I in estate mark, 65 bags out.

"Prometheus."—Greenwood BB, 21 bags out ; BA, 18 out at 64s ; BC, 13 sold at 56s; BD, 26 sold at 55s 6d ; GW A, 5 sold at 53s 6d ; B, 2 out at 55s ; Sunny C Side, 23 out at 63s ; ditto D1 ditto, 4 out at 55s 6d ; ditto D2 ditto, 5 sold at 51s ; A 1 Pilessa, 4 out at 60s ; A 2 ditto, 5 out ; A 3 ditto, 5 sold at 50s 6d ; D 1 ditto, 7 sold at 62s 6d ; D 2, 6 sold at 57s.

"Tamba Maru."—Benveula No. 1, 10 bags out.

"Yorkshire."—Benveula No. 1, 1 bag sold at 55s.

"Sanuki Maru."—Benveula No. 1, 64 bags out.

No public sales of Cardamom, Rubber, or Plumbago this week.

CEYLON PRODUCE FOR WEEK ENDING 24th April.

Ceylon markets during past week have been generally quiet.

Ceylon Cocoa.—About 1,000 Ceylon bags sold, dull to fair red 55s to 64s. Stock 87,156.

Ceylon Cinnamon chips—steady firm ; 110 sold at 2¼d spot.

Ceylon Coconut Oil—very dull at £26 10s and shipment much lower £23 10s to 12/6 c i f.

Ceylon Coffee—should be bought and no notice taken of the statistics. Good Ceylon coffee should be freely shipped to England. Santos coffee March is 27/10½, a low cut.

Ceylon Tea.—We hear of complaints from Brokers of Ceylon Tea not keeping, which is very serious. Samples have been valued in the Lane and then sealed up and valued again 3 months after and the quality quite altered! Good quality is wanted here badly.

Ceylon Cotton—Tinnevellys f g f 4 15/32. Manchester tone poor. This crop American is 11 to 11,300,000 bales. Consumption on the Continent is estimated by Mr Ellison at 96,000 bales per week all sorts, and which includes, of course, Indian cotton. Rhodesian cotton here is valued about 7d per lb.

Bank Rate—4 per cent tone firm thereat.

No Ceylon Rubber or Plumbago sales this week, but the former keeps firm in tone and the latter dull.

Of Ceylon Ginger we have a favourable opinion.

Coffee.—May Santos touched 25/1½ today.

Ceylon Coir Yarn—had no attention and chiefly taken out, ballots being most uneven and favouring buyers in price. Ceylon Mattress fetched 100s to 115s.

Ceylon and Tinnevelly Cotton—at sea 400 bales to Liverpool. New April-May Tinnevellys f g f 4 15/32 done, and March at 4½ per lb.

Silver—closes 24⅛d, Tone stronger.

Rope.—Coils : green, M 2, 3¼, 2¾, £16 10s 2d, £17 15s.

Ceylon Yarn—Bales : C & S in estate mark S, 5, £17 5s ; ditto B 2, £17 5s ; ditto L 1, £18. Ballots : R 1, £19, ditto 2, £17 ditto 3, £15 10s ; ditto 4, £15 10s ; H Black, £17 ; O ditto £15 15s ; S ditto £15. Dholls : O 1 string, £16

OBSERVER PRINTING WORKS

No. 19. COLOMBO, MAY 20th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[21,795 lb.]

	Pkgs.	Name	lb.	c.
Coodoogalla	34 hf cb	bro pek	1700	33 bid
Godnestone	22 ch	bro or pek	1650	39 bid
	13 do	pek	1170	34 bid
Kenilstone	13 ch	*twankey*	1170	18
Bunyan and Ovoca	45 hf ch	bro or pek	2700	55
	63 do	or pek	3150	43
	25 ch	pek	2375	35 bid
	12 do	pek No 2	1140	40 bid
	22 do	bro sou	1980	34 bid
	28 hf ch	pek fans	1820	35
	16 do	dust	1360	29

Messrs. Keell and Waldock.

[57,064 lb.]

	Pkgs.	Name.	lb.	c.
Maldeniya	45 ch	*young hyson*	4500	33 bid
	26 do	*hyson*	2340	32 bid
Belgravia	24 ch	br pek	2520	40 bid
	18 do	bro or pek	1800	55 bid
	30 do	pek	2700	38 bid
	18 do	or pek	1530	42 bid
Hyde	15 ch	or pek	1140	40
	39 hf ch	bro or pek	2301	39 bid
	23 ch	pek	2208	37
St. T	14 ch	pek	1260	out
Galgedioya	21 ch	bro pek	2100	37
	14 ch	pek	1330	31 bid
Rock Cave	15 ch	bro pek	1500	37
	14 do	pek	1330	33
Kanivaly	30 hf ch	bro or pek	1496	40 bid
	28 ch	pek	2516	34 bid
	24 do	pek sou	2156	32 bid
Galla	22 ch	bro pek	2420	36
	17 ch	pek	1615	35
Amblakande	14 ch	bro pek	1400	37 bid
	18 do	pek	1530	34
Dunnottar	44 hf ch	bro or pek	2420	42 bid
	17 ch	pek	1445	35 bid

Messrs. Forbes & Walker.

[668,568 lb.]

	Pkgs.	Name.	lb.	c.
K C E	15 ch	bro pek	1500	36
Coldstream Group	24 hf ch	bro or pek	1320	43
	59 do	bro pek	3245	38
	45 ch	pek	3600	36
Glencorse	15 ch	bro pek	1575	40
	13 do	or pek	1105	38
	12 do	pek	1020	34
	14 do	pek No 2	1120	32
	14 do	pek sou	1050	31
	12 hf ch	dust	1020	29
Dikdeliya	11 ch	pek	1012	31 bid
	16 do	pek sou	1280	30
Dolahena	40 hf ch	*hyson*	2000	33
O B E C, in est mark Forest Creek	14 ch	bro or pek	1428	67
	41 do	bro pek	4264	39
	13 do	or pek	1326	41
	20 do	pek	1880	36
Irex	29 ch	bro or pek	2900	38
	14 do	or pek	1120	36
	20 do	pek	1800	34
Great Valley Ceylon, in est mark	70 hf ch	bro or pek	4060	41
	18 do	or pek	1764	37
	61 do	pek	5368	35
	32 do	pek sou	2596	32
Mousakellie	11 ch	bro or pek	1100	40 bid
	14 do	pek	1260	37
Mahawale, Invoice No 7	19 ch	bro pek	1900	37 bid
	14 do	or pek	1260	36
	25 do	pek	2250	34
Madulkelle	32 hf ch	bro or pek	1760	42
	23 ch	pek	2070	36
	21 do	pek sou	1575	34
St. Heliers	29 hf ch	bro or pek	1682	40
	11 ch	pek No 1	1078	35
Queensland	19 hf ch	bro or pek	1045	64
	20 ch	bro pek	2000	42
	20 do	pek	1800	38 bid
Y S P A	14 hf ch	bro pek fans	1022	32
Macaldenia	23 hf ch	bro pek	1495	38 bid
	37 do	pek	2220	35
	13 do	fans	1040	31
O B E C est mark, Newmarket	55 hf ch	bro or pek	3025	41
	50 ch	bro pek	5300	40
	20 do	or pek	1760	39
	27 do	pek	2484	36
O B E C, in est mark Sindamally	14 cb	bro or pek	1400	49
	17 do	do do No 2	1870	38
	24 do	or pek	2280	38
	47 do	pek	3995	36
	17 do	pek sou	1275	33
Roeberry H	11 ch	bro or pek	1100	45
	41 do	bro pek	3825	38 bid
	44 do	pek	3960	35
	12 do	pek sou	1080	34
Roeberry I	11 ch	bro or pek	1100	45
	31 do	bro pek	2945	39
	31 do	pek	2790	35
Mawilligangawatte	48 ch	bro pek	4800	35
	30 do	pek sou	2400	31
Tillyrie	9 ch	fans	1125	33
Preston	45 hf ch	bro or pek	2520	49
	28 do	or pek	1258	47
	15 do	pek	1260	40 bid
Marlborough	30 hf ch	bro or pek	1560	43 bid
	15 ch	bro pek	1500	39
	25 do	pek	2250	35
N W D	25 hf ch	or pek	1500	40
	22 ch	pek	1804	34
K P W	21 hf ch	bro or pek	1260	40
	21 do	or pek	1050	35
	31 do	pek	1600	34
Tembiligalla	37 ch	bro or pek	4255	37
	32 do	pek	3008	35
Freds Rube	35 ch	bro pek	3500	37
	23 do	pek	2185	33
O B E C, in est mark Summer Hill	55 hf ch	bro or pek	3190	46
	60 do	bro pek	3780	42
	30 cb	or pek	2760	46
	40 do	pek	3640	40
Clarendon Dimbula	30 hf ch	bro pek	1800	47 bid
	26 cb	pek	2470	41 bid
	32 do	pek sou	2880	37
Bramley Inv. No 10	30 hf ch	or pek No 1	1330	47
	63 do	pek	2898	39
C N N	12 ch	pek sou	1044	36
Middleton, Inv No 15	22 hf ch	bro or pek	1320	71
	27 do	bro pek	2700	54 bid
	19 do	or pek	1710	49 bid
	14 do	pek	1260	44 bid
Mahalma, Inv No 10	12 ch	or pek	1176	38
	16 do	bro or pek	1536	38
	17 do	pek	1666	34
	11 do	bro pek	1100	36
Gonapatiya, Invoice No 8	49 hf ch	or pek	2597	49
	58 do	bro or pek	35[illegible]8	46
	65 do	pek	3380	39
Algooltenne, Invoice No 21	24 hf ch	bro or pek	1320	49
	13 ch	bro pek No 1	1235	42 bid
	11 do	bro pek	1100	36
	21 do	or pek	1[illegible]80	37 bid
	24 do	pek No 1	2160	36
	20 do	pek	1900	34
Middleton, Invoice No 16	14 ch	bro pek	1400	48 bid
	12 do	or pek	1050	45 bid
	12 do	pek	1080	39 bid
Hanwella	32 ch	*young hyson*	3200	34
Errollwood No 4	38 hf ch	bro or pek	2280	38 bid
	30 ch	bro or pek	1950	40 bid
	19 do	pek	1900	35
Good Hope, No 6	36 hf ch	bro or pek	2016	38
	16 ch	or pek	1440	34
N	14 cb	pek fans	1820	28
Naliadenia	33 ch	*young hyson*	2046	37
	41 do	*hyson*	2050	35
Florence	48 hf ch	bro or pek	2640	66
	12 ch	or pek	1200	51
	41 do	pek	373[illegible]	40 bid
	15 do	pek sou	1320	37
	26 hf cb	bro or pek fan	1690	41

	Pkgs.	Name.	lb.	c.
Beverley	26 hf ch	bro or pek	1430	43
	36 do	or pek	1980	38
	50 do	pek	2500	36
	20 do	pek sou	1000	34
Sunnycroft	37 ch	*young hyson*	3515	34
	28 do	*hyson*	2520	33
	21 do	*hyson No 2*	1890	32
	18 hf ch	*siftings*	1260	16
Puspone	19 ch	or pek	1900	36
	29 do	bro pek	3045	38
	16 do	pek	1440	34
El Teb	15 hf ch	dust	1275	29
Poonagalla	28 ch	or pek	2744	41
	50 do	bro pek	4500	44
	26 do	pek	2470	37
Baddegama	16 ch	bro or pek	1593	38 bid
Ernan	34 ch	*young hyson*	3400	35
	29 do	*hyson No 1*	2755	33 bid
Shrubs Hill	62 ch	bro pek	6200	38 bid
	41 do	pek	3813	35 bid
Purana	19 ch	pek	1520	34
H G M	17 hf ch	bro or pek	1020	34
	10 ch	bro pek	1000	39
	25 do	pek	2250	36
Poonagalla	52 ch	bro pek	4680	44
	36 do	pek	2470	38
	13 do	fans	1170	33
Edward Hill	30 ch	bro pek	3000	37
	19 do	or pek	1558	35
	14 do	pek	1218	33
B in est mark	20 hf ch	bro or pek	1234	37 bid
Massena	13 ch	bro pek	1279	39
	14 do	pek	1238	31 bid
Yelverton	12 ch	bro or pek	1248	38
	13 do	or pek	1066	37 bid
	18 do	pek	1656	35
Bandara Eliya	35 hf ch	or pek	1820	44
	32 do	br or pek No 1	1760	42
	31 do	br or pek No 2	1922	39
	57 do	pek	2964	39
Dammeria	37 ch	bro pek	3700	37 bid
	36 do	or pek	3240	36
	44 do	pek	3960	34
	35 do	pek sou	3150	32
Hayes	34 ch	bro pek	3400	38
	20 do	or pek	1700	38
	80 do	pek	7600	35
	20 hf ch	pek dust	1500	28
Polatagama	33 ch	bro or pek	3300	39
	33 do	bro pek	3300	38
	24 do	or pek	2400	36
	68 do	pek	6460	34
	22 do	pek sou	2200	32
	11 do	fans	1100	30
Massena	11 ch	bro pek	1100	42
	12 do	pek sou	1080	31
Aberdeen	35 ch	bro pek	3220	38
	36 do	pek	2808	34
B P C	27 hf ch	dust	2160	26
High Forest	45 hf ch	bro pek	2700	47
	61 do	or pek No 1	3233	52
	31 do	or pek	1643	46
	26 do	pek	1248	41
Dunkeld	20 hf ch	pek fans	1360	34
	13 do	dust	1170	30
Bandarapola	78 hf ch	br or pk No 1	4212	35
	47 do	br or pk No 2	2303	33 bid
	39 do	bro pek	1911	32 bid
	37 do	pek	1628	30 bid
High Forest	51 hf ch	or pek No 1	2703	49 bid
	41 do	bro pek	2460	43 bid
	27 do	or pek	1431	42
	21 do	pek	1008	40
Stockholm	44 ch	bro pek	4400	40
	25 do	pek	2125	38
Castlereagh	45 hf ch	bro or pek	2250	42
	10 ch	bro pek	1000	38
	13 do	or pek	1040	37
	12 do	pek	1020	36
	13 do	pek sou	1105	34
Sylvakandy	10 ch	bro pek	1000	38
	15 do	or pek	1500	38
	21 do	pek	2100	36
	17 do	br or pk No 1	1700	43
	25 do	br or pek No 2	2500	38
Putupaula	15 ch	bro or pek	1500	42 bid
	97 do	or pek	8245	36 bid
	54 do	pek	4320	33 bid
	11 do	bro pek fans	1375	32
Talgaswella	19 ch	bro or pek	1900	43
	14 do	or pek	1120	38
	25 do	pek	2000	36
	17 do	pek sou	1275	33
Attampettia	16 ch	bro pek	1792	43
	16 do	or pek	1568	39
	17 do	pek	1615	38

	Pkgs.	Name.	lb.	c.
Coreen	52 hf ch	bro pek	3120	45 bid
	20 ch	or pek	1800	42 bid
	16 do	pek	1360	40 bid
Cloyne	13 ch	bro pek	1365	38
	11 do	or pek	1100	35 bid
	12 do	pek	1080	32 bid
Bullugolla	66 ch	*young hyson*	6600	34 bid
	73 do	*hyson*	6570	33 bid
	31 do	*hyson No 2*	2635	34
	15 do	*siftings*	1500	14
New Peacock	22 hf ch	bro pek	1100	41
	23 do	pek fans	1725	34
Wella	58 hf ch	bro pek	3190	37
	36 do	pek	1800	36
Eriacolla	11 ch	*young hyson*	1100	35
	13 do	*hyson*	1235	34
Cloyne	18 ch	bro or pek	1886	38
	27 do	or pek	2696	35 bid
	39 do	pek	3506	32 bid
Parsloes	25 ch	bro pek	2750	37
	36 do	pek	3420	36
Nonpareil	32 hf ch	bro or pek	1792	40
Battawatte	25 hf ch	bro or pek	1625	40
	48 ch	bro pek	4800	39
	25 do	pek	2500	38
	12 do	pek sou	1080	35
Rutherford	69 hf ch	*hyson*	3933	37
	27 ch	*hyson*	2835	36
Bandara Eliya	35 hf ch	br or pek No 1	1750	42
	71 do	br or pek No 2	4260	38
	86 do	pek	4042	38
N'Iitiya	15 hf ch	pek fans	1035	19
Munukettia in est mark	33 ch	bro pek	2013	44
	22 do	pek	1914	37
Lyegrove	14 ch	bro pek	1540	38
	15 do	pek	1350	35
Tunisgalla	40 hf ch	bro pek	2400	38
	14 ch	or pek	1260	37
	16 do	pek	1440	36
Knavesmire	21 ch	or pek	1890	37
	55 do	bro pek	5775	38
	52 do	pek	4420	35
	35 hf ch	bro pek No 2	1750	38
Erlsmere	34 hf ch	bro or pek	1870	48 bid
	20 ch	bro pek	1830	41
	12 do	pek	1056	41
Harrow	35 ch	bro or pek	2170	42 bid
	39 do	or pek	2184	38 bid
	20 do	pek	2100	36
Udaveria	22 hf ch	bro or pek	1320	57
	51 do	br or pk No 1	3060	42
Ardross	14 hf ch	dust	1190	29 bid

Messrs. Somerville & Co.

[302,079 lb.]

	Pkgs.	Name.	lb.	c.
Hanagama	10 ch	bro or pek	1100	40
	22 do	pek	2200	33
	19 do	pek sou	1805	30 bid
Lammermoor	10 ch	bro pek	1000	37
S R K	20 ch	pek	2000	36
New Angamana	12 ch	bro or pek	1200	37
	15 do	pek	1350	34
Cwm	33 hf ch	br pek	1980	47
	27 do	pek	2160	39
Laxapanagalla	18 ch	bro or pek	1800	38
	11 ch	or pek	1045	34
R K P	21 ch	flo. or pek	2100	37
	16 do	or pek	1440	37
	20 do	pek	1800	34
	30 do	pek sou	2400	32
Meeriatenne	21 hf ch	bro pek	1218	39
	13 do	fans	1053	33
	18 do	bro or pek	1026	46
	23 do	or pek	1012	45
	22 do	pek sou	1034	35
Walla Valley	36 hf ch	bro or pek	1980	50
	22 ch	or pek	2090	41 bid
	32 do	pek	3040	38 bid
Ellerslie	36 hf ch	bro or pek	1980	38 bid
	13 ch	or pek	1170	38
	13 do	pek	1105	35
Rahatungoda	28 hf ch	bro or pek	1568	42
	14 ch	or pek	1386	39
	21 do	pek	2016	36 bid
Glenanore	12 ch	br or pek	1200	45 bid
	14 do	bro pek	1400	40
	13 do	or pek	1209	41
	13 do	pek	1118	37
Nabalma	14 ch	bro or pek	1400	38
Agra Elbedde	57 hf ch	bro or pek	3192	45
	23 ch	or pek	2438	41 bid
	22 do	pek	1980	39

	Pkgs.	Name.	lb.	c.
Dalukoya	35 hf cb	pek	1925	34
	48 do	pek sou	2640	33
Grange Gardens	20 ch	bro or pek	2000	45 bid
	14 do	or pek	1400	38
	21 do	pekoe	1995	36
B and D	13 hf ch	dust	1066	31
	11 ch	unast	1045	32
Beausejour	36 hf ch	bro or pek	1800	33 bid
	16 cb	bro pek	1520	36 bid
	40 do	pek	3320	33
	19 do	pek sou	1425	31
R A W	35 hf ch	bro pek	1995	40 bid
	14 ch	or pek	1260	40 bid
	14 do	pek	1200	36 bid
P	14 hf ch	dust	1260	30
Scawfell	14 ch	bro or pek	1400	38 bid
	18 do	or pek	1581	36 bid
Salawa	12 cb	bro pek	1200	37
	12 do	pekoe	1140	34
	13 do	pek sou	1105	32
Bodawa	42 bf ch	bro pek	2100	37
	14 cb	pek	1080	35
	12 do	pek sou	1020	31
Pindenioya	12 cb	bro or pek	1140	36
	15 do	or pek	1425	35
	32 do	pek	2880	32
Gona	21 cb	bro or pek	2205	33
	22 do	pek sou	1760	31 bid
Cooroondoowatte	10 ch	bro pek	1000	37
	18 do	pek	1800	32
	10 do	pek sou	1000	30
Leyton in est mark	12 cb			
	3 hf ch	pek sou	1215	31
New Valley	75 hf cb	bro or pek	4125	40 bid
	26 ch	or pek	2470	38
	27 do	pekoe	2565	35 bid
Monte Cnristo	36 cb	br pek	3600	41 bid
Scarborougb	31 hf cb	bro or pek	1736	47 bid
	13 ch	or pek	1222	41 bid
	25 do	pek	2500	38
Dikmukalane	53 hf ch	pek	2650	32
Walla Valley O	17 ch	pek	1615	38
Hanagama	13 ch	or pek	1300	34
	20 do	pek	2000	32
Ingeriya	18 ch	bro or pek	1800	36
	15 do	or pek	1425	34
	20 do	pek	1900	32
	16 do	pek sou	1440	31
Murraythwaite	25 cb	bro pek	2500	38
	14 do	pek	1190	33
Glenalmond	18 cb	bro pek	1800	38 bid
	14 do	pek	1330	35
Mahatenne	12 ch	or pek	1200	35
Mabavilla	17 cb	bro pek	1836	37
	22 do	pek	2244	35
Warakamure	23 ch	bro or pek	2300	35
	24 do	or pek	1920	34
	18 do	pek	1530	32
	13 do	pek sou	1040	30
Hobart	16 ch	pek	1276	31 bid
Mousa	26 hf ch	bro or pek	1560	38 bid
Avisawella	25 hf ch	bro or pek	1250	39
	20 ch	or pek	1900	36
	18 do	pek	1620	31
Ooncoonagalla	22 ch	bro or pek	2196	39
	13 do	or pek	1166	36
	23 do	pek No 1	2066	35
	17 do	pek	1441	34
Higbfields	20 hf ch	bro or pek	1160	42
	35 do	bro pek	1750	39
	76 do	pek	3648	38
	24 do	pek sou	1008	31
Kallebokka	20 ch	bro or pek	1906	43 bid
	17 do	pek	1096	36
Oonankande	25 hf cb	bro pek	1250	38
Higbfields	24 hf ch	bro or pek	1388	39 bid
Yahalatenne	36 ch	bro pek	3600	37 bid
	14 do	pek sou	1260	33
	13 do	dust	1055	29
Weygalla	21 hf ch	bro or pek	1050	50 bid
	10 ch	bro pek	1000	36 bid
	23 do	pek	2300	32 bid
Ferndale	12 ch	bro or pek	1200	45
	25 do	pek	2250	34
	19 hf ch	dust (native packages)	1615	out
Ravenscraig	27 bf ch	bro or pek	1562	39 bid
Roseneatb	14 cb	bro pek	1400	36 bid
	12 do	pek	1080	33 bid
Carshalton	23 ch	bro pek	2180	39
	25 ch	pek	2125	37
Gwernet	11 ch	bro pek	1100	41
	15 do	pek	1275	35
Neboda Tea Co. of Ceylon, Ltd. Neboda	33 ch	bro or pek	3300	38 bid
	29 do	or pek	2610	36
	54 do	pek	5400	34

	Pkgs.	Name.	lb.	c.
Neuchatel	19 ch	bro or pek	1900	38
	26 do	bro pek	2730	34 bid
	76 do	or pek	6460	35
	37 do	pek	2960	31
	10 do	dust	1450	30
Gangwarily Est. Co. of Ceylon, Limited, *Haviland*	46 *ch*	*hyson*	4140	33
Mahatenne	11 ch	bro or pek	1100	39
	12 do	or pek	1200	34
	17 do	pek	1615	33

Messrs. E. John &. Co.

[208,746 lb.]

	Pkgs.	Name.	lb.	c.
Maidstone	12 *ch*	*young hyson*	1183	23
Bowella	31 bf ch	bro pek	1550	34
Kandahar	33 hf ch	pek	1815	35
Bitt cy	12 ch	or pek	1080	45
	17 do	pek	1428	40
	29 hf ch	bro pek	1682	41 bid
Natuwakelle	14 ch	bro or pek	1400	39
	17 do	or pek	1530	36
	16 do	pek	1440	35
Kelaneiya & Braemar	20 ch	bro or pek	2000	47
	14 do	bro pek	1400	38
	27 do	pek	2565	37
Navangama	16 ch	bro or pek	1600	35
H P T	20 ch	pek	1600	31 bid
Stubton	19 ch	bro pek	1900	37
	10 do	pek	1000	33
Nera	26 hf cb	No 2 Sow Mee (unfinished)	1820	22 bid
Nahavilla	28 ch	or pek	2800	39
	46 do	bro pek	4600	42 bid
	27 do	pek	2700	37
	14 do	pek sou	1260	31
Tarawera	45 *ch*	*young hyson*	4500	34
	38 *do*	*hyson*	3420	33
	26 *do*	*hyson No 2*	2236	32
Westhall	7 ch			
	1 hf ch	dust	1065	29
Acrawatte	20 hf ch	bro or pek	1100	47 bid
	19 do	or pek	1615	38 bid
	11 do	bro pek	1155	38 bid
	20 do	pek	1600	36
Brownlow	24 bf ch	bro or pek	1344	54
	15 ch	or pek	1425	40
	17 do	pek	1564	38
Ratwatte	36 ch	bro pek	3600	36
	17 do	pek	1530	33
N	19 hf ch	dust	1615	33
Elston	39 ch	pek	3315	36
	41 do	pek sou	3185	31
Devon	25 hf ch	bro or pek	1525	46 bid
	22 cb	or pek	2200	44
	10 do	pek	1010	40
Wanarajah	16 hf ch	bro pek fans	1232	34
Amherst	26 ch	dust	2310	31
Hiralouvab	19 hf cb	bro pek	1083	36
	16 ch	pek No 1	1103	33
Eladuwa	18 ch	bro pek	1980	35
	29 do	pek	2755	33
	20 do	pek sou	1500	30
Coslande	42 hf ch	bro pek	2520	42
	26 ch	pek	2600	35
Gonavy	28 hf ch	bro or pek	1593	49
	13 ch	or pek	1144	42
	42 do	pek	3696	38
Peru	19 ch	bro pek	1900	38
	20 do	pek	1700	35
Cleveland	36 hf ch	fly or pek	2088	47
	65 do	pek	5770	42
Koslande	42 hf ch	bro pek	2520	42
	26 ch	pek	2600	31 bid
Myraganga	67 ch	or pek	6365	39
	15 do	br or pek No 1	1500	40 bid
	38 do	br or pek No 2	3800	38
	21 do	pek	1785	36
Templestowe	30 hf ch	bro or pek	1680	47 bid
	25 do	bro pek	1500	41
	32 do	or pek	1410	43 bid
	18 do	pek	1530	39
Doonhinde	36 ch	or pek	3600	35 bid
	31 do	bro pek	3100	39 bid
Longville	15 ch	bro pek	15[illegible]	37
	10 do	pek	1000	35
Gangawatte	21 ch	bro or pek	2[illegible]00	46 bid
	17 do	bro pek	1700	39
	31 do	pek	2790	35 bid
Glassaugh	33 bf ch	or pek	1848	63
	24 do	bro or pek	1384	42 bid
	15 ch	pek	1635	41 bid

	Pkgs.	Name.	lb.	c.
Theresia	26 hf ch	bro or pek	1560	43
	12 ch	pek	1140	38
	20 do	pek No 2	1700	36
W D	33 hf ch	dust	3168	24 bid
M	11 ch	unas	1221	15
M J	14 hf ch	bro pek dust	1190	out
Mahanilu	32 ch	or pek	3048	39 bid
	33 do	bro or pek	1815	41 bid
	49 do	pek	4655	35

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Kenilstone	7 ch	*dust*	700	10
	5 do	*siftings*	500	16
Kotagalla	4 ch	pek	380	33 bid

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
K C E	8 ch	pek	720	33
	8 do	pek sou	640	30
Coldstream Group	5 ch	pek sou	400	31
	6 hf ch	fans	390	33
	3 do	dust	240	33
Dikdeliya	5 ch	or pek	550	37
	7 do	bro pek	700	35
	1 hf ch	bro pek	55	34
Dolabeno	14 hf ch	*young hyson*	770	34
	4 do	*hyson No 2*	200	32
	2 do	*siftings*	140	13
Horagaskelle	8 hf ch	bro pek	512	35
	5 do	pek	274	33
	10 do	pek sou	572	30
	1 do	bro mix	58	26
Irex	7 ch	pek sou	560	30
	3 do	fans	330	32
	2 do	dust	170	26
Great Valley Ceylon in est mark	9 ch	unas	702	25
	8 hf ch	dust	640	30
Mousakellie	2 ch	bro pek fans	130	36
	2 hf ch	dust	150	31
Dehiowita	3 ch	dust	450	27
Gala9oda	3 ch	bro pek	279	35
	3 do	pek	309	28
	7 do	pek sou	560	28
Madulkelle	8 ch	or pek	640	40
	3 hf ch	fans	225	34
	3 do	dust	255	33
Sylvakandy	4 ch	pe sou	380	31
	5 do	dust	500	32
Norfolk	2 ch	dust	190	30
	2 do	fans	146	32
Ridgmount	9 hf ch	bro or pek (Venesta pkgs.)	495	39
	5 ch	bro pek	550	36
	4 do	or pek	400	36
	3 do	pek	294	34
C F in est mark	2 ch	bro tea	232	23
	1 hf ch	pek sou	58	28
	1 do	bro pek	50	33
	2 do	pek	108	29
	1 ch	*hyson*	100	28
	1 hf ch	*hyson dust*	41	11
St. Heliers	8 ch	pek	810	31 bid
Queensland	1 ch	pek No 2	100	33
	7 do	pe sou	595	34
	4 hf ch	dust	320	34
Y S P A	6 ch	pek	540	35
	4 hf ch	pek dust	372	31
Mousakellie	1 hf ch	dust	75	33
O B E C, in est mark Newmarket	1 ch	fans	130	34
	1 do	dust	160	30
Roeberry II	14 ch	fans	910	34
	5 hf ch	dust	425	30
Roebeerry I	6 ch	pek sou	540	33
	8 do	fans	5.0	34
	3 hf ch	dust	255	30
Pansalatenne	3 ch	bro pe fans	390	31
	2 do	dust	320	28
Mawilligangawatte	4 do	dust	400	30
Kelburne	3 hf ch	dust	255	30
	3 do	fans	222	32
K	2 ch	unas	162	17
	1 box	dust	22	10
Preston	5 hf ch	bro or pe fans	340	36
Berrewella	9 ch	pek sou	810	31
	6 hf ch	bro tea	510	29

	Pkgs.	Name.	lb.	c.
Marlborough	11 ch	pek sou	990	33
	11 hf ch	bro pek fans	858	34
N W D	10 do	dust	900	32
V O A D	1 ch	bro tea	1.0	24
	5 hf ch	dust	410	33
K P W	4 hf ch	bro pek No 2	280	34
	6 do	pek sou	300	31
	1 do	dust	90	30
Tembiligalla	2 ch	pek sou	180	32
	2 do	dust	350	29
Condia	1 ch	bro pek	77	40
	2 hf ch	pek	84	34
	1 do	pek sou	46	30 bid
W A	2 ch	dust	290	31
Freds Ruhe	7 do	pek sou	700	30
Vinsit	5 ch	*young hyson*	475	36
	3 do	*hyson*	270	34
	9 do	*hyson No 2*	765	33
	1 do	*gunpowder*	90	31
	1 do	*fans*	120	17
	1 do	*siftings*	125	18
Clarendon Dimbula	3 ch	sou	261	32
	2 hf ch	pek dust	174	31
Amherst, Inv No 5	9 do	fans	630	35
Mahalma	9 ch	fans	832	32
	6 hf ch	dust	510	30
Gonapitiya, Invoice No 8	11 hf ch	pek sou	539	35
Algooltenne, Invoice No 21	7 hf ch	fans	420	32
	7 do	dust	525	30
Hanwella, No 10	9 ch	*hyson No 1*	900	34
	7 hf ch	*hyson No 2*	350	33
	5 do	*hyson siftings*	400	13
Errollwood No 4	9 ch	or pek	945	38
	6 do	pek sou	600	32
	5 hf ch	or pe fans	350	34
	2 do	dust	180	32
Good Hope, No 6	9 ch	pek	810	32
	6 do	pek sou	540	31
	4 do	pek fans	248	30
	2 hf ch	dust	184	29
	1 do	bro pe fans	74	32
N	7 ch	sou	700	28
	4 do	bro tea	400	24
New Galway	11 hf ch	bro pek	650	48 bid
	14 do	pek	770	37 bid
	1 do	pek sou	50	35
Nakiadeniya	8 ch	*twanky*	360	19
S K	1 ch			
	1 box	*green tea siftings*	188	13
W A	1 ch	dust	145	26
Sunnycroft	4 do	*gunpowder*	360	31
Puspone	7 do	pek sou	595	31
	4 hf ch	dust	324	30
El Teb	4 ch	pek sou	360	32
V O A	2 hf ch	bro or pe fans	170	25
	2 do	dust	180	33
Ernan	3 ch	*hyson No 2*	270	34
	3 do	*fans*	300	18
	3 do	*dust*	405	12
Shrubs Hill	6 ch	pek sou	600	30 bid
	9 do	bro pek fans	756	31
Purana	8 ch	bro pek	800	36
	6 do	pek sou	432	32
	2 hf ch	dust	160	29
	1 do	fans	95	33
	1 do	bro mix	72	28
H G M	5 hf ch	dust	450	30
Poonagalla	3 ch	pek sou	285	36
Edward Hill	5 hf ch	dust	350	30
Massena	7 do	bro or pek	643	36
	9 do	or pek	798	32 bid
	1 do	sou	67	26
	2 hf ch	dust	132	28
Dammeria	11 hf ch	bro or pek	770	36
	7 do	bro pe fans	560	33
	2 do	dust	200	29
Hayes	25 ch	pek sou	425	30
Pulatagama	9 ch	dust	300	28
Massena	2 ch	pek	855	34
	5 hf ch	dust	150	26
Aberdeen	1 hf ch	bro pek fans	975	32
Stockholm	8 ch	pek sou	680	33
	4 hf ch	dust	320	31
	3 ch	fans	300	36
C R S	6 ch	bro pek	504	34
	1 hf ch	dust	65	30
H C W in est mark	1 hf ch	bro or pek	69	69
Sylvakandy	4 ch	dust	400	31
Patupaula	4 ch	pek sou	380	27 bid
	2 do	sou	170	24
	1 do	dust	160	26
Talgaswella	4 hf ch	dust	360	28
	8 do	bro pek No 2	480	34
Attampettia	4 hf ch	pek sou	368	34

	Pkgs.	Name.	lb.	c.
Coreen	7 bf ch	pek fans	490	36
	2 do	dust	180	35
C E	1 ch	b o pek	114	24
H B L in est mark	11 bf cb	bro pek	616	35
	8 do	bro or pek	456	37
	7 ch	pek	616	33
	5 do	pek sou	390	31
	3 hf ch	bro or pek fans	228	34
New Peacock	4 hf ch	bro mixed	700	29
Wella	5 hf ch	dust	435	30
Eriacolla	*3 ch*	*hyson No 2*	270	32
	3 hf ch	*siftings*	180	18
	1 ch	*green dust*	80	11
C E	2 ch	bro pek	257	26
Parsloes	4 hf ch	fans	340	33
Non Pareil	12 hf ch	or pek	672	38
	15 do	pek	750	36
	5 do	pek sou	250	30
	3 do	fans	210	35
	3 do	dust	240	33
Battawatte	4 hf ch	dust	320	31
Rutherford	*5 hf ch*	*hyson* No 2	370	43
	9 do	*twanty*	531	18
	4 do	*green tea dust*	332	14
K	1 hf ch	*hyson dust*	56	10
Bandara Eliya	14 hf ch	or pek	630	43
Lyegrove	9 ch	pek sou	702	32
	2 hf ch	dust	180	28
Tunisgalla	6 ch	pek sou	510	31
	6 hf ch	bro or pek	360	42 bid
	1 ch	sou	80	29
	3 do	dust	285	32
Erlsmere	2 ch	pek sou	168	34
	3 hf ch	dust	234	35
Harrow	2 ch	fans	170	31
Udaveria	6 ch	or pek	630	40
	3 do	pek	300	35
	10 hf ch	bro or pek fans	700	35
Ardross	7 ch	fans	770	31 bid
Lower Kananka	9 ch	bro pek	900	36
	9 do	pek	900	31
	2 do	pek sou	200	27
	1 do	dust	140	25

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
Belgodde	*7 hf ch*	*young hyson*	385	30
	3 do	*hyson No 1*	150	28
	5 do	*hyson*	250	28
Kitulkande	14 hf ch	bro pek	784	37
	14 do	pek	700	29
	16 do	pek sou	720	27 bid
Maldeniya	*7 ch*	*No 1 hyson*	595	31 bid
	6 do	*fans*	630	16
	1 do	*dust*	150	10
Belgravia	8 hf ch	fans	560	34
Hyde	5 ch	pek sou	500	32
	5 do	bro or pek fans	345	34
	2 hf ch	pek dust	170	33
Galgedioya	3 ch	pek sou	240	29 bid
	2 do	fans	200	31
	4 hf ch	dust	320	28
Rock Cave	4 ch	pek sou	292	29 bid
	1 do	dust	150	26
Galla	3 ch	bro pek fans	375	32
	1 do	dust	160	28
Amblakande	4 ch	bro or pek	400	32
	11 do	pek sou	935	30 bid
	2 do	sou	170	29
	7 do	dust	700	29
A B K	1 ch	red leaf	70	22
Dunnottar	1 ch	bro pek No 2	110	33
	2 do	pek No 2	180	30
	3 do	fans	225	32
A in est mark	4 ch	pekoe	400	26
	1 do	pekoe souchong	105	28
	2 do			
	1 hf ch	souchong	236	20 bid

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
St. Leys	1 ch	pek sou	103	30
	1 hf ch	sou No. 2	56	20
	2 do	fans	160	33
B A	9 ch	pek sou	765	30 bid
	12 hf ch	bro pek fans	780	34
	6 do	dust	540	29
	2 ch	bro tea	200	23
Lammermoor	11 ch	pek	935	34
	1 do	pek sou	85	30
	2 do	fans	250	32
	1 do	dust	100	28

	Pkgs.	Name.	lb.	c.
S R K	3 ch	bro tea	300	30
	2 do	dust	320	34
New Angamana	7 ch	or pek	630	36
	4 do	pek sou	340	30
	3 do	pek fans	345	32
	1 do	dust	160	29
Cwm	10 cb	pek sou	850	35
	7 hf ch	pek fans	500	34
Laxapanagalla	3 ch	pek	270	31
	2 do	pek fans	200	32
	1 do	dust	100	29
R K P	2 ch	or pek fans	200	33
	4 do	dust	400	29
Ellerslie	6 ch	bro pek	600	32
	2 hf ch	dust	140	32
Ahamed	11 hf ch	bro pek	550	31
	9 do	pek	450	29
D	3 bf ch	dust	270	22
M	2 hf ch	dust	150	29
C	1 hf ch	dust	75	23
Kanbatota	7 ch	bro or pek	665	34
	5 do	pek	375	31
	3 do	pek sou	255	29
	1 do	dust	110	26
Mowbray	8 ch	bro pek	800	39
	9 do	pekoe	765	31
	3 do	pek sou	255	31
Agra Elbedde	6 hf ch	or pek fans	450	34
	1 do	dust	90	34
Dalukoya	15 hf ch	bro or pek	900	42
Arcady	6 hf ch	unast	300	29
Grange Gardens	5 ch	pek sou	475	32
	4 do	fans	400	35
	2 hf ch	dust	170	31
B and D	8 hf ch	bro pek fans	520	36
Beausejour	2 hf ch	bro pek fans	130	33
	4 do	dust	340	31
R A W	5 ch	pek sou	400	34 bid
	4 do	fans	268	32 bid
	2 do	dust	170	30
P	5 ch	pek sou	400	30 bid
D B R in est mark	2 hf ch	bro pek	112	33
Evalgolla	4 ch	bro pek	440	37 bid
Scawfell	7 ch	pek	665	32 bid
	2 do	pek sou	200	34 bid
	1 do	bro or pek fans	160	30 bid
Salawa	2 ch	unast	180	29
	1 do	pek fans	140	33
Bodawa	1 hf ch	bro mixed	39	25
	3 ch	bro pek fans	225	30
Pindeniioya	11 ch	pek sou	880	31
	3 do	fans	375	30
Manangoda	5 ch	bro pek	503	34
	9 do	pekoe	900	28
	4 do	pek sou	403	26
	4 do	fans	380	26
	1 do	dust	137	24
	2 do	red leaf	194	20
Leyton in est mark	9 hf ch	bro or pek	540	38
	13 do	or pek	650	37
	11 ch	pek	968	34
	3 do	bro mixed	250	24
	2 hf ch	dust	170	28
Labuduwa	5 ch	bro pek	500	35
	3 do	pek	300	32
	5 do	pek sou	450	29
New Valley	2 ch	pek dust	180	31
St John's Wood	9 hf ch	bro or pek	486	39
	4 ch	pek	374	35
	2 do	pek sou	124	33
	1 box	dust	33	28
	1 hf ch	bro or pek fans	73	32
Walla Valley O	17 hf ch	bro or pek	935	45 bid
	9 ch	or pek	855	42
B and D O	2 hf ch	dust	164	29
	2 ch	bro pek fans	130	35
	3 do	unast	285	30
P D	15 hf ch	bro pek	810	28
	7 do	pek sou	392	25 bid
Hanagama	5 ch	bro or pek	550	33
	7 do	pek sou	655	30
	5 do	fans	490	27
	3 do	dust	468	28
Ingeriya	11 ch	sou	880	23 bid
	4 do	dust	560	29
Murraythwaite	2 ch	pek sou	170	30
	1 do	dust	180	27
	1 do	bro pek fans	135	31
Glenalmond	3 ch	pek sou	270	32
	1 do	fans	100	30 bid
	2 hf ch	dust	160	29 bid
Warakamure	1 hf ch	dust	90	26
A	4 hf ch	dust	320	31
	8 do	souchong	400	25
S	7 hf ch	dust	560	33
	14 do	sou	700	23
Avisawella	11 ch	pekoe sou	880	32

Name.	Pkgs.		lb.	c.
Highbfields	10 hf ch	fans	720	34
	3 do	dust	285	30
Oonankande	5 hf ch	pek sou	350	29
	6 do	dust	390	32
Weygalla	7 ch	pek sou	700	31
	3 hf ch	dust	210	26
Roseneath	3 ch	dust	300	29
	1 hf ch	fans	85	29
Carshalton	9 hf ch	bro or pek	450	51
	3 ch	pek sou	270	31
	1 do	sou	100	28
	10 hf ch	fans	650	34
	3 do	dust	240	32
Gwernet	11 ch	pek sou	880	31
	2 do	sou	160	29
	2 do	dust	240	32
Neboda	5 ch	pe sou	4[illegible]0	30
	8 hf ch	dust	680	29
Aluthena	9 ch	unast	990	20 bid
Mahatenne	2 ch	fans	260	27 bid
	1 do	dust	1[illegible]6	26

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Bowella	3 ch	pek	255	30
	3 hf ch	dust	225	27
Bittacy	7 hf ch	fans	455	36
	2 ch	pek sou	140	34
	3 hf ch	dust	252	34
Natuwakelle	6 ch	pek sou	540	32
	2 do	dust	200	32
Kelaneiya & Braemar	6 ch	bro pek fans	600	35
	6 do	pek sou	570	31
	4 hf ch	dust	320	30
Navangama	9 ch	pek	810	32 bid
	5 do	pek sou	450	30
	2 do	dust	200	28
H F D	5 ch	dust	500	33
Stubton	4 ch	pek sou	380	31
	5 do	dust	700	25 bid
M B, in estate mark	4 ch	fans No 1	400	18
Tarawera	2 *ch*	*hyson siftings*	240	16
	11 *hf ch*	*hyson siftings*	803	14
Alpitakande	5 ch	sou	450	28
Brownlow	9 hf ch	dust	756	34
Y	6 ch	red leaf	510	19
Ratwatte	4 ch	pek sou	360	30
	3 hf ch	dust	240	29
Katukurundugoda	6 ch	bro or pek	600	34
	4 do	bro pek	400	30
	3 do	pek	276	28
Devon	4 hf ch	fans	318	35
Wanarajah	1 ch	pek	68	36
	5 hf ch	dust	460	33
Oakwell	11 ch	pek sou	990	32
	7 do	fans	420	33
	4 do	dust	340	32
M	6 ch	fans	720	29
	6 do	dust	930	30
Coslande	5 ch	pek sou	500	31
	2 do	fans	220	33
	1 hf ch	dust	95	30
Peru	5 ch	pek sou	475	32
	2 do	bro pek fans	270	34
Cleveland	13 hf ch	bro or pek	728	73
	5 do	fans	415	35
Koslande	5 ch	pek sou	500	31
	2 do	fans	220	32
	1 hf ch	dust	95	30
Templestowe	10 ch	pek sou	950	38
	9 do	unas	945	27
	14 do	fans	980	37
Katukurundugoda	6 ch	bro pek	564	withd'n
Horagalla	7 ch	bro pek	742	35
Doonhinda	8 ch	pek	800	35
	2 do	fans	200	34
	3 do	dust	300	34
Longville	8 ch	fans	600	33
Gangawatte	6 ch	pek sou	540	32
	7 hf ch	dust	595	30
	12 do	fans	780	35
O W	11 ch	bro pek	990	34 bid
	8 do	pek	616	32
	1 do	pek sou	79	28
	2 hf ch	dust	154	28
	8 do	pek fans	480	30
H B	1 ch	pek	81	30
Mahanilu	3 ch	dust	291	30
	8 do	bro pek fans	558	35
M N, in estate mark	4 ch	red leaf fans	400	18
	1 do	red leaf dust	06	18

CEYLON COCOA SALES IN LONDON.

MINCING LANE MAY, 1st.

"Clan Mackay."—Laxahena, 19 bags out; 4 sold at 49s.

"Tamba Maru."—Palli London F, 82 bags out; ditto 1, 129 out; ditto 2, 11 sold at 49s; ditto T, 5 sold at 49s 6d.

"Bingo Maru."—PKY London 1, 19 bags out.

"City of Venice."—M in estate mark, 81 bags sold at 50s; KM in estate mark, 24 bags out; KA in estate mark, 2 bags out; MM in estate mark, 60 bags out.

"Sanuki Maru."—Ross No. 1, 48 bags out; No. 2, 11 out; Broken, 1 sold at 48s: Dangan Estate No. 1, 16 bags sold at 64s; No. 2, 5 sold at 54s; No. 1 B, 4 sold at 51s 6d; No. 2 B, 2 sold at 50s 6d; Broken, 3 sold at 48s.

"Workman."—Guava Hill, 77 bags out.

"Tactician."—Allagalla B 1, 41 bags out at 62s.

CEYLON CARDAMONS SALES IN LONDON.

"Clan Ferguson."—Delpotonoya, 5 cases out; 2 sold at 1s 4d; 3 sold at 1s; 3 sold at 1s 2d; 2 out.

"Minnetonka."—SFC, 3 cases out at 2s 9d.

"Clan Robertson."—Gonawella Mysore Cardamoms O, 2 cases sold at 1s 8d; ditto 1, 6 sold at 1s 3d; 3 sold at 1s 4d; ditto 2, 5 sold at 1s; ditto 3, 2 sold at 10d; ditto B, 2 sold at 11d; ditto S, 4 sold at 10½d; 1 bag sold at 1s 1d.

"Clan Shaw."—Oonoonagalla Estate Ceylon Cardamoms No. 1, 3 cases sold at 1s 5d; ditto 2, 3 sold at 1s 3d; 4 sold at 1s 2d; ditto 3, 3 sold at 10½d; 7 sold at 11d: ditto 4, 6 sold at 10d; Seeds, 1 sold at 1s 2d.

"Yangtsze."—Wewelmadde A, 7 cases sold at 1s 6d; Gallaheria 1, 5 cases out.

"Clan Farquhar."—Wattakelly Ceylon 1, 3 cases out.

"Yeoman."—Kobe Mysore O, 6 cases sold at 1s 9d; ditto 1, 15 out; ditto 2, 4 sold at 11½d; 1 sold at 1s; ditto 3, 3 sold at 10d; ditto B, 4 sold at 10d; ditto S, 3 sold at 10d; ditto Seed, 1 sold at 1s 1d.

"Bingo Maru."—Kobo OO, 1 case sold at 2s 6d; ditto 1, 6 sold at 1s 8d; ditto 1 Splits, 3 sold at 1s 1d; ditto 2 Splits, 5 sold at 11d; ditto OO Browns, 1 sold at 1s 2d; ditto Browns, 4 sold at 10½d; A in estate mark, 2 out.

"Clan Shaw."—Halgolla No. O, 3 cases out at 1s 8d; ditto No. 1, 1 sold at 1s 4d; 4 sold at 11d; ditto No. 2, 6 sold at 10d.

"Prometheus."—Dromoland O, 1 oase sold at 2s 6d; ditto 1, 4 sold at 1s 11d; 2 sold at 2s; ditto 2, 4 out; ditto 3, 2 sold at 11½d; ditto 4, 1 sold at 9d; Dromoland, 3 cases sold at 1s 2d; Hope, 8 cases sold at 10d.

"Clan McArthur."—A Kabragalla, 10 cases out at 2s; B ditto, 6 sold at 1s 2d; C ditto, 3 sold at 10½d.

"Benledi."—Upper Haloya Ex, 1 case out at 2s 8d; ditto AA, 2 sold at 1s 8d; 2 out; 2 sold at 11d; ditto A, 2 sold at 10½d; ditto B, 2 sold at 1s 3d; 3 out; ditto D, 2 sold at 1s 3d.

"Prometheus."—Midland O, 5 cases sold at 1s 7d; ditto 1, 8 sold at 1s 1d; ditto 2, 3 sold at 10d; ditto Seed, 1 sold at 1s 1d.

"India."—Elkadua O, 3 cases sold at 1s 7d; ditto 1, 3 sold at 1s 1d; ditto 2, 3 sold at 10d; ditto Seed, 1 sold at 1s 1d.

"Telemachus."—D Ceylon Mysore Cardamoms Seed, 15 cases out.

"City of Athens."—M AY & Co. 2, 12 cases out.

"Clan Macmillan."—M HJL in estate mark, Wetalava Mysore Special, 33 cases out.

"Tamba Maru."—Knuckles Group A, 4 cases sold at 2s 5d; ditto B, 24 out.

"Cheshire."—Pingarawa Cardamoms No. OO, 2 cases out; ditto No. 1, 4 sold at 1s 2d; 2 sold at 1s 3d; 3 sold at 1s 2d; ditto Browns, 4 sold at 10d; Katooloya Cardamoms Ex., 8 cases out; ditto A, 3 sold at 1s 2d; ditto B, 10 out; ditto C, 3 sold at 10d; ditto D, 4 sold at 1s 3d.

"Derbyshire."—Nicholaoya Cardamoms A, 2 cases sold at 1s 6d; ditto 1, 2 out; ditto 2, 4 sold at 1s 2d; ditto 3, 2 sold at 1s 2d; ditto 1, 1 sold at 10d; ditto 2, 2 out; 1 sold at 1s 3d.

"Bingo Maru."—Gallantenne A, 3 cases out.
"Canton."—Pingarawa No. OO, 1 case sold at 1s 11d.
"Yangtsze."—Doteloya A, 2 cases out.
"Egypt."—FD, 12 cases out.
"Sanuki Maru."—A & Co. in estate mark LC, 2 cases sold at 1s 6d; ditto LM, 3 bags out.
"Yeoman."—Wariagalla Mysore A, 6 cases sold at 1s 7d; 2 sold at 1s 8d; ditto B, 4 sold at 1s 2d; ditto C, 1 sold at 10d; ditto D, 4 sold at 10½d.
"Sanuki Maru."—N in estate mark, Mysore 2, 11 cases sold at 11d; ditto Brown, 8 sold at 10d; ditto splits 2, 6 out; ditto seeds, 1 sold at 1s 2d.
"Craftsman."—Kallebokke 1, 2 cases sold at 1s 10d; ditto 2, 2 sold 1s 4d; ditto 3, 3 sold at 10d; ditto 5, 1 out; ditto seed, 1 sold at 1s 7d.
"Blanca."—Yellam Mullai O, 16 cases out.
"Yangtsze."—Yellam Mullai, seed 2, 1 case out.
"Jumna."—Forest Hill O, 5 cases out; ditto 3, 3 sold at 1s 1d; ditto seed 1, 5 sold at 1s 2d; ditto seed 2, 1 sold at 1s 1d.

"Telemachus."—Winchfield Park AA, 8 cases out; ditto B, 6 sold at 1s; ditto Dehigolla A1, 13 out; ditto 2, 10 sold at 1s 1d; ditto 2, 2 out; ditto 1 B and S, 2 sold at 11d; ditto 2 B and S, 3 sold at 9½d; ditto 1 seed, 1 sold at 1s 2d, Looloowatte A1, 7 out; ditto 2, 4 sold at 1s; ditto A 1 B and S, 1 sold at 1s 3d; ditto 1 B and S, 2 out.

"Hakata Maru."—Looloowatte A 1, 16 cases out; ditto 2, 4 sold at 1s; Dehigolla A1, 13 out; ditto 2, 6 sold at 1s 1d; ditto 1 B and S, 4 sold at 1s.
"Dorbyshire."—Gammadua O, 14 cases out; ditto ILB1, 2 sold at 1s 1d; ditto SB 2, 4 sold at 11d; ditto 1 seed, 2 sold at 1s 3d; ditto 2 seed, 1 sold at 1s 1d.
"Benmohr"—WDS, 7 cases out.
"Ulysses."—NJDS in estate mark, 5 cases out.
"Historian."—WDS, 4 cases out.
"Benlawers."— AL OO, 3 cases out.

CEYLON RUBBER SALES IN LONDON.

"Prometheus."—Wiharagama, 1 case sold at 4s 3d; 1 sold at 3s 6d; 2 sold at 2s 3d.
"Hakata Maru."—No. 1 Biscuits, 2 cases sold at 4s 3d: No. 1 Scrap, 1 sold at 3s 6d; No. 2 ditto 1 sold at 3s 6d; No. 1 Biscuits, 1 sold at 4s 3d; No. 1 Scrap, 1 box sold at 3s 6d.

No. 20. COLOMBO, MAY 27th, 1903. PRICE:—12½ cents each, 3 copies 30 cents; 6 copies ½ rupee.

COLOMBO SALES OF TEA.

LARGE LOTS.

Messrs. E. Benham & Co.

[28,050 lb.]

	Pkgs.	Name	lb.	c.
Yuillefield	19 hf ch	bro or pek	1140	40 bid
	11 ch	or pek	1100	40
	18 do	pek	1710	37 bid
Hornsey	24 hf ch	bro pek	1440	45 bid
	12 ch	or pek	1080	40 bid
	15 do	pek	1350	37 bid
	14 do	pek sou	1050	35
Coodoogalla	20 hf ch	pek	1000	32 bid
R—T, in est mark	18 ch	pek sou	1800	32 bid
	36 hf ch	fans	2520	33
Choughleigh	13 ch	bro or pek	1300	38 bid
	16 do	bro pek	1600	35 bid
	13 do	pek	1131	34 bid
Battalgalla	18 ch	bro pek	1800	38
	18 do	or pek	1530	39
Goodnestone	22 ch	bro or pek	1646	38 bid
	13 do	pek	1166	withdn

Messrs. Forbes & Walker.

[599,182 lb.]

	Pkgs.	Name.	lb.	c.
Nawalapitiya	15 ch	bro mix	1530	24
Sirikandura	36 ch	bro pek	3600	37
	33 do	pek	3135	32
	31 do	pek sou	2635	31
Strathisla	10 ch	fans	1100	31
Drayton	17 ch	or pek	1615	44
	31 do	pek	2635	38
	12 do	pek sou	1080	36
Moray	23 hf ch	or pek	1035	45
	21 do	bro or pek	1155	49
	24 ch	bro pek	2520	38
	23 do	pek	2070	37
	17 do	pek No 2	1360	35
	10 do	bro or pek No 1	1010	38
Lindupatna	20 ch	bro or pek	2120	56
	28 do	or pek	2912	42
	18 do	pek	1620	39
	8 do	bro pek fans	1088	36
O B E C, in est mark Darrawella	26 hf ch	bro or pek	1430	50
	17 ch	bro pek	1700	39
	12 do	or pek	1068	43
	40 do	pek	3640	37
	15 do	pek sou	1170	35
	16 hf ch	fans	1088	37
	14 do	dust	1190	35
Harrington	29 hf ch	bro or pek	1595	61
	15 ch	bro pek	1650	47
	14 do	or pek	1330	47
	17 do	pek	1700	42
Rickarton, Invoice No 21	17 ch	bro or pek	2040	40 bid
	18 do	or pek	2070	41
	10 do	pek	1200	37
Ardlaw and Wishford	20 hf ch	bro or pek	1200	52
	19 do	bro pek	1178	44
	11 ch, 1 hf ch	or pek	1032	42
	15 ch	pek	1260	37
Ireby	56 hf ch	bro pek	3360	54
	27 do	pek	2430	48 bid
Tempo	16 ch	bro or pek	1520	38
	12 do	or pek	1056	37
	23 do	bro pek	2300	35 bid
	49 do	pek	4165	33
	14 do	pek sou	1050	31
	9 do	dust	1008	30
Mahawala	15 ch	bro pek	1500	35 bid
	12 do	or pek	1020	35 bid
	24 do	pek	2160	33
	15 do	pek sou	1350	31
Stafford	16 ch	bro or pek	1920	60
	20 do	or pek	2000	56
	18 do	pek	1620	46
Mudamana	22 ch	*young hyson*	1980	34
	27 do	*hyson*	2295	33
	14 do	*hyson No 2*	1120	31 bid

Name.	Pkgs.		lb.	c.
Kandaloya	64 hf ch	*young hyson*	2880	35 bid
	45 do	*hyson*	1800	34 bid
	29 do	*hyson* No 2	1305	25 bid
Bowlana	17 ch	bro or pek	1870	39
	21 do	or pek	1995	39
	24 do	pek	2160	35
Glaslyn	13 ch	or pek	1170	36 bid
Ingregalla	14 ch	bro pek	1400	38
	12 do	pek	1080	35
Kandaloya	44 hf ch	*young hyson*	1980	35 bid
	37 do	*hyson*	1480	34 bid
O B E C est mark, Sindamally	11 ch	bro or pek	1100	39 bid
	13 do	bro pek No 2	1430	36 bid
	21 do	or pek	1995	37
	34 do	pek	2890	33 bid
	14 do	pek sou	1050	31 bid
Penrhos	42 hf ch	bro or pek	2352	41
	29 do	or pek	1392	41
	30 ch	pek No 1	2400	36
	30 do	pek No 2	2460	33
Vogan	22 ch	bro or pek	2200	44 bid
	36 do	or pek	3240	38
	45 do	pek	4050	34
	13 do	pek No 2	1170	32
Dunbar	27 hf ch	bro or pek	1485	49
	27 do	bro pek	1485	40
	20 ch	pek	1840	38
	27 hf ch	bro pek fans	1809	36
Mansfield	69 hf ch	bro pek	4140	43 bid
	18 ch	pek	1800	39
Dromoland	31 hf ch	bro or pek	1612	41
	23 do	bro pek	1150	38
	17 ch	pek	1445	34
Marlborough	56 hf ch	bro or pek	2912	46
	30 ch	bro pek	3000	39
	48 do	pek	4416	35
Poonagalla	63 ch	bro pek	5670	44
	33 do	pek	3135	38
Ravenswood	15 ch	or pek	1350	43
	25 do	bro pek	2500	43
	19 do	pek	1615	38
Tonacombe	60 ch	or pek	5400	36
	32 ch	bro pek No 1	3200	42
	43 do	do No 2	4300	35
	103 do	pek	8755	35
	32 do	pek sou	2560	32
Glendon	14 ch	bro pek	1400	45
	46 do	or pek	4600	37
	46 do	pek	4140	34
	14 do	pek sou	1260	31
O B E C, in est mark Forest Creek	16 ch	bro or pek	1632	63
	41 do	bro pek	4264	39
	14 do	or pek	1428	40
	21 do	pek	1890	36
Batakella	11 ch	bro pek	1100	32
	13 do	pek	1300	30
Sunnycroft	37 ch	*young hyson*	3515	35
	32 do	*hyson*	2880	33
	21 do	*hyson No 2*	1890	32
	12 do	*gunpowder*	1080	30
	18 hf ch	*siftings*	1260	16
Templehurst	34 ch	bro pek	3400	44
	15 do	pek	1350	36
Bandara Eliya	24 hf ch	bro or pek	1440	38
	63 do	pek	3024	38
	12 do	dust	1020	31
	29 do	fans	2146	30
Rugby	26 ch	pek	2470	31 bid
G	11 ch	pek	1144	33
Galleheria	17 ch	bro or pek	1700	44 bid
	18 do	or pek	1440	39
	28 do	pek	2520	35
	16 do	pek sou	1520	34
Shrubs Hill	41 ch	bro pek	4100	36
	52 do	pek	4680	31 bid
Mousa Eliya	16 ch	bro or pek	1600	39
	24 do	bro pek	2400	36
	16 do	pek	1520	35
G, in est mark	28 ch	sou	2520	30
	13 do	congou	1170	29
D A L E	20 ch	bro or pek	2100	65 bid
Court Lodge	12 ch	bro or pek	1380	58
Ambragalla	27 hf ch	or pek	1296	39
	41 do	bro or pek	2214	38
	25 ch	pek	2000	34
	21 do	pek sou	1638	32
Siriwatte	36 hf ch	bro or pek	2016	37
	21 ch	or pek	1890	37
	21 do	pek	1680	36
B D W P	16 ch	bro or pek	1760	35
	15 do	bro or pek	1650	35

	Pkgs.		Name.	lb.	c.
Delta	26	ch	bro pek No 1	2756	36
	22	do	pek	2068	33
	15	do	bro pek No 2	1785	34 bid
	27	hf ch	bro or pek	17.5	40 bi l
	14	ch	pek sou	1190	32
Middleton	18	hf ch	bro or pek	10 0	65
	13	ch	bro pek	1800	45
	16	do	or pek	1440	45
	12	do	pek	1080	38
Devonford	14	ch	pek	1274	37 bid
Wella	34	hf ch	bro pek	1870	37
Kitulgalla	16	ch	bro or pek	1606	36
	12	do	or pek	1128	37
	12	do	pek	1056	35
Tymawr	20	hf ch	or pek	1100	59
	19	do	bro or pek	1140	64
	31	do	pek	1705	45
Deaculla	19	hf ch	bro or pek	1140	46
	56	ch	pek	3920	33 bid
Lebanon Group	18	ch	sou	1800	32
	19	hf ch	dust	1520	33
	11	ch	sou	1100	31
	30	hf ch	bro pek	1650	39
	23	ch	pek	2070	35
	18	do	pek sou	1530	34
Dunkeld	37	hf ch	bro or pek	2220	41
	53	do	bro or pek	3180	41 bid
	22	ch	or pek	1980	39
	27	do	pek	2430	37
Killarney	21	hf ch	bro or pek	1260	57
	30	do	bro pek	1800	41 bid
	12	ch	or pek	1020	43
	14	do	or pek	1190	44
	19	do	pek	1615	39
Carfax	27	ch	or pek	2430	40
	27	do	pek	2430	39
Seenagolla	25	hf ch	bro or pek	1500	53
	22	do	or pek	1056	55
	31	do	pek	1612	41
Lucky Land	40	hf ch	bro or pek	2480	40
	18	ch	bro pek	1710	43
	11	do	or pek	1056	41
	26	do	pek	2210	38
	12	hf ch	pek fans	1032	36
Bandarapola	92	hf ch	br or pek No 1	4600	33
	68	do	br or pek No 2	3060	30 bid
	57	do	bro pek	2679	29 bid
	61	do	pek	2440	29 bid
Clunes	21	ch	or pek	1995	37
	27	do	pek	2430	34
Gampaha	39	hf ch	bro or pek	2418	40
	11	ch	bro pek	1045	42
	13	do	or pek	1248	40
	30	do	pek	2550	38
	14	do	pek sou	1260	36
Hayes	38	ch	bro pek	3800	39
	20	do	or pek	1700	38
	87	do	pek	8265	35
Mahauva	70	hf ch	bro or pek	4200	37
	27	ch	or pek	2700	41
	55	do	pek	4950	35
Kirklees	50	hf ch	bro or pek	2900	40
	14	ch	or pek	1288	38
	23	do	pek	2024	35
Clarendon Dimbula	30	hf ch	bro pek	1796	48
	26	ch	pek	2466	40 bid
Nillomally	10	ch	bro or pek	1000	47
	11	do	bro pek	1100	39
	54	do	pek	4752	35 bid
	18	do	or pek	1440	43
	10	do	fans	1000	35
Good Hope	31	hf ch	bro or pek	1674	37
	14	ch	or pek	1260	35
W V R A	22	hf ch	bro or pek	1210	61
North Cove	20	hf ch	bro or pek	1100	66
	54	do	bro pek	3240	46
	17	ch	pek	1530	46
Bandara Eliya	50	hf ch	or pek	2250	43
	54	do	bro or pek	2916	43 bid
	71	do	pek	3550	39
Dunblane	42	hf ch	bro or pek	2310	50 bid
	22	ch	bro pek	2200	39
	17	do	pek	1615	36
C	14	ch	dust	1960	34
Clunes	11	ch	bro pek	1100	36
	12	do	or pek	1140	37
	22	do	pek	1980	34
High Forest	65	hf ch	or pek No 1	3376	51
	51	do	or pek No 1	2652	53
	36	do	bro pek	2160	46
	27	do	or pek	1350	44
	45	do	pek fans	3735	28
Waitalawa	76	hf ch	bro pek	3300	39 bid
	118	do	pek	5900	34
	23	do	pek sou	1150	31
Digdola	16	ch	pek	1320	33
	21	do	pek sou	1575	30

	Pkgs.		Name.	lb.	c.
Harrow	20	hf ch	bro or pek	1200	43 bid
	28	do	or pek	1624	37 bid
	22	do	pek	2310	34 bid
Uragalla	10	ch	bro pek	1050	35
Galapitakande	16	ch	or pek	1600	37
	29	do	bro pek	2900	38
	37	do	pek	3515	35
	11	do	pek sou	1045	32
	12	do	bro pek No 1	1200	44
Attampettia	14	ch	bro pek	1510	38 bid
Kincora	20	ch	or pek	1800	38
	18	do	pek	1530	36
Pungetty	19	ch	bro or pek	2280	45 bid
	32	do	pek	3200	40
Palmerston	22	ch	bro or pek	1276	62 bid
	18	do	bro pek	1014	44 bid
	21	do	pek	1764	45
Preston	34	hf ch	bro or pek	1870	47
	12	ch	pek	1008	40 bid

Messrs. E. John & Co.

[233,904 lb.]

	Pkgs.		Name.	lb.	c.
Kosgalla	19	hf ch	bro pek	1035	30 bid
Pelilakande	18	ch	bro or pek	1620	33
	35	do	bro pek	3150	31
	21	do	pek	1680	28 bid
Tismoda	20	hf ch	bro or pek	1000	37
	47	do	bro pek	2350	36
	27	ch	pek	2295	33
	12	do	pek sou	1020	31
Oonoogaloya	15	ch	or pek	1275	38
	19	do	bro or pek	1900	41
	14	do	pek	1260	36
Gingranoya	21	ch	bro or pek	2310	40 bid
	12	do	or pek	1140	40
	17	do	pek	1530	36
Mt. Everest	50	hf ch	bro or pek	2750	55
	45	do	or pek	2250	45 bid
	48	ch	pek	4800	38
	29	hf ch	bro pek fans	2030	36
	13	do	dust	1300	34
Winwood	34	hf ch	bro or pek	1870	44 bid
	26	ch	or pek	2600	39
	38	do	pek	3420	35
Ormidale	20	hf ch	bro or pek	1000	70
	59	ch	bro pek	3540	40
	33	do	pek	3036	39
Mocha	36	hf ch	bro or pek	2160	53 bid
	32	ch	or pek	3040	44
	36	do	pek	3600	38
	30	hf ch	fly or pek	1590	55
Glentilt	46	hf ch	bro or pek	2530	48 bid
	19	ch	or pek	1748	40
	16	do	pek	1440	38
Morton	32	ch	bro or pek	3200	35
	23	do	or pek	1955	35
	32	do	pek	2560	34
St. Clair	34	ch	or pek	3400	41 bid
	18	hf ch	bro or pek	1080	54 bid
	12	ch	pek	1080	38 bid
Cabin Ella	45	ch	bro pek	4500	38 bid
	35	do	pek	3150	37
Stonyhurst	17	ch	or pek	1530	37
	20	do	pek	1700	35
Agra Ouvah	32	hf ch	bro or pek	1920	48
	29	do	or pek	1566	43
	11	ch	pek	1012	40
Dalhousie	19	hf ch	bro pek	1015	38 bid
	27	do	pek	1215	33 bid
Heeloya	26	*hf ch*	*young hyson*	1950	35
	17	*ch*	*hyson*	1785	40
Ottery	14	ch	bro or pek	1400	47
	42	do	pek	3780	36
Bowella	44	hf ch	bro pek	2200	32 bid
St. John's	38	hf ch	bro or pek	2128	44
	24	ch	or pek	2160	51
	36	do	pek	3456	43
Rookwood	31	ch	pek	2976	36
	36	hf ch	bro or pek	2268	36 bid
	22	do	fly or pek	1276	40
	32	ch	pek	3072	36
	37	do	pek No 1	3330	34
Harrisland	13	ch	pek	1040	32
Bowhill	13	ch	br or pek	1300	39 bid
	12	do	bro pek	1200	36
	15	do	pek	1425	34
Yahalakelle	11	ch	bro mix	1210	28 bid
Mt. Vernon	25	ch	pek	2250	33 bid
	32	do	pek	2816	37 bid
M	10	ch	bro mix	1000	26
Perth	47	*ch*	*young hyson*	4700	34 bid
	24	*do*	*hyson*	2040	32 bid

	Pkgs.	Name.	lb.	c.
Kolapatna	19 hf ch	bro or pek	1064	60
	18 do	bro pek	1098	43
	20 do	or pek	1000	43
	11 ch	pek	1012	39
Ohiya	24 hf ch	bro or pek	1296	40 bid
	12 ch	or pek	1116	38 bid
	16 do	pek	1280	35 bid
Holbrook	7 ch	dust	1085	34
	27 hf ch	bro pek fans	1890	38
Ratwatte	54 ch	bro pek	5400	33 bid
	24 do	pek	2160	32
Agra Ouvah	44 hf ch	bro or pek	2640	48 bid
	34 do	or pek	1836	42
	11 ch	pek	1012	40
Warleigh	14 ch	or pek	1330	44
	27 do	pek	2295	35 bid
Glentilt	41 hf ch	bro or pek	2255	46 bid
	19 ch	or pek	1710	42
	16 do	pek	1440	38
	18 hf ch	fans	1440	37
Elston	29 ch	pek	2320	35
	37 do	pek sou	3145	33
	20 do	dust	1800	35
Mahanilu	13 ch	or pek	1235	43
	14 do	pek	1330	37

Messrs. Somerville & Co.

[271,991 lb.]

	Pkgs.	Name.	lb.	c.
Cooroondoowatte	12 ch	pek fans	1530	29
Eilandhu	13 ch	bro pek	1235	35
	17 do	pek	1530	33
Narangoda	17 ch	bro pek	1615	38
	14 do	pek	1260	34
	12 do	pek sou	1080	30
Walla Valley	26 hf ch	bro or pek	1430	51
	18 ch	or pek	1620	43
	28 do	pek	2520	37
Kelani Tea Garden Co. Ltd., Kelani	31 ch	flo. or pek	3100	37
	30 do	pek	2700	34
	26 do	or pek	2340	36 bid
	45 do	pek sou	3600	31
Laxapanagalla	11 ch	bro or pek	1100	37
Mahavilla	10 ch	or pek	1000	38
Highfields	27 hf ch	bro or pek	1620	40 bid
	37 do	br pek	1850	39
	51 do	pek	2550	36 bid
R M in est mark, Bopitiya	68 ch	bro pek	6800	38
	25 do	pek	2250	36
	23 do	pek sou	2070	34
Labugama	17 hf ch	bro or pek	1020	35
	22 ch	pek	1870	32
Jak Tree Hill	35 ch	bro pek	3657	36 bid
	22 ch	pek	2300	35
Blinkbonnie	33 hf ch	bro or pek	1980	54
	12 ch	or pek	1080	45
	18 do	pek	1674	42
Nahavilla	12 ch	or pek	1080	36 bid
Hobart	25 ch	bro or pek	2500	33 bid
W K P	14 ch	bro pek	1400	38
	12 do	or pek	1080	35
	33 do	pekoe	2640	32
Oaklands	35 *ch*	*young hyson*	3500	34 bid
	29 *do*	*hyson*	2697	32 bid
	12 *do*	*hyson No 2*	1056	31 bid
Ravenscraig	17 ch	bro or pek	1700	40
	13 do	or pek	1170	35 bid
	12 do	pek	1080	38
Polgahakande	15 ch	or pek	1200	37
	22 do	bro pek	2200	37
	14 do	pek	1050	34
Marigold	22 hf ch	bro pk fans	1430	37
	14 do	pek dust	1092	35
Hobart	30 ch	bro pek	2700	33 bid
	28 do	pek	2100	30 bid
	26 do	pek sou	1820	29
Mount Temple	21 ch	br pek	2100	36 bid
	25 do	pek	2000	33
	19 do	bro or pek	1862	35
Dryburgh	23 hf ch	bro or pek	1288	36
	14 ch	or pek	1288	37
	25 do	pek	2100	34
Meddegodde	36 hf ch	bro pek	2340	39
	23 ch	pek	2300	33 bid
	10 do	pek sou	1000	31
Watumulla	25 hf ch	bro pek	1500	37
	15 ch	pek	1350	35
St Catherine	31 hf ch	pek	1708	39
	27 ch	pek	2433	32
Richlands	14 ch	or pek	1260	36
	15 do	bro or pek	1500	40
	15 do	pek No 1	1500	35
	21 do	pek No 2	1890	31

	Pkgs.	Name.	lb.	c.
Oonanagalla	23 ch	pek No 1	2200	35
	25 do	pek sou	2250	32
Bodawa	45 hf ch	bro pek	2250	36
	15 do	pek	1350	32
Florida	21 ch	bro pek	2184	33
	18 do	pekoe	1800	30
	16 do	pek sou	1526	29
Hurstpierpoint	20 hf ch	bro pek	1000	30 bid
Dalukoya	50 hf ch	or pek	2750	37
Rayigam Co. Ltd., Annandale	12 ¾ ch	bro or pek	10[illegible]0	48 bid
	18 do	or pek	1368	43 bid
	22 do	pek	1760	40 bid
Mora Ella	26 hf ch	bro or pek	1430	38 bid
	19 do	bro pek	1140	37 bid
	23 do	or pek	1035	43
	26 ch	pek	2310	35
Cooroondoowatte	15 ch	bro pek	1500	36
Ambalawa	16 ch	pek	1360	32
Yarrow	59 hf ch	bro pek	3245	39
	45 do	pek	2160	34
Jak Tree Hill	25 ch	bro pek	2625	37 bid
	15 do	pek	1500	34
Farnham	55 *hf ch*	*young hyson*	3300	35 bid
	12 *ch*	*hyson*	1200	33
Nagasaki	20 *¾ ch*	*hyson*	1300	withd'n
Kurunegalle Estates Company, Ltd,	33 hf ch	bro pek	2376	37
	24 ch	pek	2160	34
Glenalmond	19 ch	pek	1796	35
Deniyaya	16 ch	or pek	1520	38
	16 do	br or pk No 2	1600	38
	16 do	pek	1520	35
	17 do	pek sou]	1530	32
Bollagalla	43 ch	bro pek	4300	36 bid
	28 do	pekoe	2240	32 bid
	14 do	pek sou	1190	31 bid
Harangalla	31 ch	bro or pek	2945	37 bid
	13 do	bro pek	1300	35 bid
	26 do	pek	2210	34
	16 do	pek sou	1280	32
East Matale Co Ltd, Forest Hill	13 ch	bro pek	1196	36
	21 hf ch	bro or pek	1092	40
	16 ch	pek	1376	34
Gampolawatte	13 ch	pek	1180	34
S T M	24 ch	bro or pek	2400	36 bid
S in est mark	22 ch	or pek	1870	36 bid
Old Maddegama	24 hf ch	br or pek	1344	42
	27 ch	pek	2430	36
Yahalatenne	36 ch	bro pek	3600	37 bid
	20 do	pek	1840	32 bid
Ellerslie	36 hf ch	bro or pek	1976	38 bid
Dooroomadella	12 *ch*	*young hyson*	1156	35
	18 *do*	*hyson*	1746	33
Neboda Tea Co of Ceylon, Limited, Neboda	33 ch	bro or pek	3296	39
Scottish Ceylon Tea Company, Limited, Inverness	14 ch	pek	1372	35
Mousa	26 hf ch	bro or pek	1556	39
Weygalla	10 ch	bro pek	1000	36 bid
	18 do	pek	1800	31 bid
R A W	35 hf ch	br pek	1991	39 bid
Highfields	24 hf ch	bro or pek	1324	withd'n

Messrs. Keell and Waldock.

[53,430 lb.]

	Pkgs.	Name.	lb.	c.
Rothes	29 hf ch	bro pek	1595	36
Fairlawn	38 hf ch	bro or pek	2090	40
	15 ch	pek	1275	37
Woodend	24 ch	bro pek	2400	35
	26 do	pek	2340	33
Oodoowera	25 ch	br pek	2500	36
	20 do	pek	1900	35
Hangranoya	12 ch	bro or pek	1140	43 bid
	13 do	or pek	1040	37 bid
	24 do	br pek	2400	36 bid
	18 do	pek	1440	34 bid
S P S in est mark	11 ch	pek	1100	30 bid
Minna	39 hf ch	bro or pek	2340	41 bid
	19 do	or pek	1710	40
	21 do	pek	1890	28
Galgediyaya	12 ch	br pek	1200	34 bid
Hanwella	39 *ch*	*young hyson*	3146	withd'n
Glenfern	11 ch	br pek	1320	35 bid
K C E	15 ch	br pek	1496	32 bid

SMALL LOTS.

Messrs. E. Benham & Co.

	Pkgs.	Name.	lb.	c.
Yuillefield	5 hf ch	bro pek	275	41 bid
	7 do	fans	455	36
	2 ch	pek sou	190	33
	2 hf ch	dust	190	31
Mawanella	2 hf ch	bro pek	112	35 bid
	2 do	pek	100	31
	5 do	pek sou	250	29
	1 do	fans	44	30
Choughleigh	4 ch	bro or fans	480	34
Battalgalla	12 ch	pek	960	36
Mapitigama	1 ch	*young hyson*	94	34
	1 do	*hyson No 1*	79	32
	1 do	*hyson No 2*	89	31
	1 do	*gunpowder*	69	31 bid
K	3 ch	*gunpowder*	300	30 bid

Messrs Forbes & Walker.

	Pkgs.	Name.	lb.	c.
Wewawatte	9 ch	bro pek	585	37
	10 do	pek	550	32
Sirikandura	4 ch	bro pek dust	555	33
	2 do	bro pe fans	172	33
	2 do	fans	176	30
D	3 ch	sou	263	29
Strathisla	6 ch	dust	510	26
Lindupatna	9 do	pek sou	864	35
Harrington	3 hf ch	bro pek fans	240	37
	1 do	dust	95	34
Rickarton, Invoice No 21	1 ch	pe sou	111	32
	5 do	dust	750	32
Ardlaw and Wishford	9 ch	bro pek No 2	900	39
Berragalla	1 hf ch	desiccator sweeping	50	32
Ireby	11 ch	pek sou	990	38 bid
Mahawale, Invoice No 9	9 ch	bro mix	900	27
	5 hf ch	fans	275	31
	6 do	dust	480	29
K	4 ch	*green tea dust*	257	13
F K	5 ch			
	1 box	*faced green dust*	732	10
Stafford	1 ch	dust	170	33
	2 do	fans	290	36
Kelvin	3 hf ch	dust	255	32
Madamana	5 ch	fans	500	18
Kandaloya	4 hf ch	fans	200	16
	11 do	fans No 2	440	19
Bowlana	7 ch	pek sou	595	30 bid
	9 do	dust	765	32
	9 do	fans	630	34
Glaslyn	8 ch	bro or pek	800	37 bid
	7 do	bro pek	700	38
	6 do	pek	570	34 bid
B B B, in est mark	9 hf ch	dust	720	30
Kandaloya	12 hf ch	*hyson No 2*	540	31
	4 do	*fans*	200	13 bid
	5 do	*fans No 2*	200	19
Ireby	1 ch	pek sou	90	33
O B E C, in est mark Sindamally	1 ch	fans	120	32
	1 do	dust	160	27
W F	15 hf ch	congou	750	27
	12 do	pek fans	720	32
Campden Hill	6 ch	*young hyson*	570	35
	6 do	*hyson No 1*	510	34
	9 do	*hyson No 2*	720	33
Penrhos	3 hf ch	pek sou	147	30
	7 do	fans	518	34
	2 do	pek dust	184	29
Vogan	4 ch	pek fans	500	31
	8 hf ch	dust	640	33
H	7 ch	pek sou	665	30
	5 hf ch	dust	375	26
Dunbar	10 ch	pek sou	920	35
Mansfield	6 ch	pek sou	540	35
	7 hf ch	dust	630	34
P R S	10 do	dust	850	27
Dromoland	9 ch	pek sou	720	31
	3 do	sou	192	29
	11 hf ch	fans	638	34
	4 do	dust	304	31
Marlb rough	1 ch	pek fans	100	out
Poonagalla	5 hf ch	fans	460	35
Batakella	3 ch	pek sou	315	31 bid
	2 do	bro pe fans	245	out
	1 do	pek dust	90	out
	1 do	bro tea	100	out
Sylvakandy	4 ch	dust	400	31
Templehurst	4 do	fans	280	35
Bandara Eliya	14 ch	pek sou	630	31
R	2 do	pek dust	240	28
G	1 hf ch	dust	98	23
	1 do	*green tea*	43	out
New Galway	11 hf ch	bro pek	657	50
	14 do	pek	767	37
A	6 ch	bro pek	600	35
Surubs Hill	11 ch	bro pek fans	880	33
Mousa Eliya	1 ch	pek sou	100	30
	2 do	dust	200	30
Ambragalla	3 ch	dust	300	27
St. Helen's	12 hf ch	f ns	780	withdn.
Siriwatte	4 do	dust	320	32
Udapolla	5 ch	*young hyson*	475	34
	5 do	*hyson*	425	32
	3 do	*hyson No 2*	240	31
	2 hf ch	*fans*	130	17
	1 do	*dust*	80	10
B D W P	2 ch	pek fans No 1	220	29
	2 do	pek fans No 1	200	28
	9 hf ch	dust	855	30
Delta	5 ch	fans	600	34
	8 hf ch	dust	720	32
Devonford	10 hf ch	bro or pek	590	50
	6 ch	or pek	540	46
	2 do	pek sou	178	35
	4 hf ch	fans	292	37
	3 do	dust	252	34
Wella	12 hf ch	pek	600	35
Kitulgalla	3 hf ch	dust	255	31
	4 do	bro pek fans	260	33
Deaculla	14 hf ch	or pek	686	44
	4 do	dust	320	28
N P	2 ch	bro mixed	200	20
Ookoowatte	1 ch	pek fans	120	28
	1 do	pek sou	85	28
	1 hf ch	dust	100	26
Lebanon Group	11 hf ch	dust	935	34
	2 do	dust	170	34
Killarney	11 hf ch	fans	803	36
Seenagolla	2 hf ch	dust	176	35
Clunes	7 ch	bro or pek	700	39
	5 do	pek sou	425	32
	2 do	dust	270	28
ayes	11 hf ch	bro or pek fans	910	39
Good Hope	8 ch	pek	760	32
	5 do	pek sou	450	30
	4 hf ch	pek fans	248	31
	1 do	bro pek fans	70	31
W V R A	5 hf ch	fans	325	35
	11 do	dust	880	28
C R D	6 ch	sou	480	29
	2 do	red leaf	150	19
Dumblane	3 ch	pek sou	285	32
Clunes	6 ch	pek sou	510	31
Waitalawa	6 hf ch	dust	540	33
Digdola	7 ch	bro or pek	665	35
Harrow	4 ch	sou	380	32
Uragalla	11 ch	pek	968	3
R	4 ch	*green tea dust*	658	10
Galaritakande	6 ch	dust	480	34
Y S P A	6 ch	pek	540	31
	14 hf ch	fans	980	34
Preston	20 hf ch	or pek	920	50
	6 do	bro or pek fans	408	38
Memorakande	9 hf ch	fans	720	31
	2 do	dust	200	32

Messrs. Keell and Waldock.

	Pkgs.	Name.	lb.	c.
T	1 hf ch	pek fans	70	29
Fairlawn	8 hf ch	bro pek	440	38
	5 ch	pek sou	400	32
	3 hf ch	dust	255	31
Meath	14 do	bro or pek	770	38 bid
	8 ch	or pek	800	39
	9 do	pek	882	36
	3 hf ch	bro pek	210	33
	1 do	pek dust	86	30
Woodend	9 ch	bro or pek	990	37
	12 do	pek sou	960	31
	2 do	dust	280	29
Oodoowera	2 hf ch	dust	200	31
S P S in est mark	5 ch	bro pek	500	34
	4 do	pek sou	400	29
Minna	10 ch	pek sou	900	35
	8 hf ch	fans	600	33
	5 do	dust	400	30
Galgedioya	6 ch	pek	540	29 bid
M P S	4 ch	fans	406	16
W K	1 ch	*young hyson dust*	113	12
Glenfern	12 ch	pek	960	32
	8 do	pek souchong	560	30
	1 hf ch	dust	85	26

	Pkgs.	Name.	lb.	c.
Nawanagalla	5 do	bro pek	300	38
	8 do	or pek	400	37
	4 ch	pek	320	33
	2 do	pek No 2	180	32
	6 do	pek sou	480	30 bid
A K	2 ch	bro pek	178	28
	5 do	pek	490	27
	8 do	pek sou	710	26
	14 hf ch	fans	784	28
	5 do	dust	399	18
C in est mark	9 *hf ch*	*twanky*	837	8 bid
	2 *do*	*dust*	173	10
Dambagalla	7 hf ch	bro pek	371	37
	7 do	bro or pek	443	37
	11 do	pek	539	33
	6 ch	pek sou	480	30 bid
	1 hf ch	or pek	47	40
	1 ch	bro mixed	80	23
	1 do	dust	80	25

Messrs. Somerville & Co.

	Pkgs.	Name.	lb.	c.
Galata	8 hf ch	bro pek fans	640	32
	2 ch	pek sou	200	23
Eilandhu	5 ch	pek sou	450	29
	1 do	bro mix	100	18
	2 do	dust	260	29
Narangoda	7 hf ch	dust	595	23
Kelani Tea Garden Co, Ltd, Kelani	3 ch	or pek fans	300	34
	6 hf ch	dust	600	30
Laxapanagalla	10 ch	or pek	950	35
	3 do	pekoe	270	32
	1 do	pek fans	100	32
Park Hill	7 ch	bro pek	763	34
	3 do	pek	195	31
	3 do	pek sou	240	29
R M in est mark, Berjitiya	5 hf ch	dust	364	32
Labugama	7 ch	or pek	595	37
	5 do	pek sou	400	30
Blinkbonnie	9 ch	pek sou	765	37
H	10 *ch*	*hyson No 2*	900	out
W K P	10 ch	pek sou	750	30
	2 do	souchong	152	29
	2 hf ch	dust	158	27
Oaklands	7 hf ch	fans	455	19
	3 do	dust	240	11
Polgahakande	1 ch	souchong	85	29
	2 do	pek fans	210	21
	3 hf ch	dust	420	29
Marigold	18 hf ch	pek sou No 2	900	37
Allacollawewa	12 hf ch	pek sou No 2	600	36
	15 do	bro pek fans	975	33
	11 do	pek dust	858	35
Mount Temple	8 ch	souchong	600	30
Dryburgh	2 ch	pek sou	180	30
	4 hf ch	fans	296	32
Meddegoda	2 ch	dust	200	29
	4 hf ch	bro pek fans	320	34
Watumulla	10 ch	pek sou	800	32
	5 hf ch	dust	400	27
St Catherine	3 hf ch	fans	213	33
Bodawa	8 ch	pek sou	650	29
	1 do	bro mixed	76	18
	5 hf ch	bro pek fans	375	30
Florida	5 ch	bro fans	640	28
	1 do	red leaf	100	18
Hurstpierpoint	13 hf ch	pek	650	28 bid
	2 do	red leaf	90	18 bid
	2 do	dust	136	20
Kiriskande	5 ch	bro pek	500	25 bid
	5 do	pek	450	34 bid
	1 do	souchong	90	out
Wiharagama	10 hf ch	bro or pek	540	33
	9 do	bro or pek No 2	423	32
	6 do	bro pek	283	30
	5 do	pek	210	28
	1 do	dust	63	22 bid
Mora Ella	9 ch	pek sou	810	35
	6 hf ch	bro or pek fans	450	34
	2 do	dust	150	31
F A in est mark	2 hf ch	pek sou	100	33 bid
	1 do	dust	84	31
Tientsin	4 ch	red leaf	380	19
Bukande	3 ch	bro or pek	315	36 bid
	3 do	br or pek No. 2	276	34
	5 do	or pek	450	34
	6 do	pek	510	34
	2 do	pek sou	150	30
	1 do	dust	101	29
Yarrow	22 hf ch	or pek	924	36
	18 do	pek sou	792	32
	2 do	dust	146	27

	Pkgs.	Name.	lb.	c.
Jak Tree Hill	2 ch	pek sou	200	30 bid
	1 do	fans	130	30 bid
	2 do	dust	220	30
P K W	7 hf ch	bro pek	351	35 bid
	7 ch	pek	560	33
	9 do	pek sou	675	24 bid
	1 hf ch	dust	85	28
	3 ch	bro mixed	265	23 bid
Farnham	6 *ch*	*hyson (A)*	600	32
	3 *do*	*hyson No 2*	300	31 bid
	1 *do*	*dust*	130	11
	5 *do*	*fans*	350	20
Kurunegalle Estates Co, Limited	15 ch	or pek	975	36
	3 hf ch	dust	283	29
Glenalmond	3 hf ch	dust	287	withd'n
Deniyaya	13 hf ch	bro or pekoe	780	4. bid
Bollagalla	4 hf ch	fans	280	30
Harrangalla	1 hf ch	dust	80	29
	7 ch	bro pek fans	700	33
O K	1 hf ch	dust	84	17
Gampolawatte	3 ch	bro pek	300	35 bid
	5 do	or pek	450	36 bid
	3 do	pek sou	270	30 bid
	1 hf ch	dust	85	31
	2 ch	fans	200	32
	5 do	bro or pek	500	37
S T M	10 ch	or pek	950	34
C	1 ch	pek sou	70	29
	1 hf ch	dust	44	24
	1 ch			
	1 hf ch	unast	135	12
Old Maddegama	10 ch	or pek	850	40
	6 do	pek sou	510	33
	6 hf ch	bro or pek fans	450	34
	2 do	dust	175	31
Mahatenne	2 ch	fans	257	30
Dooroomadella	8 *ch*	*hyson No*	757	31 bid
Scottish Ceylon Tea Co Ltd, Invery	12 hf ch	bro pek	780	38
Koharakande	3 *ch*			
	1 *hf ch*	*siftings*	465	15
Chaldon	3 *hf ch*	*hyson*	146	29
Ingeriya	11 ch	sou	877	29
R A W	4 hf ch	fans	265	34
J P	5 ch	pek sou	397	31 bid

[Messrs. E. John & Co.]

	Pkgs.	Name.	lb.	c.
Kosgalla	13 hf ch	pek	650	27 bid
	6 do	pek sou	270	24 bid
	1 do	sou	45	20
	1 do	bro pek fans	75	25
Oonoogaloya	6 hf ch	fans	420	35
Gingranoya	1 ch	fans	130	36
Winwood	8 hf ch	bro pek fans	480	35
	10 do	dust	900	35
Ormidale	8 hf ch	bro pek fans	600	35
B B	1 ch	cong u	70	18 bid
Morton	7 ch	pek sou	525	30
	5 hf ch	dust	400	28
Orwell	6 ch	or pek	510	35
	9 hf ch	bro or pek	477	37 bid
	6 ch	pek	510	34
	1 do	pek sou	88	30
	4 hf ch	pek fans	268	33
Shawlands	4 hf ch	bro pek fans	280	36
	6 ch	bro pek dust	600	32
	7 do	dust	700	28
	3 do	sou	234	28
K P	4 hf ch	dust	400	33
	6 do	fans	456	35
Cabin Ella	4 hf ch	bro pek fans	280	34
	3 do	pek dust	270	32
M G	10 hf ch	fans	750	35
H B L K	4 ch	bro pek	440	34
	4 do	pek	380	30
Stonyhurst	13 hf ch	bro or pek	728	41
	9 do	pek fans	603	38
Kabagalla	16 hf ch	bro pek	896	39 bid
	6 ch	pek	540	33
	5 do	pek sou	415	31
	2 hf ch	dust	160	31
Eton	2 ch	bro or pek	200	39
	2 do	or pek	200	34
	1 do	pek sou	100	32
	4 do	sou	400	31
	2 hf ch	dust	194	25
Dalhousie	15 hf ch	or pek	900	38
	10 do	pek sou	450	31
	11 do	bro pek fans	660	35
Heeloya	7 *ch*	*hyson No 2*	735	33 bid
	4 *hf ch*	*green tea dust*	340	10 bid

	Pkgs.	Name.	lb.	c.
Ottery	10 ch	or pek	900	46
	2 do	fans	220	35
	2 do	dust	280	30
	3 do	bro or pek	300	47
	3 do	or pek	240	43
	9 do	pek	810	36
	1 hf ch	dust	90	30
Bowella	9 ch			
	1 hf ch	pek	810	30
	4 do	dust	300	28
Rookwood	1 hf ch	pek fans	70	32
	4 do	pek dust	352	29
Harrisland	8 ch	bro or pek	440	40
	6 do	or pek	276	37
	1 do	pek sou	51	29
	1 do	fans	75	28
Bowhill	2 ch	dust	280	30
Yahalakelle	4 ch	pek dust	460	29
M	10 hf ch	red leaf	4:0	14
	1 ch	mixed	100	20
	3 do	sou	300	20
	2 hf ch	fans	130	20
Perth	5 *ch*	*hyson No* 2	455	31
	3 *do*	*fans*	345	18
	2 *do*	*dust*	300	12
Bambragalla	8 hf ch	bro or pek	520	39
	9 do	or pek	495	37
	8 do	pek	400	34
	4 do	pek sou	240	31
	1 do	dust	82	29
Kolapatna	3 hf ch	pek No 2	180	34
	2 do	pek sou	100	31
	4 do	bro pek fans	272	36
	4 do	pek fans	332	36
S T V	2 ch	bro pek	258	24
Chapelton	2 ch	sou	180	24
	6 hf ch	dust No 2	570	30
K B	10 hf ch	pek dust	820	30
Ratwatte	5 ch	pek sou	450	29
	5 hf ch	dust	400	28
Eton	6 ch	bro or pek	600	46
	8 do	or pek	8 0	38
	3 do	pek	300	35
Warleigh	16 hf ch	bro or pek	896	58 bid
	11 do	fans	683	37
	3 do	dust	255	35
D G	7 hf ch	dust	476	32
W D	3 ch	bro tea	354	22
Alawewa	4 ch			
	1 hf ch	congou	422	17
	5 ch	unas	515	out
W D	4 ch	bro pek	350	out
	5 do	pek	5:0	out
	1 do	pek sou	117	out
	3 do	sou	276	17
	3 do	fans	381	out
	9 hf ch	dust	720	out

CEYLON COFFEE SALES IN LONDON.

Mincing Lane May, 7th.

"Hakata Maru."—O Roehampton, 2 casks and 1 barrel sold at 88s; 1 ditto, 1 cask, 3 tierces and 2 barrels out at 85s; 2 ditto, 1 barrel sold at 44s; PB ditto, 1 tierce sold at 60s; T ditto, 2 barrels and 1 tierce, sold at 60s.

No Public Sales of Plumbago, Rubber and Cardamoms this week.

CEYLON COCOA SALES IN LONDON.

"Sanuki Maru."—Pathregalla London 1, 78 bags out, ditto 2, 7 sold at 47s 6d; ditto T, 2 sold at 49s.

"Bingo Maru."—Kadawella 1, 54 bags out.

"Tamba Maru."—KMA in estate mark, 165 bags sold at 49s.

"Omrah."—AM in estate mark London, 90 bags sold at 49s.

"Glenartney."—1 MM in estate mark, 81 bags out.

"Clan MacArthur."—Meegama No. A, 130 bags out; ditto No. 1, 12 out; ditto No. B, 15 sold at 50s; ditto No. B 1, 1 sold at 40s.

"Prometheus."—Marakona, 83 bags out; 29 withdrawn.

"Sanuki Maru."—Hunugalla, 13 bags out.

"Hakata Maru."—RP 1, 14 bags sold at 54s; 22 out; MM in estate mark, 149 bags sold at 49s.

"Prometheus."—RP, 23 bags sold at 50s 6d.

"Hakata Maru."—F OBCE in estate mark 1 Kondesalle Ceylon O, 48 bags out; F ditto 1, 5 sold at 53s 6d; ditto O, 6 sold at 81s; F ditto D 2, 2 sold at 49s 6d; G ditto, 2 sold at 30s; F OEC in estate mark Mahaberia Ceylon O, 7 bags out; F ditto 1, 8 sold at 53s 6d; C ditto O, 5 sold at 81s; C ditto 1, 3 sold at 55s; D ditto, 2 sold at 48s; G ditto 2, 4 sold at 30s.

"Clan MacArthur."—1 MGM in estate mark London, 30 bags out.

"Kawachi Maru."—HK 1, 38 bags sold at 62s; Hylton 1, 34 bags out.

"Ulysses."—KA in estate mark, 132 bags out; ditto, 1 bag sweepings sold at 45s.

"Bohemia."—KA in estate mark, 60 bags out.

"Peleus."—1 AA in estate mark, 8 bags out.

"Historian."—2 DMR in estate mark, 26 bags out.

"Ormuz."—Beredewelle COC Ex. No. 1, 19 bags out; ditto B, 4 sold at 49s 6d; ditto T, 1 sold at 49s.

"Hakata Maru."—Hylton 1 X, 16 bags out; ditto 1 D, 8 sold at 55s; ditto 2 D, 2 sold at 49s; ditto Broken, 2 sold at 54s.

"Banca."—Warriapolla, 145 bags out; 2 sold at 50s; 15 sold at 52s 6d; 23 sold at 37s 6d; Suduganga, 150 bags out; 12 sold at 55s; 14 sold at 53s 6d; 13 sold at 45s; Mawalaganga, 19 bags out; Aberfeldy Ceylon Coaca A, 30 bags sold at 89s; ditto B, 3 sold at 58s 6d; ditto C, 1 sold at 48s; ditto D, 6 sold at 50s; North Matale Ceylon Cocoa C, 36 bags sold at 86s; ditto F & C, 86 out; ditto R, 15 sold at 51s 6d.

"Bingo Maru."—North Matale Ceylon Cocoa F & C, 26 bags out.

"Clan Mackay."—Katugastota, 104 bags out.

"Hakata Maru."—A 1 Yattawatte, 56 bags out; A 2 ditto, 7 sold at 52s; B 1 ditto, 7 out; B 2 ditto, 1 sold at 43s; C 1 ditto, 6 sold at 46s; A Broken, 1 sold at 51s; 1 Kahawatte, 19 bags out; 2 ditto, 2 sold at 49s 6d; 1 Wavena, 22 bags sold at 82s; 2 ditto, 1 sold at 49s 6d; Kepitigalla, 73 bags out; 13 sold at 64s; 13 sold at 50s 6d; 10 sold at 49s; 2 sold at 40s.

"Clan Cameron."—Old Haloya, 28 bags out.

"Kanagawa Maru."—Old Haloya, 20 bags out.

"Clan Maclean."—Old Haloya, 30 bags out.

"Warwickshire."—Lower Haloya, 22 bags out.

Ceylon Produce for week ending 8th May, 1903.

The Bank Rate is 4 per cent and firm thereat. The markets in the Lane are still quiet, but the feeling is better.

Coffee, Pepper and Cotton are dearer.

Ceylon Coffee—59s to 116s. Native 40s to 51s. Stock 669 against 605 last year. The bears talk of 20s for Santos and which is now 27s for March delivery, but the other side say buy in flat markets to which we learn in spite of the figures.

Ceylon Cinchona Bark.—2½d to 7d per lb.

Ceylon Cardamoms—9d to 9¾d per lb.

Ceylon Cocoa 50s to 88s 6d demand irregular.

Ceylon Rubber 3s 3d to 4s 3d. Market strong Supply poor, and badly wanted.

Ceylon Orchella Weed 10s to 13s per cwt.

Plumbago keeps quiet 4s to 34s 6d.

Ceylon Cotton badly wanted. Next American Cotton crop is likely to be injured again by the Mexican Weevil and should help Indian growers of the raw material. Acreage looks the same and fertilisers 11 per cent increase. As America is unable to supply seemingly Lancashire with raw cotton—the only good part left in India: sorts required are white oolor and staple as long as possible. West Indian Cotton is worth 5½d to 6¼d and is a good staple. Africa is too hot to supply big crops. Russia mops up the Asian crop and Persian cotton not liked. The colour of Broach—Tinnevellys, Salems are what is wanted by Europe.

Ceylon Pepper good fair 9¾d done.

Shekls Lingah Ceylon 12s to 21s.

Ceylon Tortoise Shell 17s 6d to 21s 6d.

Good Spot Tinnevelly 5 1-16th to 1-8th d.

Ceylon Cocoa flat 1,000 bags, only sold, out of 2,620 bags at 49s to 89s.

Silver Closes at 24 15-16ths. Transvaal Loan 3 per cent to 1 1-8ths premium. Tone firm.

Cofee March Santos 28s. Tone firmer.